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# ICT INTEGRATION IN SCIENCE, TECHNOLOGY, AND SOCIETY (STS) COURSE

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## ABSTRACT

*This research study explored information and communication technology (ICT) integration of STS teachers in three higher education institutions. The study utilized a descriptive research design. It uses purposive sampling (N=10) in administering the survey questionnaire to Science, Technology and Society (STS) teachers who voluntarily participated from three state universities in region 8. Results revealed that STS teachers consider ICT integration as highly important in their STS classes and a moderate support of the administration regarding ICT implementation in the universities. Further, STS teachers utilize ICT resources, particularly word processing and PowerPoint software in-class instruction. The results of this study indicate that teachers in higher institutions consider ICT integration as highly important in delivering instruction and providing quality education. To attain successful and sustainable implementation, support from the administration is likewise necessary. It is therefore, recommended to have a comprehensive and integrated ICT framework of the university.*

**KEYWORDS:** *communication technology, e-learning, implementation, ICT-based instruction, science education*

## INTRODUCTION

Various literature states the need for educators to integrate information and communication technology into instruction. It is believed to increase students' performance as well as providing pedagogical approaches to teachers. Arshad and Ahmed (2015) chronicled information and communication technology (ICT) as the foundation of the information society, which catalyzes the educational reform, which changes a learner to be a productive worker of knowledge. In support, Salihi (2015) posits that students' interest in science education is analyzed in the context of information and communication technology. Vis-à-vis information and communication technology, Šorgo et al. (2010) point out significant ICT role in schools such as the fulfillment of societal expectation for ICT skills and raising the quality education with the support of ICT. The use of information and communication technology heightens the quality of education by helping teachers perform their duties and the learners to learn effectively (Goktas et al., 2009). In context, the integration of information and communication technology can accelerate, innovate, enrich to encourage, motivate, and deepen students' skills and strengthen teaching (Arshad & Ahmed, 2015). ICT is influential in bringing changes in ways of teaching (Bingimlas, 2009). It eventually provides opportunities for students to learn to operate in an information age (Bingimlas, 2009). Accordingly, Ahmad (2014) added that information and communication technology usage significantly enhances the quality of teaching and students' learning experiences, especially in science subjects.

Particularly, empirical research further acknowledged that integrating information and communication technology (ICT) has an impact on learning and teaching Science (Adeyemo, 2010). Aside from that, the increase of ICT use creates a more student-centered learning environment where students engage more (Laronde et al., 2017).

Consequently, the use of information and communication technology has a significant impact on students learning as well as superiority in science instruction (Adeyemo, 2010; Ahmad, 2014). Ghavifekr et al. (2016) believed that ICT in education has the potential to transfer teaching. Most education experts agreed that information and communication technology hold great promise to improve teaching and learning (Adeyemo, 2010). Subsequently, ICT plays a more significant role in a curriculum emphasizing scientific reasoning and analytical skills (Adeyemo, 2010). Furthermore, with the emerging trend in educational praxis, the most widespread change in the science curriculum is integrating information and communication technology (ICT) in teaching. However, the need for effective ICT integration requires well-trained individuals to use 21st-century technologies (Manzano, 2023). Nonetheless, schools use primary ICT resources to integrate into the teaching-learning process (Alemu, 2015). Typically, teachers utilized ICT equipment for specific tasks such as the use of the world wide web in finding information, the use of PowerPoint presentations and professional graphics software as tools and aids to present complex science concepts, and the use of email to communicate with students about science ideas (Ahmad, 2014; Rabah, 2015;





Raman & Mohamed, 2013). Aside from that, ICT can also provide real-world examples and simulation visual and audio illustrations from a wide range of sources as chronicled by Alkahtani (2017). For this reason, teachers have realized that ICT can potentially intensify the quality of teaching and learning (Kubiatko, 2010). From the above literature, the integration of information and communication technology has a profound benefit and advantages in many facets of the teaching and learning process. Studies were also evident focusing on the strengths of integrating information and communication technology in the context of science education.

Grounding in various literature, this study aimed to assess the degree of information and communication technology integration in in teaching Science, Technology, and Society (STS) Course.

Explicitly, this research project aimed to 1) identify the degree of ICT integration in science classes considering the following factors, such as the importance of ICT integration and administrative support, and 2) identify ICT resources utilized by teachers in instruction.

### Statement of the Problem

The study aimed to assess the degree of information and communication technology integration in in teaching Science, Technology, and Society (STS) Course. Specifically, it sought to answer the following questions:

1. What is the degree of ICT integration in STS class considering the following variables:

- 1.1. importance of ICT integration;
- 1.2. administrative support; and
- 1.3. ICT resources utilized by teachers.

2. What recommendations can be offered based from the result of the study.

## METHODOLOGY

### Research Design

This study specifically employed a quantitative research design in assessing the degree of information and communication technology integration of STS teachers in the use of ICT in instruction. Mainly, this study used the descriptive design to probe the research problem. The use of quantitative design enables the researcher to gather quantitative responses from the respondents regarding information and communication technology integration in their instruction.

### Participants and Sampling Procedure

This study was conducted at the three (3) universities in region 8. Through purposive sampling, the study involved faculty who are teaching Science, Technology and Society (STS) course in the said locale of the study. Ten (10) STS teachers voluntarily participated in the conduct of the survey.

### Instrumentation

A descriptive survey questionnaire about the degree of ICT integration in science classes according to the importance of ICT use, administrative support, ICT resources utilized to enhance science instruction was devised based from literature and studies previously conducted by Bingimlas (2009), Ghavifekr et al. (2016), Goktas et al. (2006, 2009), Meenakshi (2013), Özdemir (2017), Villalba et al. (2017) and Zare-ee (2011). The survey questionnaire is consisting of a 10-point Likert scale of interpretation. To ensure the validity of the items in the questionnaires, a group of experts in science education evaluated its relevance and validity. The modified research instrument has been pilot tested using a different group of respondents in the different university to ensure the reliability of the items using the Cronbach alpha coefficient, having a strong reliability.

### Ethical Consideration

The administration of the survey questionnaires to the respondents was made through the use of informed consent and the willingness of the participants to voluntarily engage in the conduct of this study. "To ensure the safety and rights of the possible participants, informed consent, voluntary participation, rights of participants, anonymity, and confidentiality were considered" (Chigona et al., 2010 cited in Manzano, 2023, p. 150).

### Treatment of Data

Statistical tools utilized in this study include the use of means to assess the degree of importance, administrative support and availability of ICT resources and materials utilized by teachers.

## RESULTS and DISCUSSION

This presents the data gathered, presentation, analyses, and interpretation of the results of this study. This section shows the data and results of the survey on the degree of integration of information and communication technology in STS classes relative to the importance of ICT integration, administrative support, and ICT resources utilized by teachers in STS classes in selected higher education institutions.



**Table 1**  
*Mean Scores of STS Teachers Responses on the Importance of ICT Integration*

Indicators	Mean	Interpretation
1. ICT resources and materials are powerful tools in delivering Science, Technology and Society instruction.	9.60	HI
2. The use of ICT software and hardware in my teaching will increase my efficacy as a science teacher at the university.	9.00	HI
3. PowerPoint presentation, graphics software's, YouTube and other digital resources are significant tools in delivering abstract and complex STS lessons (e.g., biodiversity and healthy society, genetically modified organisms, the Nano world and gene therapy).	9.50	HI
4. The use of ICT is helpful to science teachers to effectively develop instructional material vis-a-vis content and pedagogy to cater to the need of students in specific STS lessons.	9.20	HI
5. The use of ICT resources in teaching selected topics such as biodiversity and healthy society, genetically modified organisms, the Nanoworld and gene therapy helps fast and easy delivery of knowledge than the traditional method and provides students a visual presentation of abstract ideas.	9.50	HI
6. The use of ICT resources provides teachers various pedagogical techniques.	8.80	HI
7. ICT materials can be used as a supplementary curriculum material in enhancing student academic performance particularly in the field of science education.	9.00	HI
8. Through ICT integration, students' technological skills are honed while emphasizing developing their 21 <sup>st</sup> -century skills.	8.90	HI
9. The use of ICT when utilized holistically can improve students learning achievement.	9.20	HI
10. ICT integration in science instruction is important in the development of learners' critical thinking and decision making.	8.50	HI
Total Mean	9.12	HI

Legend: HI = highly important

Presented in table 1 are the mean scores and interpretations of teachers' responses to the importance of ICT integration in STS classes. As shown in the table, the respondents rated the importance of ICT integration as highly important with a grand mean of 9.12. Indicators 1, 2, 3, 4, 5, 7, and 9 were found to be highly important, with obtained mean scores ranging from 9.0 to 9.6, respectively. Indicators 6, 8, and 10 on the use of ICT resources to provide various pedagogical techniques, ICT integration in honing students' technological skills, and the importance of ICT integration in the development of learners' critical thinking and decision making were also rated highly important by the respondents with an obtained mean score of 8.5 to 8.9 respectively.

The results revealed that the respondents' overall rating on this variable shows how information communication and technology are essential in delivering not only STS instruction but also science instruction as a whole. This result may imply that teachers believed that ICT is a powerful tool to be used in instruction. Consequently, it helps increase their efficiency as teachers and, more importantly, the convenience and the advantages of information and communication technology resources brought in the science classroom. The utilization of

PowerPoint presentations, graphics software, and other digital resources and materials is common in the teaching-learning process. Moreover, the data may further indicate that STS teachers believed that the use of information and communication technologies is highly important in improving students learning achievement when utilized holistically. This idea is similar to that of Manzano (2023) in which technology competence boils down to how teachers would help learners hone their skills through technology.

STS teachers find information and communication technology integration as highly important since they understand how important technology in education (Manzano & Reyes, 2020). Though the respondents rated the importance of integration as "highly important" it can be assumed that there is a moderate integration that prevails with the inadequacy of ICT resources. Moderate integration in STS courses means that teachers utilize a moderate number of ICT resources but are not limited to the use of essential computer software and hardware like laptops and projectors.

Generally, the integration of information and communication technology in science and this study--STS instruction is very much necessary provided by various authors in which they admitted that integration of information and



communication technology (ICT) has a positive impact on the teaching-learning process. Therefore, this view on how vital ICT implementation in the educative process is simply one of the demands brought by advances in the educational system as teachers cater to the development of knowledge and skills of individual learners as they become the builder of their knowledge. The high perception of teachers towards the importance of ICT in instruction is an influence on the belief that it will benefit every learner to learn and understand more in the 21st-century teaching process. As such, the need for ICT integration in-class instruction is no longer in doubt, particularly in the field of education, and to be specific in science learning. Alwani and Soomro (2010) opined that ICT is becoming more evident today, especially in the education sector. Adeyemo (2010), on the other hand, stressed that information and communication technology hold great promise to improve teaching and to learn, particularly in the field of science. The role of ICT in science education cannot be over-emphasized as it promotes higher-order thinking, problem-solving, improved communication, and deep understanding (Abdullahi, 2014). Moreover, administrative support is another

variable that influences ICT implementation in higher education institutions. Support through budget allocation for ICT infrastructures, professional development, and other institutional support is necessary for providing sustenance of program implementation.

Table 2 presents the mean score distribution and interpretation of respondents' responses on administrative support towards the successful implementation of technology. The study revealed that with regard to administrative support, the administration is moderately supportive towards ICT implementation in the institution with a composite mean of 6.40. Based on the responses, "The deans and heads of the college require the faculty members to integrate ICT into their science classes" and "The university has budget provisions for ICT implementation" are among the two highest indicators having both a mean score of 7.1, which is interpreted as moderately supportive. Statements 5, 6, and 8 were found to have a slightly supportive administration, obtaining a mean score ranging from 5.5 to 5.9 correspondingly.

**Table 2**  
***Mean Scores of STS Teachers Responses on Administrative Support***

Indicators	Mean	Interpretation
1. The college deans and program heads support and encourages science teachers to attend ICT related professional development training.	6.80	MS
2. The college is supportive in establishing ICT framework to effective ICT integration.	6.80	MS
3. The deans and heads of the college require the faculty members to integrate ICT into their science classes.	7.10	MS
4. The university has budget provisions for ICT infrastructures both hardware and software to support ICT implementation.	7.10	MS
5. There is a well- established scheduling system in distributing class schedules provided by the administration to prepare ICT materials effectively.	5.90	SS
6. There are a well-equipped computer laboratory and available ICT resources in the classroom to support e-learning activities	5.80	SS
7. There is a defined university-wide if not a college-based ICT integration program to support ICT based learning of students' 21st-century skills, particularly in science education.	6.20	MS
8. In support, there is a periodic observation of faculty in the use of ICT resources to ensure successful implementation.	5.50	SS
Total Mean	6.40	MS

Legend: SS = slightly supportive; MS = moderately supportive

The composite mean score rating indicates that the administration is moderately supportive when it comes to ICT implementation. However, despite the claim of STS teachers where ICT is highly important in science classes, moderate integration of information and communication technologies in instruction is provided. Teachers considers the use of ICT as highly important due to its given advantages; however, moderate support is extended by the schools' administration, which affects the implementation process. This results in moderate integration and utilization of

ICT in their instruction. Furthermore, results imply the need to establish an ICT framework and a development plan on ICT implementation as far as the findings are concerned. It can be deduced from the results that gearing toward a scientific and technologically literate learner, supervisory plans of deans and program heads may also tailor the inclusion of ICT integration in every class instruction. The degree of administrative support received by teachers likewise impacts the implementation of information and communication technology and the capability of



STS teachers to use their knowledge in terms of technology, pedagogy, and content. Accordingly, support is needed as every institution gear towards globalization, promotes sound science education in the country, and develops the 21st-century skills of the learners.

Administrative support is a provision given by the school officials and administrators to provide sustenance to achieve specific goals and objectives of the institution. As Manzano and

Magalona (2023) uttered that practical training may enhance the professional competence of teachers. This support may be in the form of budget allocation, resources, and another supervisory implementation to attain effective and sustainable implementation. Ghavifekr et al. (2014) chronicled that some schools lack a clear vision and mission in using ICT integration and motivating teachers to integrate technology in their respective classes.

**Table 3**  
**Mean Score of STS Teachers Responses on ICT Resources Utilized**

Indicators	Mean	Interpretation
1. I use word processing in presenting STS lessons through the use of case studies, journal critique, and visualization.	8.1	MU
2. I use PowerPoint presentation in delivering STS lessons particularly in topics, e.g., biodiversity and healthy society, genetically modified organisms, the Nano world and gene therapy.	8.6	HU
3. I use email to communicate STS related activities and ideas to my students for reading and enrichment activities.	7.4	MU
4. Social networking sites (Facebook, Twitter, etc.) used for posting articles related to STS content ideas for online supplementary reading.	6.6	MU
5. I use a course management system (Moodle, Edmodo, etc.) in delivering STS instruction.	4.8	SU
6. Laptop or Desktop, printer, projector, and smart TV are some of the media used in delivering instruction.	9.0	HU
7. YouTube (Videos and Music) are utilized to supplement the discussion of topics needing visual texture such as genetically modified organisms, the Nanoworld and gene therapy.	7.8	MU
Total Mean	7.42	MU

Legend: HU = highly utilized; MU = moderately utilized; SU = slightly utilized

ICT resources utilized by teachers is another significant indicator of the successful implementation of technology in the academe. These determined resources and materials commonly utilized by the respondents in delivering and enhancing instruction.

Table 3 presents the ICT resources commonly utilized by teachers when delivering instruction in their respective STS courses. The study revealed that these resources are moderately utilized with a total mean of 7.42. As gleaned from the responses, the highly utilized resources are laptops or desktop, printer, smart TV, and other medium used in delivering instruction got the highest mean of 9.0. However, the use of word processing in presenting STS lessons and the use of email to communicate STS-related activities are moderately utilized by teachers with an obtained mean of 8.1 and 7.4, respectively. On the other hand, teachers' highly utilized PowerPoint presentation software with an obtained mean of 8.6. Moreover, the use of course and learning management systems (e.g., Moodle, Edmodo) in delivering instruction established as slightly utilized with a mean of 4.8.

The data showed that word processing software and PowerPoint presentation software are the typical resources used in delivering instruction, while the majority of the respondents commented that they slightly utilized the use of a course management system in their respective classes. Such findings

may imply that teachers are knowledgeable in the use of basic computer fundamentals and manipulation. With this, they need further professional development and adopt changes in their instruction, particularly in the use of course management systems (CMS) as part of the delivery mode of instruction. In addition, teachers may further adapt themselves to the use of these resources, possibly in delivering instruction through the e-learning platform.

The utilization of information and communication technologies in the classroom is a new trend in a twenty-first-century classroom. The use of such technology can strengthen learners' academic performance. Thus, in this study, STS teachers integrate ICT into their teaching for a specific purpose depending on the lesson or subject matter. These findings on the resources utilized by teachers corroborate the findings on the importance of ICT. Teachers consider ICT integration as highly important. Thus, utilization of ICT resources in instruction such as word processing and PowerPoint software is prevalent even there is moderate administrative support as revealed in the previous objectives.

Furthermore, this result presents the relationship of the extent of ICT utilization in STS instruction. Evidently, there is moderate use of ICT resources in delivering selected lessons in





the STS course, such as videos, PowerPoint presentations, documentary analysis. Moreover, online learning material can also be used through a learning management system (Manzano, 2023).

The findings of this study corroborate with the previous research of Ahmad (2014), in which the least ICT resources teachers could employ is PowerPoint in the explication of complex concepts; when they experienced difficulty in teaching some concepts in the subject area (Manzano, 2022). Further, Ahmad (2014), Rabah (2015) and Raman and Mohamed (2013) posited that teachers use ICT equipment for specific tasks such as the use of the world wide web in finding information, the use of PowerPoint presentations, and professional graphics software as tools and aids to present complex science concepts, and the use of email to communicate with students about science idea. Kubiato (2010), concluded that ICT can potentially intensify the quality of teaching and learning. Moreover, in the study of Kihosa et al. (2016), it was suggested that tutors [teachers] have to be equipped with ICT skills and competence in order to be on a par with teacher trainees' prerequisites before they can go to their fields of work. Ahmad (2014) asserted that "science teachers reported not using ICT at all in their science classes" Ghavifekr et al. (2014) also found out that ICT resources or applications such as the internet, multimedia, projector system, PowerPoint presentation, and word processor are more likely utilized by teachers in the teaching and learning process.

## CONCLUSION

The results of this study indicate that teachers in higher institutions consider ICT integration as highly important in delivering instruction and providing quality education. To attain successful and sustainable implementation, support from the administration is likewise necessary. Despite the advantages ICT resources can offer in the educative process, teachers have experienced several barriers that impede successful ICT integration such as lack of in-service, lack of ICT infrastructures, and poor internet access. Due to this inadequacy, teachers were able to utilize primary ICT resources in delivering instruction.

## Recommendation

It is therefore, recommended to have a comprehensive and integrated ICT framework of the university. Universities are encouraged to provide provisions on ICT-based instruction by utilizing online or e-learning platforms as a modality in delivering science or selected science instruction.

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# SEMANTICAL AND STYLISTICAL PECULIARITIES OF PARTICLES IN KARAKALPAK LANGUAGE

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## ABSTRACT

*This article focuses on examining the semantics and stylistics of particles in the Karakalpak language, a Turkic language primarily spoken in Karakalpakstan. Particles play a crucial role in shaping the meaning and expression of sentences in any language, and this study aims to shed light on their significance within the specific linguistic context of Karakalpak. The article explores the semantic properties of particles in the Karakalpak language, investigating their individual meanings, functions, and roles within sentence structures. It examines how particles contribute to the formation of different linguistic categories, such as aspect, tense, modality, and negation. By delving into the nuances of particle usage, the study aims to provide a comprehensive understanding of their semantic contributions and the implications for overall sentence meaning.*

**KEY WORDS:** *semantical, stylistical, particles, Karakalpak language, linguistic structure.*

## INTRODUCTION

This research investigates the stylistic aspects of particles in the Karakalpak language. It explores how particles influence the tone, formality, register, and rhetorical style of communication in different contexts. The study delves into the pragmatic implications of particle usage, examining how certain particles contribute to politeness strategies, emphasis, or the expression of social relationships. By combining semantic and stylistic analyses, this study aims to offer a comprehensive overview of the role and significance of particles in the Karakalpak language. The findings of this research have the potential to enhance our understanding of the linguistic structure of Karakalpak and contribute to broader discussions on Turkic languages. The results may also have practical applications in language preservation, language teaching, and cross-cultural communication in the Karakalpakstan region. In today's era of globalization, it is natural for every nation, any state to create its own national maps, and to pay special attention to the development of its own culture, national abilities, especially the mother tongue [1]. During the years of nationalism, the Uzbeks, who were struggling in all aspects of our country's life, contributed to the development of our mother tongue, our national talents, and the preservation of our customs and traditions.

Particles are a crucial component of language, playing a significant role in conveying meaning and adding nuances to communication. However, particles are often overlooked in linguistic studies, particularly in less widely spoken languages like Karakalpak. By analyzing the stylistic and semantical features of particles in Karakalpak, this research aims to contribute to a better understanding of their functions and usage in the language. The study will employ a descriptive and

analytical approach, utilizing data collected from authentic linguistic sources.

## LITERATURE REVIEW

Particle theory is a linguistic framework that investigates the role and behavior of particles in a given language. In this analysis, we will explore the theoretical basis of particles in the Karakalpak language. Understanding the theoretical foundations of particles in this language can shed light on their syntactic, semantic, and pragmatic functions within the Karakalpak linguistic system. This literature review focuses on the Karakalpak language, which belongs to the Turkic language family.

Functions and Classification of Particles in Karakalpak: A fundamental aspect of studying particles is understanding their functions and classifications within a language. Research by Karakalpak linguists, such as R.T. Akhmedova and A.S. Mamyrbayeva, explores the diverse functions of particles in the Karakalpak language [2]. They classify particles based on their grammatical and semantic roles, including adverbial, modal, emphatic, and connective particles. This classification provides a comprehensive framework for understanding the various functions of particles in Karakalpak.

Today, the human factor, language and speech skills are becoming more and more popular in world language education, and service learning in the interaction process of language units has become an important issue. The relationship between speech act and speech is of particular importance in defining the linguistic units of production, and in describing the communicative-pragmatic and stylistic differences. In the Karakalpak language, the researches related to speech work have played a special role in the development of



communicative syntax, psycholinguistics, linguopoetics, text linguistics, and stylistics, as well as in solving a number of problems. In modern linguistics, as a result of the study of the language system according to the principles of the anthropocentric paradigm, it is necessary to pay attention to the practical (functionality) meaning of the language - it should be studied using new scientific-theoretical methods. It is of great importance to “revitalize” the interaction process in the “Speech-context-listening” factor, and to influence the human psyche in the pragmatic aspect.

## RESEARCH METHODOLOGY

The stylistic and semantical peculiarities of particles in the Karakalpak language offer valuable insights into the linguistic nuances and cultural aspects of this Turkic language spoken in Uzbekistan. Particles in Karakalpak play a crucial role in sentence structure, conveying various grammatical and pragmatic functions. In this discussion, we will explore some notable features of particles in the Karakalpak language. Firstly, particles in Karakalpak exhibit a wide range of semantic functions. They can function as adverbs, conjunctions, interjections, and markers of tense, aspect, or mood. For example, the particle “bol” is used to indicate futurity in the present tense. This highlights the importance of particles in expressing temporal and modal distinctions in Karakalpak.

Furthermore, particles in Karakalpak contribute significantly to the expressive and rhetorical aspects of the language. They add emotional and emphatic elements to the discourse, enabling speakers to convey their attitudes, intentions, and levels of certainty. The particle “ge” is a prime example of such usage. It is employed to emphasize a particular aspect of the sentence or to express surprise or astonishment. Another noteworthy aspect of particles in Karakalpak is their role in sentence negation. Syntactic Functions: Particles in Karakalpak play crucial syntactic roles by modifying and enriching the structure of sentences. They function as functional words and exhibit a wide range of grammatical functions, such as marking case, aspect, modality, direction, and more. Semantic Functions: Particles in Karakalpak also contribute to the semantic content of sentences by conveying specific meanings or nuances. They often serve as adverbs or adverbial particles, modifying the verbs they are associated with. For instance, the particle “onda, sonda” is used to express a temporal adverbial meaning “then” or “at that time”. Pragmatic Functions: Particles in Karakalpak also play a crucial role in expressing pragmatic functions. They are employed to convey attitudes, intentions, politeness, and other pragmatic aspects of communication.

Interaction with Other Language Components: Particles in the Karakalpak language interact with various components of the language, such as nouns, verbs, adjectives, and adverbs. They can modify these components or be modified by them, resulting in various semantic and syntactic changes. Additionally, particles often combine with other particles or affixes to form complex structures, providing a rich expressive potential in the language.

## RESULTS AND DISCUSSION

Particles play a crucial role in language, contributing to the formation of meaning, expressing grammatical

relationships, and adding nuances of style. The study examines various scholarly works, research papers, and linguistic studies to shed light on the unique characteristics and functions of particles in the Karakalpak language. The review highlights the significance of particles in the language and their impact on the overall linguistic structure. Particles are essential components of any language, and their analysis is crucial to understanding the intricacies of a particular language system.

Stylistic Peculiarities of Particles in Karakalpak: The Karakalpak language exhibits several stylistic peculiarities related to the use of particles. Studies by N.B.Suleymanova and D.B.Dawletov highlight the impact of particles on expressing politeness, formality, and emotional nuances in Karakalpak discourse [5]. These particles contribute to the overall style and register of the language, allowing speakers to convey their intentions and attitudes effectively. Semantic Peculiarities of Particles in Karakalpak: The semantic analysis of particles in the Karakalpak language is a subject of interest among linguists. Researchers such as S.K.Ilyasova and G.M. Ibadullaeva investigate the semantic properties of particles, exploring their ability to express various aspects of meaning, such as negation, affirmation, doubt, and conditionality [3, 6]. These studies contribute to a deeper understanding of how particles shape the semantic structure of Karakalpak.

Cross-linguistic Perspectives on Karakalpak Particles: In addition to the indigenous research on Karakalpak particles, cross-linguistic studies offer valuable insights. Comparative analyses of particles in Turkic languages, such as Kazakh, Uzbek, and Turkish, provide a broader context for understanding the peculiarities of Karakalpak particles. Studies by H.B. Pak, T. Gürel, and G. Özyürek explore the similarities and differences in particle usage across these languages, facilitating a comparative analysis and shedding light on unique features of the Karakalpak language [7, 8].

In particular, the works of researchers on learning the wide possibilities of our native language were implemented, and research in the fields of linguoculturology, linguopoetics, psycholinguistics, computer linguistics, and pragmalinguistics was developed based on the experiences of world language knowledge. Language is a means of communication between people, and it is also a means of communication between people, events, and society. Particles served a special purpose in conveying that the subject of speech should be related to the environment. It determines the significance of specific scientific-theoretical questions based on the semantic and stylistic differences of the slang, their functions in the speech movement.

The position of particles within the sentence structure is another intriguing aspect. Karakalpak exhibits a predominantly postpositional structure, where particles are placed after the words they modify. However, there are exceptions to this rule, particularly with emphatic particles and interjections, which can occur in the initial position for added emphasis or dramatic effect. Understanding the specific placement of particles is crucial for comprehending the intended meaning in Karakalpak sentences.



## CONCLUSION

The stylistic and semantical peculiarities of particles in the Karakalpak language contribute to its rich linguistic landscape. These particles fulfill diverse functions, ranging from expressing temporal and modal distinctions to conveying emotions and rhetorical nuances. Furthermore, particles play a significant role in forming negations and are positioned in various ways within sentence structures. Exploring the intricacies of particles in Karakalpak enhances our understanding of the language and its unique cultural context. The theoretical basis of particles in the Karakalpak language reveals their significance in syntactic, semantic, and pragmatic functions. They enhance the grammatical structure, contribute to the meaning of sentences, and shape the pragmatic aspects of communication. Understanding the theoretical foundations of particles in Karakalpak provides valuable insights into the language's structure, allowing for a more comprehensive analysis of its linguistic system. The review highlights the contributions of indigenous Karakalpak linguists, as well as cross-linguistic studies, in understanding the unique characteristics of Karakalpak particles. Further research is necessary to delve deeper into the intricate details of particles and their usage within the Karakalpak language. Also, research and investigation into the specific properties and behaviors of particles in Karakalpak can lead to a deeper understanding of this unique Turkic language.

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# ISANG PAGSASALIN AT PAGSUSURI SA MGA PILING MAIKLING KUWENTO

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## ABSTRAK

*Ang pananaliksik na ito ay tungkol sa pagsasalin at pagsusuri sa labinlimang (15) maikling kuwentong hinango sa Philippine Literature. Sa kabuuan ay nilayong tugunan ng pag-aaral na ito ang mga sumusunod: Ang kahusayan ng pagkakasalin ng mga maikling kwento batay sa tuntuning panretorika, kawastuhang panggramatika, gamit ng matatalinhagang pananalita, kalinawan ng salita at katangiang pampanitikan. Ang kaangkupan naman ng pagkakasalin ay ibinatay sa tema, damdamin, kayarian at kaisipan. Pagkatapos maisalin ay sinuri rin ng mananaliksik ang mga maikling kuwento upang makita ang teoryang higit na nangibabaw sa bawat akda.*

*Komunikatibong salin batay sa dayagram ni Newmark ang paraang ginamit at ang naging patnubay ay ang mga hakbang sa pagsasalin na iminungkahi ni Santiago (1991). Ang ginamit na metodo sa pag-aaral ay palarawang pagsusuri (descriptive-analytic). Sa pamamagitan ng talatanungang ibinatay sa ginamit nina Cabra, Sustento at Cabiling, limang tagataya ang tumiyak ng kahusayan at kaangkupan ng salin na isinagawa ng mananaliksik.*

*Batay sa kinalabasan ng pagtataya, ipinahayag ng mga tagahatol na Napakahusay ng ginawang pagsasalin sa pangkabuuang katamtamang tuos na 4.52 at Napakaangkop din ng pagsasalin na mga maikling kwento na may pangkabuuang katampatang tuos na 4.62. Sa pangkabuuang pinagsamang tuos na 4.58 naipakita na taglay ng mga maikling kwento na Napakahusay/Napakaangkop ng pagkakasalin ng mga ito. Sa pagsusuring ginawa, ay nangibabaw ang teoryang humanismo, romantismo, feminismo at siko-analitiko ng mga maikling kuwento. Sa pamamagitan din ng teoryang istrukturalismo ay naipakita ang kaangkupan ng wikang ginamit sa pagsasalin.*

*Sa kabuuan, mahalaga ang pag-aaral na ito upang madagdagan ang kakulangan ng mga babasahing nauugnay sa pagsasalin at pagsusuri ng mga akdang pampanitikan. Maaari rin itong mapaghatayan ng mga mag-aaral sa kanilang mga suring-basa upang higit na malinang sa kanila ang mataas na kakayahan sa pang-unawa ng kontekstwal na kahulugan ng mga babasahin.*

**MGA SUSING SALITA:** pagsasalin, pagsusuri, komunikatibong salin, kahusayan, kaangkupan, teoryang pampanitikan

## PANIMULA

Ang panitikan ay ang kapatid na babae ng kasaysayan, at ang kasaysayan ay naitatala sa pamamagitan ng mga akdang pampanitikan upang maging lagusan, imbakan at taguan ng anumang mahahalagang pangyayari ng isang bansa. Sa madaling sabi, kailanma'y hindi mahihiwalay ang wika at panitikan sapagkat ang una ang nagsisilbing daluyan upang maipakita ang yamang mayroon ang isang panitikan.

Bilang mga bansang nasa iisang angkan ng mga pamilya ng wika sa buong kapuluan marapat lamang na maging bukas ang ating isip na makilala rin ang kultura, paniniwala, sistema ng pamumuhay, gawi at maging ang kaasalan ng ating mga karatig-bayan na ipinakikita sa likod ng kanilang mga panitikan tulad ng maikling kuwento. Kaya naman malaki ang ginagampanan ng pagsasaling-wika upang manatiling buhay ang anumang akdang pampanitikan na nasusulat sa kahit na anong wika. Hindi lamang ang panitikan ang maaaring payabugin ng pagsasalin bagkus ay mas napapaunlad pa nito ang paggamit ng wika na higit na nauunawaan ng mga tao sa iba't ibang panig ng

mundo. Sa Pilipinas ay kinalugdan nang labis ang pagsasalin ng mga panitikan mula sa Ingles bilang linggwa franka ng kapuluan tungo sa wikang Filipino o kaya naman ay simula Filipino tungo sa Ingles.

Kasintanda ng limbag na panitikan ng Pilipinas ang pagsasalin. Ang unang aklat, ang *Doctrina Christiana* (1593) ay salin ng mga pangunahing basal at tuntunin ng simbahang Katoliko na kailangan sa pagpapalaganap ng Kristiyanismo sa bagong sakop na kapuluan. Ang layunin ng mga misyonerong Kastila sa paglilimbag ng naturang libro ay hindi nalalayo sa sinasabi ni Theodore H. Savory sa unibersal na gawain ng pagsasalin. "Sa lahat ng panahon at sa lahat ng dako, isinagawa ang mga salin alang-alang sa mga dalisay na layuning utilityo at walang ibang nasa ang tagasalin maliban sa pag-aalis ng hadlang na naghihiwalay, dahil sa pagkakaiba ng mga wika sa manunulat at sa mambabasa" (Almario, 1996).

Malaki ang naging tungkulin ng pagsasalin sa paglilipat at palitan ng kultura't kaalaman sa buong mundo. Kung ang pagkaimbento ng papel ay napakahalaga sa lansakan at





matagalang pag-imbak ng matatayog na karunungan at dakilang panitikan, ang pagsasalin naman ang naging mabisang kasangkapan sa pagkakalat at pagtanggap ng mga naturang pamana ng sibilisasyon sa iba't ibang lugar sa buong mundo. Pasalita man o pasulat, laging kailangan ang pagsasalin sa anumang pananakop at pagpapairal ng kapangyarihang pampolitika sa ibang nasyon gayundin sa ugnayang pangkomersiyong ng dalawa o higit pang bansa.

Sa kabila ng mga tagumpay bilang tagasalin, nawika ni Gregory Rabassa, “hindi kailanman mapantayan ng salin ang orihinal.” Hindi sinasadya, naungkat niya ang matandang kawikaang Italyano: *traduttore traditore*. Ang pagsasalin ay isang pagtataksil, na tinumbasan ni Almario (1989) ang paglalaro sa salitang “tagasalin, salarin.” Ang nabanggit na kawikaang Italyano ay maaaring bunga ng isang nakaraang panahon. Ngunit sa kasalukuyang panahon ng komunikasyong pandaigdig, napakahalaga ng pagsasalin para sa mabilisan at wastong pagpapaabot ng isang mensahe tungo sa iba't ibang dako ng mundo. Sa halip na pagtataksil sinasabi nga ng ilan ngayon na ang pagsasalin ay isang pagliligtas. Dahil sa salin ay nagkakaroon ng higit na mahabang buhay ang orihinal sa kaso ng luma't nakalimutan nang dokumento o dili kaya'y nakarating sa higit na malaking lipunan ng mambabasa, sa kaso ng mula sa isang wikang may limitadong tagapagsalita (Almario, 1996).

Sa pagsasalin ng mga akdang pampanitikan, isang daigdig na napakalawak ang mabubuksan sa higit na nakararaming tao lalong-lalo na sa mga mag-aaral na nagiging daluyan ng pagkatuto sa paglilipat ng kaalaman. Bagama't ideyal ang magsalin mula sa wikang ginamit mismo ng awtor ay hindi mapasusubaliang magbibigay ng malaking gampanin ang pagsasaling-wika sa larangan ng pagsulat at pagpapanatili ng ugnayang pansosyo-ekonomiko at pang-akademiko. Ito rin ay makatutugon sa pagpapaunlad ng mga kagamitang pampagkatuto na walang balakid na mangyayari sa pagitan ng wika at ng impormasyong ipinapabatid.

Sang-ayon sa Seksyon 6, Artikulo XIV ng saligang-batas:

*Ang wikang pambansa ng Pilipinas ay Filipino. Samantalang nalilintang, ito ay dapat payabugin at pagyamanin pa salig sa umiiral na mga wikang Filipino at iba pang mga wika.*

Ipinahihiwatig sa gawaing “payabugin at pagyamanin pa” ang wikang Filipino ang tungkuling patnubayan ang nagaganap at magaganap pang malawakang pagsasalin. Kailangang maisalin sa wikang pambansa ang mga dokumentong pangkasaysayang nakasulat sa mga umiiral na wika. Kailangan ding maisalin sa Filipino ang mga literatura ng bawat rehiyon ng bansa at ng buong mundo. Higit sa lahat, kailangang maisalin sa Filipino ang mga literaturang bunga ng mga katutubong wika sa buong bansa.

Ang kultura at panitikan ay nagbabago dahil sa iba't ibang salik. Bago tuluyang magbago at mawala, mas makabubuti kung ito'y matipon sa isang anyong pangmatagalan. Ang isinagawang pagsasalin at pagsusuri ng mananaliksik ay maaaring taga-ingat ng isang kayamanang pangkasaysayan at ng kagalingan sa nakaraan para sa darating na salinlahi upang mapahalagahan ang kanilang pinag-ugatan.

Upang maisakatuparan ang ganitong pagpapahalaga ay higit na kailangan ang kalipunan ng mga babasahing magiging batayan sa pagkatuto at pag-unawa ng mga mag-aaral na silang daluyan ng mga usaping pangwika at pampanitikan. Layunin ng pag-aaral na mapunan o dili kaya'y maragdagan ang kakulangan sa mga babasahin at akdang pampanitikan. Magagamit ng mga guro sa panitikan at ng mga mag-aaral ang mga saling ito bilang mga pantulong na babasahin sa mga kaugnay na asignatura: Panitikang Panrehiyon, Panunuring Pampanitikan, Pagtuturo at Pagtataya ng Panitikan at iba pang kaugnay na aralin sa panitikan.

Ang paunang pagsusuri sa mga piling maikling kwento ay maaari ring maging gabay ng mga mag-aaral sa mga isasagawang suring-basa ng anumang akdang pampanitikan. Ang kalipunang ito ay magiging mabisang kagamitan sa mas malalim na pagtalakay ng mga katha. Mag-uudyok din ito sa mga mag-aaral na lalong pataasin ang kanilang kritikal na kakayahan sa pagdukul ng kaalaman, diwa at kaisipang nakapaloob sa mga akdang pampanitikan.

Kaya, ang mananaliksik ay naglayong magsalin ng mga maikling kwento ng mga manunulat na Pilipino sa Ingles mula sa Philippine Literature upang mapunan ang kakulangan ng mga lunsarang tekstong mapagbabatayan ng mga mag-aaral na kumukuha ng kursong pampanitikan lalo na ng mga mag-aaral na nagpapakadalubhasa sa Filipino sa antas tersyarya.

Isang ambag rin ang pag-aaral na ito sa paglinang at pagpapayaman ng wikang Filipino bilang wikang pambansa.

## PAGLALAHAD NG LAYUNIN

Ang layunin ng pag-aaral na ito ay para isalin sa Filipino at suriin ang mga piling maikling kuwento na hinango sa Philippine Literature.

Ito ay naglayong matugunan ang mga sumusunod na suliranin.

1. Matukoy ang kahusayan ng pagsasalin ng mga piling maikling kuwento batay sa:
  - 1.1 tuntuning panretorika
  - 1.2 kawastuhang panggramatika
  - 1.3 gamit ng matalinhagang pananalita
  - 1.4 kalinawan ng salita
  - 1.5 katangiang pampanitikan?
2. Matukoy ang kaangkupan ng pagsasalin ng mga maikling kuwento batay sa tema, damdamin, kayarian at kaisipan.
3. Mailahad ang mga teoryang pampanitikan ang nangibabaw sa bawat maikling kuwentong sinuri.
4. Mailahad ang implikasyon ng ginawang pag-aaral sa pagkatuto ng mga mag-aaral ng wika at panitikan.

## SAKLAW AT DELIMITASYON NG PAG-AARAL

Ang pag-aaral na ito ay sumasaklaw sa pagsasalin at pagsusuri ng labinlimang (15) piling maikling kuwento na mga manunulat sa Ingles ng Philippine Literature (Saymo, et al. 2004). Ang mga piling maikling kuwento ay nakasulat sa wikang Ingles bilang simulaang lengguwahe at isinalin sa



Filipino na siya namang tunguhang lengguwahe ng kasalukuyang pag-aaral.

Komunikatibong salin batay sa dayagram ni Newmark ang paraang ginamit ng mananaliksik na kung saan tinangkang maisalin ang eksaktong kontekstwal na kahulugan ng orihinal sa wikang katanggap-tanggap at madaling maunawaan ng mambabasa. Ang mga hakbang sa pagsasalin na iminungkahi ni Alfonso O. Santiago ang sinunod ng mananaliksik upang maisakatuparan ang ginawang pagsasalin. Ang kahusayan ng ginawang pagsasalin ay batay sa mga tuntuning panretorika, kawastuhang panggramatika, gamit ng matatalinhagang pananalita, kalinawan ng salita at katangiang pampanitikan. Ang kaangkupan naman ng pagsasalin ay batay sa tema, kaisipan, kayarian, at damdamin ng maikling kuwento. Teoryang Feminismo, Humanismo, Romantisismo at Siko-Analitiko ang

mga dulong pampanitikang ginamit upang masuri ang bawat maikling maikling kuwento. Sa pagsusuring pangwika ay ginamit naman ang Teoryang Istrukturalismo upang maipakita ang kayarian, kaanyuaan at balangkas ng mga salita, parirala at pangungusap sa ginawang pagsasalin.

Gumamit ang mananaliksik ng isang talatanungang ibinatay sa ginamit nina Cabra, Sustento at Cabiling sa kanilang pananaliksik at nagkaroon lamang ng kaunting modipikasyon. Sa pagtataya ng kaangkupan at kahusayan ng mga saling maikling kuwento ay kumuha ang mananaliksik ng tatlong guro ng Filipino at dalawang guro ng Ingles na nagtuturo ng Philippine Literature.

Narito ang labinlimang piling (15) maikling kuwentong hinango sa Philippine Literature (Saymo, et al. 2004):

Pamagat	May-akda
A House Full of Daughters	Kerima P. Tuvera
A Night in the Hills	Pas Marquez Benitez
Heart of Summer	Jose Iñigo Homer L. Ayala III
It Rained Saturday Afternoon	Antonio S. Gabila
People of Consequence	Innes Taccad Cammayo
Servant Girl	Estrella D. Alfon
The Beetle	Consortio Borje
The Black Monkey	Edith L. Tiempo
The Dog Eaters	Leoncio P. Deriada
The Flowers of May	Francisco Arcellana
The Other Woman	Virgilio R. Samonte
The Quarrel	Andres Cristobal Cruz
The Small Key	Paz M. Latorena
The Transfer	Bienvenido N. Santos
Two Brothers	Rony V. Diaz

### Batayang Teorya ng Pag-aaral Teorya sa Pagsasalin

Pagbabatayang teorya sa pagsasaling ito ay ang teorya ni Alfonso O. Santiago. Ayon sa kanya, "Ang pagsasalin ay ang paglilipat sa pinagsasalinang wika ng pinakamalapit na katumbas na diwa o mensaheng isinasaad sa wikang isinasalin. Idinagdag pa niya na tungkulin ng isang tagapagsalin na ilipat sa pinagsasalinang wika ang anumang diwa o mensahe buhat sa isinasaling wika. Ang pagdaragdag, pagbabawas, pagpapalit o pagbabago sa orihinal na diwa ng isinasalin ng walang kadahilanan ay maituturing na paglabag na sa tungkulin ng tagapagsalin. Kailangan na maiparating ng tagasalin sa bumabasa ang diwang ibig ipahatid ng awtor sa pamamagitan ng paggamit ng angkop na mga salita at istilo o paraan ng isang tagasalin, kung gagamit ng maling salita ay para na ring gumagamit ng maling kulay o maling guhit at ang pagkakamali raw sa dimensyon, sukat at proporsyon ng alinmang bahagi ng katawag iginuhit ng isang pintor ay katumbas ng pagkakamali sa pagbibigay-kahulugan sa tunay na diwa ng pangungusap.

Batay sa pahayag na ito ni Santiago mabubuo ang isang konklusyon na ang pagsasalin ay isang sining. Subalit sa makabagong tagasalin, dugtong pa ni Santiago, ang mahalaga sa lahat ay ang reaksiyon ng babasa sa orihinal na teksto at ito ang

nais isakatuparan ng mananaliksik sa pagsasaling kanyang isinagawa.

Ang kahulugan ng pagsasalin ay ibinatay sa mga tuntuning panretorika, kawastuhang panggramatika, paggamit ng matatalinhagang pananalita, kalinawan ng salita at mga katangiang pampanitikan, samantalang ang kaangkupan naman ng pagsasalin ay ibinatay sa tema, kaisipan, kayarian at damdamin.

### Teorya sa Pagsusuri

Ang pagsusuri ay hindi pamimintas sapagkat ang pamimintas ay paninira at ang pagsusuri ay pagbubuo sapagkat ito'y hindi lamang tumutukoy sa kahinaan o kaukulan sa isang akda kundi sa mga positibong katangian o mabubuting aspekto rin naman nito. Layunin nito na maipakita ang kahalagahan ng isang sining, ayon sa kagandahan at kapintasan nito. Ayon kina Mabanglo at Baltazar (1979), ang pagsusuri ay isang masusing pag-aaral na may layuning mabuo at maitaas ang uri ng panitikan sa kapakanan ng mambabasa, ng manunulat at ng sining. Ito'y isang gawaing pagsukat o pagtaya sa nilalaman ng panitikan ayon sa isinasaad ng mabuting panlasa at ng mga simulaing pansining. May mga panunuring pampanitikan sa wikang banyaga at ilan sa mga manunuri sa wikang Ingles ay nagbigay ng katuturan ng pagsusuri. Isinulat ni Richards na,



“Ang isang likhang sining ay nararapat hatulan alinsunod sa kahalagahan ng inihandang karanasang pangkaisipan at sa bisa ng pagkakatulad sa nasabing karanasan.” Magagawang isang mabisa ang pagtalakay sa isang sinusuring akda kung mailalahad ang tagumpay ng teoryang pampanitikang ginamit. Isang uri ng tagumpay ang hatid ay kaalaman at kasiyahan, na siyang tanging layunin sa pagtuturo ng panitikan.

Narito ang mga pagbabatayang teorya sa pagsusuri ng mga maikling kwento:

**Feminismo.** Isang doktrinang sosyo-pulitikal at panitikang nagpapanukala ng pagkakapantay-pantay sa karapatan ng mga lalaki at babae. Ang mga pangunahing tauhan ay babae. Pinaniniwalaan sa teoryang ito ang sistemang pangkababaihan ang mga indibidwal na di-kapantay na kalalakihan gaya ng nais patunayan sa kilusang itinatag ni Simone de Beauvoir na sinusugan naman ni Virginia Woolf (Sali-ot, et al. 2010).

**Humanismo.** Sumibol sa Panahon ng Muling Pagsilang, ang pokus ng teoryang ito ay ang itinuturing na sibilisado ang mga taong nakatuntong ng pag-aaral at kumikilala sa kultura. Tinatawag na humanismo at lumilinaang ito sa tao. Labis na pinaniniwalaan ng mga humanismo ang tao bilang sukatan ng lahat ng bagay kung kaya’t mahalagang maipagkaloob sa kanya ang kalayaan sa pagpapasya.

**Romantisismo.** Ito ay kinalabasan ng rebolusyong Francia, sumusuway sa ideyal na klasismo at pinaghahari ang pagkakaroon ng emosyon at hindi ng katwiran ng isang tao. Ayon sa mga romantisista, ang inspirasyon at imahinasyon ay natatanging instrument ng mga romantiko para matuklasan ang

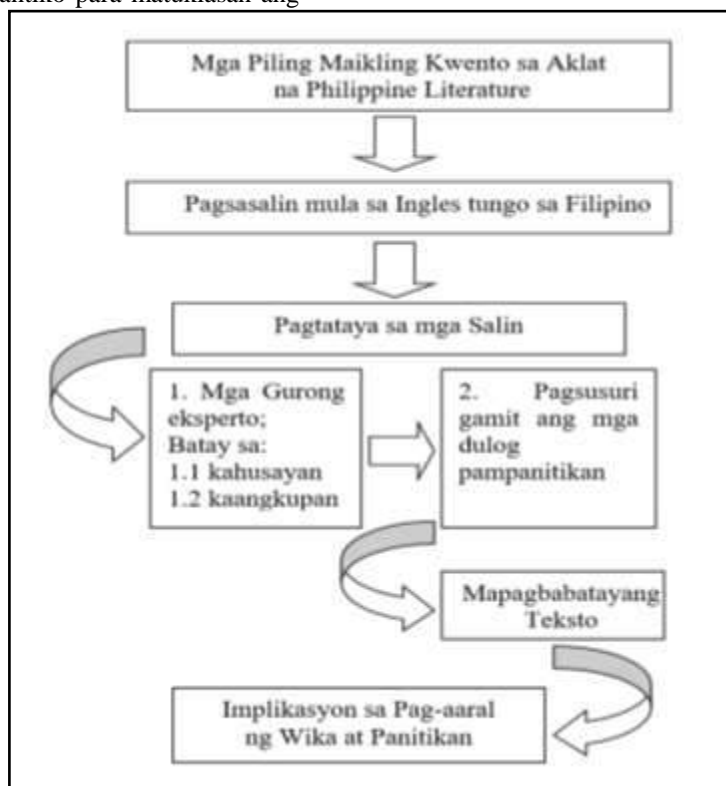
nakakubling katotohanan, kabutihan at kagandahan (San Andres, et al. 2010).

**Siko-Analitiko.** Sa teoryang ito nakaimpluwensya ang pahayag ni Sigmund Freud na tanging ang ekonomiya lamang ang motibo ng lipunan. May kinalaman ito sa paniniwalang nasa paghahanapbuhay ang tugon upang lasapin ang sarap ng buhay. Sinasabi ring nagkakaroon lamang ng maturidad ang isang tao bunga ng kanyang kamalayan sa kahirapan.

**Istrukturalismo.** Sa pangkalahatang ideya, hindi pinahalagahan ng istratekturalismo ang may-akda at ang akda bilang daluyan ng katotohanan. Higit nilang pinahahalagahan ang makapagtatag ng modelo ng pagsusuri ng proseso ng paglikha ng kahulugan na magagamit sa pag-unawa hindi ng isa o dalawa kundi lahat ng bahagi ng isang partikular na sistemang pampanitikan. Sapagkat higit na binibigyang pansin ang wika bilang sistema, hindi mabibigyan ng karapatang pagpapahalaga ang awtor, kasaysayan at mambabasa (San Andres, 2008).

### Batayang Konsepto ng Pag-aaral

Ang pananaliksik ay naglayong maisakatuparan ang pagsasalin at pagsusuri sa labinlimang (15) mga maikling kuwentong hinango sa aklat ng Philippine Literature. Ang pokus ay nasa pagsasalin ng mga maikling kwento mula sa Ingles tungo sa Filipino. Ang kahusayan at kaangkupan ng pagsasalin ay ibinatay sa paghatol na ginawa ng limang gurong tagataya. Ang pagsusuri ay ginamitan ng mga teoryang pampanitikan na higit na nangibabaw sa mga maikling kwento. Ang kinalabasan ng pag-aaral ay may kahalagahan sa pagtuturo at pagkatuto ng wika at panitikan.



Figur 1. Paradaym ng Pag-aaral



## MGA PAMAMARAANG GINAMIT SA PAG-AARAL

### Disenyo ng Pananaliksik

Ang ginamit na pamamaraan sa masusing pag-aaral na ito ay ang palarawang pagsusuri (descriptive analytic) na tumutugon sa dalawang pagbabatayang teorya: Teorya ng pagsasalin at pagsusuri. Kinatampukan ito ng mga maikling kwento ng mga manunulat sa Ingles na pangunahing nakasulat sa Ingles na siyang simulaang lengguwahe at isinalin sa Filipino bilang tunguhang lengguwahe ng pag-aaral. May tatlong proseso ang pananaliksik na maingat ding isinagawa batay sa hinihingi ng pag-aaral. Ito ay ang (1) Pagsasalin ng mga piling maikling kuwento mula sa aklat ng Philippine Literature (2) Pagtataya ng kahusayan at kaangkupan ng mga isinalin mula sa mga gurong eksperto, at (3) Ang pagsusuri sa mga maikling kuwento batay sa mga teoryang higit na nangibabaw.

### Pinagmulan ng mga Datos

Sa pagtataya ng kaangkupan at kahusayan ay mayroon namang limang (5) gurong tagataya na nagmula sa Kolehiyo ng Edukasyon at Kolehiyo ng Sining at Agham. Ang katangian ng limang hurado ay ang mga sumusunod: a) gurong dalubhasa at may mahabang karanasan sa pagtuturo ng Filipino at Panitikan, b) mga gurong nagtuturo ng Ingles at Filipino sa pamantasan, c) gurong may malalim na kabatiran sa wikang Ingles at Filipino, d) at gurong nagtuturo at may kahusayan sa pagsasalin.

### Instrumentong Ginamit sa Pananaliksik

Ang instrumentong ginamit sa pag-aaral na ito ay sa pamamagitan ng isang talatanungan ng pagtataya para sa ginawang pagsasalin. Ito ay binubuo ng dalawang aspekto: ang kahusayan at kaangkupan ng ginawang pagsasalin.

Ang kahusayan ng ginawang pagsasalin ay batay sa mga tuntuning panretorika, kawastuhang panggramatika, gamit ng matatalinhagang pananalita, kalinawan ng salita at katangiang pampanitikan. Ang kaangkupan naman ng pagsasalin ay batay sa tema, kaisipan, kayarian, at damdamin ng maikling kwento.

Ang talatanungan ay ibinatay sa talatanungang ginamit nina Cabra, Sustento at Cabiling sa kanilang pananaliksik.

### Pamamaraan sa Pangangalap ng mga Datos

Para maisakatuparan ang ginawang pananaliksik, isinagawa ang mga sumusunod na hakbang:

Una, tumingin ang mananaliksik ng mga maikling kwento sa aklat na Philippine Literature na kinatampukan ng mga kwentong isinulat ng mga manunulat sa Ingles na kumakatawan sa bawat rehiyon ng Pilipinas. Pumili lamang siya ng labinlimang maikling kwentong nagtataglay ng mga sumusunod: 1) may mga elementong nakapaloob sa maikling kuwento gaya ng tauhan, tagpuan, banghay, tema, tunggalian, paningin, wika, kasukdulan at wakas, 2) mababasa ang mga kalagayang panlipunan, pangkabuhayan at pulitikal ng isang bansa sa isang partikular na panahon, 4) ang akda ay nakatuon sa mga kaganapang naganap batay sa tunay na buhay at nagtuturo ng kagandahang asal, at 4) binibigyang halaga sa kwento ang mga katangian ng mga tauhan sa akda.

Ikalawa, isinalin ng mananaliksik ang mga piling maikling kuwento batay sa hakbang sa pagsasalin ni Alfonso O. Santiago:

Basahin muna nang buo ang isasalin upang maunawaan ang kalahatang diwang napapaloob dito bago magsimula sa pagsasalin, habang binabasa ay itala ang mga katawagang may kahirapang tumbasan, bigyan ng pansamantalang katumbas sa Filipino ang mga ito at alamin o subukin kung ang ibinigay na katumbas ay angkop na gamitin sa orihinal, kung mapatunayang mahina ang ibinigay na katumbas, humanap ng ibang katumbas na higit na magiging angkop. Makabubuting gumamit ng index card (3x5) upang maging sistematiko ang pagtatala. Gumawa ng unang draft o burador ng salin, basahin muli ang salin at tingnan kung may mga salitang dapat palitan, pariralang dapat kaltasin o kaya'y mga pangungusap na kailangang baguhin ang balangkas upang higit na maging malinaw ang kahulugan.

Ipabasa nang malakas sa iba ang salin at obserbahin ang mga bahagi ng salin na hindi mabasa nang maayos. Itanong sa tagabasa kung alin-alang bahagi ang hindi niya maunawaan o kaya'y hindi niya matiyak ang ibig sabihin. Rebisahin ang salin at pagkatapos ay muling ipabasa nang malakas sa iba, hindi ang unang pinabasa, hanggang maging maayos na lahat ang mga dapat ayusin.

Ikatlo, isinangguni ng mananaliksik ang mga naisaling maikling kwento sa kanyang tagapayo at isinunod ang muling pagwawasto mula sa mga naging puna nito.

Ikaapat ay ipinataya sa limang gurong eksperto ang kahusayan at kaangkupan ng isinagawang salin batay sa tuntuning panretorika, kawastuhang panggramatika, gamit ng matatalinhagang pananalita, kalinawan ng salita, katangiang pampanitikan, tema, damdamin, kayarian at kaisipan.

Pagkatapos mataya ng mga gurong eksperto ay nirebisa ng mananaliksik ang mga salin para sa *final draft*. Sinunod din ang pagsusuring istatistika na ipinatakdang isang statistician upang ipakita ang kinalabasan ng kahusayan at kaangkupan ng mga isinaling maikling kuwento. At panghuli ay ang pagsusuri sa mga ito batay sa teoryang Feminismo, Humanismo, Romantisismo at Siko-Analitiko na higit na nagamit sa mga maikling kwento. Ginamit din ang Teoryang Istrukturalismo upang masuri ang kayarian ng wikang ginamit sa ginawang pagsasalin. Inilahad din ang naging implikasyon nito sa pag-aaral at pagkatuto ng wika at panitikan.

### Pagsusuring Pang-istatistika

Ang mga sumusunod na istatistika ang ginamit sa pagsusuri at paglalarawan sa mga datos na natipon sa pag-aaral.

1. Sa pagtataya ng mga gurong eksperto, ang *weighted mean* ang ginamit na batayan.

Ang formula ng *Weighted Mean* ay:

$$X = \frac{\sum x}{N}$$

Na ang ibig sabihin ay:

X = para sa *weighted mean*

$\sum x$  = para sa iskor

N = para sa kabuuang bilang ng mga gurong tagataya



Ang pagtataya ay ibinatay sa panukalang Likert (Likert's Scaling Technique).

Ito ay ang tseklist na pasasagutan sa limang gurong tagataya ng kahusayan at kaangkupan ng mga salin.

Narito ang *scale value* na ginamit:

Iskor	Pamantayan	Interpretasyong Literal
5	4.50 – 5.00	Napakahusay/Napakaangkop
4	3.50– 4.49	Mas Mahusay/Mas Angkop
3	2.50 – 3.49	Mahusay/Angkop
2	1.50 – 2.49	Mahusay-husay/Bahagyang-Angkop
1	1.00 – 1.49	Mahina/Hindi Angkop

Ang pinakamataas na katanggap-tanggap ay nangangahulugang *napakahusay* at *napakaangkop* ng isinagawang pagsasalin. Ang mataas na katanggap-tanggap ay nangangahulugang *mas mahusay* at *mas angkop* ang isinagawang pagsasalin. Ang katanggap-tanggap ay nangangahulugang *mahusay* at *angkop* ang isinagawang pagsasalin. Ang Bahagya o Di-gaanong

Tanggap ay nangangahulugang *mahusay-husay* at *bahagyang-angkop* ang isinagawang pagsasalin bagama't maaari pang iwasto. Ang Di-tanggap naman ay nangangahulugang *mahina* at *hindi angkop* ang pagkakasalin at nangangailangan pang pag-aralang muli ang mga salita, parirala at pangungusap sa ginawang salin.

## PAGLALAHAD, PAGSUSURI AT INTERPRETASYON NG MGA DATOS

Kahusayan ng Pagsasalin sa mga Piling Maikling Kuwento

Talahanayan Blg. 1

Kahusayan ng Pagsasalin sa mga Maikling Kuwento

Maikling Kuwento	Panukatan					Kabuuang	Interpretasyon
	Tuntuning Panretorika	Kawastuhang Panggramatika	Gamit ng Matatalinhagang Pananalita	Kalinawan ng Salita	Katangiang Pampanitikan		
A House Full of Daughters	4.60	4.52	4.48	4.57	4.70	4.57	Napakahusay
A Night in the Hills	4.60	4.68	4.72	4.77	4.75	4.70	Napakahusay
Heart of Summer	4.40	4.40	4.40	4.37	4.30	4.37	Mas Mahusay
It Rained Saturday Afternoon	4.44	4.60	4.32	4.53	4.45	4.47	Mas Mahusay
People of Consequence	4.48	4.52	4.52	4.40	4.55	4.49	Mas Mahusay
Servant Girl	4.52	4.56	4.48	4.53	4.55	4.53	Napakahusay
The Beetle	4.64	4.52	4.56	4.87	4.75	4.67	Napakuhusay
The Black Monkey	4.20	4.20	4.36	4.33	4.40	4.30	Mas Mahusay
The Dog Eaters	4.60	4.60	4.48	4.50	4.55	4.55	Napakahusay
The Flowers of May	4.64	4.56	4.68	4.77	4.75	4.68	Napakahusay
The Other Woman	4.24	4.28	4.32	4.33	4.45	4.32	Mas Mahusay
The Quarrel	4.44	4.12	4.60	4.53	4.50	4.44	Mas Mahusay
The Small Key	4.40	4.40	4.36	4.53	4.40	4.42	Mas Mahusay
The Transfer	4.84	4.56	4.80	4.73	4.80	4.75	Napakahusay
Two Brothers	4.68	4.52	4.48	4.50	4.80	4.60	Napakahusay
<b>PinagsamangKatampatan</b>	4.51	4.47	4.50	4.55	4.58	<b>4.52</b>	<b>Napakahusay</b>

Isinagawa ang pagtaya ng kahusayan ng pagsasalin sa wikang Filipino ng labinlimang (15) maikling kuwento sa pamamagitan ng pagbibigay ng isina-Filipinong akda sa limang gurong tagataya. Nagkaisa ang mga tagataya sa kahusayan ng pagsasalin batay sa pangkabuuang katampatang tuos na 4.52 na nangangahulugang *napakahusay* ng ginawang pagsasalin.

Ipinapakita sa Talahanayan Blg. 1 na taglay ng pagsasalin ang pagpapahalaga sa tuntuning panretorika na may

pinagsamang tuos na 4.51; gamit ng matatalinhagang pananalita na 4.50; kalinawan ng salita na 4.55; at katangiang pampanitikan na 4.58; na nangangahulugang *napakahusay* ng isinagawang pagsasalin sa mga maikling kwento at ang kawastuhang panggramatika na may pinagsamang tuos na 4.47 na nangangahulugan ng *mas mahusay* at katanggap-tanggap pa rin ang isinagawang pagsasalin sa mga maikling kuwento.





Makikita rin na ang maikling kwentong *The Transfer* ang may *Pinakamahusay* na pagkakasalin sa katampatang tuos na 4.75; sinundan ng *A Night in the Hills* na 4.70; *The Flowers of May* na 4.68; *The Beetle* na 4.67; *Two Brothers* na 4.60; *A House Full of Daughters* na 4.57; *The Dog Eaters* na 4.55; at *The Servant Girl* na 4.53. Samantalang may mataas din na katanggap-tanggap ang pagkakasalin ng iba pang maikling kuwento na nangangahulugang *Mas Mahusay* at taglay pa rin ng mga ito ang kahusayan at kaangkupan ng pagsasalin. Ang mga ito ay ang mga kuwentong: *People of Consequence* na 4.49; *It Rained Saturday Afternoon* na 4.47; *The Quarrel* na 4.44; *The*

*Small Key* na 4.42; *Heart of Summer* na 4.37; *The Other Woman* na 4.32 at *The Black Monkey* na 4.30.

### Kaangkupan ng Pagsasalin sa mga Maikling Kuwento

Itinaya ng limang tagahatol ang kaangkupan ng isinaling maikling kuwento batay sa tema, kaisipan, kayarian at damdamin. Batay sa kinalabasan ng ginawang pagsasalin, sila'y nagkaisa na *napakaangkop* ng ginawang pagsasalin ng mga maikling kuwento sa pangkabuuang katampatang tuos na 4.62.

### Talahanayan Blg. 2

#### Kaangkupan ng Pagsasalin sa mga Maikling Kuwento

Maikling Kuwento	Panukatan					
	Tema	Kaisipan	Kayarian	Damdamin	Kabuuang	Interpretasyon
A House Full of Daughters	4.60	4.60	4.60	4.80	4.67	Napakaangkop
A Night in the Hills	4.80	4.80	4.80	4.80	4.80	Napakaangkop
Heart of Summer	4.60	4.40	4.40	4.40	4.47	Mas Angkop
It Rained Saturday Afternoon	4.80	4.60	4.60	4.80	4.73	Napakaangkop
People of Consequence	4.60	4.60	4.40	4.60	4.57	Napakaangkop
Servant Girl	4.60	4.60	4.40	4.40	4.53	Napakaangkop
The Beetle	4.80	4.80	4.40	4.50	4.63	Napakaangkop
The Black Monkey	4.40	4.20	4.20	4.20	4.27	Mas Angkop
The Dog Eaters	4.60	4.60	4.60	4.80	4.67	Napakaangkop
The Flowers of May	4.70	4.60	4.80	4.80	4.73	Napakaangkop
The Other Woman	4.60	4.60	4.60	4.80	4.67	Napakaangkop
The Quarrel	4.40	4.40	4.40	4.60	4.47	Mas Angkop
The Small Key	4.80	4.80	4.60	4.60	4.70	Napakaangkop
The Transfer	5.00	4.80	4.80	4.90	4.90	Napakaangkop
Two Brothers	5.00	4.60	4.60	4.60	4.73	Napakaangkop
<b>Pinagsamang Katampatan</b>	<b>4.69</b>	<b>4.60</b>	<b>4.55</b>	<b>4.64</b>	<b>4.62</b>	<b>Napakaangkop</b>

Ipinapakita sa Talahanayan Blg. 2 na may kaangkupan ang pagsasalin ng mga maikling kuwento dahil taglay nito ang tema na may pinagsamang katampatan na 4.69; kaisipan na 4.60; kayarian na 4.55 at damdamin na 4.64. Nangangahulugan ito na *Napakaangkop* ng isinagawang pagsasalin sa mga maikling kwento mula sa orihinal, na napahalagahan sa mga kuwentong: *The Transfer* na 4.90; *A Night in the Hills* na 4.80; *It Rained*

*Saturday Afternoon*, *The Flowers of May* at *Two Brothers* na magkakatulad na 4.73; *The Small Key* na 4.70; *A House Full of Daughters*, *The Dog Eaters* at *The Other Woman* na parehong 4.67; *The Beetle* na 4.63; *Servant Girl* na 4.53; Mas mataas na katanggap-tanggap din at nangangahuugang *Mas Angkop* ang pagsasalin ng mga kwentong: *Heart of Summer* at *The Quarrel* na 4.47; at *The Black Monkey* na 4.27.

### Talahanayan Blg. 3

#### Kabuuang Kahusayan at Kaangkupan ng Pagsasalin

Maikling Kwento	Kahusayan	Kaangkupan	Kabuuang	Interpretasyon
A House Full of Daughters	4.57	4.67	4.62	Napakahusay/Napakaangkop
A Night in the Hills	4.70	4.80	4.75	Napakahusay/Napakaangkop
Heart of Summer	4.37	4.47	4.41	Mas Mahusay/Mas Angkop
It Rained Saturday Afternoon	4.47	4.73	4.60	Napakahusay/Napakaangkop
People of Consequence	4.49	4.57	4.53	Napakahusay/Napakaangkop
Servant Girl	4.53	4.53	4.53	Napakahusay/Napakaangkop
The Beetle	4.67	4.63	4.65	Napakahusay/Napakaangkop
The Black Monkey	4.30	4.27	4.29	Mas Mahusay/Mas Angkop
The Dog Eaters	4.55	4.67	4.61	Napakahusay/Napakaangkop
The Flowers of May	4.68	4.73	4.71	Napakahusay/Napakaangkop



The Other Woman	4.32	4.67	4.50	Napakahusay/Napakaangkop
The Quarrel	4.44	4.47	4.46	Mas Mahusay/Mas Angkop
The Small Key	4.42	4.70	4.56	Napakahusay/Napakaangkop
The Transfer	4.75	4.90	4.83	Napakahusay/Napakaangkop
Two Brothers	4.60	4.73	4.67	Napakahusay/Napakaangkop
<b>Pinagsamang Tuos</b>	<b>4.52</b>	<b>4.64</b>	<b>4.58</b>	<b>Napakahusay/Napakaangkop</b>

Sa kabuuan ng ginawang pagtataya, taglay ng mga maikling kuwento ang kahusayan at kaangkupan ng pagsasalin sa kabuuang pinagsamang tuos na 4.58 na nangangahulugang *napakahusay* at *napakaangkop* ng pagkakasalin sa labinlimang (15) maikling kuwento dahil labintatlo (13) sa mga ito ang

nakakuha ng pinakamataas na katanggap-tanggap na nangangahulugang *napakahusay/napakaangkop* at dalawa (2) lamang sa mga ito ang nakakuha ng mas katanggap-tanggap na nangangahulugan namang *mas mahusay* at *mas angkop* pa rin ang isinagawang pagsasalin.

## 1. Mga teoryang pampanitikang nangibabaw sa bawat maikling kwento.

### Talahanayan Blg. 4

#### Mga Teoryang Nangibabaw sa bawat Maikling Kuwento

Maikling Kuwento	Teorya
A House Full of Daughters	Feminismo
A Night in the Hills	Humanismo
Heart of Summer	Romantisismo
It Rained Saturday Afternoon	Siko-Analitiko
People of Consequence	Humanismo
Servant Girl	Romantisismo
The Beetle	Humanismo
The Black Monkey	Feminismo
The Dog Eaters	Feminismo
The Flowers of May	Humanismo
The Other Woman	Romantisismo
The Quarrel	Siko-Analitiko
The Small Key	Romantisismo
The Transfer	Humanismo
Two Brothers	Humanismo

Sa pagsusuring ginawa sa labinlimang (15) maikling kuwento, higit na nangibabaw ang teoryang Humanismo sa anim (6) na maikling kuwento na kung saan nabigyang-pansin ang bahaging ginampanan ng mga tauhan sa bawat akda. Apat (4) naman sa mga maikling kuwento ang nakitaan ng Romantisismo na nagpahalaga sa damdaming umiiral sa mga pangunahing tauhan. Nagamit din ang teoryang Feminismo sa tatlong (3) kuwento na nagbigay naman ng kahalagahan sa kalakasan ng mga babaeng tauhan at dalawa (2) naman sa mga ito ay namayani ang pagiging Siko-Analitiko na sumusukat sa kamalayan at gawi ng pag-iisip ng mga tauhan sa maikling kuwento.

### 1. A House Full of Daughters

#### Feminismo

Mababakas sa kuwento ang pagbibigay imahen sa isang babaeng isinalaysay ang buhay ng pagiging Ina. Walang pagsisisi ang mababanaag sa kanya gayong nagsilang siya ng pitong anak na babae sa kabila ng mga paghihirap at pagsasakripisyong kanyang ipinagpalit para sa kanila. Ipinakita ng pangunahing tauhan ang kalakasang taglay niya bilang isang indibidwal, isang babae at isang Ina sa pamamagitan ng pagpapakasakit na tinumbasan naman ng pagpapahalaga ng

kanyang mga anak. Siya na hindi nagpaubaya sa mundong nagkakait ng kasiyahan sa isang babae upang gawin ang mga bagay na magpapaligaya sa kanya. Ang maghanapbuhay para sa kanyang mga anak, ang alagaan sila at ang mapalaki niya ang mga ito nang maayos ay ang mga ilang patunay lamang na nagpakita sa katangian ng isang babae na hindi lamang nagagawa ng isang lalake. Hindi man niya inilarawan ang kanyang sarili bilang isang perpektong Ina ay maaaninag pa rin sa kanya ang mga katangiang tunay na sumusukat sa pagiging Ina. Na ang isang babaeng itinali ang sarili para sa kanyang pamilya lalo na sa kanyang mga anak ay hindi isang hadlang upang maisakatuparan pa rin niya ang mga sariling pangarap.

### 2. A Night in the Hills

#### Humanismo

Ang makuha ang pangarap ng isang tao ang nagbibigay ng kabuuan ng kanyang pagkatao bagaman may mga bagay pa rin ang tunay na magpapaligaya sa kanya. Ang katuparan ng pangarap na makapunta sa mga burol ng pangunahing tauhan na si Gerardo Luna na isang byudo, ang masasabing natatanging bagay na magbibigay sa kanya ng kasiyahan ngunit bilang isang tao ay masisilayan pa rin sa kanya ang ibang kagustuhang



mapananatili niya nang matagal. Binigyan man ng pansin sa akda ang pangarap na yaon ay hindi pa rin maiaalis sa kultura ng isang tao ang iba pang kagustuhang magbibigay pa sa kanya na tunay na kaganapan. Labis man ang kagustuhan ng sinuman na matupad ang kanilang mga ninanais ay patuloy pa rin ang paghahangad ng kanilang puso't isipan na hanapin ang tunay na magbibigay ng kasiyahan. Katulad ng pangunahing tauhan, mababakas sa kanya ang lihim na kagustuhang maabot ang tunay na kaluwalhatian ng kanyang pagkatao. At iyon ay ang pagmamahal at pagpapahalagang manggagaling sa ibang tao at sa Diyos na inaasam ng lahat ng tao sa mundo.

### 3. Heart of Summer

#### *Romantisismo*

Pag-ibig ang lumilikha ng katotohanan, kagandahan at walang katapusang imahinasyon. Ang pangunahing tauhan na siyang nagsasalaysay sa akda ay kakikitaan ng labis na pagmamahal para sa isang babaeng nabuo lamang ng kanyang pag-iisa. Isang ganap na babaeng maaari lamang niyang ibigin sa likod ng kanyang mga panaginip at malikot na pag-iisip. Pag-ibig na naging simula ng lahat, at pag-ibig na nauwi rin sa masaklap na kamatayan. Mababakas sa pangunahing tauhan ang pagmamahal na lumikha sa kanya ng kalungkutan at pag-iisip na waring nilunod lamang ng mapaglarong pagmamahal. Hindi niya inalintana ang katotohanan gayong ang babaeng kanyang lihim na minamahal ay nakatali na sa iba. Sa kanyang nabuong imahinasyon ay pag-ibig lamang ang bumalong, hindi siya natakot na ipakita ang kanyang nararamdaman na naging dahilan din ng kanyang kamatayan. Walang ibang paghahangad ang naipakita kundi ang pag-ibig na nararamdaman ng pangunahing tauhan na lumikha sa kanya ng mapaglarong mundo ng katotohanan.

### 4. It Rained Saturday Afternoon

#### *Siko-Analitiko*

Ang kamalayan ng bawat tao ang minsang nagdidikta sa kanya para takasan ang katotohanang mayroon ang tunay na mundo. Wala mang makapagsasabi sa tunay na iniisip ng sinuman ay hindi ito maitatago na bunga ng kanyang ikinikilos. Kung susuriin ang kabanghayan ng kwento, mula sa tagapagsalaysay ay mababakas na ang mga pangyayaring pilit na naglalaro sa kanyang isipan. Ang kagustuhan ng pag-iisip na maibigay o dili kaya'y magawa ang isang bagay na tiyak na magbibigay ng kasiyahan. Katulad ng iba pang mga tauhan sa kwento, ang paghahangad na makagawa ng mga bagay na hindi karaniwan sa pang-araw-araw na gawi ng kanilang buhay ay isang payak na pagnanais na dinidikta lamang ng kanilang mga isip ngunit ito'y magdudulot ng panandaliang kasiyahan. At sa bawat paghahangad naman ay may hindi inaasahang pagbabadya ng pagsusumamo at kagyat na kalungkutan. Sa kabila ng pag-aakalang ang lahat ay matatapos lamang ay saka rin makikini-kinita at mapagtutuunan ng kamalayan na mayroong mga taong mas lalong higit na naghahangad ng tunay na kaligayahan na hindi lamang likha ng guniguni at malikot na pag-iisip. Katulad na lamang ng tagapagsalaysay sa kwento, mas napagtuunan ng kanyang pansin ang nakaagaw ng atensyon ng isang taong pilit na nagtatago sa totoong mundo. Sa kanyang

mga nasilayan ay napagtanto niyang higit pa rin siyang mapalad kumpara sa mga taong nakikihiram lamang ng sandali na bunga lamang ng walang maayos na katinuan. Ipinapakita lamang na nagkakaroon ng tunay na kamalayan ang isang tao tuwing nahaharap o kaya'y nasasaksihan niya ang mga pangyayaring maaaring bumago sa paraan kung paano siya mag-isip.

### 5. People of Consequence

#### *Humanismo*

Ang katuturan ng buhay ng isang tao ay wala sa pagpag ng kanyang dila at lalong hindi nasusukat sa estado ng buhay na mayroon siya sa isang lipunan. Ito ang ipinakita sa akda bilang pagpapahalaga sa tunay na kabuluhan ng pagkatao ng mag-asawang sina Meding at Camus. Hindi man sila maituturing na tanyag sa kanilang lugar ay hindi naman maikakaila ang naiiba nilang paniniwala at paninindigan sa buhay. Na ang tao bilang sentro ng daigdig ay may iba't ibang uri rin ng imahen. Ang bawat pagkilos nila ay naaayon din sa kaasalan ng mga taong maaaring makasalamuha nila at ng lipunang patuloy na nagbabago. Ang tao mismo ang gumagawa ng sarili niyang buhay, ikasasawi at ikauunlad. Ang kahinaan niya minsan ang nagiging kalakasan niya upang siya'y magpatuloy. Tulad ni Camus na pangunahing tauhan sa kwento, hindi ang pagkakaroon ng pamilya ang nagbigay sa kanya ng kaganapan bilang isang tao kundi ang mabuting pakikipagkapwang iginaganti at hinahangad niya. Isang kultura ng pagiging tao ang paghahanap ng sariling kagustuhan na magbibigay sa kanya ng sapat na dahilan upang suungin ang daluyong maaaring makaharap nila sa kanilang paglalakbay. Na walang sinuman ang nabubuhay para sa kanilang sarili lamang bagkus ay kinakailangan ang pagpapahalagang nanggagaling din sa iba.

### 6. Servant Girl

#### *Romantisismo*

Ang pag-ibig ay makapangyarihan dahil ito ay maaaring makapanakit, makapagpabago o dili kaya'y makapagpaligaya sa isang taong lipos ng hinanakit sa buhay. Si Rosa na pangunahing tauhan ay nagpakilala ng maaaring maidulot ng pag-ibig bagama't naranasan niya ang kasawiang-palad sa kamay ng kanyang mapang-alipustang amo. Pag-ibig ang nagbigay sa kanya ng kasiyahan upang pagaanin ang masalimuot na buhay na kanyang kinasapitan. Sa kanyang lihim na pagmamahal sa nakilalang kutsero na si Pedro ay nasilayan sa kanya ang ganoong kasiglahan na naging inspirasyon niya sa araw-araw. Ipinapakita sa kanyang katauhan na ang pag-ibig ang nagiging kalakasan ng isang tao upang manatili siyang buo at hindi natitinag sa anumang pagsubok na maaari niyang maranasan. Sa banghay ng kwento ay maliwanag na ipinakita na hindi pangkaraniwan ang naidudulot ng pag-ibig sa taong umiibig. Tulad ni Rosa, sa kabila ng mga nangyari ay naroon lagi ang pag-asam niyang muli niyang makatagpo ang taong itinuturing niyang tagapagligtas. Sa mga panahong tinangka niyang iwanan ang kanyang amo na hindi rin niya nagawa dahil mas nanaig pa rin sa kanya ang kaligayahan ng nararamdaman nang muling makatagpo ang kutserong kanyang iniibig. Mababakas sa kanya na ang isang umiibig ay wala nang ibang nakikita kundi ang kagandahang mayroon pa ang buhay.



Magagawa ng pag-ibig na limutin ang sakit ng kahapon dahil ang patuloy lamang na pumapaimbulog ay ang bugso ng damdaming walang makapigigil.

## 7. The Beetle

### *Humanismo*

Ang pinakamagandang nilikha ng Maykapal ay ang supling ng kabutihang ipinagkaloob Niya sa kanyang mga nilalang. Ang kabutihan na likas na nababanaag sa bawat taong kumikilala sa kultura ng pagkatao. Mula sa maikling kwento ay kapansin-pansin sa mga tauhan ang pagiging makatao na walang hinihintay na anumang kapalit. Ang batang tauhan na si Gela ang sumasagisag sa kamusmusan na naging unang bahagi rin ng pagkato ng bawat nilalang. Samantalang ang batang si Pitong, na isang batang pilyo ngunit kalauna'y nakitaan din ng kabutihan sa tulad niyang isang bata ay nagpapakita naman sa pagbabagong nagaganap sa pagkatao ng isang nilalang habang siya ay nagkakaisip. At ang mga taong naging mabuti sa pangunahing tauhan na si Gela ay sumasalamin naman sa mga taong laging may bukas na kalooban para sa mga higit na nangangailangan ng pagkalinga. Ang pagkaulila ng batang si Gela sa kanyang Ina na nagsimula sa pamamaalam at pangako ng muling pagbabalik hanggang sa patuloy na paghihintay na nauwi sa isang masaklap na pangyayari ay mga karaniwang takbo ng buhay na pilit iniwasan ng isang tao. Gayunpaman ay naroon pa rin ang pag-asang ibinibigay ng mga taong may tunay na pagmamalasakit sa kanyang kapwa-tao. Maingat ding ipinakita sa banghay ng kwento ang mga karaniwang takbo ng pamumuhay ng mga tao sa isang payak na pamayanan. Mga kilos at gawing sumasalamin sa pagkakaiba-iba ng bawat tao.

## 8. The Black Monkey

### *Feminismo*

Ang kakayahan ng isang babae ay tunay na nasusukat habang nararanasan niya ang anumang pagkabahala sa lipunang kanyang ginagalawan. Nagagawa rin ng isang babae ang nagagawa ng isang lalake kapag nasa sitwasyong puno ng pag-aalinlangan at pangamba. Tulad ni Marina na pangunahing tauhan sa akda, bagama't inilarawan siya bilang may karamdaman ay naging malakas pa rin ang loob niya na manatili sa isang mapanganib na lugar habang malayo sa kanyang pamilya. Dumating din sa pagkakataong siya mismo ang humarap sa sariling pagkatakot at kinakailangan niyang gawin ang isang bagay na magbibigay sa kanya ng kapayapaan. Napahalagahan sa akda na ang isang babae ay nakagagawa ng mga di-pangkaraniwang bagay sa kanyang kapaligiran nang may ibayong tapang at pag-iingat. Ang tunay na kalakasan ng isang babae ay lalong nasusukat sa mga panahong kailangan niyang maipagtanggol ang kanyang sarili.

## 9. The Dog Eaters

### *Feminismo*

Umikot ang buong kwento sa usapan at palitan ng dayalogo ng dalawang mag-asawa na kung saan ay higit na nakita ang imahen ng pangunahing tauhan na babae. Ipinakita sa kwento ang kahinaan at kalakasan ni Mariana bilang isang babaeng nakikitungali sa buhay na kanyang kinasadlakan.

Lantarang mahihinuha sa kanya ang ideyal na damdamin at pag-iisip ng isang babaeng umibig sa hindi tamang panahon at pagkakataon. Mababakas sa kanya ang pagpipiglas ng damdamin upang maipabatid sa kanyang asawa ang narapat na katangian ng isang haligi ng tahanan. Ang ganoong kalakasang ipaglaban ang kanyang nilolooob ang nagbigay ng kaganapan sa kanya upang ipakita sa asawa ang tunay na buhay na mayroon sila. Bilang isang Ina ay nakita rin sa kanya ang pagpupumilit na mabigyan ng magandang kinabukasan ang mga anak, na sumasagisag sa isang babaeng walang ibang hangad kundi ang magkaroon ng magandang buhay ang mga anak. Isang kalakasan ng sinumang kababaihan ngunit nagiging kahinaan din nila upang makagawa ng mga bagay na labag sa kanilang kalooban. Tulad ni Mariana, ang gayong pag-iisip na humantong upang gumawa sana ng hindi dapat ang nagbigay sa kanya ng lakas ng loob marahil upang maimulat ang kanyang asawa sa buhay na kinasapitan nila. Mababakas sa kanya na ang kahinaan at kalakasan ng isang babae at ng isang ina ay ang kanyang pamilya na iniinugan ng kanyang puso't pagkatao. Minsan man ay dumarating ang isang unos upang sila'y lumuha ay patuloy pa rin nilang susuungin ang agos nito kahit alam nilang sa dakong huli ay wala nang kasiguruhan. Sa ibayong katapangan nila ay naipapakita pa rin na mayroon silang magagawa alang-alang sa mga taong mahal nila.

## 10. The Flowers of May

### *Humanismo*

Pinakamahigpit na kaaway ng tao ay ang kamatayan. At ang pinakamasaklap pa rito ay ang masaksihang mawalan ng buhay ang isang minamahal sa sarili mong mga bisig. Sa kwento ay hindi pangkaraniwang naipakita ang kahinaan ng isang ama sa naging kamatayan ng kanyang anak. Ang hindi pagkibo ng ama sa kwento at ang walang katapusang paggunita niya rito ay kababakasan nang malalim na pangungulila para sa pumanaw na anak. Higit na naging malakas ang loob ng asawang babae datapwa't sa dakong hulihan ng kwento ay hindi rin niya napigilang ipakita ang tunay niyang nararamdaman. Kapansin-pansin sa akda ang makabuluhang pagpapahalaga sa mga tauhan, ang pagsasalarawan sa kanila at maging ang mga pagbabago ng kanilang mga kilos sa pagtugon sa mga suliraning kinaharap nila. Ang bawat tao ay may pantay-pantay na damdamin, hindi ito kumikilala sa kultura ng pagiging isang babae o lalake. Walang maaaring magdikta sa isang tao na pigilan ang kanyang nararamdaman lalo't kung ang bagay na iyon lamang ang magpapalaya sa kanya. Ang pagtanggap sa katotohanan ay siya rin minsang nagiging kahinaan ng isang tao upang magupo sa kalungkutan. Mababakas ito sa imahen ng mga pangunahing tauhan sa kwento na pilit na itinago ang mga damdaming nagpahirap sa kanila sa loob ng mahabang panahon. Kalaunan, sa dakong hulihan ng kwento, ang pagkuyom ng kanilang mga nararamdaman ay natural na ipinahiwatig ng kanilang mga salitaan bilang mga taong may sari-sariling pagpapahalaga.





## 11. The Other Woman

### *Romantisismo*

Damdamin ang naging sukatan ng mga babaeng tauhan sa kwento. Kapansin-pansin sa katauhan nina Nana Cecilia at Loida ang tatag at paninindigan para sa isang taong pareho nilang minamahal. Kitang-kita sa akda na kayang gawin ng isang tao ang lahat mapatunayan lamang ang tunay niyang nararamdaman. Sa katauhan ni Nana Cecilia mababakas ang isang tipikal na maybahay na kayang tiisin ang kapintasan, bisyo at hindi magandang pag-uugali ng kanyang asawa. Nang dahil sa pagmamahal nito ay kinaya niyang pakisamahan ang taong ito hanggang sa kanyang kamatayan. Sinasalaman niya ang isang babaeng naging bulag sa katotohanan sa kabila ng walang kaligayahang kanyang naranasan. Puso niya ang nagdikta sa patuloy niyang pagmamahal sa kanyang asawa. Si Loida naman ang tauhan na sumuway sa ideyal na paniniwala ng ibang tao alang-alang sa pag-ibig. Pinili niyang mahalin ang taong minamahal na nang iba bagaman pinatunayan niya ito sa pamamagitan ng hindi niya pag-iwan sa taong ito hanggang sa kanyang kamatayan. Ang pag-ibig niya ang bumuo ng kanyang pagkatao dahil sa kabila ng kanyang katayuan ay nagmahal siya sa paraang alam niya. Wala siyang takot na ipaglaban din ang tinitimpi niyang pag-ibig. Ipinakita man ang magkaibang uri ng namayaning pag-ibig sa akda ay isang patunay lamang na kung ang pag-big ang naghari ay talagang hahamakin ang lahat at masunod lamang.

## 12. The Quarrel

### *Siko-Analitiko*

Malinaw na ipinakita sa akda ang naging bunga ng mga pagpapasya ng mag-asawang sina Nina at Ismael bilang mga pangunahing tauhan. Ang naging desisyon nila na magsama sa murang edad sa kabila ng kahirapan ng buhay na naghihintay sa kanila. Ang kamalayan nilang mag-asawa sa kahirapan ng buhay ang nag-udyok sa kanila upang ipaglaban ang kanilang mga paninindigan sa mapang-aping pag-uugali ni Gng. Smith. Ipinakita rin sa akda na may malaking impluwensiya ang estado ng pamumuhay ng isang tao kung paano siya umayon at lumaban sa mga pagkakataong kailangan niyang maipagtanggol ang kanyang sarili. Katulad ni Nina sa kwento na isang hamak na maybahay at asawa ng isang gurong may kakarampot na kita, ay nagawa niyang maipakita sa asawa at sa ibang tao na kaya niyang ipaglaban ang kanyang sarili at maging ang karapatan nila bilang isang tao. Hindi niya inisip ang kahihyan niya at ng kanyang asawa dahil mas nanaig sa kanya ang nagliliyab na damdamin. Ang takbo ng pamumuhay sa isang lipunan ang pinakamotibo ng isang tao upang siya ay manatili. Tulad ng mag-asawa sa akda, hindi mababakas sa kanila ang anumang pagsisisi sa mga naging desisyon na kinahinatnat ng kanilang buhay, sa halip ay mas tumibay ang kanilang pagsasamahan.

## 13. The Transfer

### *Humanismo*

Ang bawat tao ay may kanya-kanyang sukatan ng pagpapahalaga sa buhay. Ang kaganapan ng pagkatao ng isang nilalang ay mapatutunayan sa mga taong tunay at may higit na pagpapahalaga rin sa kanila. Si G. Arabia na pangunahing

tauhan na nagbigay ng paggalang at pagpapahalaga kay Padre Ruivivar na itinuring niyang isang ama dahil sa mga naitulong nito sa kanya ay hindi maitatangging isang katangian ng tao na marunong magbalik ng magandang loob. Anumang kapintasan ng pag-uugali ang nailarawan sa Pari ay nabakas pa rin sa kanya sa dakong huli ang kababaan ng loob para sa mga taong higit na nakatataas sa kanya. Pinatunayan lamang na ang isang tao, gaano man katigas ang puso ay rasyunal pa ring mag-isip sa mga pagkakataong kinakailangan. Ang pagmamahal ni G. Arabia na hindi man niya lantarang inihayag sa Pari ay mababakas pa rin sa kanyang mga ikinikilos. Na ang isang tao ay nagiging mahina rin kapag nakikita niyang naaapektuhan ang isang taong malapit sa kanya. Ipinakita man ang pagkakaiba-iba ng mga tauhan sa kwento at ang taliwas na paniniwala ng mga ito ay umiral pa rin sa kanila ang mapang-unawang pag-iisip at damdamin ng isang karaniwang tao.

## 14. The Small Key

### *Romantisismo*

Pag-ibig sa asawa ang higit na nangibabaw na elemento sa akda. Ang pag-ibig ng pangunahing tauhan na si Soledad sa kanyang asawang si Pedro ang naging dahilan upang maipakita ang nagkukubling damdamin sa likod ng mga katotohanan. Nagawa man niyang sunugin ang mga damit ng dating asawa ni Pedro, iyon ay bunga lamang ng kanyang pagmamahal para sa kanya. Naroon man ang pag-aalinlangan at walang paliwanag na kasagutan sa ginawa niya ay mababakas pa rin ang tunay na pagtitimpi ng kanyang kalooban, at iyon ay dahil sa kanyang pagmamahal. Ipinakita naman sa katauhan ni Pedro ang pagmamahal para sa asawa nang hindi niya nakuhang magalit sa ginawa nito. Pag-aalala at pagpapatawad ang nasilayan sa kanya. Sa kwento ay mababakas na tunay na pag-ibig ang naghari dahil natutong magparaya ang mga tauhan huwag lamang masaktan ang taong kanilang minamahal. Naroon din ang paniniwala na ang pag-ibig lamang ang siyang makapagpapahilom sa sugat ng nakaraan. Katulad sa kwento, ang pagmamahalan ng mag-asawa ang siya pa ring nanaig upang patuloy nilang maunawaan ang isa't isa anumang kahinaan, kapintasan at pagkakamaling maidulot ng hindi sinasadya.

## 15. Two Brothers

### *Humanismo*

Wala nang titibay pa sa ugnayang mayroon sa dalawang taong nananalaytay lamang ang iisang dugo. Tulad ng magkapatid na pangunahing tauhan sa kwento ay naipakita ang samahang hindi na pangkaraniwang nangyayari sa isang lipunan. Sa anumang uri ng pakikipagsapalaran ay hindi maiwawaglit ang ugnayang mayroon sa isang tunay na pamilya. Ang magkapatid sa akda na sumasagisag sa isang relasyong hindi nababalian ng pagsunod at pang-unawa para sa mga higit na nakatatanda. Lalong tumitibay ang isang samahan kapag sinusubok ng tadhana, iyan ang naipakita sa bandang hulihan ng kwento na naglalarawan sa katangian ng isang kapatid na hindi umalis hanggang sa huli. Kapansin-pansin din ang pag-aalalang natural na nararamdaman ng isang kadugo bilang tanda ng walang kamatayang pag-aatubili. Ang kultura ng isang taong hindi lamang sumusukat sa ugnayang nagdudugtong sa kanila





kundi sa lipunang pareho nilang iniinugan. Wala nang relasyong maaari pang hangarin ang isang tao dahil maaari na itong patunayan ng mga pamilyang tunay na nandiyan para sa kanila.

### 3.2 Teoryang Istrukturalismo

Sa pagsasalin sa mga maikling kuwento ay nagamit nang maayos ang mga karaniwan at di-karaniwang ayos ng mga pangungusap kung ihahambing sa orihinal. Higit namang nagamit ang karaniwang ayos ng mga pangungusap sa mga salitaan sa mga isinaling maikling kwento na nagpapakita sa mga tiyak na sitwasyon at pagkakataon upang mas maging magaan ang daloy ng anumang usapan. Halimbawa ng mga dayalogo: The Other Woman “*Nasaan ang iyong ama?*”, “*Pupunta siya rito bukas.*”, “*Mahal niya ako.*” The Quarrel “*Nagsisisi ka ba?*”, “*Bumangon ka na riyan.*” The Small Key “*Patay na Siya.*”... “*Tulongan Niyo ako na makalimutan ang mukha ni Indo habang inilalagay ang maliit na susi sa bulsa.*” The Two Brothers “*Pinuntahan kita.*”, “*Tumahimik ka!*”

Sa pagsa-Filipino ng mga maikling kuwento ay hindi naapektuhan ang diwa ng mga pangungusap kahit na ang mga ito ay nagsimula sa simuno bago ang panaguri o kaya ay panaguri bago ang simuno. Halimbawa, sa isinaling kwento na Puso sa Tag-init, ang pangungusap na “*Pumasok siya sa kanyang silid*” ay hindi magkakaroon ng anumang pagbabago kung ito ay nasa di-karaniwang ayos na “*Siya ay pumasok sa kanyang silid.*” Karamihan din ng mga salitang nagamit ay payak, nagamit din nang maayos ang mga salitang inuulit at tambalan. Nakatulong din ang mga panlapi upang mas maging ganap at kaaya-aya ang kahulugan ng mga salita. Tulad ng salitang-ugat na *halaga* na tuwirang kahulugan ng salitang *consequence* na dinagdagan lamang na kabilaang panlapi na *kahan* na naging *kahalagahan* na kasingkahulugan ng salitang *bunga* na mas mainam gamitin bilang katumbas ng salitang *consequence*.

Ang kayarian ng mga parirala ay angkop na sumunod sa gamit ng mga pang-ugnay na “*na, ng at g*” tulad halimbawa sa ibinigay na katumbas sa *Servant Girl* na naging Kasambahay na Babae at maaari rin naman itong Babaeng Kasambahay. Mapapansin agad ang pagbabago sa gamit ng pang-ugnay ayon sa mga salitang sinundan ng mga ito, *na* para sa *katinig*, *ng* para sa *patinig* at *g* para sa salitang nagtatapos sa *n*. Sa pagpaparami ng pangngalan ay ginamitan lamang ng pantukoy na “*mga*” ang mga salita upang maipakita ang katumbas nito sa Filipino. Tulad sa pamagat na *A Night in the Hills* na naging Isang Gabi sa mga Buro, *The Flowers of May* na naging Mga Bulaklak ng Mayo at ang *The Dog Eaters* na tinumbasan ng *Mangangain* ang salitang Eaters. Ang pagtitipid sa mga salita ang mas nagamit sa mga salin na hindi naman nawala ang diwa ng mensahe tulad ng orihinal. Mapapansin ito sa mga naging katumbas sa Filipino ng mga maikling kwento. Halimbawa, ang *The Beetle* na tinumbasan na lamang sa Filipino na “*Salagubang*”, at *The Transfer* o “*Paglipat*”. Nasunod din ang aspekto ng pandiwa na angkop sa isinasaad na kilos kung ito ay natapos na, ginagawa o gagawin pa lamang ang kilos. Halimbawa, ang *It Rained Saturday Afternoon* na tinumbasan ng Umulan Noong Sabado ng Hapon, ang salitang *rained* na nasa apektong pangnagdaan para sa *umulan*. Ang mga pang-uri o salitang naglalarawan ay

maingat ding nagamit ayon sa hinihinging katumbas ng mga ito mula sa orihinal na akda. Halimbawa ng sipi mula sa kwentong *The Transfer*: “*They were pews for giants. But Father Ruivivar like them that way. “They are durable,” he said.*” na ang salitang *durable* ay tinumbasan ng “*matitibay*” na angkop lamang para sa bagay na inilalarawan.

Hindi naman nagkaroon ng pagbabago ang baybay ng mga akronim at mga salitang teknikal at estabilisado tulad ng *catether*, *suppository* at *bathrobe* na nagamit sa maikling kwentong Bahay na Puno ng mga Anak ng Babae. Ang mga panghalip panao at pamatlig ay karaniwan ding nagamit ayon sa pinakamalapit na katumbas nito sa Filipino. Ang *I* na tinumbasan ng *Ako*, *You* sa *Ikaw*, *We* sa *Tayo*, *Kayo* o *Sila*. Ang *This* sa *Iyan*, *These* sa *Ang mga ito* o *Ang mga iyan*. Nagkaroon lamang ng iisang panumbas para sa panghalip panaong *He* at *She* na *Siya* sa Filipino.

### Implikasyon ng Ginawang Pag-aaral sa Pagkatuto ng mga Mag-aaral ng Wika at Panitikan

Ang kalipunan ng salin ng mga maikling kuwentong ito ay magsisilbing pantulong na karagdagang babasahin para sa mga mag-aaral lalo na sa mga kumukuha ng kursong pampanitikan sa antas tersyarya. Higit nang magiging madali sa kanila ang gagawing pagsusuri ng mga maikling kuwento dahil mapagbabatayan nila ang mga babasahing ito sa mga gawaing pampanitikang nauugnay sa pagsasalin at pagsusuri ng mga maikling kwento. Makahihikayat din ang paunang pag-aaral na ito sa mas malawak na gawaing pananaliksik sa pag-aaral ng panitikan.

Sa pag-aaral at pagtuturo ng panitikan, higit na makatutulong ang pag-aaral na ito upang lubusang malaman at maunawaan ng mga mag-aaral ang nilalaman maging ang mga kaisipang nakapaloob sa mga maikling kwentong isinalin. Sa mga guro, mahihikayat silang bigyan din ng pansin sa kanilang pagtuturo ang katatasan ng mga mag-aaral sa mga pangunahing wikang ginagamit nila sa kasanayang pagbasa at pagsulat. Magdudulot ito upang lalo mapabuti sa mga mag-aaral na malinang sa kanila ang kahusayan sa pagkuha ng diwa, konsepto at mahahalagang datos sa anumang anyong babasahin. Sa pag-aaral ng wika, makatutulong ang mga babasahing ito sa mga mag-aaral upang lubusang lumawig ang kanilang mga kaalaman at kahusayan sa balarila, semantika at sintaks na naipakita sa ginawang pagsasalin. Ito rin ay lilikha ng kawilihan sa kanila upang gawing makabuluhan ang ginagawang pagbabasa.

Mag-uudyok din ang pag-aaral na ito sa mga guro sa Filipino at Ingles upang maging malikhain sa pagtuturo, mula sa mga ginawang pagsasalin ay maaari silang gumawa ng mga gawaing pangklaseng susukat sa kakayahan ng mga mag-aaral sa kahusayan sa wika at kritikal na pang-unawa mula sa mga teksto. Maaari niya ring ilakip ang mga uri ng pagsasanay na nauugnay sa pagsasalin at pagsusuri nang sa gayon ay mahimok ang mga mag-aaral na kumatha rin ng mga akdang maghahantad sa kanila ng bagong karanasan at kasanayan. Mabibigyan din ng pagpapahalaga ang mga manunulat na Pilipino sa Ingles o kaya ay magkabilaan dahil lubusan nang mapag-aaralan ng mga mag-aaral ang mga akdang nagpapakilala sa kanila. Gayundin ay



mapahalagahan ang wika, kultura at kasaysayang tinatalakay sa iba't ibang akdang pampanitikan.

## LAGOM, KONGKLUSYON AT REKOMENDASYON

### Lagom ng Resulta ng Pag-aaral

1. Batay sa kinalabasan ng pagtataya, ipinahayag ng mga tagahatol na *Napakahusay* ng ginawang pagsasalin sa pangkabuuang katampatang tuos na 4.52.
2. *Napakaangkop* ng pagsasalin na mga maikling kwento na may pangkabuuang katampatang tuos na 4.62.
3. *Napakahusay/Napakaangkop* ng isinagawang pagsasalin sa mga maikling kuwento sa kabuuang pinagsamang tuos na 4.58.
4. Naipakita na *Napakahusay* at *Napakaangkop* ng pagsasalin sa mga maikling kuwentong: *A House Full of Daughters/Bahay* na Puno ng mga Anak na Babae; *A Night in the Hills/Isang Gabi* sa mga Buro; *It Rained Saturday Afternoon/Umulan Noong Sabado* ng Hapon; *People of Consequence/Kahalagahan* ng Pagkatao; *Servant Girl/Kasambahay* na Babae; *The Beetle/Salagubang*; *The Dog Eaters/Mangangain* ng Aso; *The Flowers of May/Mga Bulaklak* ng Mayo; *The Other Woman/Kalaguyo*; *The Small Key/Ang Munting Susi*; *The Transfer/Paglipat*; at *Two Brothers/Ang Magkapatid*.
5. *Mas Mahusay* at *Mas Angkop* din naman ang pagsasalin sa mga maikling kuwentong: *Heart of Summer/Puso* sa Tag-init; *The Black Monkey/Ang Itim* na Unggoy at *The Quarrel/Alitan*.
6. Sa pagsusuring ginawa, ay nangibabaw ang pagiging Humanismo ng mga akda sapagkat naipakita sa mga akda na ang kalakasan at kahinaan ng tao bilang sentro ng daigdig.
7. Namayani rin ang Romantisismo sa mga maikling kuwento dahil binigyang-pansin ang pag-ibig at iba pang kulay ng damdamin sa mga kuwento na kung saan mas umiral sa mga tauhan ang kanilang nararamdaman upang maging malaya sa mga likhang imahinasyon at nagkukubling katotohanan.
8. Naipakita rin ang pagiging Feminismo dahil nabigyan ng mahalagang bahagi ang mga tauhang babae sa kuwento na kung saan naipakita ang kanilang mga kakayahan at paninindigan sa pagpapasya sa kanilang sariling buhay, mga tagumpay at suliraning kinakaharap ng kanilang mga pamilya at maging ang pakikilahok sa lipunang kanilang kinabibilangan.
9. Naipamalas din sa mga pangyayari sa akda ang pagiging Siko-Analitiko, na ang isang tao ay nagkakaroon ng sariling pag-iisip at pagpapasya bunga ng kahirapan ng buhay, gawi at kaasalan ng mga taong nakapaligid sa kanya.
10. Sa pamamagitan ng Teoryang Istrukturalismo ay naipakita ang kaangkupan ng wikang ginamit sa pagsasalin ng mga maikling kuwento dahil ang mga ito ay sumunod sa tamang kayarian at kaayusan ng mga salita, parirala at pangungusap. Nagamit din nang

maayos ang mga aspekto ng pandiwa at mga salitang naglalarawan upang manatili ang diwa at mensahe ng mga katha mula sa orihinal.

### Konklusyon

Pinatunayan ng pag-aaral na ito na ang ginawang mga saling maikling kuwento sa Filipino ay:

1. Nagpapahalaga sa tuntuning panretorika dahil ang mga ginamit na salita, parirala at pangungusap ay malinaw, nakahihikayat, may ugnayan at kaisahan.
2. Nagtataglay ng kawastuhang pangramatika sapagkat nagamit nang wasto ang mga bahagi ng pananalita, may maayos na baybay sa Filipino ang mga salita at balanseng gamit ng karaniwan at di-karaniwang pangungusap.
3. Naisalin nang tama ang mga matatalinhagang pananalita dahil sa nagamit ito ng maayos sa salin na nagtataglay ng kapayakan upang madaling maunawaan ng mga mambabasa.
4. May kalinawan ang mga salitang ginamit sa pagsasalin sapagkat naipakita ang diwa at mensahe ng mga isanaling maikling kwento kung ihahambing sa orihinal.
5. Nagtataglay ng katangiang pampanitikan sapagkat ang nilalamang diwa ng salin ay tulad ng nilalamang diwa ng orihinal at naipakita ang aral at mensaheng nakapaloob sa mga akda.
6. Nagtataglay ng kaangkupan ang salin sapagkat angkop ang tema, kaisipan, banghay at damdamin ng mga maikling kuwento kung ihahambing sa orihinal.
7. Nangibabaw sa anim na maikling kwento ang Teoryang Humanismo dahil naipakita ang kahinaan at kalakasan ng mga tauhan kung paano tumugon sa mga kakulangan at pangangailangang hinahangad nila sa buhay. Pinatunayan din sa mga akda na ang isang tao ang sentro at sukatan ng anumang bagay sa daigdig.
8. Namayani rin sa apat na maikling kuwento ang Teoryang Romantisismo sapagkat naipamalas sa mga akda ang iba't ibang kulay ng damdamin: Pag-ibig para sa minamahal, para sa pamilya, para sa kapwa at para sa Diyos.
9. Nakitaan din ang tatlong maikling kwento ng Teoryang Feminismo sapagkat higit na umiral sa mga akda ang mga babaeng tauhan na nagpakita ng iba't ibang imahen ng kalakasan sa kabila ng mga pag-aalinlangan, pagkabahala, sigalot at mga paghihirap na kanilang kinaharap.
10. Naipamalas din ang Teoryang Siko-Analitiko sa dalawang maikling kuwento dahil naipakita sa mga akda na ang pagkakaroon ng kamalayan ng isang tao ang sumusukat sa kanya kung paano tumugon sa lipunang kanyang ginagalawan.
11. Nagamit din ang angkop na wika sa ginawang pagsasalin dahil nasunod nito ang kayarian at kaayusan ng mga salita, parirala at pangungusap gayundin ang iba pang bahagi ng pananalita na naaayon sa Teoryang Istrukturalismo.



## Rekomendasyon

Ang mga sumusunod ay mga mungkahing nabuo pagkatapos ng pagsusuri, pagpapakahulugan sa mga datos upang makatulong sa mga guro ng Filipino na gumamit ng mabibisang pamamaraan o estratehiya sa kanilang pagtuturo.

1. Sa mga paaralan at pamantasan, kilalanin at pag-aralan ang mga lokal na manunulat at ang kanilang mga kontribusyon sa rehiyunal na panitikan upang maisama sa pambansang panitikan.
2. Sa mga pinuno at opisyal ng mga pamantasan, hikayatin at tulungan ang mga nasasakupang guro sa paglikha ng mga kagamitang pampagkatuto. Maglaan ng pondo para sa paggawa at pagpapalimbag ng mga lunsarang teksto at iba pang babasahing makatutulong sa pang-akademikong gawain ng mga mag-aaral.
3. Hikayatin ang mga gurong nagtuturo hindi lamang ng Filipino na gumawa ng mga kapakipakinabang na babasahin tulad ng mga modyul at iba pang kagamitang makapagpapagaan sa pagtuturo at pagkatutuo ng mga mag-aaral.
4. Himukin ang mga guro sa Filipino na gumawa pa ng mga pag-aaral tungkol sa pagsasalin at pananaliksik gamit ang iba't ibang dulong pampanitikan upang sa ganoon ay mabibigyang pagkakataong masuri at mapahalagahan ang isang akda.
5. Ilakip sa silabus ng mga kursong pampanitikan ang tungkol sa pananaliksik, pagsasalin at pagsusuri ng iba't ibang akdang pampanitikan na nasusulat sa bernakular, wikang Ingles at iba pang wika na pawang mga Pilipino ang kumatha.
6. Isama sa mga gawaing pangklase ang tungkol sa pagsasalin at pagsusuri ng mga akdang pampanitikan upang magkaroon ng kaalaman at kawilihan ang mga mag-aaral sa pag-aaral ng panitikan.
7. Sa mga iba pang mananaliksik, mangalap at magsalin pa ng ibang mga akdang pampanitikan ng rehiyon na nasusulat sa bernakular nang sa ganoon ay maibahagi at maipaunawa sa mga mag-aaral ang mga kultura't kakayahan ng mga Pilipino mula sa iba't ibang rehiyon ng bansa.
8. Magkaroon ng kolaboratibong pag-aaral at pananaliksik sa wika at panitikan sa mga asignaturang Filipino upang lubusang malinang ang kakayahan ng guro at mag-aaral sa pagtalakay ng anumang anyo ng babasahin.
9. Magkaroon ng mga komperensya, seminar-worksyap at iba pang gawain patungkol sa istandardisasyon ng pagsasalin na makapagdudulot ng kaalaman sa mga guro at mag-aaral sa ikauunlad ng mga akademikong gawain ng mga paaralan at pamantasan.
10. Ipagpatuloy ang pagsasalin at pagsusuri ng mga makabagong maikling kwento sa Ingles upang higit itong maunawaan ng mga mag-aaral at maging ng mga may hilig sa pagbabasa at sa gayon ay mapahalagahan din nila ang manunulat na Pilipino sa Ingles.

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# REDEFINING MANAGEMENT EDUCATION IN INDIA: CHALLENGES & OPPORTUNITIES

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## ABSTRACT

*Management education in the 21st century is undergoing internationalization due to rising demand from students for globalized courses and employers' need for talent with international perspectives. As business schools strive to cater to a larger audience, they face the challenge of maintaining educational quality while ensuring their students are accepted by the industry. To remain competitive on a global scale, management education must adapt to and embrace global trends. However, this process comes with challenges such as the cost of education, pedagogy, and cross-cultural issues. Globalizing management education encompasses not only academic aspects but also socio-political, institutional, psycho-social, and cultural dimensions. This research paper explores the opportunities and challenges associated with globalized management education, focusing on curriculum development, accreditation, rankings, admission criteria, program length, emerging trends, and adaptation challenges. Additionally, the paper provides recommendations to enhance the quality of management education in India, taking into account recent statistics and developments.*

**KEYWORDS:** Globalization, Business Schools, Management Education, Pedagogy, Cross Cultural Problems.

## INTRODUCTION

Globalization has emerged as a powerful catalyst for change in various aspects of business, including product operationalization, currency exchange, and trade facilitation. It has successfully dismantled barriers to trade, established an international regulatory framework, and fostered collaboration in scientific research. The institutionalization of globalization is crucial in comprehensively embracing its benefits. However, the relentless pace of globalization, coupled with rapid technological advancements, has posed challenges for organizations striving to thrive in a fiercely competitive world. Consequently, the significance of education has multiplied manifold. Business leaders must constantly update their skills to adapt to the ever-changing external landscape. Considering the growing complexity of organizations and business environments, business schools have a crucial role in equipping students with relevant, up-to-date, and cutting-edge knowledge. It is imperative for educational institutions to strike a balance between the cost of education and its quality. A major critique of management education lies in the gap between theory and practice, highlighting the need to transform education into a window of opportunity rather than a mere reflection of existing knowledge. One of the major criticisms of management education schools is the gap between theory and practice *"The whole purpose of education is to turn mirrors into windows"*.

According to **Joseph Stiglitz**, an economist and winner of the Nobel prize defines Globalization as follows: *"Globalization is the closer integration of the countries and people of the world brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital knowledge, and people across borders"*.

Globalization drives enterprises, their products, and services beyond national boundaries, fostering global interaction, networking, communication, and transaction execution. It facilitates the expansion of trade, investment, capital, and technology, and fosters political, economic, and cultural integration among nations. The field of management education equips students to become business leaders, managers, university professors in business education, and entrepreneurs. It also helps them adapt to evolving laws, regulations, and trends.

The assessment of a global institution is based primarily on the outcomes it achieves, followed by the processes it employs and the locations it operates in. While actions and locations contribute to globalization, schools are ultimately evaluated based on the results they produce. A global school of management aims to prepare students to excel in a world of intense global business competition and address inherently global issues. It generates research insights into global management trends and best





practices, leveraging diverse cultures and practices to drive innovation and continuous improvement.

The era of Globalization and Liberalization marked a golden period in the Indian IT industry, leading to the proliferation of services across the nation and driving overall economic development. During this period, the focus on talent development primarily revolved around rapid acquisition of programming skills and practical experiences. Globalizing management education encompasses not only academic perspectives but also socio-political, institutional, psychosocial, and cultural aspects.

**For Academia-** Advanced teaching pedagogy for delivering the ever-increasing quantum of knowledge in addition to having an interdisciplinary approach would prove to be of paramount significance.

**For Industry** – Integrative perspectives in different countries in addition to conceptualizing with a macro vision whereas executing it at a micro level would be the key to survival.

### What is a global MBA?

According to Peter Zemsky, deputy dean of degree programs and curriculum at INSEAD, a renowned business school with campuses in France, Singapore, and Abu Dhabi, there are several factors to consider when evaluating the global nature of an MBA program. These factors include the diversity of students and faculty, the international focus of the curriculum and course material, the employment and recruitment opportunities available to graduates, the breadth and reach of the alumni network, and the presence of the business school in multiple locations or through partner programs. Assessing these characteristics is essential in determining the global nature of an MBA program, as there is no single defining factor.

### NEED FOR THE STUDY

Business and management education have a significant role to play in fostering social progress and nurturing entrepreneurial drive within a society. However, business schools face numerous

challenges when it comes to delivering high-quality education. Constant pressure from external forces and stakeholders compels these institutions to adapt to the ever-changing business landscape. With globalization and rapid technological advancements, organizations struggle to survive in a highly competitive world, thereby increasing the importance of management education. Consequently, business executives must continually update their skills to navigate the unpredictable external environment. To prepare for future challenges, higher education reforms become inevitable. Educational institutions must strive to strike a balance between the cost of education and its quality, as one major critique of MBA schools is the perceived gap between theory and practice.

### OBJECTIVES OF THE STUDY

- To examine the Globalization Scenario of Management Education in India.
- To find Challenges for Indian Management Education system.
- To study the Opportunities for Indian Management Education system.
- To offer suitable recommendations to improve the quality of management education in India.

### RESEARCH METHODOLOGY

Present study is qualitative in nature which describes the challenges and opportunities of globalizing management education in India for academia and students. Data for the paper has been collected through the various secondary sources such as research papers, online journal articles, newspapers etc.

The aim of this paper is to present a clearer insight into the concept of the globalization of management education and various strategies employed business schools for delivery of education, in order to provide an analytical basis for student choice of the options offered.

### History of Management Education in India

YEAR	NAME OF INSTITUTE	DISCRIPTION
1886	Commercial School of Pacchiappa Charties, Chennai (Madras)	India's first management school
1913	Sydenham College, Mumbai	First college level Business School
1936	Tata Institute of Social Sciences, Bombay	Offering executive programmes to managers
1946	Xavier Institute of Labour Relations, Jamshedpur	Offering executive programmes to managers
1948	Indian Institute of Social Science	India's first management program
1953	Indian Institute of Social Welfare & Business Management (IISWBM), Calcutta	India's first official Management Institute
1961	IIM Calcutta	Focus on Quantitative & Operational aspects of management.
1962	IIM Ahmedabad	Emphasis on Qualitative strategic-integration
1973	IIM Bangalore (Karnatka) & Lucknow (Uttar Pradesh)	Professionalize Indian Management education





1996	IIM Kozhikode (Kerala) & Indore (Madhya Pradesh)	Professionalize Indian Management education
2007	IIM Shillong (Meghalaya).	Professionalize Indian Management education
2010	IIM Rohtak (Haryana), Ranchi (Jharkhand) and Raipur (Chhattisgarh)	professionalize Indian Management education
2011	IIM Trichy (Tamil Nadu), Udaipur (Rajasthan) and Kashipur (Uttarakhand)	Professionalize Indian Management education
2015	IIM, Nagpur (Maharashtra), Bodhgaya (Bihar), Viskhapatnam (Andhra Pradesh), Amritsar (Punjab), Sambalpur (Odisha) and Sirmaur (Himachal Pradesh)	Professionalize Indian Management education

The Master of Business Administration (MBA) has gained global recognition as the most widely accepted graduate business degree, serving as the primary qualification for aspiring managers. While MBA education has a history of 80 years, it has only been acknowledged as a legitimate academic field by universities for the past 28 years. Extensive research exists on various aspects of MBA studies, including curriculum, teaching methods, types of MBA programs, and business school rankings. As a result, prospective students have a range of options to consider when pursuing an MBA. However, limited resources and affordability pose challenges in developing countries, as explored in this paper. Notably, leading business schools in the United States, United Kingdom, Canada, and Australia have successfully exported the MBA qualification as an international product.

### Factors Led to Growth of Management Institutions after Globalization

After 1991, a significant number of multinational corporations (MNCs) entered the Indian market, prompting domestic companies to step up their competition. Several factors contributed to this trend:

1. Shifting agricultural workers to the industrial sector led to the opening of new industries.
2. Urbanization resulted in the migration of rural populations to urban areas.
3. The emergence of large markets and products attracted business ventures.
4. The expansion of trade markets led to a rise in both exports and imports.
5. The growth of organized retail chains increased the demand in the retail market.
6. The increasing number of mergers and acquisitions created a demand for a large pool of professionally qualified individuals, leading to the entry and establishment of MNCs.
7. The expansion of banking facilities necessitated a greater number of knowledgeable professionals in financial management.
8. Technological advancements in industries created a need for operational management personnel.
9. The surge in advertising created a demand for marketing management experts.

### Statutory Bodies – Regulating Quality of Management Education

Management education in India is coordinated and controlled by several bodies. The following are the major regulating bodies:

#### 1. All India Council for Technical Education (AICTE)

The AICTE was set up by an act of parliament in 1945 as national body to inspect and monitor technical education facilities and to promote education in a coordinated and integrated manner. Later, the National Policy of Education (1986) vested the AICTE with the statutory authority for planning, formulating, ensuring, maintenance of norms and standards, assuring quality through accreditation, deciding funding for priority areas, monitoring and evaluation, and maintaining the parity of certification and awards. The AICTE sets the norms that colleges need to follow to teach a particular course, down to the exact infrastructure, and qualification of faculty.

#### 2. University Grants Commission (UGC)

University Grants Commission was established in Nov. 1956 as a statutory body of the Government of India through an Act of Parliament. Its mandate is to promote and coordinate university education, determine and maintain standards of teaching, evaluation and research in universities, frame regulations on minimum standards of education, monitor developments in the field of collegiate and university education, disburse grants to the universities and colleges.

#### 3. National Board of Accreditation (NBA)

NBA is a body of AICTE whose role is to assure the quality of the technical education programs. This body ensures the quality of process of the programs by a clearly measurable variable, which has a set of eight different parameters, with the quantification of 1000 marks. After ensuring the process, it accredits the course either for three years or for five years, based on the score.

### Present structure of Management Education in India

The present structure is as follows, it is divided into six categories.

1. Autonomous institutions (IIMs).
2. University Departments of Management studies.
3. Colleges & institutes affiliated to universities.
4. Private or Govt. Institutes approved by AICTE
5. Private Institutes or colleges not affiliated to any universities and are not approved by AICTE.



### Challenges of Globalized Management Education

- Educational institutions face various obstacles due to regulations, reputation, cultural differences, and financial limitations.
- While student mobility across borders remains high, faculty and institutional mobility is gradually increasing.
- The process of globalization introduces new competitors in terms of attracting students, faculty, and investment.
- Entry into the field of management education is relatively easy, but it is highly segmented based on factors such as mission, size, resources, and reputation.
- Globalization is reshaping previous assumptions, practices, and strategies in this field.
- Integration of global perspectives into the curriculum is becoming increasingly important.
- Resource limitations at the individual (e.g., students) and organizational (e.g., business schools) levels pose challenges.
- Cultural and traditional differences among communities affect management education.
- The need for global benchmarking and competition.

### Opportunities of Globalized Management Education

- Comparing the quality of business programs internationally, considering accredited institutions.
- Evaluating global business school rankings and their positions.
- Exploring institutional connectivity, including connections, collaborations, and competition among providers worldwide.
- Assessing affiliations with regional or international management education organizations.
- Examining international partnerships, joint ventures, and strategic alliances.
- Promoting the exchange of individuals, institutions, information, and ideas.
- Accessing various fellowships and scholarships for students.
- Developing proficiency in foreign languages and cultures.
- Accessing high-quality education from renowned institutions.
- Enhancing employment prospects with better-paid opportunities.

### Recommendations to Improve Quality of Management Education

- Grant autonomy to business schools and discourage regulatory authorities from seeking uniformity in MBA courses.
- Implement mandatory rating of all MBA institutions by credit rating agencies like CRISIL and ICRA.

- Introduce compulsory practical apprenticeships with companies, collecting recruiters' feedback to enhance student quality.
- Establish a feedback mechanism for students to evaluate the teaching-learning process.
- Promote leading MBA institutions to mentor 3-4 other schools to improve overall quality.
- Enhance the institution-industry interface through research, internships, and collaborative curriculum development.
- Include intensive on-field work and practical exposure, following the example of institutions like TISS, for at least one term in a two-year program.
- Increase international representation among faculty and students to align with the global economy.
- Encourage a diverse MBA class composition by reducing the dominance of engineering students.
- Support faculty in developing India-centric case studies.
- Organize conferences on fostering innovation and innovative mindsets, catering to established organizations and startups alike.

### CONCLUSIONS

Management institutes today face various challenges in preparing their students to meet the demands of the globalized corporate world. However, these institutes often struggle to implement quality benchmarks due to constraints such as political interference, financial limitations, and academic obstacles. To overcome these challenges and ensure a high standard of education, it is crucial for these institutions to have a certain degree of autonomy. This autonomy would enable them to address the aforementioned issues and hire qualified faculty members. Moreover, Indian B-schools must adopt a more rigorous and strategic approach to shaping the global curriculum, integrating international courses into every specialization alongside core subjects. Additionally, the faculty should comprise world-class professionals with international exposure and diverse industry experience.

In order to fulfill the requirements of a growing nation, it is imperative to enhance the quality of MBA graduates and improve MBA institutions based on the recommendations provided in this paper and other relevant studies. To meet the expectations of various key stakeholders, including students, faculty, society, industry, government, and the global community, B-schools in India need to revitalize management education across the country. Japan's success in becoming a top industrial nation can be attributed, in part, to their belief in "Developing people before developing products." Indian management education should also adopt this approach, prioritizing the development of individuals as a means to achieve overall progress.



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# CO-RELATIVE STUDY OF TEENAGERS LANGUAGE CREATIVITY, EMOTIONAL INTELLIGENCE AND EDUCATIONAL ACHIEVEMENTS AT COLLEGE LEVEL

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## ABSTRACT

*The aim of this Research is to study of teenager's language creativity, emotional intelligence and educational achievements. survey method is used for this research work and null hypothesis has been used. dependant variable is used for measurement of language creativity and first year examination marks are untaken for emotional intelligence and for educational achievement. Sampling of students is used by standard random method.*

*Critical thinking is almost a requirement for creativity when making decisions from a range of options and assessing results and solutions. Some kids have a strong enough need to exhibit their creativity. Consequently, the most important priority for schools today has been to discover. the element of creativity, how much it is emphasized as a component of education, and how does it support students' creative expression? In order to achieve the goal of sustainable development, not only in the field of education but also in the creation of new technologies, it is also necessary to give urgent attention to harnessing the creative qualities. This is based on the premise that a learning society needs individuals who are not only intellectually facile but also, and especially, creative and constructive.*

**KEYWORDS:** *Sampling, investigation, research, emotional intelligence (EI).*

## INTRODUCTION

Researchers first defined a non-intellectual intelligence known as "social intelligence" in the late 1930s, which laid the foundation for the idea of emotional intelligence (EI). Numerous people have been looking for the reasons behind success and failure because they are aware that even those with high IQs are not always successful. As a result, two American University professors named Dr. John D. Mayer and Dr. Peter Salovey introduced the idea of "Emotional Intelligence" in 1990, defining it as "a form of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action"

Literature Regarding Language Creativity, Emotional Intelligence and Educational Achievements-

### Research Questions

1. What Is the Stage of Teenagers' Language Creativity, Emotional Intelligence and Educational Achievements at Secondary Level?
2. What Is the Stage of Different Aspects Determining the Teenagers' Language Creativity, Emotional Intelligence at Secondary Level?

### Problem Statement

Corelative Study of Teenagers Language Creativity, Emotional Intelligence and Educational Achievements at College Level

## I. METHODOLOGY

### Research Method-

"Descriptive Survey Method" Has Been Used in This Research.

### Aims Of Research Study-

1. To Differentiate of Teenagers' Language Creativity, Emotional Intelligence And Educational Achievements at College Level of Art Stream Students.
2. To Differentiate of Teenagers' Language Creativity, Emotional Intelligence and Educational Achievements at College Level of Science Stream Students.

3. To Differentiate of Teenagers' Language Creativity, Emotional Intelligence and Educational Achievements at College Level Of Commerce Stream Students.

### Research Hypothesis

1. There Is No Positive Difference Of "Art Students" Of Teenagers' Language Creativity, Emotional Intelligence and Educational Achievements.
2. There Is No Positive Difference Of "Science Students" Of Teenagers' Language Creativity, Emotional Intelligence and Educational Achievements.
3. There Is No Positive Difference Of "Commerce Students" Of Teenagers' Language Creativity, Emotional Intelligence And Educational Achievements.

### Limitations

1. This Research Has Been Used In Bareilly District.
2. Students Of Art Stream, Science Stream And Commerce Stream Have Been Added In This Research.
3. This Research Work Is Limited Till The Possibilities Of Language Creativity, Emotional Intelligence And Educational Achievements.

## II. MODELING AND ANALYSIS

### Sampling-

There Are Teenage Students As Population For This Study At Secondary Level. 02 Different Colleges Of Bareilly District Were Selected And 60 Students Were Selected By Random Sampling



Figure1: Emotional Intelligence areas

### Variable

We Have to Do Co Relative Study on Language Creativity, Emotional Intelligence and Educational Achievements, In Which Language Creativity, Emotional Intelligence and Educational Achievement Are Dependable Variables and Teenage Students Are Free Variable.

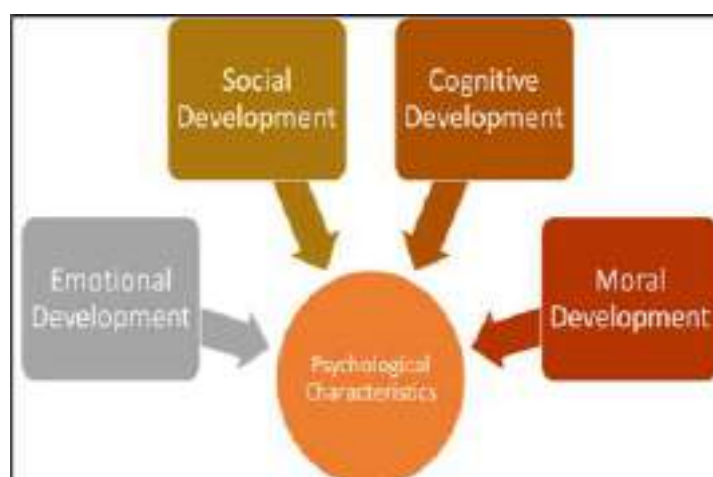


Figure2: Psychological Characteristics





**TEENAGERS** - 20 Students Of Art Stream  
 20 Students of Science Stream  
 20 Students of Commerce Stream

#### Tools

Researcher Has Used “Standardized Test” In This Research.

#### Nature Of Data

“Qualitative Data” Has Been Used In This Research By The Researcher.

### III. RESULTS AND DISCUSSION

#### Statistics - Median

#### Standard Deviation

#### T- TEST

Variables	Correlation	Level of significance
Emotional Intelligence Vs Academic Achievement	$r = 0.251$	Significant at 0.05 level.

**Figure3: Variables & Correlation**

#### Statistical Analysis of Data-

Experiment Of Hypothesis Is Used in Statistical Analysis, Which Is Below-

1. **Hypothesis-** There Is No Positive Difference Of “Art Students” Of Teenagers’ Language Creativity, Emotional Intelligence and Educational Achievements.

**Table 1. Comparison of all cases**

GROUP	N	M	S.D.	D	df	Ed	T VALUE	SIGNIFICANCE OF LEVEL
G.I.C.	30	24.8	17.7	2.2	58	4.66	0.47	0.05
GG.I.C.	30	27.0	17.83					

According To Table 1 T Value Is Positive 0.47, Which Is Less On Free Part Of 58 At 0.05 Therefore Null Hypothesis 1 Is Accepted.

2. **Hypothesis-** There Is No Positive Difference Of “Science Students” Of Teenagers’ Language Creativity, Emotional Intelligence And Educational Achievements.

**Table 1.1**

**Mean, Standard Deviation and ‘t’ values of creativity (fluency, flexibility and originality) between male and female senior secondary school students**

Dimensions of Creativity	N	Mean	S.D.	‘t’ value	Level of Significant
Fluency female	75	27.05	10.57	6.223	Significant at 0.01 level of significance
Fluency male	75	16.21	10.75		
Flexibility female	75	14.12	5.48	6.238	Significant at 0.01 level of significance
Flexibility male	75	8.69	5.16		
Originality female	75	7.56	6.50	3.379	Significant at 0.01 level of significance
Originality male	75	4.25	5.53		

Table Value : 1.96 at 0.05 level

: 2.58 at 0.01 level

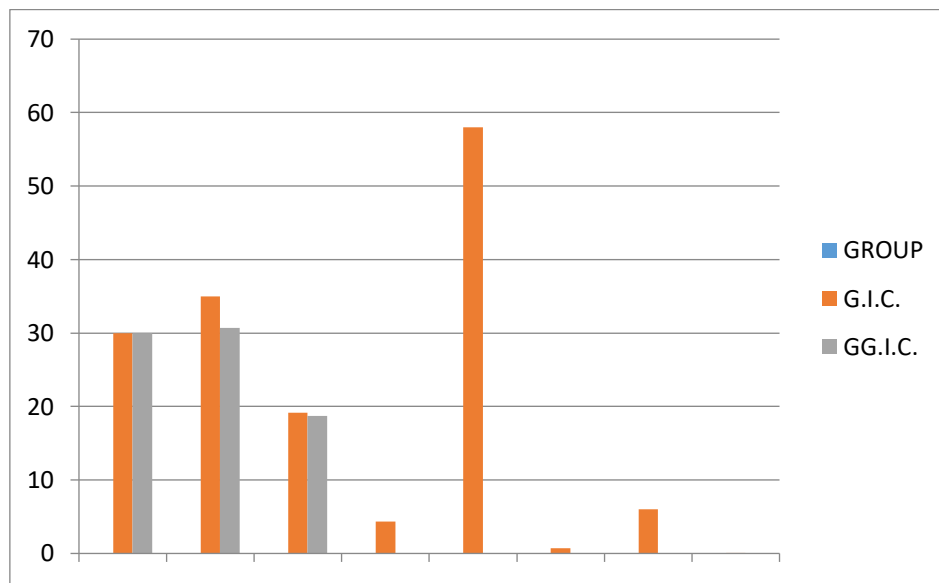


Figure4: Bar Chart for Data

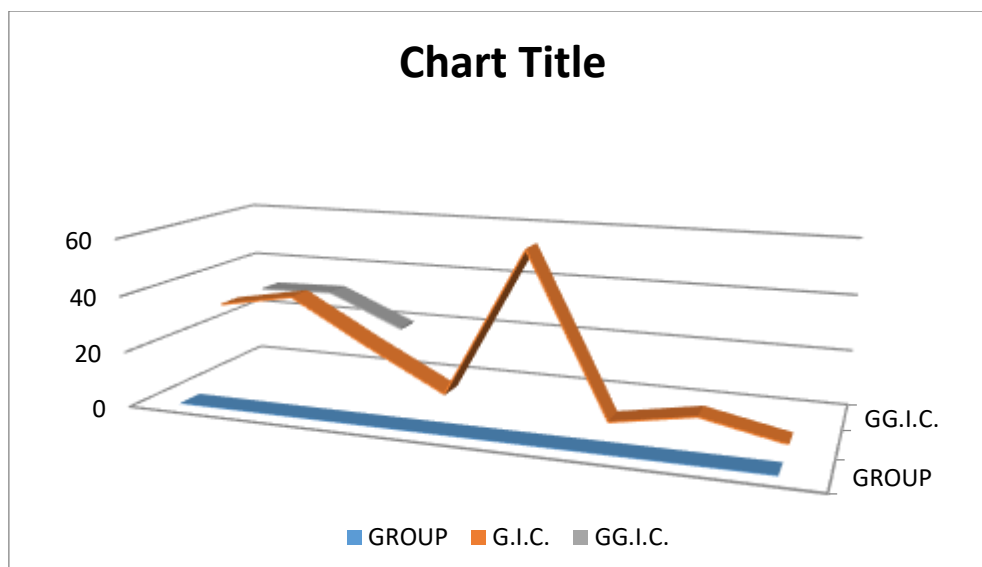


Figure5: Data investigation

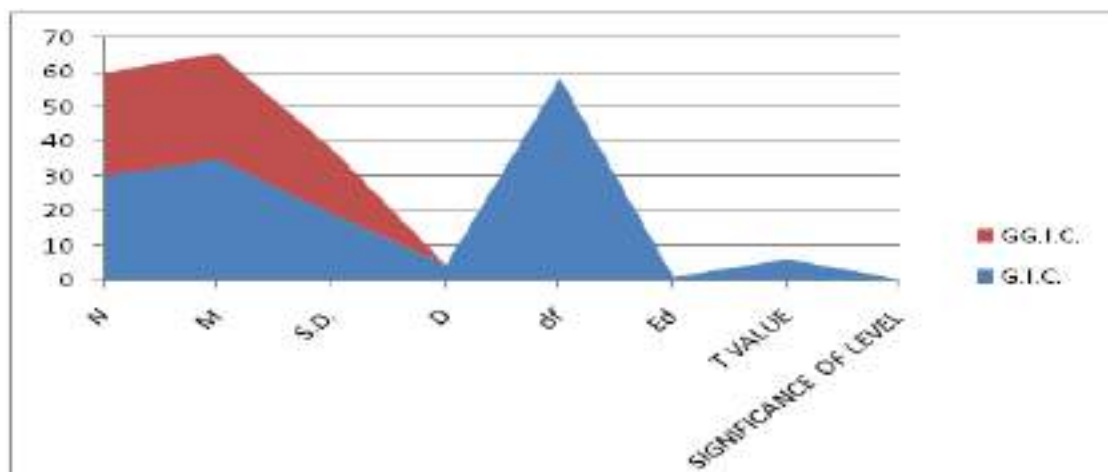


Figure6: Significance level

Table 2. Comparison of all cases



GROUP	N	M	S.D.	D	df	Ed	T VALUE	SIGNIFICANCE OF LEVEL
G.I.C.	30	27.33	15.85	13.34	58	4.24	03.15	0.01
GG.I.C.	30	40.67	16.46					

According To Table 2 T Value Is 03.15, Which Is More Than 58 Of Free Part At 0.01 Positive Level. Therefore Null Hypothesis 2 Is Rejected.

3. **Hypothesis T**-Here Is No Positive Difference Of “Commerce Students” Of Teenagers’ Language Creativity, Emotional Intelligence And Educational Achievements.

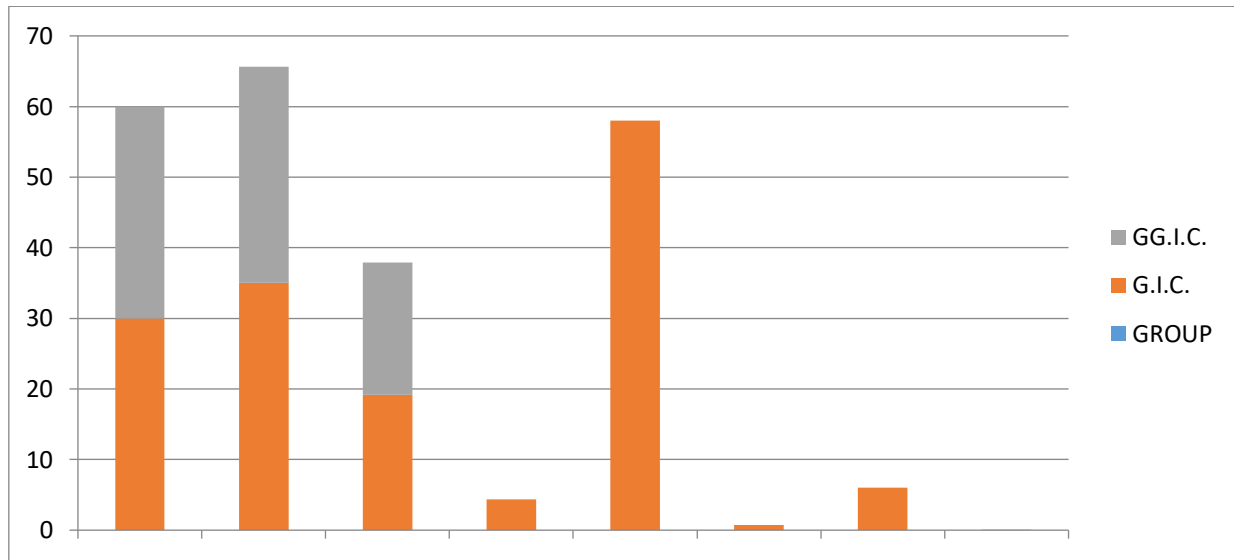


Figure7: Various levels Bar Charts

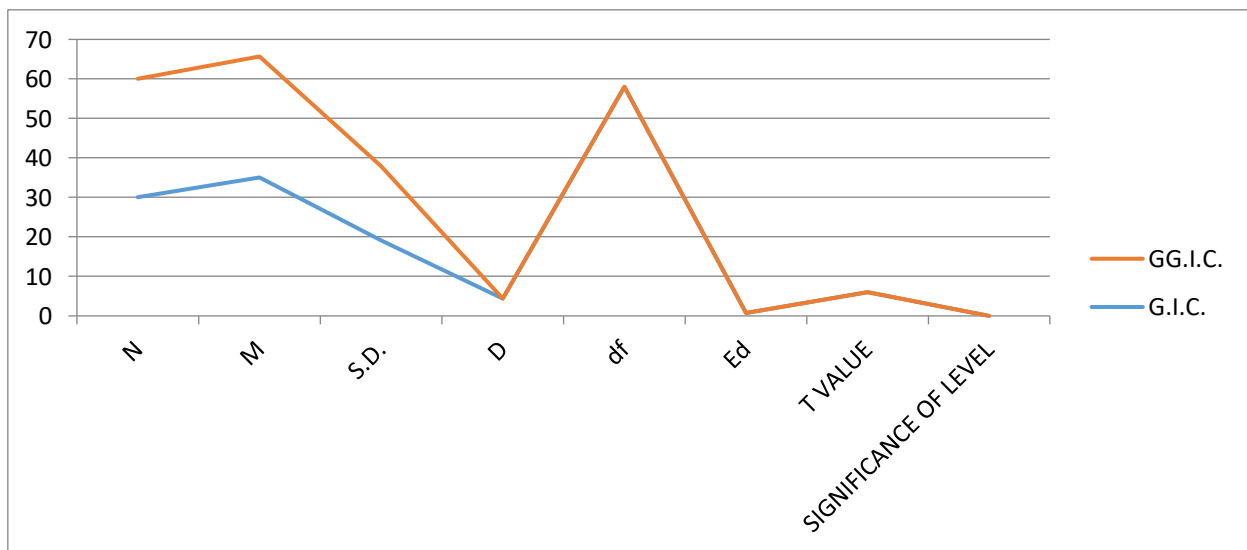


Figure8: Various levels data Analysis

Table 2. Comparison of all cases

GROUP	N	M	S.D.	D	df	Ed	T VALUE	SIGNIFICANCE OF LEVEL
G.I.C.	30	35	19.14	04.33	58	0.72	06.01	0.01
GG.I.C.	30	30.67	18.74					

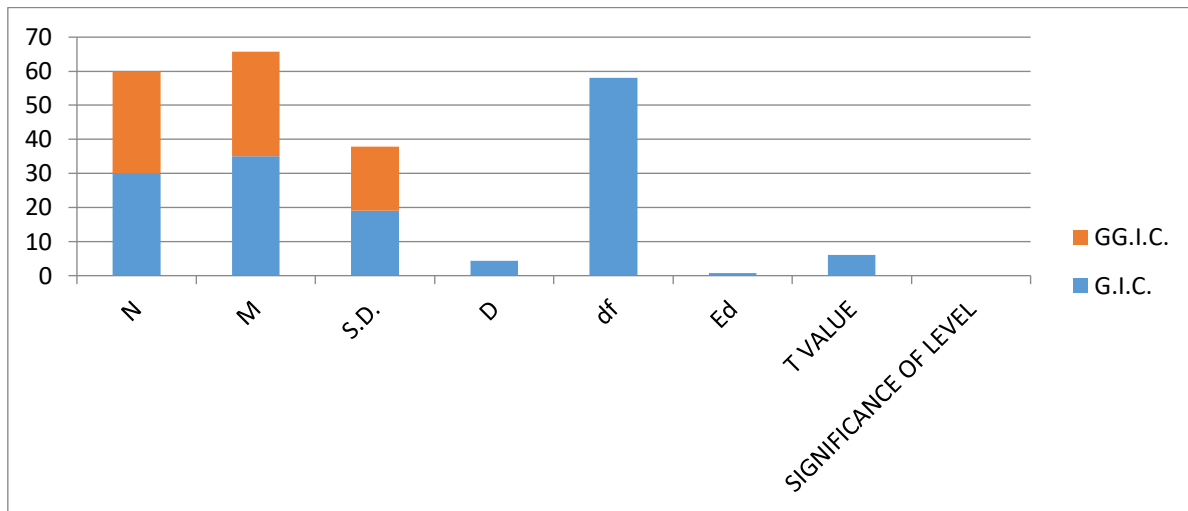


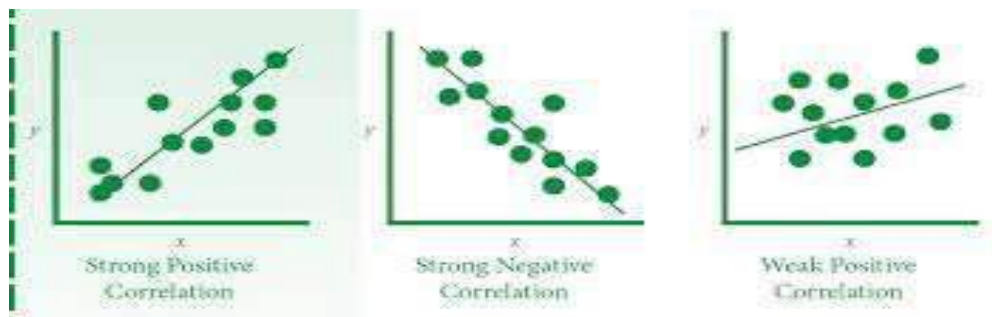
Figure9: Various levels data Analysis

#### IV. CONCLUSION

##### RESULTS-

1. There Is No Difference Among Language Creativity, Emotional Intelligence And Educational Achievement Of Teenage Students Of Art Stream At College Level.
2. There Is No Difference Among Language Creativity, Emotional Intelligence And Educational Achievement of Teenage Students of Science Stream at College Level.

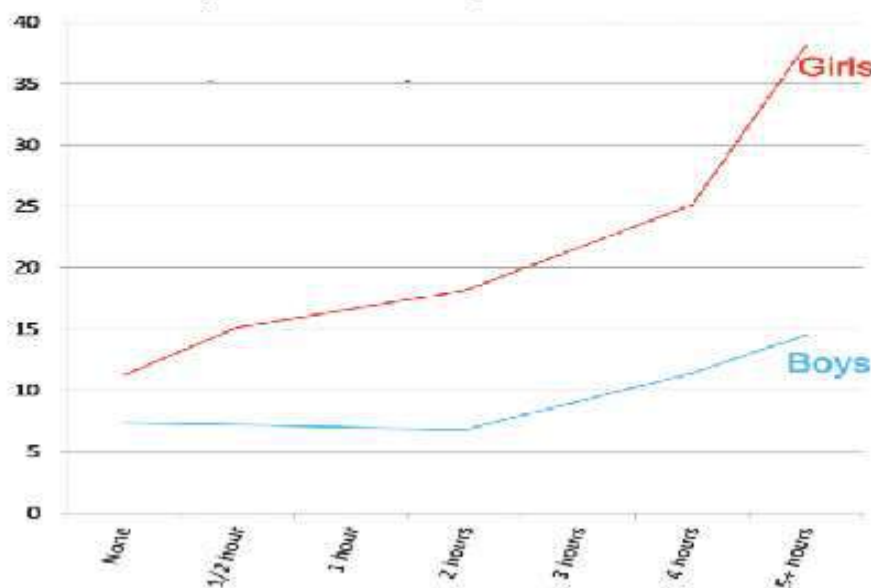
There Is No Difference Among Language Creativity, Emotional Intelligence and Educational Achievement Of Teenage Students Of Commerce Stream At College Level.



The student's home environment has an impact on their level of creativity or suggest that the three aspects of creativity—fluency, adaptability, and originality—as well as pupils' overall creative thinking are influenced by their family environments. In our research, it was discovered that female students performed significantly better than their male counterparts on the creative criteria of fluency, flexibility, and originality. Additionally, it was discovered that students from more supportive homes are more creative than students from less supportive homes. All three aspects of creativity—fluency, adaptability, and originality—are significantly positively correlated with the family environment. It can be argued that pupils in senior secondary schools exhibit higher levels of creativity when their home environments are favorable and vice versa.



### Percent of UK Teens Depressed as a Function of Hours per Weekday on Social Media



According To the Result of Research Work It Is Found That Emotional Intelligence and Educational Achievement Levels Are Importantly Related on Language Creativity. Language Development, Level Of Creativity And Emotional Intelligence Average Of High Educational Achievement Students Was Found Low In The Comparison Of High Educational Achievements Students.

But Farando Preeto's and Farnandeez (2005) Study Says That It Changes According to Conceptualization of The Structure of Intelligence and It Has Been Included in Guilford's and Gardener's Multifactor Theory.

So, The Level of Language Creativity of High Educational Achievement Is High Than Language Creativity and Emotional Intelligence.

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# SIGNIFICANCE VALUE OF BRANDING SHOPPING MALLS

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## ABSTRACT

*India's organized retail industry is gaining significant attention as one of the most attractive emerging markets globally. Shopping malls, as a prominent component of the urban lifestyle, have witnessed substantial growth and have become key destinations for shopping and entertainment. This study aims to explore the latest trends in Indian malls, factors influencing customer preferences, the importance of mall branding, challenges faced by mall managers, and strategies for enhancing the customer experience. By analysing the identified mall attributes, this research provides insights into the key factors that influence customers' mall preferences and proposes a retail marketing strategy to cultivate shopper loyalty. The study emphasizes the significance of staying top of mind and the role of effective branding in dominating the market, attracting desirable tenants, and ensuring long-term survival and profitability of shopping malls.*

**KEYWORDS:** Shopping mall, Brand Loyalty, Customer Preference, Organized Retail, Retail Strategy

## INTRODUCTION

The retail sector in India is undergoing a transformation, with traditional markets being replaced by modern formats such as departmental stores, supermarkets, hypermarkets, specialty stores, and shopping malls. Western-style malls have gained popularity in metros and Tier-2 cities, offering consumers an unprecedented shopping experience. The retail landscape is evolving rapidly, with currently 271 malls spread over 92.9 million sq. ft along with a projected increase in the number of shopping malls to 500 by the end of 2025. The growing middle class and untapped retail potential in India have attracted global retail giants, contributing to the sector's rapid growth. This study explores the significance of shopping malls in the Indian retail industry and their potential for economic prosperity. The focus is on understanding the latest trends, consumer preferences, and strategies for mall success.

**Significance of the Study and Research Problem Identification**  
India's retail growth rate positions it as a key market for global retailers. The rising consumer spending power, particularly among the young population, and increased disposable income are driving the growth of organized retail. Even Tier I and Tier II cities have become attractive markets for retailers due to changing consumer preferences and lifestyles. However, in markets like Mumbai, where quality shops are abundant, shopping mall developers face challenges and need innovative strategies to seize untapped opportunities. This study aims to identify effective strategies for the success of shopping malls in India.

## OBJECTIVES

This study aims to achieve the following objectives:

1. To study and Propose strategies for branding malls and fostering customer loyalty.

## METHODOLOGICAL DESIGN OF THE STUDY

**Sampling Design:** Purposive sampling technique was employed.

**Data Collection:** Data was collected using secondary data collection methods. Secondary data comprised information from newspapers, industry journals, and online sources about five main malls in Mumbai – In-orbit shopping mall, Oberoi Mall, Hub Mall, Central Mall, and Growls 101.

## Retail Marketing Strategies for Branding the Mall and Creating Shopping Mall Loyalty

According to the findings of the study, modern retail offers a wide range of products and a superior shopping experience, while kirana shops benefit from their low-cost structure, convenient locations, and close customer relationships. Organized retailers have an added advantage due to their store image, variety of product availability, and discounts/offers (Chandramana, Sudeep B, 2015).

Based on this study, a retail marketing strategy is proposed for mall operators and managers to build their brand and foster shopper loyalty, ensuring repeat and dedicated patronage. With the increasing number of malls in Mumbai, it is crucial for mall operators to establish a strong brand identity that sets them apart from the numerous choices available to shoppers.

Mall managers can develop marketing strategies with three primary objectives: attracting shoppers to the malls, encouraging purchases, and influencing buying decisions, and motivating customers for repeat purchases within the same product categories. The significant attributes of shopping malls identified through factor analysis can contribute to building shopping mall loyalty and assist in designing the appropriate retail mix.



### Retail Marketing Mix for shopping malls.

Kotler et al. (2013) emphasize the significance of the marketing mix in modern marketing theory. The important elements of the retail marketing mix for shopping malls, as identified in the study, are:

1. **One-stop store:** This includes merchandising, the physical environment of the mall, salesperson behaviour, guarantees, and loyalty programs.
2. **Convenience:** This encompasses the location advantage, parking facilities, security measures, and shopping time.
3. **Value:** Focuses on providing value for money, utility-oriented offerings, and credit facilities.
4. **Entertainment:** Includes features such as multiplexes, food courts, game zones, and organizing festival programs.
5. **Specialty:** Involves the presence of diverse stores, a comprehensive department store, availability of well-known brands, and anchor stores.

### Retail marketing strategies for branding the mall and creating shopping mall loyalty

Modern retail offers product width and depth and a better shopping experience whereas the *kirana* shops have a low-cost structure, convenient location, and customer intimacy. The organized retailers are also having a greater advantage because of the store image, variety of product availability, and discounts and offers (Chandramana, Sudeep B, 2015).

Based on the present study, a retail marketing strategy has been proposed for mall operators and managers. The marketing strategy is devised to build the brand and create shoppers' loyalty, in order to ensure repeat and dedicated patronage. With more and more Malls being opened in Mumbai, it becomes imperative for Mall operators to build a strong brand to get distinguished among the many choices that shoppers have.

Mall managers' marketing strategies could be formulated considering three major objectives of attracting shoppers to shopping malls, encouraging them to buy, spend and influence the type and quantity of items, motivating them for further purchases, specifically for repeat purchases in the same product categories. The important shopping mall attributes identified from the factor analysis, could build shopping mall loyalty, and could be used for designing the right retail mix.

**Proposed Mall Format:** Considering the elements of the retail marketing mix, which are the shopping mall attributes identified above, strategies have been formulated for each of these attributes as explained in the following section.

### One-Stop Store Strategy

The proposed one-stop store strategy for the mall aims to provide a place where customers can make routine purchases while comfortably spending quality time with their families in a climate-controlled environment under one roof. The interior and exterior design of the mall, basic amenities, and overall ambience play a motivating role in encouraging customers to spend more time and feel comfortable and stress-free.

1. **Enhancing Customer Experience:** The proposed one-stop store strategy focuses on creating an environment that encourages customers to spend more time in the mall. By offering a comfortable, climate-controlled space where families can shop together, malls can become a destination for both routine purchases and leisure activities.
2. **Interior and Exterior Design:** The interior and exterior design of the mall plays a pivotal role in attracting and retaining customers. Attention should be given to creating an appealing ambience, incorporating modern aesthetics, and ensuring a seamless flow throughout the mall. Thoughtful placement of stores, amenities, and seating areas can enhance convenience and promote exploration.
3. **Basic Amenities and Ambience:** Basic amenities such as clean restrooms, ample parking spaces, and well-maintained common areas contribute significantly to the overall customer experience. Creating a stress-free environment through proper ventilation, lighting, and noise control is crucial in providing a pleasant shopping atmosphere.
4. **Handling Defective or Damaged Goods**
  - i. **Fast and Hassle-Free Response:** To address issues with defective or damaged goods, an efficient response strategy is essential. Malls should aim to provide a seamless experience to customers by promptly resolving any product-related concerns. Implementing a "no questions asked" policy for returns or replacements can help build trust and ensure customer satisfaction.
  - ii. **Nationwide Return and Exchange Policy:** For mall chains, offering customers the option to return or exchange items at any store across the country can be a valuable differentiating service. This approach provides convenience and flexibility to customers who may have made purchases at different locations.

### Convenience Strategy

1. **Customer Feedback and Analysis:** Regularly collect customer feedback to understand their needs, preferences, and pain points. Analyze this data to identify areas where convenience can be enhanced, such as parking facilities, store layouts, or amenities. Use customer insights to drive improvements and make informed decisions.
2. **Optimized Parking Solutions:** Continuously evaluate parking capacity and explore innovative solutions to maximize space utilization. Consider implementing technologies like automated parking systems or real-time parking availability indicators to help visitors easily locate parking spots. Offer valet parking services for added convenience.
3. **Seamless Navigation and Signage:** Improve wayfinding within the mall by implementing clear and intuitive signage. Ensure that maps and directories are strategically placed to guide visitors. Use digital signage or mobile apps to provide real-time store



information, promotions, and directions to enhance the overall shopping experience.

4. **Efficient Store Layout and Zoning:** Optimize the store layout to provide a logical and intuitive shopping flow. Group similar stores or complementary product categories together for easy navigation. Ensure that stores are adequately spaced and organized, allowing sufficient room for visitors to move comfortably.
5. **Streamlined Maintenance Activities:** Coordinate maintenance activities during non-peak hours to minimize disruptions. Use clear signage and temporary barriers to guide customers away from maintenance areas. Communicate with tenants and update them on maintenance schedules in advance to minimize inconvenience.
6. **Enhanced Digital Presence:** Develop a user-friendly and informative website or mobile app for the mall. Provide features like store directories, real-time promotions, and events calendars. Enable online shopping options for select stores within the mall and offer convenient click-and-collect or home delivery services.
7. **Personalized Customer Experiences:** Leverage technology to provide personalized shopping experiences. Implement loyalty programs or digital platforms that track customer preferences and offer tailored recommendations. Send personalized offers and promotions based on customer shopping history and interests.
8. **Collaborations and Community Engagement:** Partner with local businesses, cultural organizations, or community groups to host events, workshops, or exhibitions within the mall. Foster a sense of community and offer unique experiences that go beyond traditional shopping. Engage with customers through social media platforms to create a dialogue and build brand loyalty.
9. **Proactive Customer Service:** Train and empower staff to provide exceptional customer service. Encourage a customer-centric approach, where staff members actively assist visitors, answer queries, and provide guidance. Implement customer service stations or information desks throughout the mall for quick assistance.
10. **Continuous Improvement and Innovation:** Regularly evaluate and upgrade convenience strategies based on changing customer expectations and market trends. Stay updated with emerging technologies and industry best practices to continually enhance the mall experience. Encourage a culture of innovation and experimentation to drive continuous improvement.

By implementing these suggestions, malls in Mumbai can effectively manage and improve their convenience strategies, providing a seamless and enjoyable experience for their visitors.

### Value Strategy

1. **Price Optimization:** Regularly assess pricing strategies to ensure competitive pricing without

compromising profitability. Conduct market research to understand pricing trends and customer expectations. Consider implementing dynamic pricing techniques, promotional offers, and loyalty programs to provide value to customers.

2. **Diverse Store Mix:** Curate a diverse mix of stores that cater to a wide range of customer preferences and budgets. Ensure a good balance between high-end brands, mid-range options, and value-focused stores. Continuously evaluate the store mix and introduce new brands or concepts to keep the offerings fresh and appealing.
3. **Specialized Value Sections:** Create dedicated sections within the mall that offer value-focused options. This could include discounted or outlet stores, clearance sections, or affordable dining areas. Highlight these sections through effective signage and marketing campaigns to attract value-conscious shoppers.
4. **Collaboration with Local Brands:** Partner with local brands or artisans to showcase unique and affordable products. Promote local craftsmanship and entrepreneurship within the mall to provide a distinct value proposition. Encourage pop-up shops or limited-time collaborations to generate excitement and variety.
5. **Value-Oriented Events and Promotions:** Organize events and promotions that emphasize value for customers. This could include seasonal sales, exclusive discounts, flash sales, or reward programs. Collaborate with brands to offer exclusive deals or limited-time offers that are only available within the mall.
6. **Customer Education and Engagement:** Educate customers about the value they receive from shopping at the mall. Highlight the quality, durability, and long-term benefits of products available in the mall. Provide informative content through digital platforms, such as blogs or social media, to help customers make informed purchasing decisions.
7. **Customer Feedback and Satisfaction:** Regularly seek customer feedback to understand their perception of value. Use this feedback to identify areas for improvement and address any issues promptly. Continuously monitor customer satisfaction levels and take proactive measures to enhance the value proposition.
8. **Collaborative Partnerships:** Establish partnerships with service providers or brands that offer additional value to customers. This could include tie-ups with transportation companies for discounted rides, collaborations with entertainment venues for bundled offers, or partnerships with fitness centers for exclusive membership deals.
9. **Value-Added Services:** Offer value-added services to enhance the overall shopping experience. This could include amenities like free Wi-Fi, charging stations, comfortable seating areas, or concierge services. Ensure these services are well-communicated and easily accessible to customers.



10. **Emphasize Quality and Customer Service:** Focus on providing high-quality products and excellent customer service. Train staff to be knowledgeable, helpful, and responsive to customer needs. Ensure a seamless and hassle-free shopping experience that exceeds customer expectations.

By implementing these suggestions, malls in Mumbai can effectively manage and improve their value strategies, attracting value-conscious customers and creating a positive perception of the mall as a destination for affordable yet high-quality shopping experiences.

#### Entertainment Strategy

1. **Diverse Entertainment Options:** Offer a diverse range of entertainment options to cater to different interests and age groups. This can include indoor amusement parks, gaming zones, cinema theaters, live performances, interactive exhibits, or cultural events. Continuously assess the popularity and relevance of existing entertainment offerings and introduce new and exciting experiences.
2. **Collaborations with Entertainment Brands:** Partner with popular entertainment brands, such as movie production houses, theater groups, or music labels, to bring exclusive shows, premieres, or live performances to the mall. Collaborate with local artists, performers, or bands to showcase their talent and promote the local arts scene.
3. **Regular Events and Promotions:** Organize regular events and promotions that revolve around entertainment themes. This could include hosting music festivals, fashion shows, art exhibitions, or seasonal celebrations. Create a calendar of events to keep visitors informed and engaged, and leverage digital platforms for event promotion and ticketing.
4. **Interactive Experiences:** Create interactive experiences within the mall that engage and entertain visitors. This can include virtual reality gaming zones, interactive installations, or experiential zones where visitors can try new activities or learn something new. Encourage visitor participation and provide memorable experiences that keep them coming back.
5. **Family-Friendly Activities:** Develop entertainment offerings that cater to families and children. This can include indoor play areas, kids' entertainment zones, storytelling sessions, or workshops. Create a safe and enjoyable environment for families, and consider offering family-oriented packages or discounts to encourage repeat visits.
6. **Cinema Experience Enhancements:** Enhance the cinema experience by offering premium formats such as IMAX or 4D screenings. Introduce luxury seating options, in-seat dining, or dedicated VIP lounges. Collaborate with movie distributors to host exclusive premieres or special screenings.
7. **Digital Engagement:** Leverage digital technologies to enhance the entertainment experience. Offer interactive mobile apps or digital platforms that provide information, ticket bookings, and personalized recommendations. Utilize social media platforms to

engage with customers, promote events, and create online communities around entertainment offerings.

8. **Food and Entertainment Fusion:** Integrate entertainment experiences with food and dining options. This can include themed restaurants with live performances, food festivals, or pop-up food stalls during events. Create a vibrant and lively dining atmosphere that complements the entertainment offerings.
9. **Feedback and Performance Analysis:** Gather feedback from visitors regarding the entertainment experiences and regularly assess performance metrics. Monitor attendance, ticket sales, customer reviews, and engagement levels to evaluate the success of entertainment offerings. Use this data to make data-driven decisions and improve future experiences.
10. **Continuous Innovation:** Stay updated with emerging entertainment trends and technologies. Explore opportunities to incorporate innovative experiences such as augmented reality, interactive displays, or immersive technologies. Foster a culture of creativity and experimentation to continually surprise and engage visitors.

By implementing these suggestions, malls in Mumbai can effectively manage and improve their entertainment strategies, providing engaging and memorable experiences that attract visitors and position the mall as a vibrant entertainment destination.

**Specialty Strategy** Based on the mall's brand positioning and image among the public, it should have a well-curated mix of national and global brands along with private labels. The mall should feature a full department store as well as different stores offering specialty product categories. Careful selection of stores can help the mall build a unique position and become the preferred choice for shoppers amid intense competition.

#### CONCLUSION

In conclusion, the research highlights the importance of brand building for shopping malls in Mumbai. The objective of creating a unique brand image that sets a mall apart from its competitors is crucial in a city with a multitude of purchasing options. By focusing on attributes such as the one-stop store concept, value, convenience, entertainment, and specialty offerings, malls can effectively position themselves in the market and communicate their brand identity to customers. The research emphasizes the significance of understanding emerging trends through internal data analysis and customer feedback. By identifying and adapting to these trends, malls can formulate marketing strategies that cater to evolving customer preferences and expectations. These strategies should be designed to enhance the shopping experience, making visits more enjoyable and meaningful for customers, ultimately fostering increased customer loyalty. Furthermore, the research highlights the role of mall managers and retail shops within the mall in designing and delivering effective customer loyalty strategies. By aligning their efforts with the identified brand attributes, mall managers and retailers can work together to promote the mall and its retail shops, providing superior sales opportunities and attracting desirable tenants. This collaborative approach contributes to customer satisfaction and





ultimately leads to higher returns for investors. In the dynamic market of Mumbai, where competition is fierce, building a strong brand presence is essential for the long-term survival of a shopping mall. A well-branded mall can dominate the market, maintain top-of-mind awareness among consumers, and secure a loyal customer base. By consistently delivering a superior shopping experience and meeting the evolving needs of customers, a well-branded mall can position itself as a preferred destination and achieve sustainable success in the retail industry.

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## DESCRIPTIVE OVERVIEW OF VITILIGO

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### SUMMARY

**Introduction:** Vitiligo is an acquired idiopathic autoimmune disorder showing non regular depigmentation of the skin, hair, or both. It may show with amelanotic, milky-white, firmly demarcated macules or patches of normal skin. Vitiligo, a common depigmenting skin disorder, with a prevalence of about 0.5-2% worldwide. Among the therapies commonly used as treatment are systemic glucocorticoids and phototherapy.

**Objective:** to detail the current information related to vitiligo, epidemiology, etiology, presentation, differential diagnosis and treatments.

**Methodology:** a total of 30 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 21 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: vitiligo, depigmenting, melanocytes.

**Results:** Vitiligo is present in all ethnic groups, as well as in all skin types without predilection. It is a profound disease with a genetic risk between 75% and 83%, the remaining percentage being due to environmental factors.

**Conclusions:** Vitiligo, a common depigmenting skin disorder, with a prevalence around 0.5-2% in adults and children. The disease is multifactorial with a polygenic inheritance pattern, so the individual contribution of each genetic variant to susceptibility is relatively minimal. Vitiligo is a depigmentation that can be primary, circumscribed or generalized in the skin and mucous membranes, linked to melanocyte self-destruction, genetic factors, autoimmunity, oxidative stress and cytokines. The detailed molecular mechanisms still need further investigation. Diagnosis is usually clinical, by finding acquired, amelanotic, non-squamous, chalky-white, chalky-white macules with distinct margins in a typical distribution. The differential diagnosis is of utmost importance for this purpose Wood's lamp can be used to facilitate the diagnosis. Vitiligo presents 2 segmental and non-segmental types. As the development and understanding of the molecular mechanism improves, treatment will become more and more precise. Treatment should be individualized and take into account the location, clinical presentation and presence of activity.

**KEY WORDS:** vitiligo, skin, melanocytes, macules, hypopigmented.



## INTRODUCTION

Vitiligo, a common depigmenting skin disorder, with a prevalence of about 0.5-2% worldwide and distinguishable by the selective loss of melanocytes that produces chalky white, non-squamous macules. The pathogenesis of this autoimmune disease is now better understood. Vitiligo occasionally presents psychologically disturbing effects on the affected individual. As of 2011, by international approval, segmental vitiligo was classified away from other forms of vitiligo, and the term vitiligo was conceptualized to refer to all variants of non-segmental vitiligo. Vitiligo is an acquired idiopathic autoimmune disorder showing non-regular depigmentation of the skin, hair or both. It may appear as amelanotic, milky-white, sharply demarcated macules or patches of normal skin. Individuals with this pathology, particularly those with darker skin tones, are often victims of stigmatization, which has a negative impact on their mental health as well as their quality of life. Among the therapies commonly used as treatment are systemic glucocorticoids and phototherapy, however, new therapeutic methods are currently being used in clinical studies. The effective therapeutic approach to this disorder remains a challenge because of the incomplete understanding of its pathogenesis(1-4).

## METHODOLOGY

A total of 30 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 21 bibliographies were used because the information collected was not of sufficient importance to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: vitiligo, depigmenting, melanocytes.

The choice of bibliography exposes elements related to vitiligo, epidemiology, etiology, presentation, differential diagnosis, evaluation and treatments.

## DEVELOPMENT

### Epidemiology

Vitiligo, a common depigmenting skin disorder, with a prevalence of about 0.5-2% in adults and children. Early epidemiological studies reported vitiligo to occur in 0.38% of the population. Vitiligo is present in all ethnic groups, as well as in all skin types without predilection, however it may present alterations according to geographic location, probably due to the inclusion of cases with chemical and toxic depigmentation, or possibly the disparity in prevalence data may be due to better detection and reporting in places where cultural and social stigma is normal, or in populations with darker skin predilection showing more evident skin alterations. A comprehensive review of prevalence data has presented results of prevalence of vitiligo ranging from 0.06% to 2.28%; a meta-analysis reviewing 103 studies estimated the prevalence of vitiligo, found the combined prevalence of vitiligo in 82 population-based studies to be 0.2% and in 22 hospital-based studies to be 1.8%. In some studies segmental vitiligo represents approximately 5 to 16% of vitiligo cases, other bibliographies show a prevalence between 5 and 30%, demonstrating that its incidence and prevalence are not well established. Possibly due to the instability of the classification of the disease prior to consensus, in addition to the lack of consistency in affected individuals and the variety of locations. The prevalence among men and women is almost the same, however women and girls tend to consult more frequently, possibly because of the greater negative social impact compared to men and boys. Non-segmental vitiligo usually develops between 10 and 30 years of age, however it can appear at any age. One quarter of individuals with vitiligo develop the disease before the age of 10, approximately 50% of individuals with vitiligo develop the disease before the age of 20 and approximately 70-80% before the age of 30. Vitiligo is a profound disease with a genetic risk between 75% and 83%, the remaining percentage being due to environmental factors. The disease is multifactorial with a polygenic inheritance pattern, so the individual contribution of each genetic variant to susceptibility is relatively minimal(1,5-7).

**Figure 1. Depigmented Macules on Distal Extremities.**



**Source:** Bergqvist C, Ezzedine K. Vitiligo: A Review. *Dermatology*. 2020;236(6):571–92 (1).



## Etiology

Of unknown pathogenesis for the moment, however, there is a hypothesis that is widely established and supported, the autoimmune hypothesis. The latter is based on the relationship with other autoimmune diseases, the elevated level of antibodies against melanocytes that are present in approximately 10% of individuals with vitiligo, the susceptibility loci linked to vitiligo that are in the genome, broadly related assays that encode immunomodulatory proteins, and the inflammatory infiltrate that is evident at the edge of active lesions. A different theory is that of melanocytorrageia, which consists of defective cell adhesion leading to detachment and transepidermal decrease of melanocytes with exposure of autoantigens and activation of the immune system generating the alteration of melanocytes. Another possible etiology could be explained by the biochemical theory, in which the injury to melanocytes is due to an imbalance in oxidative stress; more hydrogen peroxide and more superoxide dismutase activity in individuals with vitiligo. Also relevant is the convergence theory viewpoint which merits a combination of multiple pathways for the development of vitiligo, among which we have susceptibility to environmental changes, genetic background, altered epidermal microenvironment, an alteration of the melanocytes themselves and autoimmune response(3,8-10).

As previously mentioned, we defined vitiligo as a depigmentation that can be primary, circumscribed or generalized in the skin and mucous membranes, linked to melanocyte self-destruction, genetic factors, autoimmunity, oxidative stress and cytokines. Recent studies have presented that the IFN- $\gamma$ -CXCL9/10-CXCR3 axis appears to play a key role in vitiligo by inhibiting melanogenesis, inducing melanocyte apoptosis and recruiting more T cells to the skin. All of these involved in the JAK/STAT pathway; likewise it has been evidenced that cytokines, HSP70i, IL-15, IL-17/23, TNF, as well as the wnt signaling pathway, Tregs, miRNA are related in the pathogenesis of vitiligo(11).

Emphasizing that vitiligo is a complex disease with pathogenesis arising from the interaction of different genetic and metabolic factors related to cellular oxidative stress, innate immunity, adaptive immunity and melanocyte adhesion to the epithelium, which result in melanocyte injury. In this disease, melanocytes are more prone to oxidative damage, generating more expression of proinflammatory proteins, such as HSP70 and less expression of epithelial adhesion molecules, such as E-cadherin and DDR1,

leading to the impact on melanocytes and the display of antigens that promote autoimmunity. Activation of the type 1 IFN pathway maintains the direct function of CD8+ cells against melanocytes, facilitated by altered regulatory T cell function(6).

## Diagnosis

It is usually clinical, through the finding of acquired, amelanotic, non-squamous, chalky white macules with defined margins in a typical distribution: lips and tips of distal extremities, periorificial, segmental, penile and friction areas. Laboratory tests are generally not used to confirm, however, sometimes it is necessary to do other tests or skin biopsy to exclude other disorders. Lack of melanocytes in a lesion can be evidenced noninvasively by in vivo confocal microscopy or by skin biopsy. Histology of the center of a vitiligo lesion shows complete deprivation of melanocyte pigment in the epidermis and lack of melanocytes. In addition, lymphocytes may occasionally be found at the margin of lesion progression. Wood's lamp can be used to simplify the diagnosis, it allows to identify the focal loss of melanocytes in addition to finding sites of depigmentation that are not seen with the naked eye, particularly in pale skin. When using this lamp, vitiligo lesions emit a bright blue-white fluorescence and appear sharply demarcated. Dermoscopy can be used in case of suspicion of other depigmenting disorders, as it allows differentiation from other pathologies. The disease presents residual perifollicular pigmentation and telangiectasias, which are not present in other hypopigmenting disorders. In addition, it serves to assess the activity of the disease and the evolutionary stage, for example progressive lesions present perifollicular pigmentation, while stable lesions present perifollicular depigmentation. The differential diagnosis of vitiligo is large, most of the conditions among the differentials are infrequent, Table 1 shows the most important differential diagnoses of vitiligo. It is of great relevance to rule out melanoma-related leukoderma; clinically it is similar, antibodies against melanoma antigen recognized by T-cells 1 (MART1) in melanoma-related depigmentation usually support not to confuse it with vitiligo. Nevus depigmentosus is another differential of segmental vitiligo, it is a stable segmental hypopigmentation, which appears at birth or at the first year of life, these present a normal number of melanocytes with a small melanin production, in Wood's lamp, the contrast between the lesioned skin and the normal one is less remarkable than in vitiligo(1,12).



**Table 1. Differential diagnosis of vitiligo.**

<b>Chemically-induced leukoderma (occupational)</b>
Phenols and other derivatives
<b>Topical or systemic drug-induced depigmentation</b>
<i>Genetic syndromes</i>
Hypomelanosis of Ito
Piebaldism
Tuberous sclerosis
Vogt-Koyanagi-Harada syndrome
Waardenburg syndrome
Hermanski-Pudlak syndrome
Menke's syndrome
Ziprkowski-Margolis syndrome
Grisicelli's syndrome
<b>Postinflammatory hypopigmentation</b>
Pityriasis alba
Atopic dermatitis/allergic contact dermatitis
Psoriasis
Lichen planus
Toxic drug reactions
Posttraumatic hypopigmentation (scar)
Phototherapy- and radiotherapy-induced
<b>Neoplasm-related hypomelanoses</b>
Melanoma-associated leukoderma
Mycosis fungoides
<i>Infection-related hypomelanoses</i>
Leprosy
Pityriasis versicolor
Leishmaniasis
Onchocerciasis
Treponematoses (pinta and syphilis)
<b>Idiopathic</b>
Idiopathic guttate hypomelanosis
Progressive (or acquired) macular hypomelanosis
<b>Congenital</b>
Nevus anemicus
Nevus depigmentosus
<b>Others</b>
Lichen sclerosus et atrophicus
Melasma (caused by contrast between lighter and darker skin)

**Source:** Bergqvist C, Ezzedine K. Vitiligo: A Review. *Dermatology*. 2020;236(6):571–92 (1).

### Classification

The grouping of the different types of vitiligo was made in consensus in 2011 giving rise to two types:

- Segmental.
- Non-segmental.

### Management and treatment

Management and treatment criteria seek to stop the disease, as well as to provide repigmentation and prevent relapse. Roughly speaking, it has been shown that the combination of therapies generates better results.

Vitiligo is usually managed with topical therapies such as glucocorticosteroids, calcineurin inhibitors, immunosuppressive agents and vitamin D, in addition to various phototherapy modalities and surgical techniques. Current treatments for this disease are not good enough, however targeted therapies, such as biologics targeting cytokines and small molecule inhibitors targeting intracellular signaling molecules, show promising results. As the development and understanding of the molecular mechanism improves, treatment will become more and more precise(11,13,14).



**Figure 2. Affected individuals with acquired, amelanotic, non-squamous, chalky-white macules with distinct margins.**



**Source:** The Authors.

Treatment should be individualized and take into account the location, clinical presentation and presence of activity. All therapies for vitiligo are limited, more research is needed to better understand the pathogenesis(3).

Within the pharmacological management we have:

Topical treatment corticosteroids that present a significant response in vitiligo as they regulate and suppress the inflammatory response. They are the first line, using corticosteroids such as betamethasone valerate or clobetasol propionate. The therapeutic effects are more noticeable in sun-exposed areas(12,15).

Topical calcineurin inhibitors, generally directed to the head and neck, here we have tacrolimus and pimecrolimus, which do not present many adverse effects, especially no risk of atrophy. It could be used for at least six months, twice a day, although the management can be extended according to the results. It is advisable to accompany the treatment with moderate daily sun exposure(12,16,17).

Topical vitamin D3 analogues (D3A) are not effective as a solitary treatment, their immunomodulatory components reduce the function of T cells, stimulate the creation of melanocytes and induce melanogenesis, they can be used as an adjunct to other treatments. The dose of 100g is optimal in a time of four weeks in ointment and eight weeks when the cream is applied on 30% of the body surface, it is useful to mix with calcipotriol at 0.005% and betamethasone at 0.05%(12,18).

Methotrexate; 5-fluorouracil; apremilast; prostaglandin F2 alpha analogues; Janus kinase inhibitors, a peptide derived from the primary basic fibroblast growth factor; systemic therapy corticosteroids; etc. are other promising pharmacological

treatments with the use of antibiotics such as minocycline(12,18,19).

Within the physical therapy used in vitiligo we find:

Narrowband UVB phototherapy: ultraviolet irradiance seems to present some systemic results, such as stimulation of the central hypothalamic-pituitary-adrenal hypothalamic axis, immunosuppressive effects, initiation of the proopiomelanocortin pathway in the arcuate nucleus of the hypothalamus, and opioid gene results. UVB irradiance is more prominent than UVA. NB-UVB photodynamic therapy lowers the immune system, stimulates melanocyte segmentation, increases melanin synthesis and generates the displacement of melanocytes from the perilesional skin to manage the disease(12,19).

PUVA: PUVA irradiation generates melanin production by decreasing the immune system and creating an ideal environment for melanocyte creation. This treatment involves placing psoralen topically or ingesting it and then placing it under the UVA rays. Psoralens are given orally 1 to 3 hours prior to UV exposure. Other physical management therapies include combined Fraxel Erbium and UVA1 lasers, as well as excimer laser therapy(1,12,20).

### **Surgical Treatment**

Currently there are some methods to improve the appearance of the skin. Surgery is a good alternative when other treatments have been tried. Both the development of new techniques and alterations to the already available treatment of cell and tissue transplantation offer future hope in the management of the disease. The different surgical techniques present advantages and disadvantages, which should be thoroughly analyzed by a physician and discussed with the affected individual. Surgical interventions may be a good option for individuals with a stable





form of vitiligo, however side effects such as the Koebner phenomenon, which is the appearance of unseen changes in the damaged skin, may occur(21).

## CONCLUSIONS

Vitiligo, a common depigmenting skin disorder, with a prevalence of about 0.5-2% in adults and children. The disease is multifactorial with a polygenic inheritance pattern, so the individual contribution of each genetic variant to susceptibility is relatively minimal. Vitiligo is a depigmentation that can be primary, circumscribed or generalized in the skin and mucous membranes, linked to melanocyte self-destruction, genetic factors, autoimmunity, oxidative stress and cytokines. The detailed molecular mechanisms still need further investigation. Diagnosis is usually clinical, by finding acquired, amelanotic, non-squamous, chalky-white, chalky-white macules with distinct margins in a typical distribution. The differential diagnosis is of utmost importance for this purpose Wood's lamp can be used to facilitate the diagnosis. Vitiligo presents 2 segmental and non-segmental types. As the development and understanding of the molecular mechanism improves, treatment will become more and more precise. Treatment should be individualized and take into account the location, clinical presentation and presence of activity.

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# A STUDY ON ECTOTHERMS

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## ABSTRACT

*The widely held of ectotherms raise slower but matured at a larger body size in the colder atmospheres. This trend has baffled biologists since typical theories of the life-history progress forecast smaller sizes at prime of life in these environments that delay the growth. Throughout the last period, severe theoretical and experiential research has made some plausible elucidations grounded on the nonadaptive or adaptive plasticity. Nonadaptive plasticity of the body size is imagined to outcome from thermal restraints on the cellular growing that origin smaller cells at the higher temperatures, but the generalization of this theory is ailing reinforced. Adaptive plasticity is assumed to effect from superior benefits or minor costs of tardy maturation in the colder atmospheres. These concepts look to spread on well to some species, but not others. Thus, no single model has been capable to clarify the generalization of the temperature-size associations in ectotherms. I indorse a multivariate theory that emphases on the coevolution of warm air reaction norms for the growth rate and size at the time maturity. Such a theory that must include the functional restraints on the thermal reaction norms, in addition to the natural covariation amongst the temperature and other ecological variables.*

**KEYWORDS:** Ectotherms, maturation, atmospheres, nonadaptive and adaptive plasticity.

## 1. INTRODUCTION

The associations amongst ecofriendly temperature, organismal progress, and mature body size have fascinated biologists for over the century, but a renaissance of attention in the last period has been powered by the discovery of extensive decorations in the varied taxa. Species dispersed over comprehensive geographic arrays frequently exhibit the thermal clines in the body size, with the popular of species showing greater adult size in these colder atmospheres. This geographic dissimilarity in the body size is steady with the intraspecific form of Bergmann's rule, which positions that races of the species have a habit of to be bigger in colder atmospheres (for assessments of this idea, grasp Blackburn [1999], Ashton [2004]). Though genetic deviation in body size amongst populations is not rare, phenotypic softness is likely to be a chief contributor to the geographic clines in this body size as lab lessons have exposed that a reduction in the ecological temperature causes an upsurge in grownup size in these majority of ectotherms premeditated to date.

This thermal plasticity of the body size—dubbed the temp-size rule—has been detected in the bacteria, plants, protists, and animals, making it one of this utmost taxonomically extensive “rules” in the biology. As with all the biological “rules,” pure exclusions to the Bergmann's rule and, the temperature-size rule occurs. Still, naturalists have had additional trouble finding probable elucidations for these rules than they have had verdict causes for allowances. Dealings amongst ecological temperature and the life antiquity in ectotherms have mystified biologists since of the inconsistent effects of the temperature on advance rate and, size at prime of life: lesser temperatures reason ectotherms to grow sluggish but

matured at a bigger body size. In disparity, maximum optimization models forecast a lesser size at maturity in surroundings that retard growth. Notwithstanding their leisurelier rates of the growth, persons in the cold environments can spread a comparatively large body size by extending growth and deferring reproduction comparative to those in hot atmospheres; nonetheless, such a plan cuts the probability that entities in cold environments will live to produce any descendants. Thus, we should be perplexed even if entities in cold environments were to grasp the same size as those in the whole-hearted atmospheres. Though temperature-size dealings are baffling, their widespread likeness recommends that a communal cause occurs.

In the last period, both academics and pragmatists have replied to the contest of recognizing this cause; both the nonadaptive and the adaptive elucidations have been accessible. Nonadaptive theories define how the possessions of temperature on biological progressions can give upsurge to the detected temperature-size association. Such concepts, if they are to have generalization, must also define how some classes are capable to avoid these physical restraints on progress and development. Adaptive concepts use the costs and profits of specific life pasts to define why, in utmost species, usual selection nepotisms genotypes that raise faster but matured at a lesser size when raised up at advanced temperatures. Since such a various array of the organisms are complicated, biologists have mostly careful simple, univariate elucidations which are apparently additional general than complex, the multivariate ones. Notwithstanding some privileges that the puzzle has been resolved, we stress that simple models have not providing an overall clarification for the temperature-size associations. By



rebutting some of these models, though, we have made important growth toward a solution. In the subsequent sections, we appraisal nonadaptive and the adaptive concepts of this temperature-size dealings and contemplate their generalization in light of the emergent data. We then converse a theoretical outline that could allow biologists to realize a universal theory by directing on more complex, the multivariate clarifications. Our importance is placed on this thermal plasticity of the body size, but the concepts we confer could also be used to clarify the inherent deviation of the body size lengthwise the earthly thermal gradients.

## 2. NONADAPTIVE PLASTICITY OF THE BODY SIZE

Specified the magnitude and the multiplicity of organisms that adapt to the temperature-size rules, one might practically hypothesize that nearly overall physical restraints working at the cellular and the molecular levels play an underlying role. In this essence, van der Have and de Jong (1996) planned that temperature-size relations outcome from unaltered belongings of temperature on the growth and differentiation. Exactly, they modeled the rates of progress and differentiation giving to the Sharpe-Schoolfield reckoning, supercilious growth and differentiation are administered by independent systems of the enzymes whose recitals could be brief by single rate-limiting of steps. When the consequence of temperature on this rate of differentiation is superior than its result on the rate of growing, the model forecasts that growing temp should lead to a lessening in the size at the maturity. To make the linking amongst the model and, real organisms, van der Have and de Jong presumed that differentiation is comparative to cellular division and that growing is proportional to the protein synthesis. Outstandingly, they said that DNA duplication is additional sensitive to the temperature ( $Q_{10} \approx 2$ ) as of the great infusibility of the DNA replicase, however protein synthesis is fewer sensitive to the temperature ( $Q_{10} \approx 1$ ) owing to the little infusibility of the ribosomal subunits. Consequently, the theory's illustrative power axes on the supposition that this physical volumes for differentiation and the growth are set by rates of the dissimilar cellular processes. If this thermal sensitivity (i.e., the  $Q_{10}$ ) of the cellular division does surpass that of the cellular growing, another probable cause is a lessening in the obtainability of oxygen for cells by growing temperature.

Woods (1999) used the biophysical model to establish that the greatest size of a cell the magnitude at which the oxygen concentrations must reach "0" at its center declines with growing temperature. Though data on the oxygen gradients in the cells and their significances for this cellular function are lacking, some remarks advise that the body size of animals is partial by these biophysical mechanisms that administer the diffusion of the oxygen. For instance, Chapelle and Peck (1999) well-known that an upsurge in the verge size of the benthic amphipods (i.e., the size extrication the chief 5% of the species from the lowest 95% of the species) is related with an upsurge in the oxygen contented of water amongst locations, oscillating from the tropical to the polar regions. By spreading Wood's theory from this cellular level to organismal level, one force imagine that ectotherms raised up at the higher temperatures

influence a lesser final size due to biophysical constraints on this size of their cells.

Though, biophysical restraints on the cellular size could not be a overall explanation for this temperature size rule since temperature can touch both the quantity and the magnitude of cells at the adulthood. An implicit supposition of the theory based on restraints on cellular size is that the quantity of the cells in adults is the similar at all temp; else, no decisive end to differentiation would happen and the rate of this cellular division would essential not correlate with this period of development. For these species for instance *C. elegans*, in which the quantity of cells at the adulthood is persistent, bigger body sizes at the lower temperatures are produced clearly by an upsurge in this cellular size. But the generalization of this theory hinge on whether the quantity of cells at the adulthood is unresponsive to temperature in additional species of the ectotherms. The cellular basis of difference in body size has been discovered most lengthily in the *Drosophila melanogaster*. Thermal plasticity of the body size is instigated mainly by disparity in the size of cells in approximately populations and by dissimilarity in the quantity of cells in others. Similarly, the cellular basis of this thermal clines in body size amongst hereditarily different populations of "*D. melanogaster*" is unpredictable; the Australian cline is instigated mainly by distinction in the quantity of cells, but the South American cline is instigated by difference in both the size and quantity of cells (Zwaan et al., 2000). Even inside this South American cline, the virtual contribution of distinctions in the quantity and size of the cells to dissimilarity in the size of an organ varies amongst wings, eyes and the legs. Amongst isofemale lines resulting from three peoples, both the quantity and size of the cells subsidize to disparity in the body size and their comparative contribution differs amongst lines. A similar variability of nearby mechanisms instigates latitudinal clines in this body size of "*D. subobscura*". Seemingly, no overall cellular mechanism grounds the thermal plasticity of the body size. In its place, the outcome seems to hinge on this genetic disparity nearby prior to the normal selection.

## 3. ADAPTIVE PLASTICITY OF THE BODY SIZE

Two lines of indication propose that a bigger body size in these colder atmospheres is adaptive. Initial, genetic divergence amongst physically extensive species is steady with the patterns of phenotypic plasticity; persons from the colder atmospheres frequently display greater sizes at the maturity than those from these warmer surroundings when all are nurtured in a communal environment. Second, studies of usual selection in the workshop have related environmental temp to the development of this body size in the *Drosophila melanogaster*, by low point temperature lines being greater than the high-temperature lines. To reach a comparatively great body size, individuals in the cold environments must prolong growing and deferral reproduction relative to individuals in warm atmospheres. Such late maturation is the adaptive when the colder atmosphere allows a larger increase in fertility or a developed rate of survival. Though prolificacy classically upsurges with the growing body size, persons in the cold environments are not possible to attain relatively great increments in the fecundity since they grow leisurelier than those in warm surroundings. So, adaptive explanations for this





temperature size rule have been grounded on the costs and assistances of specific life histories given the thermal constraints on making or thermal properties on the survival.

### **BENEFITS OF THE EARLY MATURATION IN WARM ATMOSPHERES**

Forecasts of the life-history theory frequently be subject to on which guess of fitness is selected. Two communal assessments of these fitness are the net reproductive rate ( $R_0$ ) and this Malthusian parameter ( $r$ ). In inspects of these life-history plans over the discrete intervals of this time, the finite rate of upsurge ( $\lambda$ ) is measured in its place of  $r$ , but these 2 approximations are unified. The use of  $R_0$  is suitable for a closed populace at an equilibrium size, or for a spatially structured inhabitants with an average development rate equal to "0". The use of  $r$  is suitable when the growing of a population is unimpeded; though,  $r$  is also exploited when numerous compeers are conceivable within a solitary active season, and transience throughout the sedentary season is sovereign of this life-history plan. To exploit  $r$ , the optimal approach is regularly to mature as early as thinkable due to the benefit of compound growth, as with this compounding of attention in the monetary investments. If temp obliges the timing of the maturation, by moving the nominal size for the reproduction or by restrictive the rate of gonadal progress, the temperature-size rule could define the optimal reply norm for the size at maturity in inhabitants whose growing is compounded.

The "compound curiosity hypothesis" has been obtainable to clarify why convinced ectotherms mature past at a lesser size in warmer atmospheres. When the reproduction is incomplete to a specific season, the aptitude to complete manifold generations throughout this season favors early maturing at a comparatively small size while the incapability to do so favors late maturation at a moderately huge size. To assess this theory, Fischer and Fiedler (2002) equated thermal reaction rules in two univoltine and two oligovoltine populaces of the butterfly *Lycaena hippothoe*. Univoltine populaces were categorized by compact thermal sensitivity of the adult size associated to the oligovoltine populations. However, lesser adults at the higher temperatures were pragmatic in all four inhabitants. The multiple interest theory put on only to the species in which group times are forced, possibly by some slight size at the maturity. Then, usual selection would favor in the earliest likely age at the maturity in all thermal surroundings, and the earlier growing at the advanced temperature would affect in a bigger size at the maturity. Thus, studies of growing restraints on age and size at the maturity might hut light on the generalization of this clarification.

Correspondingly, a thermal restraint on gonadal growing could favor slighter adult sizes at the higher temperatures. The optimal response norm for the size at maturity hinge on the relative rates of active integration and the gonadal growth; if advanced temperatures upsurge the best rate of this gonadal growth in excess of they rapidity the mass-specific rate of the adjustment, size at the maturity should lessening with growing temperature. This outcome is depending upon the special of  $r$  as an estimation of the fitness,

such that the optimum plan is to advance excellently in the gonadal progress in order to advantage from the upshot of the compound interest. All for the model, Kindlemann and, Dixon (1992) offered indication that temp influences embryonic growing rate above the relative growth rate in numerous species of the aphids. But why should the temp affect rates of the gonadal growth in excess of rates of acclimatization? Undoubtedly, gonadal growth trusts on the energetic resources that stalk from the progression of integration. In the time off of a physiological apparatus for this restraint, we miracle whether thermal possessions on emergent and relative growing rates of the aphids reflect adaptive plans of distribution sooner than a constraint on this utmost rate of the gonadal growth. If so, thermal compassions of the embryonic and relative development rates are a significance of a policy that distracts resources from growing to reproduction earlier at the higher temperatures, more willingly than a source of this plan. A resounding evaluation of the Kindlemann and, Dixon's model expects the identification of the mechanism by which low temp confine the rate of gonadal progress more strictly than they check the rate of integration.

### **BENEFITS OF DELAYED THE MATURATION IN COLD ATMOSPHERES**

A relatively big increase in productiveness through late the maturation in cold surroundings is an unlikely clarification for the temperature-size rule except one undertakes thermal constraints on the utmost body size. Characteristically, delayed maturation delivers a benefit of superior fecundity since fecundity upsurges with increasing the body size (Stearns, 1992). If this advantage overshadows the cost of condensed survival to the maturity, delayed maturation at the moderately large size will be preferred by the natural choice (Roff, 2002). The problem is that late maturing should yield a comparatively slight increase in fecundity in the cold atmospheres since ectotherms raise slower at inferior temperatures. Though, thermal constraints on the greatest body size could make optimal reaction rules reliable with the temperature-size rule (Berrigan and Charnov, 1994). Such restraints limit growing at the end of the ontogeny, and thus decrease the advantage of the delayed maturation; as these constraints are presumed to be absent or the less severe at the low temperatures, the optimum reaction norm is a reduction in age and the size at maturity with growing the temperature.

Thermal constraints on the maximal body size have been sightsaw using the Bertalanffy's growth function (1960), in which the growth rate is the difference amongst rates of the anabolism and catabolism:

$$\frac{dW}{dt} = aW^c - bW^d \quad (1)$$

where  $W$  is body mass,  $a$  and  $b$  are coefficients of the anabolism and, catabolism, and  $c$  and  $d$  are exponents that outline the allometry of the anabolism and, catabolism. Growth slows with the age when  $c < d$ , and accelerates with the age when  $c > d$ . Temperature can affect the greatest possible body size by altering the coefficients or exponents. Strong and Daborn (1980) recommended that lesser sizes at higher temperatures are instigated by a reduction in  $c$  and an upsurge



in  $d$  with swelling temperature. Correspondingly, Perrin (1995) presented that the optimum life history tracks this temperature size-rule when the thermal compassion of the catabolism (i.e.,  $Q_{10}$  of  $b$ ) is larger than the thermal sensitivity of the anabolism (i.e.,  $Q_{10}$  of  $a$ ). Thermal belongings on this coefficients and exponents are the multiplicative, such that both could donate synergistically to the reduction in the body size at an advanced temperature (Kozłowski).

Accessible indication supports Strong and Daborn's theory that the allometries of the anabolism and, catabolism is differentially exaggerated by temperature. In their study of this isopod *Idotea baltica*, absorption scaled nearly isometrically ( $c = 0.94$ ) at low temperature but then allometrically ( $c = 0.71$ ) at high temp, while respiration scaled the allometrically ( $d = 0.68$ ) at low temperature and, isometrically ( $d = 1.00$ ) at the high temperature. These thermal paraphernalia on allometry give rise to in a lessening in this thermal optimum for the growth rate through ontogeny. So, those raised at the high temperatures on track out growing at the maximal rate and completed up rising at a sub-maximal rate, however those raised at the low temperatures ongoing out growing at a sub-maximal rate and, ended up growing at the maximal rate. Alike trends have been detected in other species of the aquatic ectotherms representing that the phenomenon experiential in the *Idotea baltica* is not an inaccessible case. These ontogenetic moves in the potential for growing favor the early maturation in warm surroundings where the growth slow down with the age and late maturation in cold surroundings wherever growing accelerates with the age.

In distinction, empirical indication does not sustenance Perrin's theory that the thermal sensitivity of the catabolism is larger than this thermal sensitivity of the anabolism. If this state applies usually, growing efficiency of an ectotherm essential decline with growing temperature.

A foremost problem with concepts based on the Bertalanffy's growth function is that the instruments they accept are not necessarily overall to clarify the temperature-size rule. In the Perrin's model, a slowing rate of progress must be expected to produce the optimal strategy of the lesser size at a higher temp. Even Strong and Daborn's theory, which accounts for hurrying progress at the low temperatures is upsetting because this state would favor progress to an endless body size under the sensible set of norms. For the reason that many animals do not raise asymptotically and no organism raises indeterminately, Bertalanffy's model is the best preserved as a phenomenological explanation of growth before the set of mechanisms that compel growth. The parameters of this Bertalanffy's model could be adapted over thermal acclimation of the morphology, performance, and the physiology, such that any specific set of ideals are the importance of a life-history policy. Actually, models of the optimal distribution of the resources forecast growth trajectories that are well defined by these Bertalanffy's growth function even as soon as growth is not constrained by the maximal body size.

Though the assumption of slowing growth is uncertain for the analyses of optimal age and, size at the maturity, the

temperature-size rule could also outcome from this optimal allocation of the resources when somatic and, gametic production undertakes senescence. The senescence of creation can outcome from a diminution in the capability to obtain resources or an upsurge in the essential upkeep and restoration with age. Kindleman (2001) presumed that production faster early in the ontogeny but slowed late in ontogeny as of senescence. Under these situations, the growing of juveniles accelerates with the age while the productiveness of adults slows with age. The optimum age and size at the maturity be contingent on this rate of senescence; if senescence is quicker at higher temp, premature maturation is favored as it allows reproduction earlier senescence takes a key toll on prolificacy. Kindleman (2001) demanded their model perhaps resolves in the puzzling things of temp on the body size. Though, their decision hinge on the rationality of  $r$  as a criterion of the fitness, time-course of the senescence, and the thermal sympathies of assimilation, gonadal growth, and senescence. As such, the generalization of this clarification is now uncertain.

Atkinson and Sibly (1996) claimed that, even when creation accelerates with age, spirited costs related with pupation, mating, or the other activities of maturity could favor the growth of the lesser size at maturity. This idea appears alike a potential reason for the earlier maturation in heater environments, but the disagreement is logically flawed. Fertility should be advanced for those that interruption maturation despite the added energetic costs related with the adulthood. For the income breeders, late maturation will outcome in a developed rate of the reproduction through adulthood as the rate of production quickens with age. For the capital breeders, deferred maturation will upshot in larger size at the maturity, which delivers more stockpiled energy for the reproduction. So, the benefits of late maturation are doubtful to deliver an explanation for the greater size of the ectotherms in colder surroundings unless some conclusive mechanism for the thermal restraint on the maximal body size is exposed.

## COSTS OF LATE MATURATION IN THE WARM ENVIRONMENTS

In the meantime, an advanced survivorship of juveniles favors late maturation, the temperature-size rule can be clarified by a smaller risk of the mortality at lower temperatures. Temperature could have both straight and indirect possessions on the survivorship of the juveniles. Straight effects are arbitrated by the thermal sensitivities of growth, physiology, and performance. Secondary effects are interceded by vagaries in the number or quality of the resources, contestants, predators, or fleas. In this latter case, temp necessity only be a dependable indicator of these indirect possessions for selection to favor response norms that are uttered in the nonappearance of the ecological factors (Atkinson, 1994). Lastly, temperature might interrelate with other abiotic variables that influence survivorship, for instance salinity or pH. Models that integrate a risk of the mortality forecast optimal sizes at the maturity that are below the sizes that maximize the production (Perrin and Rubin, 1990; Sebens, 2002).

Very huge thermal effects on the survivorship are desirable to produce an optimum reaction norm that follows to





the temperature-size rule. The essential magnitude of the upshot be contingent on the thermal sensitivity of the production and the survivorship at the low temp. Classically, the  $Q_{10}$  of anabolism limits from 2 to 6, and the  $Q_{10}$  of catabolism limits from 1 to 3; so, production is a little more sensitive to the temperature than is anabolism. Since production is actual sensitive to the temperature, a reduction in survivorship with growing temperature does not pledge that the optimum life history will consensus with the temperature-size rule. Certainly, thermal sensitivities of the survivorship must be moderately large if they are to clarify the generalization of this rule. Are straight effects of the temperature on survivorship huge sufficient to clarify the temperature-size rule? Since studies showed in the laboratory ignore most biological sources of the mortality, they provide valued info on the magnitude of the direct effects.

Atkinson (1994) inspected the thermal effects on survivorship for 29 of the 109 situations in his data set, ultimate that survivorship did not constantly decrease with growing temperature. Increasing on Atkinson's study, we considered the thermal sensitivities of the survivorship for 130 populations of the ectotherms, as well as 1 species of the cnidarians, 4 species of the annelids, 5 species of the mollusks, 2 species of the rotifers, 7 species of the arachnids, 18 species of the crustaceans, 54 species of the insects, 21 species of the fish, and 2 species of the amphibians. We excepted low temperatures at which the rates of production were -ve and high temperatures upon which the rates of production were fewer than maximal, and used regular survivorship at the 2 extremes to estimation a  $Q_{10}$ . Therefore, our calculations providing conservative estimations of the  $Q_{10}$ 's of the survivorship over the thermal choice to which this temperature-size rule affects. Though higher temperatures triggered lesser survivorship in the 74 of 130 cases, thermal compassions of survivorship in most of species were too slight to clarify smaller adult sizes at the advanced temperatures. Therefore, we can rule out straight possessions on survivorship as a universal description for the temperature-size rule. As an alternative, biologists should emphasis their kindness on these mechanisms by which temperature effects ecological sources of the mortality.

In the natural atmospheres, where biological sources of the mortality abound, ecofriendly temperature is predictable to have a much superior influence on the survivorship of the juveniles. Currently, this influence could only be projected by relating rates of survival amongst populations or the species spread sideways thermal clines. Intraspecific contrasts advise that complete effects of the temperature on survivorship are significantly larger in natural atmospheres than they are in artificial surroundings (Ebert et al., 1999). Though, the  $Q_{10}$ 's of the survivorship are still small for the reason that survivorship is moderately poor irrespective of the ecological temperature. For instance, the  $Q_{10}$ 's of survivorship limits from 1.9 to 2.5 for the fishes and copepods. A significant caveat is that these instances affect to early stages of this life cycle, which are disposed to very high the mortality. Either an upsurge in the mean of survivorship or a reduction in the  $Q_{10}$  of production with growing body size will decline the thermal sensitivity of the survivorship that is wanted to elucidate this temperature-

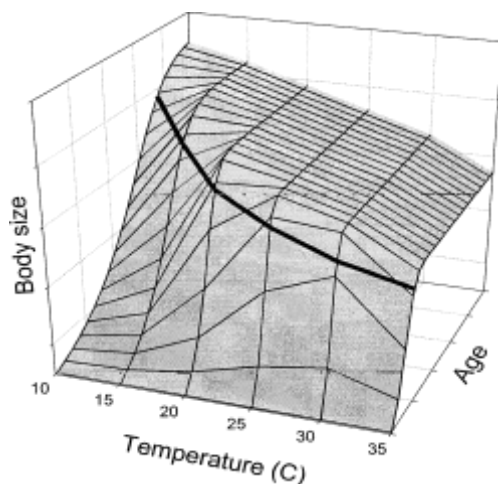
size rule. Therefore, biologists should attempt to characterize thermal sensitivities of the size-specific rates of the survival in normal or semi-normal environments. Though this goal might be reached through relative studies, the management of the temperature in simulated mesocosms is a talented experimental method.

#### 4. LINKING REACTION RULES FOR THE GROWING RATE AND BODY SIZE

Present theories validate visibly that reactions norms for the age and size at the maturity should be powerfully inclined by rates of the production through ontogeny. Once optimizing the life histories, exact trajectories of the growth have been presumed since either they replicate patterns pragmatic in nature or they streamline analyses. Optimum reaction rules depend on the expectations about this thermal sensitivity of these growing trajectories. Otherwise, growth could be modeled as the product of this distribution of energy amongst the competing functions (Kozlowski, 1992). In models of the energy distribution, the optimum reaction norm still be contingent on the rates of energy integration through ontogeny. If acclimatization is very delicate to temperature, thermal possessions on senescence or the extrinsic mortality must be additional extreme to favor lesser sizes at the higher temperatures. So, thermal and allometric special effects on the production are key expectations in all the models of life-history progression.

Though physical restraints on the production have played a key role in earlier efforts to clarify the temperature-size rule, experiential evidence for these restrictions' relics controversial. Convinced body plans place clear restrictions on the rates of the energy acquisition and, assimilation at the given size, but such restraints are provisional because they could be avoided over evolutionary changes of performance, physiology and the morphology. Some ecologists have claimed convincingly that allometric growing outcomes from the division of energy to progress and reproduction instead of physical constraints on the production. Also, proportional and experimental evidence powerfully sustenance the view that growing is a form of physiological concert whose association with temperature progresses by the natural selection. Thermal feelings of growing rate differ significantly within and amongst species; amongst mollusks, the arthropods, and the fish, an upsurge in ecological temperature of  $10^{\circ}\text{C}$  results in a 2 to 16-fold upsurge in evolution rate (Dunham, 2003). So, allometric and the thermal effects on growing rate could not be observed as restraints on this life history.

A better tactic is to study thermal reactions rules for growing rate and size at the maturity in the context of the developing reaction rule. The progressive reaction rule (Fig. 1) is a multivariate function connecting the effect of temperature on growing rate (a labile trait) to age explicit body size. Intrinsically, it delivers an ontogenetic dimension to this study of temperature-size relations. By focusing instantaneously on the growth of thermal reaction rules for the growth rate and, size at the maturity, one



**FIG. 1. A theoretical multivariate reaction rule portraying the effect of ecological temperature on the body size during ontogeny.**

evades needless expectations about the constraints on progress that are communal amongst current concepts. Furthermore, displaying the evolution of the developing reaction rule forces one to challenge factors that are usually unnoticed in models of the life-history progress, as well as the roles of positive functional constraints and the thermal heterogeneity in the development of thermal reaction rules.

### FUNCTIONAL RESTRAINTS ON THE THERMAL REACTION RULES

Functional restraints, or balances have a major impact on the growth of the developing reaction rule. As growth is gritty by rates of the achievement, assimilation and the allocation, ectotherms could alter their rates of the growth by many mechanisms (Bayne, 2004). Apiece mechanism includes a specific tradeoff that will impact the fitness of this organism. For instance, an ectotherm could grow quicker by assigning a larger fraction of its obtainable energy to growth. Since this upsurge in growing rate would happen at the expense of the others functions, the distinct would suffer the decrement in upkeep, movement, or replica. Otherwise, an ectotherm could raise faster by obtaining added energy; this plan would eradicate the essential to distract resources from the contending functions, but it would probable upsurge the risk of the predation or parasitism. Lastly, ectotherms could grow quicker through the thermal specialism, which includes changes in the physiology that control the competence with which possessions are integrated and used for progress. Though, specialism would upsurge growth rate at nearly temperatures while lessening growing rate at other temperatures (Bennett and Lenski, 1999).

Present theories of the progression highlight some tradeoffs while snubbing others. Models intended to clarify the evolution of the age and size at the maturity highlight tradeoffs that rise from the distribution of energy to contending functions (Kozlowski, 1992), but balances rising from the gaining of the resources for growing have also been measured. To our facts, tradeoffs connected to both the gaining and, allocation have not been counted concurrently, and tradeoffs connected to the thermal specialism have been unnoticed totally by the life historians. Likewise, models intended to clarify the growth of thermal reaction rules for physiological concerts, such as

growing rate, highlight tradeoffs ascending from thermal specialism but disregard tradeoffs rising from gaining and allocation. A wealth of proportional and experimental indication proposes that all 3 kinds of tradeoffs play vital roles in influencing thermal reaction rules (Angilletta, 2003). So, theorists will necessity to include these functional restraints in a usual theory of the temp-size dealings.

### BRINGING THE NORMAL (CO)VARIATION INTO FOCUS

Optimum thermal reaction rules for growing rate be contingent on the temporal disparity in the ecological temperature and the method in which progress subsidizes to fitness. If progress contributes additively to the fitness, thermal experts are preferred under maximum patterns of the temporal disparity in ecological temperature; thermal generalists are preferred only in atmospheres where temperature differs critically amongst generations and the little within peers. Reliable with this decision, thermal generalists are preferred if ecological temperature vagaries thoroughly with the time. Thus, both disparities within and amongst generations control the optimum reaction rule if evolution contributes additively to the fitness. If the growth is related to thermal lenience, the thermal reaction rule is exaggerated more by discrepancy within peers than disparity amongst generations; thermal experts are preferred in the constant surroundings and the thermal generalists are preferred in adjustable environments. Acclimation of this thermal reaction norm capacity also be preferred if the atmosphere differs spatially or temporally. Since the design of the environmental difference controls how normal choice acts on this thermal reaction norm for growing rate, a vital job for ecologists is to describe these forms and include them into concepts intended to comprehend the temperature-size relations.

An advanced temperature can be a steadfast cue for growing capitals and hence indication the chance for population growing. Instead, if the higher temperatures are typically related with a shortage of the resources, the possible for growth detected in the laboratory might not be grasped in nature. The higher temperatures can also be related with larger risks of the mortality through vagaries in the compactness and movement of the predators. If the temperature covaries by the profusion of prey or marauders in a specific manner, natural assortment will errand reaction rules that have the utmost fitness under those circumstances. This point is particularly vital because theory forecasts that augmented predation should have straight and indirect effects on the size at maturity; the straight effect is a decrease in size as higher rates of the mortality favor prior maturation, while the indirect upshot is an upsurge in the size as predation declines intraspecific rivalry for the resources. Since resources are regularly limiting in the nature, one might imagine growing reaction rules to be formed by both straight and indirect effects of the predation. Defiance the normal covariation amongst the temperature, food obtainability, and the predation risk could make a state that never arises in nature, which would chief to a mistaken interpretation of outcomes. The way wherein these variables interrelate to control thermal reaction rules for growing rate and the size at maturity may not make logic if one snubs the usual covariation. Currently, we



know actual little around this covariation in utmost populations of the ectotherms signifying a palpable need to pay more kindness to the usual context in which the temperature-size relations have grown.

## 5. APPROPRIATE PIECES OF THE PUZZLE

Present theories of the nonadaptive or the adaptive plasticity of the body size in reply to temperature are comparatively modest, in that each effort on only 1 or 2 of the mechanisms by which the temperature could affect the life history. Actually, most variables are exaggerated by temperature, and optimum reaction rules for the age and size at the maturity be contingent on the comparative strengths of these thermal possessions. Atkinson recommended that 3 thermal effects in specific were key to sympathetic temperature-size relations: thermal restraints on the maximal body size, the thermal sensitivities of the growing rate, and the thermal sensitivities of the juvenile survivorship. To this list, we enhance thermal things on the rate of replica and the survivorship of grownups, which have not established thoughtful thought from the life historians. Since replica is naturally fewer frequent in the colder surroundings, natural assortment could favor a higher body size to improve fertility at every reproductive incident. For alike reasons, a higher size at the maturity may be adaptive if this survivorship of the adults is lesser in the colder environments. Lastly, a higher body size could allow those to produce more offspring or to deliver well parental care, which are assumed to be adaptive in the colder atmospheres. Alike many theories in the evolutionary ecosystem (Dunham, 1983), these apparatuses are not commonly exclusive; so, all of them can contribute to a clarification for this temperature-size rule. Furthermore, the comparative status of every mechanism perhaps differs amongst species. By uniting these apparatuses in a single theory, one could attain a deeper thoughtful of the relations amongst the temperature, growing rate and the body size.

When emerging a multivariate model of the temperature-size relations, ecologists should focus on the growing reaction rule as this tactic forces one to reflect the coevolution of the thermal reaction customs for growing rate and the size at the maturity. Allometric and the thermal things on growing rate could be showed by counting unshakable functional restraints, for instance tradeoffs related with the acquisition, distribution, and the specialization. The expected variation in the temperature and, the covariations amongst temperature and the other ecological variables must be counted as they play vital roles in the coevolution of the growing rate and the body size. Since current concept defines in what way the thermal environment forms the optimum reaction norm for this growing rate, modeling the progressive reaction model can expose why exact temperature-size relations have grown in exact surroundings.

## 6. CONCLUSIONS

In this paper, we have discussed on ectotherms with multivariate theory that importance on the coevolution of warm air reaction rules for the growing rate and size at the time of maturity.

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## EFFECTIVENESS OF MEASURES TO CONTROL MELON PESTS AND DISEASES IN THE CONDITIONS OF THE REPUBLIC OF KARAKALPAKSTAN

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### ANNOTATION

*The article presents measures to control diseases and pests, which are considered to be the main problems in the cultivation of melon crops in the conditions of the Republic of Karakalpakstan. The effectiveness of the use of a combined control system of pest and disease control measures has been determined. Autumn and spring agrotechnical measures in the destruction of pupas that have gone to the wintering, timely and moderate use of chemical preparations to control mature breeds and diseases, achieve high biological efficiency.*

**KEYWORDS:** melon, pests, diseases, agrotechnical measures, chemical preparations, efficiency.

### INTRODUCTION

The climatic conditions of the Republic of Karakalpakstan are quite different compared to other regions. The soil and climatic conditions of the region are considered to be sharp continental, the summer season is very hot, the winter season is cold, the amount of precipitation is low, and sometimes there are cases when there is little or no snow in the winter season. For the cultivation of agricultural crops, it is necessary to plow the land, organize autumn and spring salt washing. Therefore, most of the cultivated areas of the region are saline, which has a negative effect on the cultivation of agricultural crops. In addition, as a result of the lack of water, which is among the main problems, failure to carry out agrotechnical measures on time, measures against weeds, pests, and diseases in their time, leads to a sharp decrease in the amount of productivity.

In the conditions of the region, various varieties of melons are grown from agricultural crops. During the vegetation period, which lasts from 75 to 135 days, depending on the variety, various diseases and pests accumulate. It was found out that melon fly (*Myiopardalis pardalina* Big.), which is considered to be the most harmful of the pests, and fusarium wilt, powdery mildew are more common diseases.

### METHODS OF THE RESEARCH

Methodical manual of V.B. Golub et al. (1980) was used in determining the developmental phases and morphological signs of the melon fly pest in laboratory conditions using special binoculars, to determine the dynamics of development, 100 plants (5 plants out of 20 samples) were examined between 5 and 8 in the morning, and methodological instructions of Sh.T. Khojaev (2004) were used in agro

toxicological studies on mature breed and flight activity, movement to flight, application of anti-chemical preparations.

Studying the level of development of diseases based on the methodological manual published by scientists of the All-Union Institute of Plant Protection, determining the degree of damage caused by fungal based on the methods of A.I.Dudka, S.P.Wasser, A.A.Ellanskaya, methods of A.E.Chumakov, T.I.Zakharova were used in determining the level of spread of diseases (4).

The biological effectiveness of the chemical preparations used to control the pest was determined using the formula of W.S.Abbott (1925) based on special methods.

### RESULTS OF THE RESEARCH

Melon fly (*Myiopardalis pardalina* Big.), which is the main and most harmful in melon fields in the Republic of Karakalpakstan, has been spreading since 2001. The states of origin and spread of the melon fly, morphological signs, bioecological development characteristics, level of damage, controlling measures are being studied. In the course of 2018-2022, integrated control measures were carried out, having studied the bioecological development feature of the melon fly pest. In the course of our research, in our 2022 observations of the pest, it was found that the first mature breeds of the melon fly flew out of the wintering on May 23 under laboratory conditions and on May 28 under field conditions.

In order to save the harvest in the melon fields, coordinated control measures were carried out. It belongs to the family of insects that fully develops in the nature of bioecological development of the pest. The mature breed is adapted to flying in the open air, its eggs and worms develop in the fruiting body, and its pupas develop at a depth of 5-30 cm in the soil, depending on the conditions, and goes to the



countryside. It is effective to carry out coordinated control measures against each development phase of the pest.

In our research, the effectiveness of spring plowing, autumn plowing, autumn plowing and salt washing, autumn plowing and spring salt washing, and spring plowing and salt washing were studied among the agrotechnical measures in controlling pupas of the pest. 70.0% of spring plowing operations, 78.5% of autumn plowing operations, 93.3% of autumn plowing and salt washing operations, 73.3% of autumn plowing and spring salt washing operations, 71.4% of spring plowing and salt washing operations caused the death of wintering pupas compared to the control option. As a result of the decrease in the number of wintering pupas, in the fields where agrotechnical measures have been carried out effectively, the development of future generations is prevented.

In our research, during the vegetation period, we counted worms and fungal in the average of 10 pieces of trapping equipment placed in melon fields. 209.1 pieces of the first generation, 154.7 pieces of the second generation, and 144.9 pieces of the third generation were collected and destroyed in our observations of 2021 by placing the trapping equipment on the melon fruits where the pest laid eggs. A total of 152.5 pieces of fungal were collected from the first generation of the pest, 109.3 pieces from the second generation, and 82 pieces from the third generation. It was found that due to the mechanical destruction of the fungal collected in the trapping equipment, the number of future generations has decreased.

In our research, when conducting actions of controlling the melon fly pest, we prepared 200-300 liters of working solution per hectare with insecticides, the active substances of which are deltamethrin, malathion, lambda-cyhalothrin, lambdacyhalothrin + thiamethoxam, cypermethrin + chlorpyrifos, by processing at 5-8 a.m., on the 14th day of the event 96.0-98.0% biological efficiency was noted.

Taxonomic analysis of the collected data on the biological characteristics of the fungus that cause a lot of damage to melon crops in the region revealed that they belong to 3 classes, 6 orders, 8 families, 15 genera, 26 species and 7 forms.

From microbiological preparations Bist sus.k. and Trichodermin n. cook. applied to control Fusarium wilt disease in melon. In this case, in the control option, it was known that the fusarium wilt disease of plants increased, and it was 22.3% on the 45th day of the research. 62.8% efficiency was recorded on the 45th day when Bist sus.k. preparation was used. In the variant where Trichodermin n. kuk. was used the efficiency was 69.0-70.0% on this day.

In our studies, fungicides Previkur (1.5 kg/ha), Falcon (0.3 l/ha), Alto Super (0.3 l/ha) were used against melon powdery mildew, and their biological effectiveness was determined.

Previkur - 78.4%, Falcon - 70.0%, Alto Super - 61.8% in 45 days of the preparations used against powdery mildew in melon.

## CONCLUSION

It was found that there is an opportunity to reduce the number of future generations by carrying out coordinated measures against the melon fly. In addition, melon crops should not be

grown in the same field every year. Among the chemical preparations against mature breeds of the pest, the use of chemical preparations with active ingredients deltamethrin, malathion, lambda-cyhalothrin, lambdacyhalothrin + thiamethoxam, cypermethrin + chlorpyrifos was noted to be highly biologically effective. In order to reduce the number of development of the pest, it is recommended to carry out the combined control measures effectively.

Using Bist sus.k. and Trichodermin n. cook. from microbiological preparations against Fusarium wilt disease of melon, in the indicated norms and periods shows high efficiency. Taking into account the high biological efficiency of Previkur (1.5 kg/ha) preparation against powdery mildew, it is recommended to use it in farms and agricultural households.

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# PATELLA FRACTURES, EPIDEMIOLOGY, ANATOMY, FUNCTION, MECHANISMS OF ACTION, CLASSIFICATION, CLINICAL PRESENTATION, IMAGING PRESENTATION, TREATMENT AND COMPLICATIONS

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## SUMMARY

**Introduction:** The patella has a great importance in the extension and flexion activities of the knee, being paramount in the patient's quality of life. Nowadays the surgical options that stand out the most are open reduction plus internal fixation and resection of the patella. The patella increases the leverage of the quadriceps. Management following patella injury has been based on preservation of bone and vascular supply, in addition to joint restoration and extensor function. In patella fractures, it is essential to reflect on the biomechanics of the bone and the fixation technique to be used.

**Objective:** to detail the current information related to patella fractures, epidemiology, anatomy, function, mechanisms of action, classification, clinical presentation, imaging presentation, treatment and complications.

**Methodology:** a total of 32 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 24 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: patella, patellar fractures, knee trauma.

**Results:** Patellar fractures comprise 1% of all fractures in humans, with a 2:1 male to female ratio. They occur more frequently in individuals between 20 and 50 years of age. The frequencies of pseudarthrosis and infection are relatively lower after the surgical procedure. Approximately 2 to 7% of patellar fractures are open fractures. Their classification is descriptive.



**Conclusions:** The patella is the largest sesamoid bone in the human body with several important functions. Frequently, patellar fractures appear after falls on the knee, blows and unexpected and energetic muscular pulls. The diagnosis is made by means of clinical history, physical examination and complementary radiography. Anteroposterior and lateral projections of the knee should be performed. For conservative treatment it is essential that the knee extensor mechanism is intact. There are several methods of surgical treatment, in general the open reduction and internal fixation present good results. Complications include post-traumatic osteoarthritis, alteration or loss of mobility of the knee, refracture, fixation failure, osteonecrosis, intolerance to osteosynthesis material, loss of strength of the extensor mechanism, loss of extension, instability of the patella and pseudoarthrosis.

**KEY WORDS:** patella, knee, fracture, treatment, osteosynthesis.

## INTRODUCTION

The patella has a great importance in the extension and flexion activities of the knee, being primordial in the quality of life of the patient. Nowadays the surgical options that stand out the most are open reduction plus internal fixation and resection of the patella. Internal fixation techniques include ring-joint patella fixation, tension band wiring and enhanced technology, screw fixation, steel plate fixation, tension band wiring combined with other methods, and patellar fixation with patellar fixator. Each of these treatments has distinct advantages, disadvantages and indications(1).

The patella increases quadriceps leverage. Management following patella injury has been based on preservation of bone and vascular supply, in addition to restoration of joint and extensor function. Surgical indications for patellar fractures include exposed fractures, fractures involving extensor apparatus function, those with a joint gap greater than 5 mm and/or joint incongruity greater than 3 mm. Anatomic reduction and stabilization with a modified tension band is the most common treatment. Some biomechanical trials show that tension band stabilization replacing Kirchner wires with cannulated screws shows good endurance to fracture displacement, providing greater stability. In patella fractures, it is essential to consider the biomechanics of the bone and the fixation technique to be used. The treatment through eversion of the patella allows a direct view of the articular surface, in addition to monitoring and correcting possible unevenness of it, leaving unnecessary the use of fluoroscopy in surgery; the management without patellar eversion and use of fluoroscopy, is less interventional, so theoretically presents a lower potential intraoperative risk(2).

## METHODOLOGY

A total of 32 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 24 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: patella, patellar fractures, knee trauma.

The choice of bibliography exposes elements related to patella fractures, epidemiology, anatomy, function, mechanisms of action, classification, clinical presentation, imaging presentation, treatment and complications.

## DEVELOPMENT

### Epidemiology

Kneecap fractures comprise 1% of all fractures in humans, presenting a 2:1 ratio between men and women, frequently occur unilaterally and happen more frequently in individuals between 20 and 50 years of age; however, there are some studies that show other characteristics. In the elderly, especially in women, fractures may be caused by a low-impact mechanism, such as falls from a height of one foot or less, and are considered fragility fractures. Approximately 2 to 7% of patellar fractures are open fractures(3-5).

### Anatomy and Function

The patella is the largest sesamoid bone in the human body, in other words, it is a bone embedded within a tendon; specifically, the patellar tendon. The patella has different functions of utmost importance such as:

- Exercises as a protector of the knee joint.
- Protect the femoral condyles from direct trauma.
- Increases the mechanical strength and leverage of the quadriceps tendon.
- Supports nutrition of the articular surface of the femur.
- Presents cosmetic function.

The appearance of certain fractures in this anatomical area can lead to alteration of the previously mentioned functions. The patella has a rounded triangular structure and has 7 articular facets; the lateral facet is the largest, representing almost 50% of the articular surface. The articular cartilage is usually up to 1 cm thick. The tendon of the quadriceps is inserted in the superior part of the patella and the patellar ligament in the inferior part. The extensor retinaculum, medial and lateral, support the longitudinal extensions of the quadriceps. If they are not affected by a patellar fracture, the individual can perform knee extension. Vascularization comes from the genicular arteries, which form a circumferential anastomotic network around the patella(3,4,6).

### Mechanism of Injury

Frequently, patellar fractures appear after falls on the knee, blows and unexpected and energetic muscular pulls. The mechanisms of action are usually direct, indirect and mixed impact. Some authors refer to fractures related to patellar luxation as a different mechanism of action.

**Direct Impact:** a direct traumatism on the patella generates some forms of fracture such as incomplete, simple, stellate or comminuted. Usually, the displacement is almost null since the medial and lateral expansions are maintained. They commonly present with abrasions and wounds in the region. In this type of impingement, active knee extension may remain preserved.

**Indirect Impact:** this is the most common mechanism, generally following a forced eccentric contraction of the quadriceps while the knee is in semi-flexion. The traction of the ligamentous and musculotendinous parts exceeds the patella's own resistance. The most common pattern is transverse fracture, with mutable comminution of the lower pole. The level of fragment displacement has a direct impact on the level of extensor retinaculum injury. In this type of impingement, active knee extension is usually not preserved, with the patient being unable to extend the knee.

**Combined Mechanism:** the individual presents direct and indirect trauma to the knee, such as a fall from a height(3,4,6).

#### Clinical Assessment

In most cases the diagnosis of patella fracture is made by clinical history, physical examination and a complementary radiography; generally affected individuals are unable to walk or show an alteration with limitation to walk accompanied by pain and swelling in the affected knee, sometimes on palpation can feel an alteration in the patella. When an open fracture is evidenced, it should be treated as a surgical emergency. Sometimes at the time of the evaluation it is possible to choose to inject more than 100 ml of physiological saline solution in the knee to check for the existence of communication with the overlying lacerations. In

addition, the active extension of the knee must be evaluated to know if the retinacular expansions are altered, sometimes it is necessary to decompress the hemarthrosis or to place lidocaine inside the joint. In a strong impact trauma, it is necessary to evaluate the ipsilateral hip, femur, tibia and ankle, in addition to an evaluation with complementary examinations such as X-rays if necessary(3,4).

#### Imaging Assessment

Anteroposterior and lateral projections of the knee should be performed. Usually it is not necessary to request CT or MRI, however preoperative CT has presented a fundamental role in the diagnosis of patella fractures by accurately assessing the structure of the fracture and improving decision making for planning and treatment.

**Anteroposterior Projection:** allows the identification of patellar fractures, it should be taken into account the existence of a bipartite patella that is usually located in the superolateral portion, it is usually confused with a fracture, however the bipartite patella has smooth edges and is bilateral in 50% of those affected.

**Lateral Projection:** usually allows to see the displacement of the fractures.

**Axial Projection:** also called rising sun projection allows the identification of osteochondral fractures or vertical marginal fractures. However, in acute trauma, due to pain and other factors, it is not usually relevant and it is difficult to perform, so it is preferable to use CT to better visualize the fracture pattern, marginal fractures or free osteochondral fragments(3,4,7).

**Figure 1. Radiographs in AP and lateral projections, showing fracture of the patella treated by the use of a tension band with a wire loop by means of cannulated screws.**



**Source:** Carredano G X, Valderrama R J, Valderrama S I, Hube L M, Bernal B N, Mellado M C, et al.(2).

### Classification

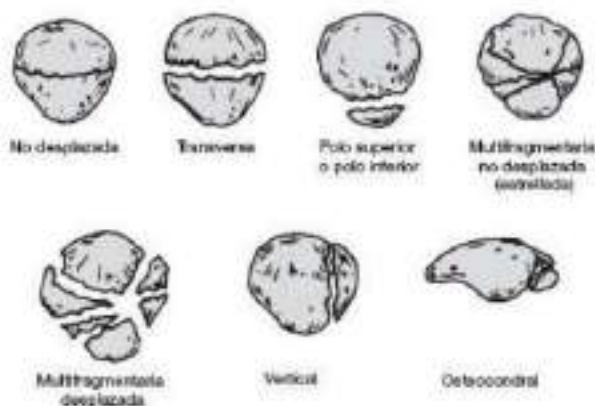
The classification can be made according to different descriptive parameters such as:

- Open versus closed.
- Not displaced versus displaced.

- By pattern: comminuted, transverse, vertical, stellate, polar, osteochondral.

Management preferences differ according to the displacement of the fracture, the classification and the factors specific to the affected individual(4,8).

**Figure 2. Classification of patella fractures.**



**Source:** Bucholz RW, Heckman JD, Rockwood CA, Green DP. Rockwood & Green's fractures en el adulto(6).

### Treatment

#### Conservative Treatment

For this type of management it is essential that the knee extensor mechanism is intact, if so, it is indicated in non-displaced or minimally displaced fractures of 2 mm to 3 mm with slight joint involvement of 1 mm to 2 mm. An inguino-malleolar cast or an extension-locked knee brace may be used for approximately 4 to 6 weeks. Early partial bracing with the knee in extension is also indicated, continuing with full bracing with English canes as the affected individual tolerates. Elevation exercises with the leg straight can be started quickly, and strengthening of the quadriceps femoris by isometric exercises can be performed in the following days. After evidence of bone consolidation through a complementary examination, it is recommended the progressive inclusion of active exercises that help to improve and strengthen flexion and extension, however, the articulated orthosis should remain locked in extension while walking.

#### Surgical Treatment

Within the management in the operating room, open reduction and internal fixation, most of the times show good results. The indications for surgery are:

- Open fracture.
- Joint incongruence > 2 mm.
- Fragment displacement > 3 mm.
- Loss of active extension.
- Lack of full extension.

There are multiple surgical fixation options to name a few:

- The oblique or tension band where K-wires or parallel longitudinal cannulated longitudinal screws can be used.
- Circumferential cerclage with wire.

It is advisable to fix the retinaculum breakage. In comminuted fractures, many small fragment screws, mini-fragments or K-wires may be needed. After the surgical procedure, the joint should be immobilized with a splint for about 3 to 6 days, and then begin early mobilization, after which the affected individual will have to do active range-of-motion assisted exercises, increasing the load progressively. Severe comminuted fractures or with marginal repair, mostly in elderly people, require immobilization for about 3 to 6 weeks, leaving the load free with the knee in extension according to tolerance. The orthosis can be removed when performing a range of motion movements.

Partial patellectomy may be performed when there is a large salvageable fragment along with several small comminuted polar fragments that are thought to make it difficult to repair the articular surface or allow stable fixation. Removal of the distal fragments may result in a low patella. The patellar ligament can be reintegrated by non-absorbable sutures.

Total patellectomy is used in fractures with significant comminution. The maximum strength of the quadriceps muscle is decreased by half. After partial or total patellectomy, the knee should be immobilized with an inguinopedic or inguinomalleolar cast with 10° of flexion for about 3 to 6 weeks(4,6,9).

The options for surgical management of comminuted patellar fractures include:

- Open reduction and internal fixation: the first-line treatment in comminution.
- Cable-pin system.
- Titanium cerclage with cable.
- Nickel-titanium patella concentrator.



- Plate and screw fixation: used in patella fracture, for the treatment of transverse patella fracture or inferior patella fracture.
- Modified tension band fixation: has a good effect in simple transverse patellar fracture.
- Partial or total patellectomy: causes alteration of the extensor mechanism and the normal contact surface of the patellofemoral joint, impairing the function of the knee joint.
- Circumferential cerclage wire fixation: widely used in the treatment of comminuted patellar fracture. With worse results in terms of stability compared to tension band and modified tension band.
- Modified cerclage wire: effective for treatment of comminuted patellar fracture, showing strong and stable fixation, in addition to early functional exercise(4-18).

**Figure 3. Postoperative Patella Fracture.**



Source: The Authors.

#### **Complications**

**Post-Traumatic Osteoarthritis:** usually present in approximately 50% of patients, when patellofemoral pain is intractable it may be necessary to perform an advancement osteotomy of Maquet's tibial tubercle.

**Impairment Or Loss of Knee Mobility:** following long-term immobilization or due to post-surgical fibrosis. Stiffness and contracture compromise long-term recovery of joint function.

**Post-Surgical Infection:** infrequent, interrelated with open fractures and recurrent debridement. If the infection is very complicated, removal of non-viable fragments and restoration of the extensor mechanism may be necessary.

**Refracture:** following the reduction of the fracture site's own resistance, it usually occurs in 1% to 5%.

**Failure of Fixation:** occurs more frequently in individuals with osteoporosis, it occurs when the fracture site is not properly compressed.

**Osteonecrosis:** interrelated with fractures with more initial displacement. The proximal fragment is the most affected. Management is usually periodic observation, usually revascularize spontaneously in about 2 years.

**Intolerance to Osteosynthesis Material:** sometimes it may be necessary to remove the material.

**Loss of Strength of the Extensor Mechanism and loss of extension:** in about 5 degrees, generally without relevance.





## Instability of the Patella.

**Pseudarthrosis:** with an incidence of approximately 2 percent, most affected individuals maintain good function, however, when the pseudarthrosis generates great pain, partial patellectomy may be chosen. In young, active individuals, revision osteosynthesis can be performed, however, in most cases of patellar pseudarthrosis, management is challenging. Some studies indicate that the non-metallic fixation technique supported by sutures related to platelet-rich plasma and mesenchymal stem cells may be an option to be used in pseudoarthrosis following patellar fractures and also in primary patellar fractures(4,6,24). In a meta-analysis of reintervention, pseudoarthrosis and infection after open reduction and internal fixation of patellar fractures, the frequencies of pseudoarthrosis and infection are relatively lower after the surgical procedure; the frequency of reintervention was 33.6%, that of infection 3.2% and that of pseudoarthrosis 1.3%(5).

## CONCLUSIONS

The patella is the largest sesamoid bone in the human body with several important functions. Frequently, patellar fractures appear after falls on the knee, blows and unexpected and energetic muscular pulls. The diagnosis is made by means of clinical history, physical examination and complementary radiography. Anteroposterior and lateral projections of the knee should be performed. For conservative treatment it is essential that the knee extensor mechanism is intact. There are several methods of surgical treatment, in general the open reduction and internal fixation present good results. Among its complications we find post-traumatic osteoarthritis, alteration or loss of mobility of the knee, refracture, fixation failure, osteonecrosis, intolerance to osteosynthesis material, loss of strength of the extensor mechanism, loss of extension, instability of the patella and pseudoarthrosis.

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# VARIATION CHANGE OF VALUABLE ECONOMIC CHARACTERS OF F<sub>3</sub> SIMPLE AND COMPLEX HYBRIDS OF SUNFLOWER

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## ABSTRACT

*The main goal of our research is to increase the speed, productivity and quality of plants. In our research, sunflower F<sub>3</sub> simple and complex hybrids were studied. The most fast-ripening plants were found in complex hybrids, and the plants with the highest productivity were also found in complex hybrids according to the sign of productivity.*

**KEYWORDS:** sunflower, hybridization, disk, fast-ripening, productivity, simple and complex hybridization, adaptability.

## INTRODUCTION

In the world's leading sunflower-growing countries, special attention is paid to increasing seed yield and quality due to the development and application of advanced methods of soil conditions, variety characteristics, planting time, planting scheme and cultivation technologies.

In many countries, the demand for vegetable oil compared to butter is increasing more and more for the use of oil products for food. Because compared to the oil of livestock, vegetable oil has many advantages for human health. In Uzbekistan, in order to produce vegetable oil for the consumption of the population, plants that store oil in their seeds, such as sunflower, sorghum, soybean, oil flax, and sesame, are planted.

It should be noted that in order to improve the standard of living of the population, ensuring the need for ecologically clean products, including vegetable oil, used for consumption has always been considered an urgent issue.

The Republic of Karakalpakstan is considered to be one of the most important directions for obtaining a high-quality, high-fat harvest from sunflowers in different soil and climate conditions. Today, one of the main directions of plant genetics and selection is the creation of drought-resistant agricultural crops, in particular, sunflower varieties. In our republic, comprehensive measures are being implemented to create quick-ripening, high-fat and productive varieties of sunflower and to improve seed yield. There is an increasing demand for the creation of varieties with stable genetic traits in sunflower breeding using new breeding methods. Also, the role of oil crops in the national economy of our country is very important. The oils obtained from them are the most important food products necessary for the daily life of our people.

According to D.T.Abdukarimov, M.K.Lukovs, harvesting is usually started when the back side of the disk is 90% yellow-brown, and the humidity of the seeds in the disk is 12-14%. It is required that the moisture content of the seed does not exceed 7%, if it is stored in bags, it does not exceed 8-10%.

The productivity of agricultural crops is not only related to the variety, the technology of its cultivation, but there is a correct connection between the yield of the crop and the level of leaves, the duration of its operation. Leaf level, duration of operation, dry mass accumulation determine the photosynthetic productivity of the crop field [1].

According to the researches of M.K.Lukov, A.A.Makhmadaliev, N.Ergasheva, 25-30 c/ha are grown in a short period of time (75-85 days) due to the planting of early-season varieties of sunflower on the land freed from grain crops. 1.1-1.3 tons of oil and 1.2-1.5 tons of press cake are extracted from this harvest. The seeded disk contains 31 nutritional units and is a strong feed for livestock. The green stem left in the field after harvesting can be used to make silage with straw [3].

According to the researches of Kh.Egamov, K.S.Komilov, I.Kimsanov, the productivity of sunflower depends on the productivity of individual disks and the number of plants per hectare. The productivity of an individual disk is determined by the number of seeds inside it and the mass and weight of each seed. Here, the output of the seed kernel is of great importance. This indicator depends on the output of the seed pod from the total mass. A 10% increase in kernel size leads to an increase in oil content by 6-7%. As a result of the selection process, the yield of seed pods was reduced from 40-45% to 20-25% in zoned varieties and hybrids [2].

## RESEARCH RESULTS AND THEIR ANALYSIS

In the conditions of the Republic of Karakalpakstan, the sign of fast-ripening is considered the main sign of all plants, because the harvest harvested on time is of high quality and in an extremely ripe state. In addition, fast-ripening varieties provide an opportunity to harvest twice in one season. That's why we focus on speed in our research. In our research, 3 complex and 6 simple hybrids were kept after analysis for all studied characters. According to their variation analysis, classes ranged from 68 days to 82 days. Each class interval was 2 days. In complex hybrids, the separation process was observed in 7



classes, i.e. from 68 to 78 days. The fastest growing plants matured in 68-70 days and were placed on the left side of the variation line. In general, such fast-growing plants are rare in sunflowers and have come to this state only through complex hybridization. In the 7th hybrid, there were 22 very fast-growing plants, in the 8th hybrid, there were 21, and in the 9th complex hybrid, the number of such fast-growing plants reached 25.

Thus, thanks to complex hybridization, we were able to separate extremely fast-growing plants. In normal hybrids, there were 23 plants in the 2nd hybrid and 13 in the 5th hybrid. In normal hybrids, the process of separation was observed in a large amount, but they were observed in the late direction. The vegetation period was observed in them up to 82 days. The left side of the line of variation in the sign of speed for selection is noteworthy Table 1.

**Table 1**  
**Variational analysis of sunflower F<sub>3</sub> hybrid families for fast-ripening (2022).**

№	Simple and complex hybrids	K=2								n	M±m	δ	V%
		68	70	72	74	76	78	80	82				
1.	F <sub>3</sub> (Tels x KK-1)	-	-	2	5	13	8	6	1	35	76,8±0,4	2,3	3,1
2.	F <sub>3</sub> (C-Alstor x KK-1)	2	9	12	8	5	-	1	-	37	72,4±0,4	2,5	3,5
3.	F <sub>3</sub> (C-HS-H-2011g x KK-1)	-	-	1	7	11	9	5	3	36	77,0±0,4	2,5	3,3
4.	F <sub>3</sub> (Jant lower x KK-1)	-	-	3	5	12	7	4	2	33	76,6±0,4	2,6	3,4
5.	F <sub>3</sub> (Sor Gollips x KK-1)	1	3	9	10	7	2	-	-	32	73,5±0,4	2,3	3,2
6.	F <sub>3</sub> (Ak-12/95 x KK-1)	-	-	1	6	14	12	2	1	36	76,6±0,3	2,0	2,6
7.	F <sub>3</sub> [F <sub>1</sub> (Jant lower x KK-1)x (F <sub>1</sub> (Ak-12/95 x KK-1)]	3	9	10	8	3	1	-	-	34	72,1±0,4	2,4	3,4
8.	[F <sub>1</sub> (C-HS-H-2011г. x KK-1)x F <sub>1</sub> (C-Alstor x KK-1)]	1	8	12	6	4	-	2	-	33	72,7±0,4	2,7	3,8
9.	F <sub>3</sub> [F <sub>1</sub> (Sor Gollips x KK-1)x (F <sub>1</sub> (Tels x KK-1)]	2	10	13	4	3	2	-	-	34	72,1±0,4	2,5	3,4

It is known that the goal of every work in the breeding process is to increase the productivity and quality of plants. In our research, the productivity of sunflower depended on the diameter of the disk, the number and size of the seeds in it. Table 2 shows the productivity of F<sub>3</sub> simple and complex hybrids.

As can be seen from the table, the average value of complex hybrids exceeded 92 grams, that is, from 107 to 110 grams. In ordinary hybrids, the highest figure was 95.2 grams. The segregation process also differed dramatically between simple and complex hybrids. In complex hybrids, some plants

showed a yield of 135 grams. The highest rate of plants of ordinary hybrids did not exceed 125 grams.

The line of variation shifted to the right in complex hybrids, and to the left in simple hybrids. Thus, we were able to select high-yielding plants on the basis of complex hybridization, and it became the basis for obtaining high-yielding families.

Among the most effective complex hybrids, F<sub>3</sub> [F<sub>1</sub> (Jant lower x KK-1) x (F<sub>1</sub> (Ak-12/95 x KK-1))] and F<sub>3</sub> [F<sub>1</sub> (Sor Gollip x KK-1) x (F<sub>1</sub> (Tels x KK-1))] combinations were distinguished and among them, most of the plants showed higher productivity than 105 grams.

**Table 2**  
**Variational analysis of sunflower F<sub>3</sub> hybrid families for the yield trait per plant (2022).**

№	Simple and complex hybrids	K=10									n	M±m	δ	V%
		55	65	75	85	95	105	115	125	135				
1.	F <sub>3</sub> (Tels x KK-1)	1	6	11	7	6	4	-	-	-	35	81,5±2,2	13,4	16,5
2.	F <sub>3</sub> (C-Alstor x KK-1)	-	1	3	9	12	6	5	1	-	37	95,2±2,2	13,4	14,1
3.	F <sub>3</sub> (C-HS-H-2011g x KK-1)	2	3	11	10	4	4	2	-	-	36	83,6±2,4	14,9	17,8
4.	F <sub>3</sub> (Jant lower x KK-1)	1	4	7	9	6	5	-	1	-	33	85,6±2,6	15,1	17,7
5.	F <sub>3</sub> (Sor Gollips x KK-1)	-	3	3	14	5	4	3	-	-	32	89,0±2,4	13,6	15,3
6.	F <sub>3</sub> (Ak-12/95 x KK-1)	1	6	9	11	5	2	2	-	-	36	82,5±2,3	14,2	17,2
7.	F <sub>3</sub> [F <sub>1</sub> (Jant lower x KK-1)x (F <sub>1</sub> (Ak-12/95 x KK-1)]	-	-	2	3	4	10	8	5	2	34	107,3±2,6	15,3	14,3
8.	[F <sub>1</sub> (C-HS-H-2011г. x KK-1)x F <sub>1</sub> (C-Alstor x KK-1)]	-	3	3	5	13	6	2	1	-	33	92,8±2,4	14,3	15,4
9.	F <sub>3</sub> [F <sub>1</sub> (Sor Gollips x KK-1)x (F <sub>1</sub> (Tels x KK-1)]	-	-	-	2	4	12	8	5	3	34	110,5±2,2	13,0	11,8





## CONCLUSION

As a result of the above research, it can be concluded that the hybridological analysis of the speed and productivity of the F<sub>3</sub> hybrid plants showed that the separation process was observed in the complex hybrids more widely than in the simple hybrids. According to the sign of early ripening, the fastest plants ripened in 68-70 days in complex hybrids, and in simple hybrids, very early ripened plants in the second hybrid were 23.

In complex hybrids, the average indicator of productivity was more than 92 grams, i.e. from 107 to 110 grams. In ordinary hybrids, the highest figure was 95.2 grams. In complex hybrids, some plants showed a yield of 135 grams. The highest rate of plants of ordinary hybrids did not exceed 125 grams.

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# ATTITUDE TOWARD ENGLISH, COMMUNICATION APPREHENSION AND SPEAKING COMPETENCE OF JUNIORS IN THE PHILIPPINES

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This study was designed to determine the attitude toward English, communication apprehension and speaking competence of juniors at Saint Louis School in the Philippines, and to recommend necessary interventions to enhance the attitude toward English and speaking competence and minimize communication apprehension of the aforementioned subject.

The first part is a discussion about English Communication as the key for progress and advancement to continue learning things more accurately and effectively, hence, with the presence of modern technology, learners are becoming passive in their speaking skill, so the researcher decided to look into the learners' attitude toward English, their communication apprehension and speaking competence.

This study was conducted at Saint Louis School, Solano Nueva Vizcaya during the school year 2013-2014. The data were obtained and analyzed using descriptive-survey method and inferential statistics. The subjects of the study answered questionnaires and did extemporaneous speaking.

The research environment covered a total of six class sections in third year level specifically the science section and classes from the general section. The respondents of this study consisted of 88 students from the six sections of the junior high school level in Saint Louis School.

This study determined the influence of attitude toward English and communication apprehension on the speaking competence of junior English Language learners.

## Research Questions

1. What is the profile of the junior respondents of Saint Louis School?
2. What is the respondents' attitude toward English?
3. What is the respondents' level of communication apprehension?
4. What are the respondents' levels of speaking competence along content and delivery?
5. Do the profile variables relate and attitude toward English significantly to the respondents' attitude toward English, communication apprehension and speaking competence?

The data were analyzed using descriptive-survey method and inferential statistics.

The following hypotheses were conceived:

1. The profile variables do not relate significantly to the respondents' attitude toward English, communication apprehension and speaking competence.
2. The respondents' attitude toward English do not relate significantly to their communication apprehension and speaking competence.

The findings are the following:

1. Gender as a profile variable relates significantly to respondents' attitude toward English while communication apprehension, speaking competence in content and delivery are not significantly related with gender.
2. The respondents' monthly family income, number of siblings and school graduated from do not relate with their attitude toward English, communication apprehension and speaking competence along content and delivery.
3. Communication apprehension and speaking competence in both content and delivery have very significant relationship with the respondents' final grade in English II. On the other hand, the respondents' attitude toward English does not relate nor is influenced by their final grade in English II.
4. The amount of time engaged by the respondents in social networking influence their speaking competence for both content and delivery.
5. Attitude toward English has a very significant relationship with taking pictures. Communication apprehension and speaking competence for both content and delivery do not show any significant relationship with frequency of taking "selfie" pictures.



6. Attitude toward English, communication apprehension and speaking competence both in content and delivery do not relate nor are influenced by frequency of exposure to English TV programs and ICT facilities.

7. Communication apprehension relates significantly or influences speaking competence. On the other hand, communication apprehension is negatively correlated with speaking competence along delivery.

The results showed the respondents' highly positive attitude toward English. Their level of communication apprehension and levels of speaking competence in content and delivery are average. As a result, this study recommends that Public Speaking may be integrated in English subjects for high school students. Students may likewise be provided several speaking activities. The school, specifically, the administrators and teachers should initiate the English speaking policy so students will be trained in speaking the target language.

Based on the foregoing findings, the conclusions below were drawn:

1. The respondents have a highly positive attitude toward English.
2. The respondent's level of communication apprehension is average.
3. The respondents' levels of speaking competence in content and delivery are both average.
4. Gender relates significantly to respondents' attitude toward English while communication apprehension are not significantly related with gender.

Monthly family income, number of siblings and school graduated from do not relate with their attitude toward

English, communication apprehension and speaking competence along content and delivery.

The amount of time engaged by the respondents in social networking influence their speaking competence for both content and delivery.

Attitude toward English, communication apprehension and speaking competence both in content and delivery do not relate nor are influenced by frequency of exposure to English TV programs and ICT facilities.

6. Communication apprehension relates significantly or influences speaking competence. On the other hand, communication apprehension is negatively correlated with speaking competence along delivery.

#### Implications

1. Public Speaking may be integrated or incorporated in English subjects for high school students. This is because learners can either do public speaking well or badly, and the outcome strongly affects the way people think.

2. Teachers should maximize the use of speech laboratory with the use of the module in enhancing the speaking skills of students.

3. Students may likewise be provided several speaking activities.

4. The school administrators and teachers should initiate the English speaking policy so students will be trained in speaking the target language.

6. Teachers may take advantage of using instructional materials in teaching English.

7. Future researchers are encouraged to delve on other studies on factors influencing the speaking skills of learners so as ways to address these may be undertaken.



# MANAGEMENT STYLE AND WORK PERFORMANCE OF THE TREASURY OFFICE OF THE SECOND-CLASS MUNICIPALITIES IN LAGUNA

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## ABSTRACT

*The management style of the treasury office of the Second-Class Municipalities in Laguna is a combination of both task-focused and people-focused approaches. This study examined the relationship between the management style and the work performance of employees in the treasury office of the second-class municipalities in Laguna. The study employed a descriptive research design and a purposive sampling technique to collect data on the management style and its relation to work performance of the treasury office in the second-class municipalities of Laguna. The researcher designed and developed a self-made survey type questionnaire to measure the attitudes, opinions, and behaviors of the target population.*

*The findings revealed that the Management Style and Employees Work Performance in the Treasury Department of the Second-Class Municipalities of Laguna that the higher the level of Management Style, the higher the level of Employees Work Performance and are both in excellent condition. To enhance employee performance, the Treasury Office might emphasize making use of combinations of management styles. In addition, the organization need to concentrate on enhancing and developing the skills, communication, and creativity of its employees. The management ought to promote team building as well as team-oriented activities to aid in the development of essential employee skills*

**KEYWORDS** – *Employees, Management Style, Treasury Office, Work Performance,*

## INTRODUCTION

Management style is a way of directing and organizing a business or organization in order to achieve specific goals. It is the framework for influencing the behavior of the employees to strive towards the organization's objectives [62]. Management style can be thought of as the approaches and strategies a manager uses to govern an organization. It encompasses all the ways in which a manager directs, motivates, and controls the behavior of the people within their organization [55]. A successful management style is one in which a manager guides and directs their team to reach the objectives of the organization. The approach they take to do so is dependent on the manager and can range from task-focused to people-focused or even a combination of both. Over the past few decades, scholars have identified several approaches to management and Likert outlined four of these styles - participative, paternalistic, exploitative, and consultative management.

Moreover, democratic management style is a method where the manager involves the employees in decision making. In this style of management, communication flows in both directions and employees are encouraged to share their thoughts, feelings and ideas that can add value to the organization. The manager takes into consideration the opinions of the employees before making a decision, in order to gain a variety of perspectives and ideas that can lead to better decision-making outcomes. Furthermore, autocratic management style was used by the manager makes decisions without consulting or considering the opinions of the employees. The decisions are made solely by the manager and reflect the manager's own ideas and

views. On the other hand, a participatory management style is one in which employees from all levels are allowed and encouraged to contribute to the decision-making process. This type of management style is quicker as only the manager needs to be involved and communication is more direct. However, it has not allowing for open communication and feedback. It was argued that this type of management can lead to low motivation, job satisfaction and performance [70].

However, paternalistic management style, the manager acts as a father figure towards their employees, taking into account both their job-related and personal needs. The manager places emphasis on communication being downward, with feedback and questioning of authority being absent as a sign of respect. The manager keeps control over employees while also allowing them to be creative in their work [27]. Meanwhile, in a persuasive management style, the manager maintains control over the decision-making process and uses their ability to interpret a situation in order to convince or strongly urge employees to do certain tasks or pursue certain objectives. Employees are not actively involved in the decision-making process, which can lead to a lack of motivation and job satisfaction [69].

Hence, the Treasury Office of the Second Class Municipalities in Laguna is an important part of the local government. It is responsible for the management of the finances and the collection of taxes from the local citizens. The treasury office is managed by a team of professionals who are dedicated to ensuring that the government has the resources it needs to provide essential services. The office is also responsible for the enforcement of laws and regulations





related to taxation and finance. As the management style reflects the need to be both efficient and effective. The office is managed in a way that promotes efficiency and cost-effectiveness while ensuring that all regulations and laws are followed [36]. Moreover, the Treasury Office of the Second-Class Municipalities in Laguna is an important part of the local government. The office is managed by a team of professionals who are dedicated to ensuring that the government has the resources it needs to provide essential services. The work performance of the office is excellent and the staff is well-trained and knowledgeable in the areas of taxation and finance. The office is able to collect more taxes than any other office in the region.

This study will focus specifically on exploring the relationship between the different management styles utilized by treasury offices in second-class municipalities of Laguna. These management styles are comprised of six distinct approaches, including participative, autocratic, laissez-faire, paternalistic, persuasive, and democratic. The performance of employees in the treasury offices will be evaluated according to their ability to produce the desired level of quantity and quality; the willingness to go beyond the average; the commitment to doing things the right way; the acquisition of the necessary skills; the willingness to take on extra workload; meeting of goals and performance standards; employees viewing the performance management system as a valuable tool; effective communication of objectives; and employees performing their duties in the best interest of the office.

## OBJECTIVES OF THE STUDY

The main purpose of this study is to determine relationship between the management style and the work performance of employees in the second class municipalities in Laguna. Specifically, this study aims to answer the following (1)to determine the level of management style in the treasury office of the second class municipalities of Laguna in terms of (a) participative, (b) autocratic, (c) democratic, (d) Laissez-faire, (e) visionary; and (f) transformational; (2) to assess the level of employees work performance in the treasury office of the second class municipalities of Laguna in terms of (a) Quantity & Quality, (b) Skills, (c) Communication, (d) Collaboration, (e) Critical Thinking; and (f) Creativity and (c) to investigate the significant relationship between the levels of Management style and employees work performance in the treasury department of the second class municipalities of Laguna.

## MATERIALS AND METHODS

This study employed a descriptive research design to describe the management style and its relation to employee work performance. The respondents of the study were limited to the heads and employees of the treasury office in the second-class municipalities of Laguna such as Bay, Calauan, Nagcarlan, and Siniloan. A survey was used as the instrument in gathering data. Data gathering was done through printed materials sent to the respondents personally by the researcher.

Descriptive research design is a type of research method used to collect information about a population or a phenomenon that is being studied. It is used to describe

characteristics of the population or phenomenon, and to explore relationships between variables [98]. The research design involves collecting data on the characteristics of the treasury offices and using statistical analysis to explore the relationship between the management style and the work performance of the offices. The data collected can then be used to gain insights into how the management style of the treasury offices affects their work performance.

Convenience sampling is a non-probability sampling technique that is used when the researcher wants to select specific members of a population to participate in a study. It is often used when a researcher is trying to obtain a specific type of information from a certain type of respondent [23]. Although the sampling is non-probability in nature, the researcher tried to minimize the bias as much as possible.

In the case of the study involving the heads and employees in the second-class municipalities in Bay, Calauan, Nagcarlan and Siniloan, purposive sampling would be used to select participants who are familiar with the issues in the municipalities and are able to provide relevant information about the municipalities.

**Table 1. Profile data of respondents**

Municipality	Male	Female	Total
Bay	3	9	12
Calauan	5	8	13
Nagcarlan	9	13	22
Siniloan	4	7	11
<b>Total</b>	<b>21</b>	<b>37</b>	<b>58</b>

A self-made survey type questionnaire was used by the researcher which is a custom survey instrument that is designed and developed by a researcher for use in a specific study. To be able to analyze the data gathered, statistical tools such as weighted mean, standard deviation and correlation coefficient were used. To interpret the mean of responses of the management style, weighted mean was used. To identify the responses of the respondents, a Likert-scale was used in the study as seen in Table 2:

**Table 2. Four-point Likert Scale**

Mean Interval	Interpretation
4.00 -3.26	Strongly Agree
3.25 – 2.51	Agree
2.50-1.76	Disagree
1.75- 1.00	Strongly Disagree



## RESULT AND DISCUSSION

### Level of Management Style

**Table 3. Overall Mean of the Level of Management Style**

Management Style	Overall Mean	Verbal Interpretation
Participative	3.47	Very High
Autocratic	3.46	Very High
Democratic	3.48	Very High
Laissez-faire	3.42	Very High
Visionary	3.53	Very High
Transformational	3.56	Very High

A management style is a method of guiding and structuring a company or organization to achieve specified goals. It is the framework for influencing employees' behavior in order to achieve the organization's goals [62]. In this study level of management style in the treasury office of the second-class municipalities of laguna include participative, autocratic, democratic, and laissez-faire.

The overall performance in the treasury office received a very high interpretation which means that management style of the leader makes the employee to be productive, it creates trust and a positive working environment. Otherwise enables employee to perform at their highest capacity in collaboration with others.

As gleaned on Table 3, the level of management style was prominent to transformational management style. Transformational leadership is a management style that emphasizes staff development and motivation in order to achieve organizational goals. It is an effective leadership style that encourages people to think critically and creatively about their work and to take responsibility of it [84]. This leadership style is founded on the notion that a leader who sets high standards, believes in the potential of the individual, and generates a feeling of purpose and shared vision can transform and drive individuals [88]. The primary benefit of transformational leadership is that it encourages employees to take on greater responsibility, become more engaged in their work, and perform at a higher [35]. Additionally, research has found that transformational leadership can have a positive impact on employee morale, satisfaction, and commitment [99]. However, there are also some potential drawbacks to this style of leadership. Transformational leadership can create an environment of high expectations, which can lead to performance anxiety [66]. Additionally, it can be difficult to establish trust with employees if the leader is perceived as authoritarian or overly controlling.

Despite these potential drawbacks, transformational leadership is a highly effective way to motivate and engage employees. However, there is still a need for further research to better understand the effectiveness, benefits, and potential drawbacks of this management style [72]. Additionally, it would be beneficial to explore how different types of organizations can best use transformational leadership to achieve their goals. Finally, further research could also be

conducted to identify best practices for developing, implementing, and measuring the success of transformational management [1].

Furthermore, it was evident that respondents were visionary in management style. As reiterated by [34] visionary management as a leadership style that focuses on the long term and setting lofty goals. It entails inspiring and motivating personnel to contribute to the organization's vision. This management style necessitates a leader that is both innovative and encouraging, as well as able to communicate effectively [15]. Despite the potential benefits of visionary management, there is a lack of research examining its effectiveness. While the benefits of inspirational leadership have been explored in some studies, the impact of visionary management on performance, morale, and employee engagement is largely unexplored [24]. Additionally, there is a lack of research into the implementation of visionary management style and the factors that contribute to its success [28]. Furthermore, the ability of visionary leadership to assist organizations in navigating turbulent times, such as global pandemics, and to ensure sustainability in the long-term, remains under-researched [91].

Further research is needed to understand the effectiveness of visionary management and its implementation in different organizational settings and contexts. Research should focus on exploring the impact of visionary management on employee engagement and performance, as well as how it can help organizations navigate turbulent times [31]. Democratic management style is a style of management in which employees are encouraged to take part in decision making and are given an equal say in how the organization is run [22]. This type of management style is based on the principles of democracy, giving employees the right to express their opinions and be involved in the decision-making process.

The main purpose of this type of management style is to improve organizational performance by allowing employees to be actively involved in the decision-making process [77]. This style of management also encourages employee participation and creativity, as employees are allowed to voice their opinions and contribute to the decision-making process [39]. Additionally, democratic management can also lead to improved morale and greater job satisfaction amongst employees, as they are given the opportunity to contribute and be creative in their work [2]. Despite these advantages, there are some potential drawbacks to the democratic management style. One of the main issues is that it can be difficult to ensure that all employees are heard and that their opinions are taken into consideration in the decision-making process [23]. Additionally, democratic management can also lead to a slower decision-making process due to the need for consensus amongst all employees [105]. Finally, if the democratic management style is not properly implemented, it can lead to a lack of direction and accountability amongst employees, as they may not feel responsible for the decisions that are made [16].

A study carried out in the public and private industries revealed that a participative management style contributed to increased job satisfaction, enhanced



organizational performance, and higher motivation among workers [74]. A further investigation conducted in the industry discovered that participative management led to greater job satisfaction, improved communication, and enhanced organizational performance [10]. Likewise, a study was conducted in the manufacturing industry concluded that participative management increased employee motivation and productivity. Managers and employees are able to openly discuss ideas and solutions to problems that arise [103].

Autocratic management style is one of the oldest and most traditional forms of leadership. It is characterized by top-down decision making, where the manager or leader is the main source of authority, makes all the decisions and expects their employees to follow them without question. Autocratic management has been used for centuries and is still used in some companies today [53]. While autocratic management is quick and efficient in making decisions and ensuring compliance, it is also highly criticized for its lack of consultation with employees. As emphasized by [42] can lead to employees feeling unvalued and undervalued, resulting in a lack of motivation and commitment.

Another weakness of autocratic management is that it can lead to an environment of fear and mistrust [7]. Employees may feel that their opinions are not valued, and they may be afraid to speak up if they disagree with the manager. This can lead to a lack of innovation, as employees are not encouraged to question decisions and suggest new ideas. Finally, there is the risk that autocratic management can be seen as oppressive and disrespectful. This can lead to a lack of respect for the manager and a feeling of dissatisfaction amongst employees, which can ultimately lead to reduced productivity [52].

Lastly, the style of management determined was Laissez-faire management style which is a form of management that allows for employees to have the freedom to set their own goals and take their own initiatives without the need for direct supervision or guidance from their manager [64]. This type of management is based on the belief that employees are best motivated and productive when they are given the freedom to take their own initiatives and manage their own workloads[53].While some studies have looked at the effectiveness of Laissez-faire management in certain contexts, there is a need for further research to examine how this management style can be implemented in different organizational settings and how it might affect different organizational outcomes [95]. The management style of the treasury office of Laguna's Second-Class Municipalities is a blend of task-focused and people-focused approaches. It was evident in the study that management style that investigated was associated between management style and work performance of employees in the treasury office of Laguna's second-class municipalities.

### Level of Employees to Work performance

As gleaned on Table 4, it was revealed that most of the respondents were into quality and quantity as well as skills in the work performance. Studies have found that the quantity and quality of work are two interrelated aspects of performance. The two concepts are often used interchangeably and have been studied extensively in the

literature [67]. This literature review examines the existing research on the relationship between quantity and quality of work, the gaps in the literature, and the potential for further studies in this area.

**Table 4. Overall Mean of the Level of employees to Work Performance**

Work Performance	Overall Means	Verbal Interpretation
Quality & Quality	3.51	Very High
Skills	3.51	Very High
Communication	3.38	Very High
Collaboration	3.47	Very High
Critical thinking	3.40	Very High
Creativity	3.40	Very High

Studies have found that quantity and quality of work are related but distinct concepts [65]. The quantity of work is typically measured in terms of the amount of work done during a given period of time, while the quality of work is measured in terms of accuracy, timeliness, or other standards of performance [90]. A number of studies have found that the quantity of work is positively associated with the quality of work, meaning that an increase in the amount of work done is associated with an increase in the quality of work [94]. A study found that the quality of work was higher among workers who completed more tasks [85].

Moreover, skills in relation to work performance indicates that skills are an important factor in determining job performance [44]. Research suggests that the development of specific skills and knowledge can have a positive effect on job performance [102]. Studies have demonstrated that workers with a higher level of skill are typically more productive and successful in their job roles [31]. In addition to developing specific skills, there are other factors that can influence job performance. These include motivation, attitude, and job satisfaction [96]. Motivation is important for employees to want to do their best, and if employees are not motivated, their performance may suffer [12]. The attitude that employees have towards their job can also affect their performance. If an employee has a negative attitude, they may be less likely to put in the effort necessary to do a good job. Finally, job satisfaction is important for employees to stay with their job and perform at their best [45].

However, Collaboration is the process of working together with others to achieve a shared goal [54]. It has been found to be instrumental in improving workplace performance. Collaboration can help to create a more productive and harmonious work environment, as it fosters an atmosphere of support and trust [51]. In addition, research has highlighted the importance of allowing teams to set their own goals and take ownership of their successes and failures [38]. This helps to increase motivation, as team members feel





a sense of ownership in their work and are more likely to be committed to achieving the team's goals.

Communication is one of the most important elements of work performance [37]. Effective communication is necessary for teams to work together efficiently and effectively. Thus, the ability to think critically has been shown to lead to improved job performance. People who can analyze and evaluate information, apply logic, and make decisions in an informed manner are better equipped to handle the challenges of the workplace [57]. Critical thinking enables employees to identify and address problems quickly and effectively, as well as to make better decisions (Cottrell, 2017).

In addition to improved job performance, critical thinking can also lead to increased productivity. The ability to think critically often leads to better problem solving, which can help to reduce the amount of time spent trying to find solutions [87]. Creativity is a vital skill for any modern workplace [19]. Numerous studies have shown that people who are more creative tend to perform better at their jobs. Creativity helps to generate innovative ideas, solve complex problems and develop new processes [25]. It can also help to improve the overall performance of a team or organization. According to [11] firms that used a participative management style had higher levels of employee performance in terms of work satisfaction, dedication, and motivation. [59] discovered that participative management approaches resulted in higher work satisfaction and performance. Management Style and Employees Work Performance in the Treasury Department of the Second-Class Municipalities of Laguna are both in good condition, with the higher the level of Management Style and the higher the level of Employees Work Performance.

### Significant Relationship Between the Levels of Management Style and Employees Work Performance in the Treasury Department of the Second-Class Municipalities of Laguna

Table 5. Significant Relationship Between the Levels of Management Style and Employees Work Performance in the Treasury Department of the Second-Class Municipalities of Laguna

Management Style	Employees Work Performance	P-value	Degree of Correlation	P-value	Analysis
Participative	Quantity	0.609**	Strong Correlation	<.001	Significant
	Quality	0.555**	Moderate Correlation	<.001	Significant
	Skills	0.602**	Strong Correlation	<.001	Significant
	Communication	0.607**	Strong Correlation	<.001	Significant
	Collaboration	0.678**	Strong Correlation	<.001	Significant
Autocratic	Critical Thinking	0.608**	Strong Correlation	<.001	Significant
	Creativity	0.687**	Strong Correlation	<.001	Significant
	Quantity	0.644**	Strong Correlation	<.001	Significant
	Quality	0.613**	Strong Correlation	<.001	Significant
	Skills	0.591**	Moderate Correlation	<.001	Significant
Democratic	Communication	0.626**	Strong Correlation	<.001	Significant
	Collaboration	0.738**	Strong Correlation	<.001	Significant
	Critical Thinking	0.733**	Strong Correlation	<.001	Significant
	Creativity	0.708**	Strong Correlation	<.001	Significant
	Quantity	0.663**	Strong Correlation	<.001	Significant
Laissez-faire	Quality	0.630**	Strong Correlation	<.001	Significant
	Skills	0.577**	Moderate Correlation	<.001	Significant
	Communication	0.613**	Moderate Correlation	<.001	Significant
	Collaboration	0.555**	Moderate Correlation	<.001	Significant
	Critical Thinking	0.593**	Moderate Correlation	<.001	Significant
Visionary	Creativity	0.568**	Moderate Correlation	<.001	Significant
	Quantity	0.638**	Strong Correlation	<.001	Significant
	Quality	0.582**	Moderate Correlation	<.001	Significant
	Skills	0.547**	Moderate Correlation	<.001	Significant
	Communication	0.568**	Moderate Correlation	<.001	Significant
Transformational	Collaboration	0.571**	Moderate Correlation	<.001	Significant
	Critical Thinking	0.614**	Strong Correlation	<.001	Significant
	Creativity	0.523**	Moderate Correlation	<.001	Significant
	Quantity	0.501**	Moderate Correlation	<.001	Significant
	Quality	0.606**	Strong Correlation	<.001	Significant
	Skills	0.606**	Strong Correlation	<.001	Significant
	Communication	0.663**	Strong Correlation	<.001	Significant
	Creativity	0.628**	Strong Correlation	<.001	Significant

The findings of this study are in line with the literature review of empirical studies that examine the relationship between transformational leadership and employee performance. It was emphasized by [8] found that transformational leadership is positively associated with employee performance, job satisfaction, and organizational commitment in the banking sector. Another study by [40] found that transformational leadership has a positive effect on employees' job performance, job satisfaction, and organizational commitment in the hotel industry. Similarly, a study by [75] found that transformational leadership is positively associated with employee performance and job satisfaction in the educational sector. These findings suggest that transformational leadership is an effective leadership style and can be used to motivate and inspire employees to reach their highest potential

The correlation is all positive and ranged from moderate to strong. This means that faster decision making of the leader and immediate dissemination of the information boost the employees team productivity that leads to organizational goal. Otherwise, employees become responsible for following instruction to meet deadlines. It has been found that visionary leaders tend to be more effective communicators, which helps to foster collaboration, critical thinking, and creativity among their employees [79].

### CONCLUSION AND RECOMMENDATION

To increase worker performance, the Treasury Office may encourage the adoption of a combination of management practices. Furthermore, the company must prioritize the development and expansion of its employees' competencies, communication, and creativity. To aid in the development of important staff talents, management should encourage team building and team-oriented activities. The level of performance of Management Style in the Treasury Office of the Second-Class Municipalities of Laguna in





Terms of Participative, Autocratic, Democratic, Laissez-faire, Visionary, and Transformational are highly observed among the respondents. The findings of the survey are consistent with the findings of previous studies and reveals that the Management Style in the Treasury Office of the Second-Class Municipalities of Laguna is manifested among the respondents. The findings shows that management focus on providing an environment that encourages and supports participative, democratic, autocratic, transformational, and visionary management styles in order to maximize organizational effectiveness. Moreover, the level of Employees Work Performance in the Treasury Office of the Second-Class Municipalities of Laguna in Terms of Quantity & Quality, Skills, Communication, Collaboration, Critical Thinking and Creativity are very high as response by the respondents in the survey.

In view of the findings and conclusions of the study, the following recommendations are given: (1) the management of the Treasury Office of Laguna may prioritize

employing a combination of all of the mentioned management styles in order to improve employee performance and foster collaboration, innovation, and enhanced employee performance by providing training sessions, lectures, and various other activities to help the employees grow with regards to their abilities, (2) to the other Local Government Units, foster a workplace environment that encourages and promotes critical thinking, creativity, and innovation through collaborative solving issues, idea generation approaches, and decision-making methods and develop a culture of responsibility and accountability among employees and making sure that all employees remain accountable for their achievements and contributions to the organization, (3) to the employees, attend in seminars, workshops, that will enhance their work performance so that they can actively participate in primary functions of the Treasury Office which is to maximize the revenues and (4) for future researchers, it is recommended that similar researches may be conducted to other class of municipalities.

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# EMPLOYEE'S EXPERIENCE AND PERCEPTION OF THE SPMS IMPLEMENTATION AT THE LAGUNA STATE POLYTECHNIC UNIVERSITY

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## ABSTRACT

*This study was conducted to assess the level of employee's experience and perception of SPMS Implementation of the Laguna State Polytechnic University employees. A survey was carried out among 172 respondents representing the regular faculty and non-teaching of the Santa Campus. The study measures the correlation among the demographic profiles and the performance of the LSPU as well as the significant relationship in the effectiveness of the SPMS and their level of performance. With the help of a Statistician, Percentage, Frequency Distribution, Weighted Mean, Standard Deviation and Pearson-r Correlation are used to analyze the relationships among the variables.*

*Findings revealed that the SPMS Implementation as to level of employee's experiences and perception highly effective as rated by the respondents in terms of planning and commitment; monitoring and coaching; review and evaluation and rewarding and developing planning., and between the employees' perceptions in the effectiveness of the SPMS and their level of performance rated very high with respect to quality/effectiveness; efficiency and; timeliness.*

*Based on the results of the study, Laguna State Polytechnic University Human Resource Unit continue monitoring performances for maintaining its SPMS effectiveness among employees. The institution endures deliverables and issues yearly to sustaining the future developmental potential.*

**KEYWORDS:** *Employees experience, Perceptions, SPMS Implementation*

## INTRODUCTION

A Strategic Performance Management System (SPMS) is a system used to measure and evaluate employee performance (Bento et al., 2014). It is a process that helps administrators and employees to identify goals and objectives, measure progress, and then take action to improve performance and reach their goals. It is also a tool for ongoing communication and collaboration between management and employees. SPMS typically includes performance management system, which is used to track and analyze performance data and provide feedback to employees (Torneo & Mojica, 2020). The system also includes training and development initiatives, as well as rewards and recognition programs. The aim of the system is to create a culture of continuous improvement and to empower employees to achieve their highest potential. Additionally, it is an effective tool for organizations to measure and manage the performance of their employees. Studying SPMS is important for organizations to ensure that their performance management system is effective and is helping to achieve the desired organizational results (Silvi et al., 2015).

Consequently, in 2011, the Civil Service Commission embraced the Strategic Performance Management System (SPMS) as a core management tool that not only provides a scientific and verifiable basis for assessing organizational performance and the collective performance of individuals, but also emphasizes the strategic alignment of agency initiatives with day-to-day operations.

On the other hand, research on the SPMS has identified a number of key components that are essential for

successful performance management that designed to ensure that the performance of organizations and individuals are monitored, evaluated, and rewarded accordingly. It is a cycle of performance planning, monitoring and coaching, review and evaluation, and rewarding and development planning (Soewarno & Tjahjadi, 2020; Pollanen et al., 2017). Furthermore, research has identified that the SPMS should be regularly reviewed and monitored to ensure that it is meeting the needs of the organization.

Likewise, by studying SPMS, organizations can gain valuable insight into how to effectively implement and manage the system in their organization. This can help them to identify areas of improvement and ensure that the system is able to maximize the performance of their employees (Baird, 2017). Additionally, studying SPMS can help organizations to develop a culture of performance management that is aligned with their organizational goals.

Moreover, there are several gaps in the literature on SPMS that need further investigation. First, many studies have focused on the design and implementation of SPMS in organizations without looking into the actual usage and effectiveness of the system (Bento et al., 2014). Furthermore, most of the existing literature has focused on the impact of SPMS on organizational performance, but there is a lack of research on the impact of SPMS on individual performance. Additionally, many studies have focused on the development of the SPMS, but few have explored how the system is monitored and evaluated. Finally, there is a need for more research into



how SPMS can be used to measure and improve employee engagement and motivation.

Furthermore, the performance management system (SPMS) is an important tool used by the LSPU Santa Cruz to evaluate, support, and reward its employees. This study aims to assess the employees' experiences and perception of the system, its level of success and its impact on the employees' job performance. In particular, this research will explore the level of SPMS to the LSPU Santa Cruz employees in terms of performance planning and commitment, performance monitoring and coaching, performance review and evaluation, and performance rewarding and development planning. It will also examine the level of performance of LSPU Santa Cruz employees in terms of quality/effectiveness, efficiency, and timeliness. Finally, this study will investigate whether there is a significant correlation between the demographic profile, SPMS and the performance of the LSPU employees.

The results of this research provided an insights into the effectiveness of the SPMS in improving employee performance at the LSPU Santa Cruz. The findings can be used to inform the development of more effective performance management practices that support and reward employees. Furthermore, the results of this research can be used to inform the design of other performance management systems in the field of higher education and beyond.

## MATERIALS AND METHODS

The research design employed in this study was a descriptive research design. This design aimed to establish the relationship between two variables: the demographic profile and the Strategic Performance Management System (SPMS) on the employees of LSPU Santa Cruz Main Campus. Descriptive research allows for a comprehensive analysis of the problem and provides a clear understanding of the case through the collection of information from various sources.

The target population for this research included rank-and-file employees with permanent appointments under the CSC Omnibus Rules on Appointment and Personnel Action and CSC 2017 Omnibus Rules on Appointments and Other Human Resource Actions. A total of 172 respondents were selected

from LSPU Main Campus using a non-probability sampling technique, which allowed for the selection of specific members of the population based on certain criteria.

The study focused on examining how the Strategic Performance Management System (SPMS) influenced the performance of LSPU employees at the Main Campus. The research instrument used was a self-administered questionnaire, which underwent a validity and reliability testing process through pilot testing with LSPU employees who were not part of the actual respondents. The questionnaire was revised based on the results of the pilot study. The researcher obtained permission from the Human Resource Management Office (HRMO) of LSPU Main Campus to conduct the study and requested their assistance in distributing the questionnaires. The completed questionnaires were collected, and the data were analyzed and interpreted.

A self-administered questionnaire was used to gather quantitative data from the LSPU employees at the Main Campus. The questionnaire consisted of close-ended questions and followed ethical guidelines for data collection. The questionnaire used the "Four Point Likert Scale to measure the answer of the respondent. The following shows the range of rating: 4 - Highly effective, 3 - Effective, 2 - Less Effective, 1 - Not at all effective for the level of employees' experience and perceptions on SPMS implementation. Next is the range for the level of employee performance, 4 - Very High, 3 - High, 2 - Low, 1 - Very Low.

Percentage and frequency distribution were used in describing the demographic profile of the LSPU Employees in terms of age, gender, marital status, educational attainment, length of service and position. Weighted mean and the standard deviation were used to determine the level of SPMS to the respondents in terms of Performance Planning and Commitment, Performance Monitoring and Coaching, Performance Review and Evaluation and Performance Rewarding and Development Planning. One Way ANOVA was used to determine the significant difference in the level of employees' performance when grouped according to their profile. Spearman Rank Correlation was used to determine the significant relationship between the employees' perceptions in the effectiveness of the SPMS and their level of performance.

## RESULTS AND DISCUSSIONS

### Profile of the Respondents

Table 1. Profile of the Respondents

Profile	f	%
<i>Age (in years)</i>		
25 - 32	62	36.0%
33 - 40	67	39.0%
41 - 48	25	14.5%
49 - 56	10	5.8%
57 - 64	8	4.7%
<i>Gender</i>		
Male	84	48.8%
Female	88	51.2%
Prefer not to say	0	0.0%
<i>Marital Status</i>		
Single	6	3.5%
Married	166	96.5%



*Length of Service*

≤ 2 years	40	23.3%
3 - 11 years	78	45.3%
12 - 20 years	32	18.6%
21 - 29 years	22	12.8%

*Position*

Teaching	119	69.2%
Non-Teaching	25	14.5%

Age's impact on performance is a subject of study (Omori et al., 2019). However, Ng et al. (2013) found no significant age differences in core task performance between younger and older workers. Further investigation is needed to understand the underlying reasons for these findings. Similarly, Yearta (2015) concluded that age and length of service do not affect work performance. Joseph (2014) also found no influence

of age diversity on employee performance, despite age being a characteristic that can lead to categorization among employees.

The effectiveness of the Strategic Performance Management System (SPMS) is assessed through the perceptions of teaching and non-teaching employees. This assessment includes performance planning and commitment, monitoring and coaching, review and evaluation, and rewarding and development planning.

**Table 2. Level of Effectiveness of the SPMS as to Performance Planning and Commitment**

<i>Indicators</i>	<i>M</i>	<i>SD</i>	<i>Remarks</i>
1. Performance planning helps me to stay focused on my job and better understand my job responsibilities.	3.80	0.40	Highly effective
2. Performance planning contributes to my commitment to the university reaching the goals and objectives	3.62	0.49	Highly effective
3. I believe that performance plans are effective tools for measuring success.	3.83	0.38	Highly effective
4. I am confident that performance plans will help me to reach my full potential.	3.63	0.48	Highly effective
5. I am committed to developing my skills and abilities to meet the goals of my performance plan.	3.61	0.50	Highly effective
6. I have an understanding of the expectations outlined and adjust if needed in my performance plan.	3.62	0.50	Highly effective
7. I am willing to take on additional responsibilities to reach my performance goals.	3.62	0.49	Highly effective
8. I am confident in my ability to complete the tasks outlined in my performance plan.	3.63	0.48	Highly effective
9. I am committed to meeting the objectives outlined in my performance plan.	3.62	0.50	Highly effective
10. I am open to feedback and suggestions on ways to improve my performance plan.	3.44	0.50	Highly effective
<b>Overall Mean</b>	<b>3.64</b>		<b>Highly Effective</b>

Table 2 presents the level of effectiveness of the Strategic Performance Management System (SPMS) specifically in terms of performance planning and commitment, as perceived by both teaching and non-teaching employees. The results indicate that the SPMS was highly effective in facilitating job understanding and performance (M=3.80, SD=0.40). The use of performance plans as a measure of success was particularly beneficial, with respondents expressing confidence in completing assigned tasks (M=3.63, SD=0.48) and reaching their full potential (M=3.63, SD=0.48). Moreover, the SPMS fostered commitment towards the goals and objectives of the university (M=3.62, SD=0.49), motivating employees to willingly take on additional responsibilities to achieve their personal performance goals.

According to Qureshi et al. (2013), various factors such as gender, marital status, age, education, experience, job satisfaction, affective commitment, organizational behavior, and physical environment collectively influence job performance. Meanwhile, Sharma et al. (2017) emphasizes that demographic variables, along with other engagement drivers, significantly impact employee engagement and commitment to an organization. These findings highlight the importance of an individual's personal profile and engagement drivers in determining their level of commitment and performance within an organization, with both internal and external challenges contributing to employee performance.



**Table 3. Level of Effectiveness of the SPMS as to Performance Monitoring and Coaching**

<i>Indicators</i>	<i>M</i>	<i>SD</i>	<i>Remarks</i>
1. Performance monitoring and coaching allows me to measure my progress and is helpful in identifying areas for improvement.	3.81	0.39	Highly effective
2. Performance monitoring and coaching is important for me to improve my job performance.	3.60	0.49	Highly effective
3. My supervisor provides me with adequate support during performance monitoring and coaching.	3.74	0.44	Highly effective
4. The coaching I receive from my supervisor during performance monitoring and coaching is beneficial.	3.62	0.49	Highly effective
5. Performance monitoring and coaching encourages me to take on new challenges.	3.59	0.49	Highly effective
6. Performance monitoring and coaching helps me to develop my skills.	3.56	0.56	Highly effective
7. Performance monitoring and coaching builds my confidence.	3.59	0.51	Highly effective
8. Performance monitoring and coaching allows me to identify my strengths and weaknesses.	3.61	0.49	Highly effective
9. Performance monitoring and coaching provides me with feedback on my job performance.	3.60	0.50	Highly effective
10. I am satisfied with the performance monitoring and coaching process.	3.39	0.49	Highly effective
<b>Overall Mean</b>	<b>3.61</b>		<b>Highly Effective</b>

Table 3 displays the effectiveness of the Strategic Performance Management System (SPMS) in terms of performance monitoring and coaching. Item 1 received the highest mean score, indicating that respondents found performance monitoring and coaching valuable for assessing their progress and identifying areas for improvement ( $M=3.81$ ,  $SD=0.39$ ), signifying a high level of effectiveness. Conversely, item 10 had the lowest mean score, showing that respondents were satisfied with the performance monitoring and coaching process ( $M=3.39$ ,  $SD=0.49$ ), still reflecting a highly effective

rating. The overall weighted mean and standard deviation for this aspect were 3.61 and 0.49, respectively, denoting a highly effective level of performance monitoring and coaching.

Research has found that age plays a role in an individual's development and may potentially influence changes in performance over time (Omori et al., 2019). However, Ng et al. (2013) discovered no significant age differences in core task performance between younger and older workers, prompting further investigation into the factors beyond core tasks that contribute to job performance.

**Table 4. Level of Effectiveness of the SPMS as to Performance Review and Evaluation**

<i>Indicators</i>	<i>M</i>	<i>SD</i>	<i>Remarks</i>
1. The feedback I receive during my performance evaluations is useful and helpful.	3.80	0.40	Highly effective
2. I am comfortable discussing my performance with my manager during yearly evaluations.	3.60	0.49	Highly effective
3. I am willing to receive constructive criticism during my performance evaluation.	3.76	0.44	Highly effective
4. I understand the reasons for my performance evaluation ratings.	3.59	0.52	Highly effective
5. I am provided with constructive feedback that I can use to improve my performance.	3.58	0.51	Highly effective
6. I am given adequate opportunities to discuss my performance with my manager.	3.57	0.55	Highly effective
7. I am confident that my performance is accurately assessed during my evaluations.	3.59	0.51	Highly effective
8. I receive recognition for my accomplishments during my yearly evaluation.	3.60	0.50	Highly effective
9. I receive sufficient feedback on areas of improvement during my performance evaluations.	3.60	0.50	Highly effective
10. I am given the opportunity to provide input on my job performance during my evaluation.	3.39	0.49	Highly effective





Table 4 presents the level of effectiveness of the Strategic Performance Management System (SPMS) in terms of performance review and evaluation. The highest mean score was obtained for item number 1, indicating that respondents found the feedback received during their performance evaluations to be useful and helpful ( $M=3.80$ ,  $SD=0.40$ ), signifying a highly effective rating. On the other hand, item number 10 had the lowest mean score, suggesting that respondents were open to feedback and suggestions for improving their performance plans ( $M=3.39$ ,  $SD=0.49$ ), still reflecting a highly effective rating. The overall weighted mean and standard deviation for this aspect were 3.61 and 0.50, respectively, denoting a highly effective level of performance review and evaluation.

Evaluation of individual performance is a crucial component of performance management, but its usefulness lies in taking action based on the evaluation results (SAGE, 2019). Evaluation mechanisms ensure that timely and appropriate steps can be taken to keep a program on track and effectively achieve its objectives (Civil Service Commission). Managers and supervisors play the role of coaches and mentors, creating an enabling environment to enhance team performance and develop individual potentials. The main purpose of performance evaluation is to acknowledge and reward strong employees, thereby creating incentives for performance improvement.

**Table 5. Level of Effectiveness of the SPMS as to Performance Rewarding and Development Planning**

<i>Indicators</i>	<i>M</i>	<i>SD</i>	<i>Remarks</i>
1. The performance reward system effectively motivates employees to reach their performance objectives.	3.80	0.40	Highly effective
2. The performance reward system is equitable and fair.	3.56	0.50	Highly effective
3. The performance reward system is linked to the organization's goals and objectives.	3.84	0.40	Highly effective
4. The performance reward system is easily understood by employees.	3.59	0.51	Highly effective
5. The performance reward system is regularly communicated to employees.	3.57	0.54	Highly effective
6. The performance reward system is consistently applied across all job roles.	3.58	0.52	Highly effective
7. The performance reward system is cost effective and financially viable.	3.58	0.52	Highly effective
8. The development planning system enables employees to reach their full potential.	3.60	0.50	Highly effective
9. The development planning system is tailored to individual employee needs.	3.58	0.52	Highly effective
10. The development planning system is well communicated to employees.	3.45	0.51	Highly effective
<b>Overall Mean</b>	<b>3.61</b>		<b>Highly Effective</b>

Table 5 displays the level of effectiveness of the Strategic Performance Management System (SPMS) in terms of performance rewarding and development planning. The highest mean score was obtained for item number 1, indicating that respondents found the performance rewarding system effectively motivated them to reach their performance objectives ( $M=3.80$ ,  $SD=0.40$ ), signifying a highly effective rating. On the other hand, item number 10 had the lowest mean score, suggesting that the development planning system was well communicated to employees ( $M=3.45$ ,  $SD=0.51$ ), still reflecting a highly effective rating. The overall weighted mean and standard deviation for this aspect were 3.61 and 0.50, respectively, denoting a highly effective level of performance rewarding and development planning.

Rewarding performance goes beyond regular wages and serves as additional compensation for employees or

departments that achieve specific goals or targets (Chandra et al., 2018). Such rewards enhance employee job satisfaction and subsequently improve their performance in various tasks (Martono et al., 2018). Rewards have been found to have a significant positive relationship with employee performance and motivation (Shahzadi et al., 2014). Training and development play a vital role in enhancing employee performance and overall organizational effectiveness (Motlokoa et al., 2018). Elnaga et al. (2013) found that training has a positive impact on employee performance and serves as a catalyst for improving skills and capabilities, ultimately increasing organizational productivity.



Table 6. Level of Employees' Performance as to Quality/ Effectiveness

Statements	M	SD	Remarks
1. Employees' work performance is improving over time.	3.56	0.50	Very high
2. Employees are productive and focused.	3.60	0.49	Very high
3. Employees produce quality work.	3.74	0.44	Very high
4. Employees show initiative.	3.59	0.52	Very high
5. Employees are good team players.	3.58	0.51	Very high
6. Employees are open to feedback and criticism.	3.57	0.55	Very high
7. Employees demonstrate strong problem-solving skills.	3.59	0.51	Very high
8. Employees are confident in their work.	3.60	0.50	Very high
9. Employees are reliable and dependable.	3.60	0.50	Very high
10. Employees are creative and innovative.	3.39	0.49	Very high
<b>Overall Mean</b>	<b>3.58</b>		<b>Very High</b>

Table 6 presents the level of employees' performance in terms of quality/effectiveness. The highest mean score was obtained for item number 1, indicating that respondents perceived employees as producing quality work ( $M=3.74$ ,  $SD=0.44$ ), signifying a very high level of performance. On the other hand, item number 10 had the lowest mean score, suggesting that employees were perceived as less creative and innovative ( $M=3.39$ ,  $SD=0.49$ ), still reflecting a very high level of performance. The overall weighted mean and standard deviation for this aspect were 3.58 and 0.51, respectively, denoting a very high level of employees' performance in terms of quality/effectiveness.

Effective training is an intentional intervention aimed at enhancing employee learning and improving their performance. It should be tailored to meet the specific needs and objectives of the organization. Investing in employee training can improve their performance and contribute to the overall success of the organization. Training also enhances employees' soft skills and personal attributes, which can inspire them to perform their work well. Performance appraisal plays a role in linking employee expectations with their contributions to the organization's success (Onyije, 2015).

Table 7. Level of Employees' Performance as to Efficiency

Statements	M	SD	Remarks
1. Employees are able to manage their workloads effectively.	3.73	0.46	Very high
2. My colleagues is able to recognize and capitalize on opportunities to improve their efficiency.	3.60	0.50	Very high
3. Employees have the necessary tools and technology to complete their work tasks.	3.80	0.40	Very high
4. Employees have a good understanding of their job roles and responsibilities.	3.59	0.51	Very high
5. Employees are well-trained and competent in their job roles.	3.58	0.53	Very high
6. Employees are productive and efficient in their work.	3.58	0.52	Very high
7. Employees show a strong commitment to their work tasks.	3.58	0.52	Very high
8. Employees are taking the initiative to identify and solve problems efficiently.	3.60	0.50	Very high
9. Employees are willing to go the extra mile to ensure the success of their tasks.	3.58	0.52	Very high
10. The overall efficiency of employee work performance has improved over the past year.	3.45	0.51	Very high
<b>Overall Mean</b>	<b>3.61</b>		<b>Very High</b>

Table 7 presents the level of employees' performance in terms of efficiency. The highest mean score was obtained for item number 3, indicating that respondents perceived employees as having the necessary tools and technology to complete their work tasks efficiently ( $M=3.80$ ,  $SD=0.40$ ), signifying a very high level of efficiency. On the other hand, item number 10 had the lowest mean score, suggesting that employees were perceived as lacking the necessary tools and technology for efficient work ( $M=3.45$ ,  $SD=0.51$ ), still reflecting a very high level of efficiency. The overall weighted mean and standard deviation for this aspect were 3.61 and 0.50,

respectively, denoting a very high level of employees' performance in terms of efficiency.

Studies have shown that performance management systems play a crucial role in setting goals and improving employee productivity. Employees should have a clear understanding of their roles and responsibilities, and performance appraisals should be properly conducted to positively impact employee performance (Onyije, 2015). Performance appraisal, along with other HR practices such as recruitment, selection, training, and compensation, has been found to be positively associated with employee job satisfaction (Ijigu, 2015; Absar et al., 2010; Rathnaweera, 2010). Efficiency



in performance is measured by achieving goals with minimal waste, expense, or unnecessary effort. Employees' engagement and motivation are key factors that contribute to higher productivity, efficiency, and effectiveness (Aktar et al., 2012). Providing employees with the necessary tools and technology

can enhance their efficiency and overall performance. However, it is important to note that excessive working hours can negatively impact employee productivity (Civil Service Commission).

**Table 8. Level of Employees' Performance as to Timeliness**

Indicators	Mean	S.D.	Qualitative Interpretation
1. Employees are always punctual and timely in their work performance.	3.76	0.48	Very high
2. Employees are always on time to their shifts and complete their duties within the given timeframe.	3.71	0.50	Very high
3. Employees meet deadlines and submit their work on time.	3.88	0.39	Very high
4. Employees are consistently meeting expectations for timeliness in their work performance.	3.59	0.51	Very high
5. Employees are good at managing their time and completing tasks within the appropriate timeframe.	3.58	0.53	Very high
6. Employees are proactive in their approach to timeliness and always strive to be on time.	3.59	0.53	Very high
7. Employees are efficient in their approach to work and complete tasks within the allotted time.	3.58	0.53	Very high
8. Employees are aware of the importance of timeliness and always strive to be punctual.	3.60	0.50	Very high
9. Employees adhere to deadlines and are prompt in their completion of tasks.	3.58	0.52	Very high
10. Employees are timely and diligent in their work performance.	3.45	0.51	Very high
<b>Overall Mean</b>	<b>3.63</b>		<b>Very High</b>

Table 8 displays the level of employees' performance in terms of timeliness. The highest mean score was obtained for item number 3, indicating that respondents perceived employees as meeting deadlines and submitting their work on time ( $M=3.88$ ,  $SD=0.39$ ), reflecting a very high level of timeliness. Conversely, item number 10 had the lowest mean score, suggesting that employees were perceived as not meeting deadlines and submitting their work on time ( $M=3.45$ ,  $SD=0.51$ ), still representing a very high level of timeliness. The overall weighted mean and standard deviation for this aspect were 3.63 and 0.50, respectively, indicating a very high level of employees' performance in terms of timeliness.

Performance management systems play a crucial role in improving employee performance by setting clear objectives and allocating appropriate time frames for their completion (Mulwa et al., 2017). The performance of employees can be assessed based on various factors such as quantity of output, quality of output, timeliness of output, presence at work, and cooperativeness (Gungor, 2011). It is important for employees to understand that their performance is being monitored and evaluated periodically, which can have consequences based on the evaluation results. Meeting objectives within the specified time frames helps employees achieve their targets and contribute to overall organizational goals.

**Table 9. Test of Difference in the Level of Employees' Performance based on their Profile**

	Program	Age	Gender	Marital Status	Length of Service	Position
Effective Efficiency Timeliness	<i>F</i> -value	325.23	2133.49	3510.18	328.74	258.27
	<i>p</i> -value	<.001	<.001	<.001	<.001	<.001
	Analysis	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>
	<i>F</i> -value	341.54	2310.05	4224.60	348.07	272.6
	<i>p</i> -value	<.001	<.001	<.001	<.001	<.001
	Analysis	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>
	<i>F</i> -value	349.98	2332.45	4200.59	357.55	280.00
	<i>p</i> -value	<.001	<.001	<.001	<.001	<.001
	Analysis	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>

The results in Table 9 indicate that significant differences exist in the level of performance of the respondents in terms of quality or effectiveness, efficiency, and timeliness

based on various demographic and organizational factors. Regarding quality or effectiveness, there were significant differences observed based on age, gender, marital status,



length of service, and position (all  $p < .001$ ). This suggests that factors such as age, gender, marital status, tenure, and position can influence the quality of performance among employees. Similarly, for efficiency, significant differences were found based on the same demographic and organizational factors (age, gender, marital status, length of service, and position; all  $p < .001$ ), indicating that these factors play a role in determining the efficiency of employees' performance.

The level of effectiveness of the Strategic Performance Management System (SPMS) in terms of performance planning and commitment was found to have significant positive correlations with the level of performance in terms of quality, efficiency, and timeliness (all  $p < .001$ ). These correlations ranged from weak to moderate degrees, suggesting that when employees understand their expectations and how to contribute

effectively to organizational goals, their commitment increases, leading to improved performance. This is reflected in their focus, initiative, creativity, productivity, and ability to complete tasks on time.

Additionally, there were significant correlations between the level of effectiveness of the SPMS in terms of monitoring and coaching and the level of performance in terms of quality, efficiency, and timeliness (all  $p < .001$ ). These correlations ranged from strong to very strong, indicating that effective monitoring and coaching processes within the SPMS are associated with higher levels of performance. This suggests that providing support, feedback, and guidance to employees through monitoring and coaching activities can contribute to improved performance in terms of quality, efficiency, and timeliness.

**Table 10. Test of Relationship between the Employees' Perceptions in the Effectiveness of the SPMS and their Level of Performance**

Effectiveness of SPMS		Level of Performance		
		Quality	Efficiency	Timeliness
Planning and Commitment	<i>r</i> -value	0.399	0.392	0.414
	<i>p</i> -value	0.000	0.000	0.000
	Degree	<i>Weak</i>	<i>Weak</i>	<i>Moderate</i>
	Analysis	<i>Significant</i>	<i>Significant</i>	<i>Significant</i>
Monitoring and Coaching	<i>r</i> -value	0.810	0.740	0.685
	<i>p</i> -value	0.000	0.000	0.000
	Degree	<i>Very strong</i>	<i>Strong</i>	<i>Strong</i>
	Analysis	<i>Significant</i>	<i>Significant</i>	<i>Significant</i>
Review and Evaluation	<i>r</i> -value	0.839	0.688	0.625
	<i>p</i> -value	0.000	0.000	0.000
	Degree	<i>Very strong</i>	<i>Strong</i>	<i>Strong</i>
	Analysis	<i>Significant</i>	<i>Significant</i>	<i>Significant</i>
Development and Planning	<i>r</i> -value	0.673	0.854	0.890
	<i>p</i> -value	0.000	0.000	0.000
	Degree	<i>Strong</i>	<i>Very Strong</i>	<i>Very Strong</i>
	Analysis	<i>Significant</i>	<i>Significant</i>	<i>Significant</i>

*Degree of Correlation:*

±0.80- ±1.00 *Very strong*  
±0.60- ±0.79 *Strong*  
±0.40- ±0.59 *Moderate*  
±0.20- ±0.39 *Weak*  
±0.00- ±0.19 *Very weak*

Table 10 presents the significant relationship between employee's perceptions in the effectiveness of the SPMS and their level of performance. Based on the information provided, the findings indicate a significant relationship between employees' perceptions in the effectiveness of the SPMS (Strategic Performance Management System) and their level of performance. The computed correlation coefficient (*r*) values obtained from the tests show a very strong relationship between these variables. Additionally, the *p*-values obtained were less than the significance alpha of 0.05, indicating a significant result.

Therefore, based on the findings and the significance level of 0.05, we can conclude that the null hypothesis "There is no significant relationship between employees' perceptions in the effectiveness of the SPMS and their level of performance"

is rejected. This means that there is indeed a significant relationship between employees' perceptions of the SPMS effectiveness and their level of performance.

## CONCLUSIONS

The study conducted at LSPU Santa Cruz provides valuable insights into the profile of employees, the effectiveness of the Strategic Performance Management System (SPMS) implementation, and the level of employee performance. The majority of employees are within the age range of 25-64, with a significant portion in the 33-40 age group. Female employees represent the majority, and most employees are married with educational qualifications ranging from bachelor's to doctoral degrees. The majority of employees





have less than 11 years of service, with teaching positions being the most common.

The SPMS implementation at LSPU Santa Cruz shows positive results in various aspects. Performance planning and commitment are highly effective in helping employees understand their job requirements. Performance monitoring and coaching are perceived as effective tools for measuring progress and identifying areas for improvement. Performance review and evaluation receive positive feedback, with useful feedback being received during evaluations. Performance rewarding and development planning effectively motivate employees to achieve their objectives.

Employees at LSPU Santa Cruz generally demonstrate quality work and have the necessary tools and technology to perform their tasks efficiently. They meet deadlines and submit their work on time. However, there is room for improvement in fostering creativity, innovation, and seeking feedback for performance improvement.

Overall, the findings indicate a significant relationship between employees' perceptions of the SPMS effectiveness and their level of performance. The strong correlation values and the statistical significance support the rejection of the null hypothesis, confirming the existence of a significant relationship. These findings suggest that the SPMS implementation positively influences employees' perceptions of effectiveness and their performance at LSPU Santa Cruz. Improving commitment, development planning communication, and encouraging creativity and innovation could further enhance employee performance.

## RECOMMENDATIONS

Based on the conclusions drawn from the study at LSPU Santa Cruz, several recommendations can be made to further improve the effectiveness of the Strategic Performance Management System (SPMS) and enhance employee performance:

1. Strengthen commitment and development planning communication: While the SPMS has shown positive results in performance planning and monitoring, there is room for improvement in commitment and development for skills and abilities. It is recommended to enhance communication channels to ensure that employees clearly understand their development plans and are committed to their goals. Regularly communicating the importance of development and providing resources and support can further engage employees in their professional growth.

2. Foster creativity and innovation: Although employees at LSPU Santa Cruz generally demonstrate quality work, there is an opportunity to enhance creativity and innovation. Encouraging employees to think outside the box, providing them with opportunities to share ideas, and creating an environment that supports innovation can lead to improved performance and contribute to the overall growth of the organization. Implementing programs or initiatives that promote creativity and recognize innovative contributions can further motivate employees.

3. Establish a culture of feedback and continuous improvement: While performance review and evaluation receive positive feedback, it is crucial to foster a culture of feedback throughout

the organization. Encouraging employees to seek feedback from supervisors, colleagues, and even students can provide valuable insights for performance improvement. Establishing feedback mechanisms, such as regular check-ins, peer evaluations, or 360-degree feedback, can create a culture of continuous improvement and support employees in their professional development.

4. Provide opportunities for skill development and training: To further enhance employee performance, it is important to invest in their skill development and provide relevant training opportunities. Identify specific areas where employees may benefit from additional training or professional development programs and ensure that resources and support are available to facilitate their growth. This can include workshops, seminars, online courses, or mentoring programs tailored to individual needs and career aspirations.

By implementing these recommendations, LSPU Santa Cruz can build upon the positive aspects of the SPMS implementation and foster a culture of continuous improvement, innovation, and professional development. This, in turn, can lead to higher levels of employee performance and contribute to the overall success of the organization.

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# LSPU-SCC'S PREPAREDNESS AGAINST DISASTERS AND EMERGENCY: INPUT TO CAMPUS DISASTER RISK REDUCTION AND MANAGEMENT CONTINGENCY PLAN

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## ABSTRACT

*This study was conducted to assess the level of implementation of Disaster Risk Reduction and Management Programs in Laguna State Polytechnic University – Santa Cruz Campus necessary for the formulation of a Campus Disaster Risk Reduction and Management Plan. A survey was carried out among 84 respondents from employees and students of Laguna State Polytechnic University – Santa Cruz Campus. Most of the respondents are students of CHMT, CBAA, CSS, and Engineering, with some LSPU Personnel/Employee. The study measures the relationship of demographic profile of the respondents and extent of implementation and practice and the related variables (Disaster Prevention and Mitigation Programs, Disaster Preparedness programs, Disaster Response and Early Recovery programs, Rehabilitation and Recovery programs, DRR Trainings, Susceptibility of LSPU to Hazards, School Building Basic Emergency and Safety Requirements). With the help of a Statistician, the researcher utilized and analyzed the data. Frequency and Percentage, Mean and Standard Deviation are used to analyze and assess the level of implementation as well as the demographic profile used in the study*

*Findings revealed that the respondents relatively agree on the extent of implementation, while they practice DRR with moderate extent and moderately agree on the difficulties encountered that affects the implementation.*

*The result of the study may provide evidence-based data that can be utilized in the development of a Contingency plan against top hazard.*

**KEYWORDS:** *Disaster Preparedness programs, Disaster Prevention and Mitigation Programs, Disaster Response and Early Recovery programs, Rehabilitation and Recovery programs*

## INTRODUCTION

The World Risk Report 2022 (Atwii, 2022) posted the Philippines as the riskiest country with regards to disaster, vulnerability, exposure and susceptibility. This is due to the geographical and geological characteristic of the country. Our country lies along the Pacific Ring of Fire unfortunately boasts of volcanoes that is seem connected to each other by a line. The Philippines alone has 300 volcanoes of which 20-24 are active. Two of these is close to the Province of Laguna, Mt. Banahaw, and Taal Volcano.

As to hydrometeorological characteristics, the Philippines has been considered as “typhoon country” because of the country receiving around 20-26 typhoons a year, of which 1-3 traverse along the province of Laguna and pose threat to the community within.

On the other hand, (Department, 2018) Statista research shows that 74.5% of the whole province of Laguna, particularly Santa Cruz was susceptible to ground-shaking that may cause soil liquefaction or the loosening of the ground soil. This is due to the fact that the whole province, as well as the National Capital Region, is susceptible to a Magnitude 7 Earthquake (Intensity VII-VIII) (Aguirre, 2013), (Concha, 2021), which can wreak havoc in case it truly happens.

At this juncture, the researcher introduces salient features of Republic Act 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010 to mitigate and counter the effects of decades of erroneous human activity that enormously effected negatively on the environment.

One of the essentials of this act is the mainstreaming of disaster risk reduction and management in physical planning, infrastructure, health, budget, environment, education, and many others.

RA 10121 also promotes decentralization of plans and programs to further conduct localized approaches in DRRM. It encourages the participation of NGOs, private sectors, community-based organizations, and community members in disaster management.

In this fast-paced generation, technology advancement in industrialization and other sectors, and a steady increase in population, there is also an increase in hazards and other threats to all members of the community. Thus, the need to promote disaster preparedness and response is one of the main thrusts of RA 10121 in this point in time.

In this juncture, we acknowledge the importance of the education sector in the disaster risk reduction and management concept. The education sector has a massive population capable of learning disaster risk reduction, train and produce a large number of volunteer rescuers and emergency response personnel, increase the level of the school's capability to respond, and contribute to the growth of disaster resilience in the school and the community.

According to (Vatteri, 2022), school buildings that are exposed to both flood and earthquake poses a significant and greater risk to vulnerable students, teachers and personnel.

On the other hand, learning institutions have been the topmost support mechanism of every family in academic and



social development of every school-going individual. According to (Kapur, 2021) (*see Appendix B*) (The Role of Schools in Youth Development), schools have the opportunity and power to transform lives. They change the process of steering students towards benchmark success into a life-changing learning experience that helps young people plan a path for a bright future. Also, it is a shared responsibility between the parents and the schools to develop the students' character (DfEE, Excellence in Schools, 1997). Countries like the United States of America expressed their strong support in the school's character building as shown by a 85% poll survey approval (DfEE, Schools: Building on Success). Moreover, Briony Towers and Annette Gough cited in their publication (Towers, 2019) (*see appendix C*) that children of this generation are growing up in a world of proportionally increasing disaster risks. Change in climate, continuous population growth, rapid urbanization, and ever-growing social and economic inequality are all gearing greater numbers of people to losses and damage and leaving the children as among the most vulnerable. Fortunately, children are also can be a means of change and may have specific capacities to reduce disaster risk in their own home, in the schools, and communities. A key process for channeling those capacities is school-based disaster risk reduction and resilience education (DRRRE).

Based on the publication of (Wang, 2021), schools are essential avenue and setting for the conduct of DRR education. Wang also stated that the mindset of the school personnel is vital to the success of DRR implementation in schools. Moreover, (Nakano, 2021) disclosed in his publication that we have to address the gap of DRR Knowledge between the students and the school personnel. There is a need to balance the level of DRR knowledge between people in schools. Further, disaster resilience is everybody's accountability and responsibility. Everyone is considered as vulnerable and prone to hazard based on their exposure and capacity.

With these, the researcher considered the Laguna State Polytechnic University Santa Cruz Campus as the main benefactor of the study mainly because of the following considerations: firstly, the Laguna State Polytechnic University Santa Cruz Campus is the current school of the researcher; secondly, LSPU-Santa Cruz is one of the frontiers of exemplary academic excellence in Santa Cruz, Laguna; and lastly, LSPU-Santa Cruz is within the area of jurisdiction of the researcher who is a Local Disaster Risk Reduction and Management Officer of Santa Cruz.

## OBJECTIVE OF THE STUDY

Given that schools are continuously expanding in terms of academic thrust and infrastructure development, still the threat of an impending hazards are not far. In the recent years, disasters have claimed lives and has wreak damages in our infrastructure because of our limited capacity. And schools are not excluded in these mishaps. As one of the forerunners of character development and academic excellence, learning institutions are vital parts in nation building and economic development.

The researcher intends to affirm that the study on the level of preparedness of LSPU-SCC as well as its over-all implementation of DRR Programs and Projects is important in upholding safety and security within the school and the

improvement of disaster resilience and management of the campus. This study will provide factual data and statistical analysis that can be utilized in the formulation of contingency plans against the top hazards that threaten the lives of the people within the campus as well as the general campus infrastructure itself. The results of the study can provide information on the aspects of disaster risk reduction that needs priority actions.

## MATERIALS AND METHODS

The researcher aims to conduct a "Descriptive Research" to the study and will be utilizing the following characteristics: quantitative research – to collect demographic information and analyze it statistically; and nature of variables – to observe uncontrolled/independent variables as well as the behavior of the respondents under study. Such method aims to obtain the individual perception of the respondents to the independent variables presented in the conceptual framework and use this data to analyze and determine the level of implementation of the school with regards to DRRM.

This methodology will enable the researcher to come up with the analysis of the current implementation of DRRM in the school and in the end, provide recommendations for the formulation of DRRM Contingency Plan for the school.

## Population and Sampling Technique

The respondents will be randomly selected from the students and personnel of the Laguna State Polytechnic University-Santa Cruz Campus from the College of Business Administration and Accountancy, Computer Science Studies, Hospitality Management and Tourism, and Engineering.

## Data Collection Procedure

The primary instrument that was used for gathering the needed data for this study was a set of questionnaires uploaded online through Google Forms which help to gather required information. The data gathering procedure will be divided into five stages. The first stage involves formulation of questions in congruence with the statement of the problem and the proposed theoretical framework. Next is review and approval of the thesis adviser and the college dean, followed by submission of request letter to the school president requesting approval to conduct an online survey to the students and/or school personnel. And second to the last is uploading the file and sending of link to students, teachers, and personnel of LSPU-SCC. And finally, is the data collection and encoding to specified matrix for statistical analysis.

To describe the demographic profile of the respondents (age, sex/gender, employment status, year level), the frequency and percentage were used. The susceptibility level of LSPU-Santa Cruz to current hazards were determined using frequency and percentage; the levels being none, low, moderate, and high. The frequency and percentage were used to ascertain the current level of assessment of the School Building and its readiness against hazards in the availability or presence of evacuation and emergency preparedness basic requirements.

On the other hand, the mean and standard deviation was used to assess the level of the school's current capacity (reflection of vulnerability) based on the respondent's perspective with respect to; Disaster Prevention and Mitigation,





Disaster Preparedness, Disaster Response, Incident Management and Early Response, Rehabilitation and Recovery.

A low standard deviation means there was a lot of agreement about the answers in the online questionnaire survey. High standard deviation means there was a wide range of answers, indicating disagreement in the perceptions of the LSPU-SCC respondents.

As to the number of reported and responded emergency incidents, frequency and percentage was used to determine the substantial results. The mean and standard deviation were used to determine level of respondents' reflection of vulnerability on LSPU-SCC's current capacity in disaster risk reduction and management.

## RESULTS AND DISCUSSION

### Socio-Demographic Profile of the Respondents

The profile of the students and school personnel covered their age and gender. The students' year level was also included to describe the profile of the students while the length of service was for the school personnel. The socio-demographic profile of the respondents is presented in Table 1.

It can be gleaned from the table in page 36 that three of the school personnel were still in their young adulthood (33.3%), four of them in their middle adulthood (44.4%), and two of them were in their late adulthood (22.2%). Eight of the school personnel were female (88.9%). Three of the school personnel had been in the service in less than five years (33.3%), two of them had been in the service for 6 to 10 years (22.2%), and one of them had served LSPU for 11 to 20 years (11.1%). The rest of the school personnel did not disclose their length of stay in the service. With regards to DRRM-related trainings, one of them attended the Basic Life Support and Standard First Aid (11.1%), two of them attended the Fire Suppression and Prevention Techniques (22.2%), and six of them revealed that they did not attend any of the DRRM-related trainings (66.7%).

This means that most of the school personnel were in their young or middle adulthood and still has the capacity to act

appropriately in times of disasters or emergencies. However, majority of them had not attended any of the DRRM-related trainings. Since LSPU-SCC may have personnel with different level of skill and learning inclinations, exposing them to DRRM-related trainings may increase their capacity and may contribute to the over-all capacity LSPU-SCC in all thematic areas of the DRRM. It is very essential for the school personnel to be highly prepared in case of disasters or emergencies since they are the main pool of resources that the school will depend upon.

The data also support the national and local governments' call to encourage all sectors of the society to embrace DRRM as stated in Republic Act 10121 (RA10121) or:

*“An Act Strengthening the Philippine Disaster Risk Reduction and Management Framework and Institutionalizing the National Disaster Risk Reduction and Management Plan, Appropriating Funds Therefor and for other purposes states in Section 2: Declaration of Policy, to; (d) Adopt a disaster risk reduction and management approach that is holistic, comprehensive, integrated, and proactive in lessening the socioeconomic and environmental impacts of disasters including climate change, and promote the involvement and participation of all sectors and all stakeholders concerned, at all levels, especially the local community”; (g) Mainstream disaster risk reduction and climate change in development processes such as policy formulation, socioeconomic development planning, budgeting, and governance, particularly in the areas of environment, agriculture, water, energy, health, education, poverty reduction, land-use and urban planning; (I) Recognize and strengthen the capacities of LGUs and communities in mitigating and preparing for, responding to, and recovering from the impact of disasters; (n) Develop and strengthen the capacities of vulnerable and marginalized groups to mitigate, prepare for, respond to, and recover from the effects of disasters; (RA 10121, The Philippine Disaster Risk Reduction and Management Act of 2010, p. 2-4).”*

**Table 1 Frequency and Percentage Distribution on the Demographic Profile of the Respondents**

Demographic Profile	Personnel		Students	
	f	%	f	%
<i>Age (in years)</i>				
20 & below	0	0.0%	10	13.2%
21 - 30	3	33.3%	59	77.6%
31 - 45	4	44.4%	4	5.3%
46 - 60	2	22.2%	3	3.9%
<i>Gender</i>				
Male	1	11.1%	13	17.1%
Female	8	88.9%	62	81.6%
Preferred not to mention	0	0.0%	1	1.3%
<i>Students' Year Level</i>				
First Year	-	-	2	2.7%
Second Year	-	-	7	9.6%
Third Year	-	-	4	5.5%
Fourth Year & above	-	-	54	74.0%
Graduate Studies	-	-	9	12.3%
<i>Length of Service</i>			-	-



0 to 5 years	3	33.3%	-	-
6 to 10 years	2	22.2%	-	-
11 to 20 years	1	11.1%		
<b>DRRM-Related Trainings Attended</b>				
Basic Life Support and Standard First Aid	1	11.1%	26	34.2%
Fire Suppression and Prevention Techniques	2	22.2%	9	11.8%
Water Safety and Rescue	0	0.0%	1	1.3%
Collapsed Structure Search and Rescue	0	0.0%	0	0.0%
High Angle Rope Rescue	0	0.0%	0	0.0%
No trainings at all	6	66.7%	38	50.0%
Others	0	0.0%	2	2.8%

The data show the probable effect of proactive DRRM measures that may negate the effect of disasters because as mentioned by Bangay (2013), the impact of natural disasters goes beyond the tragic loss of life, the disruption of schooling and psychological trauma of survivors, it is vital for every individual within the campus of LSPU-Santa Cruz to immerse themselves in the DRR pool of knowledge thru participating in and conducting DRR-related programs and activities.

The data also show the wide range of variations and complexity of the respondents' perspective on the implementation of DRRM in the school. Carvalho (2014) recommends DRR measures for improving risk communication: promoting information sessions on rules of conduct in emergency situations for teaching staff and technical and operational assistants in the schools; giving preference to curricular contents related to the hazards, risks and vulnerabilities that affect populations; encouraging greater transmission of prevention measures and appropriate behaviors in emergencies.

As for the students' profile, 77.6% (59 students) were between the age range of 21-30 years old, 13.2% (10) were 20 years old and below, 5.3% (4) were between 31-45 years of age, and 3.9% (3) were 46-60 years old when this study was conducted.

As to their sex/gender classification, 17.1% (13) were male, 81.6% (52) were female, while 1.3% (1) preferred not to mention their gender preference.

Majority of the students who responded were in their fourth year and above at ( 74% (54 students), 12.3% (9 students) were taking graduate studies, 9.6% (7) were in their

second year, 5.5% (4) of the students were in their third year, and 2.7% (2) were in their first year of academic study.

### Current DRRM-related Trainings

It is very notable that 50%, or 38 students admitted that they have not acquired any DRRM-related trainings at all. Out of the total student respondents, 34.2% (26 students) have undergone Basic Life Support and Standard First Aid Training, 11.8% (9) were trained with Fire Suppression and Prevention Techniques, 2.8% (2) took other trainings like % (2) took other trainings like DRRM on Health, Hospital Safe From Disasters, Workshop on Mainstreaming DRRM-H on LGUs, Rapid Damage And Needs Assessment, Basic Incident Command System, Camp Management, Basic orientation on Disaster management, 1.3% (1) took Water Safety and Rescue Training, while none have undergone advance rescue skills training such as Collapsed Structure Search and Rescue and High Angle Rope Rescue training.

### Susceptibility level of LSPU-Santa Cruz to current hazards

The respondents were asked on the susceptibility level of LSPU Sta. Cruz Campus to hazards as floods, earthquakes, fire, volcano eruption, accidents, civil disturbance, and public health emergency. These variables were presented based on the hazards assessed for the municipality of Santa Cruz. The results were presented in Table 2.

**Table 2 Frequency and Percentage Distribution on the Susceptibility Level of LSPU Sta. Cruz Campus to Hazards**

Hazard(s) that pose threat to LPSU-Santa Cruz Campus	None		Low		Moderate		High	
	f	%	f	%	f	%	f	%
<i>Flooding</i> - occurrence within the school compound	43	50.6	30	35.3	10	11.8	2	2.4
<i>Earthquake</i> - level of ground shaking that affected the school	37	43.5	33	38.8	12	14.1	3	3.5
<i>Fire</i> - incidents caused by fire that affected the school	62	72.9	9	10.6	9	10.6	5	5.9
<i>Volcano</i> - ash fall, volcanic eruption that affected the school	60	70.6	14	16.5	7	8.2	4	4.7
<i>Accident</i> - Falling, Road Crash, Slip, Chemical Spill, Explosion, etc.	51	60.0	19	22.4	11	12.9	4	4.7
<i>Civil Disturbance</i> - Incidents of Brawl, Stampede, Frat/Gang wars, etc. that resulted to human injury or property destruction or damage	59	69.4	16	18.8	8	9.4	2	2.4
<i>Public Health Emergency</i> - Virus Outbreak, Covid-19, etc.	26	30.6	28	32.9	22	25.9	9	10.6



Majority of the respondents perceived that the occurrence of flooding within the school compound ranged from none to low (85.9%) as well as the incidence of earthquake (82.3%). The incidence of fire was believed to happen from none to low as attested by the respondents (83.5%) as well as the occurrence of volcano eruption (87.1%). As the school personnel and students constantly move within the campus, they perceived those accidents like falling, slip, or chemical spill rarely occur (82.4%). The respondents believed that civil disturbance rarely occurred within in the campus (88.2%), regardless of its form that resulted to human injury or destruction of the school property. With regard to public health emergency, the respondents gave varied responses. More than half of them perceived that public health emergency were most likely to occur from none to low (63.5%) while some of them verbalized that this hazard might occur in the campus from moderate to high level (36.5%).

The presence of hazards in schools, whether caused by natural processes or human activities, cannot be ignored. Even

the slightest and slimmest chance of occurrence of a hazard must be dealt with careful analysis. Although the school authorities and other agencies were aware of such hazards because of its physical, educational, economic and psychosocial impacts to people, such must be compensated with proper DRR programs and activities. To lessen the perceived impact, the need for a roll-out of programs related to disaster preparedness must be mainstreamed in the school as indicated in the School Disaster Risk Reduction and Management (DRRM) Manual (Bayangos, 2015).

#### **Level of Assessment of the School Building based on its readiness against hazards**

The researcher included this assessment in the survey to obtain information regarding the personal assessment of the respondents and their level of awareness regarding the basic emergency requirements, warning signals and evacuation guides that may be available in the buildings they frequent.

**Table 3 Respondents' Assessment on School Building Integrity as to Building Evacuation and Emergency Basic Requirements**

<b>Building Evacuation and Emergency Basic Requirements</b>	<b>Frequency</b>	<b>Percentage</b>
Fire Exit	66	77.6%
Fire Window Ladder	19	22.4%
First Aid Box	38	44.7%
Siren/Alarm/Bell	44	51.8%
Fire Hose	22	25.9%
Evacuation Guide	27	31.8%
I do not know	13	15.3%

Table 3 shows, 66 respondents (77.6%) were aware that there were fire exits in the buildings, 19 (22.4%) were knowledgeable of the structures' fire window ladder, and 38 respondents (44.7%) know of the location of the first aid boxes. Moreover, 44 who took the survey were aware of the siren/alarm bell that is used in the buildings; as to availability of fire hoses in the facility, 22 (25.9%) respondents identified the location; 27 respondents (31.8%) has read and noticed the presence of evacuation guide and finally, 13 respondents (15.3%) were not aware of the availability of these basic emergency and safety requirements in their facility.

(Jansury, 2014) states in her publication that the "investment in disaster risk reduction and preparedness can be cost-effective and efficient because it can promote better planning, improved coordination, and efficient response by education authorities and DRR partners. Investment in prevention, mitigation and preparedness may also mean investing less on reactive approaches that may be required during emergencies". Engaging all stakeholders, including children, in the planning processes for DRR and the provision of education after a disaster, will engage the community (in this

case, the school) preparedness.

#### **Level of the school's current capacity (reflection of vulnerability) based on the respondent's perspective under the Four (4) DRRM Thematic Areas**

The researcher included this part of assessment since the respondents' own perspective regarding the LSPU-SCC's Current Capacity in Disaster Risk Reduction and Management may provide the basis of the school's capacity and readiness against disasters.

#### **Disaster Prevention and Mitigation**

The assessment shown in Table 4 reflected the respondents' own perception of the school or campus' level of implementation of programs and activities under Disaster Prevention and Mitigation Thematic Area which include installation of early warning systems, and signals, hazard mapping, engineering and non-engineering measures, and policy formulation.



**Table 4 Level of Respondents' Reflection of Vulnerability on LSPU-SCC's Current Capacity in DRRM as to Disaster Prevention and Mitigation**

Disaster Prevention and Mitigation	Mean	Std. Dev.	QI
1. Presence of Early Warning System, Posters and Signages	4.42	0.81	Highly capable
2. Availability of Hazard and Risk Maps, Evacuation Routes	4.45	0.75	Highly capable
3. Conduct of Weather Forecast Monitoring	4.19	0.98	Capable
4. Installed Structural Interventions (Flood Mitigation, Engineering Measures, etc.)	4.20	0.94	Highly capable
5. Non-Structural Interventions (Policies, Electricity Conservation, Recycling Program, Waste Management/Segregation, etc.)	4.38	0.77	Highly capable
<b>Overall Mean</b>	<b>4.33</b>	<b>Highly Capable</b>	

Legend:

4.20 - 5.00 *Highly Capable (HC)*

3.40 - 4.19 *Capable (C)*

2.60 - 3.39 *Moderately Capable (MC)*

1.80 - 2.59 *Slightly Capable (SC)*

1.00 - 1.79 *Not at all Capable (NACI)*

The respondents perceived that LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster prevention and mitigation since hazard and risk maps and evacuation routes were available ( $M=4.45$ ,  $SD=0.75$ ) as well early warning system posters and signages were present ( $M=4.42$ ,  $SD=0.81$ ). The campus was highly capable to reflect vulnerability on disaster prevention and mitigation because policies like electricity conservation, waste segregation, recycling program were in place as non-structural interventions ( $M=4.38$ ,  $SD=0.77$ ) and there were installed structural interventions ( $M=4.20$ ,  $SD=0.94$ ). The respondents disclosed

that the campus was capable to reflect vulnerability on disaster prevention and mitigation in terms of the conduct of weather forecast monitoring ( $M=4.19$ ,  $SD=0.98$ ). The computed standard deviations denoted that there was a very small variance in the ratings of the respondents.

The overall mean of 4.33 indicated that the LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster prevention and mitigation because of the presence of structural and non-structural interventions. With these results, the school is highly capable of this DRR thematic area.

#### Disaster Preparedness

**Table 5 Level of Respondents' Reflection of Vulnerability on LSPU-SCC's Current Capacity in DRRM as to Disaster Preparedness**

Disaster Preparedness	Mean	Std. Dev.	QI
1. Conducted DRR-related Trainings, Seminars, Orientations, Workshops	4.36	0.77	Highly capable
2. Has approved Contingency Plans, Evacuation Plans and the like	4.35	0.72	Highly capable
3. Has group of Trained Responders (certified)	4.27	0.85	Highly capable
4. Conducted Earthquake/Fire Drills and Simulation Exercises	4.34	0.73	Highly capable
5. Has adequate Response and Rescue Gears and Equipment	4.21	0.85	Highly capable
6. Has Available Emergency Response Vehicle	4.15	0.92	Capable
<b>Overall Mean</b>	<b>4.28</b>	<b>Highly Capable</b>	

Legend:

4.20 - 5.00 *Highly Capable (HC)*

3.40 - 4.19 *Capable (C)*

2.60 - 3.39 *Moderately Capable (MC)*

1.80 - 2.59 *Slightly Capable (SC)*

1.00 - 1.79 *Not at all Capable (NACI)*

The second assessment is shown in Table 5 included in this segment is the respondents' own perception of the university or campus' level of implementation of programs and activities under Disaster Preparedness.

The respondents perceived that LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster preparedness since DRR-related trainings and orientations, seminars and workshops were regularly conducted ( $M=4.36$ ,

$SD=0.77$ ) as well as approved Contingency Plans and Evacuation Plans were available ( $M=4.35$ ,  $SD=0.72$ ). The campus was highly capable on the availability of Trained Responders (certified) ( $M=4.27$ ,  $SD=0.85$ ) and there were regular conducts of Earthquake Drills, Fire Drills, and Simulation Exercises ( $M=4.34$ ,  $SD=0.73$ ). The respondents disclosed that the campus was highly capable as to number of adequate Response and Rescue Gears and Equipment ( $M=4.21$ ,





SD=0.85). With regards to availability of emergency response vehicle, the respondents claimed that the campus is highly capable (M=4.15, SD=0.92). The computed standard deviations denoted that there was a very small variance in the ratings of the respondents.

The overall mean of 4.28 indicated that the LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster preparedness because of the implemented trainings and orientations, conduct of drills and exercise, availability of rescue gears and equipment and vehicle, and approved plans all related to DRRM. With these results, the campus' programs

under disaster preparedness were very well implemented and as such, the school is highly capable of this DRR thematic area.

### Disaster Response, Incident Management and Early Response

The third assessment listed in Table 6 included in this segment is the respondents' own perception of the school or campus' level of implementation of programs and activities under Disaster Response. This assessment show how capable is the school in handling complex emergencies that may pose threat within the campus.

**Table 6 Level of Respondents' Reflection of Vulnerability on LSPU-SCC's Current Capacity in DRRM as to Disaster Response**

Disaster Response	Mean	Std. Dev.	QI
1. Deployment of Emergency Response Teams	4.28	0.73	Highly capable
2. Capable of Evacuation Measures and Management	4.36	0.69	Highly capable
3. Conduct of Proper Event Management and Emergency Coordination	4.28	0.72	Highly capable
4. Communication Team in Action	4.31	0.71	Highly capable
5. Availability of Transportation Team for response operations and logistic mobilization	4.27	0.75	Highly capable
<b>Overall Mean</b>	<b>4.30</b>	<b>Highly Capable</b>	

Legend:

4.20 - 5.00 *Highly Capable (HC)*

3.40 - 4.19 *Capable (C)*

2.60 - 3.39 *Moderately Capable (MC)*

1.80 - 2.59 *Slightly Capable (SC)*

1.00 - 1.79 *Not at all Capable (NACI)*

The respondents perceived that LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster response since the capacity to deploy emergency response teams show that it is highly capable (M=4.28, SD=0.73) as well as the implementation of Evacuation Measures and Evacuation Management (M=4.36, SD=0.69). The campus was highly capable on the conduct of Proper Event Management and Emergency Coordination (M=4.28, SD=0.72) and there is a Communication Team in Action which is highly capable (M=4.31, SD=0.71). The respondents disclosed that the campus was highly capable as to availability of Transportation Team that can be immediately deployed for relief and emergency response operations and logistic mobilization (transport of response-related materials and equipment) (M=4.27, SD=0.75). The computed standard deviations denoted that there was a very small variance in the ratings of the respondents.

The overall mean of 4.30 indicated that the LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster response because of the capacity to deploy ER teams, implement safe evacuation procedures, conduct management

on pre-planned and untoward events, provide communication for proper coordination and response, and response and logistics mobilization. With these results, the campus' programs under disaster response were very well implemented and as such, the school is highly capable of implementation of projects, programs and activities necessary for the success of this DRR thematic area.

The next table, Table 7, is on the respondents' responses on the assessment of the school's Rehabilitation and Recovery capacity.

### Rehabilitation and Recovery

The fourth assessment reflected in Table 7 included in this segment is the respondents' own perception of the school or campus' level of capacity and implementation of programs under Disaster Rehabilitation and Recovery. This assessment will show how capable is the school in handling complex emergencies that may pose threat within the campus.



**Table 7 Level of Respondents' Reflection of Vulnerability on LSPU-SCC's Current Capacity in DRRM as to Rehabilitation and Recovery**

<i>Rehabilitation and Recovery</i>	<b>Mean</b>	<b>Std. Dev.</b>	<b>QI</b>
1. Conduct of Post-Disaster Damage and Needs Assessment	4.22	0.84	Highly capable
2. Service Continuity Capability (campus' service able to function in 24-48 hours)	4.18	0.82	Capable
3. Conducts Review and Reformulation of Policies and Plans	4.18	0.80	Capable
4. Provision of Assistance to affected LSPU Personnel and Students	4.28	0.87	Highly capable
5. Conduct Rehabilitation/Renovation of Facility damaged by disaster	4.25	0.89	Highly capable
<b>Overall Mean.</b>	<b>4.22</b>	<b>Highly Capable</b>	

*Legend:*

4.20 - 5.00 *Highly Capable (HC)*

3.40 - 4.19 *Capable (C)*

2.60 - 3.39 *Moderately Capable (MC)*

1.80 - 2.59 *Slightly Capable (SC)*

1.00 - 1.79 *Not at all Capable (NACI)*

The respondents perceived that LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster rehabilitation and recovery since it implements conduct of Post-Disaster Damage and Needs Assessment (M=4.22, SD=0.84) as well as the capacity to implement Service Continuity within 24-48 hours shows that the campus is capable (M=4.18, SD=0.82). The campus was capable on the conduct of Review and Reformulation of Policies and Plans (M=4.18, SD=0.80) and there is a program for Provision of Assistance to affected LSPU Personnel and Students which is highly capable (M=4.28, SD=0.87). The respondents disclosed that the campus was highly capable as to Conduct of Rehabilitation/Renovation of

Facility damaged by disaster (M=4.28, SD=0.89). The computed standard deviations denoted that there was a very small variance in the ratings of the respondents.

The overall mean of 4.22 indicated that the LSPU Sta. Cruz campus was highly capable to reflect vulnerability on disaster rehabilitation and recovery because of the capacity to various post-disaster activities necessary to achieve immediate recovery and return to normalcy of the school functions. With these results, the campus' programs under disaster rehabilitation and recovery were very well implemented and as such, the school is highly capable of this DRR thematic area.

## Number of Reported and Responded Emergency Incidents

**Table 8 Frequency Distribution on the Number of Reported and Recorded Emergency Incidents**

<b>Number of Emergency Incidents</b>	<b>1 to 5</b>		<b>6 to 10</b>		<b>10 &amp; above</b>	
	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>
Reported	9	100%	0	0.0%	0	0.0%
Recorded	9	100%	0	0.0%	0	0.0%

The fifth assessment in Table 8 included in this segment is the respondents' perception of whether the school has a record of incidents reported and if these reports were immediately responded. This assessed the frequency per month of emergency incidents within the campus.

The respondents perceived that LSPU Sta. Cruz campus was receiving reports and calls of emergency situations 1-5 months per month and was able to respond to 1-5 incidents per month.

## CONCLUSION AND RECOMMENDATION

The data presented show that, as an over-all view, the Laguna State Polytechnic University Santa Cruz Campus, performs well in the implementation of DRRM Programs and Activities in all four Thematic Areas. However, there were slight lower statistical results in some areas like "availability of emergency response vehicles", service continuity capability", and "review and reformulation of policies and plans". This shows that disaster preparedness mechanisms and the

rehabilitation and recovery programs of the campus, although both has a high and satisfactory rating, still were the lowest of the four thematic areas.

Most of the respondents were students 95% and 78% were between the ages of 21-30 years old, 83% were female, 74% were in their fourth-year level when the study was conducted. On the average, 20-30% of the respondents stated that hazards pose a low to high susceptibility impact to the school; 15% of the respondents were not aware of the building safety measures installed; The school posed a "highly capable" status to their programs in Disaster Prevention and Mitigation and Disaster Response; while although "highly capable", the programs in Disaster Preparedness and in Rehabilitation and Recovery scored a little lower than the other two thematic areas. There were 1-5 incidents reported and responded every month based on the respondents' answers.

Based on the findings of the study, it is concluded that:

1. That the "Disaster Preparedness Thematic Area" of LSPU-SCC DRRM implementation is feasibly the



most tangible solution to increase the disaster resilience of the campus.

2. That improvement to this area will contribute to greater Disaster Response Mechanism and save greater number of lives and decrease areas of concern during the implementation of Rehabilitation and Recovery programs.
3. That the Laguna State Polytechnic University - Santa Cruz Campus nevertheless is required to formulate or possess, through this thesis, a school disaster risk reduction and management – Contingency plan for Earthquake and Civil Disturbance (separate contingency plan for each hazard) that they can utilize during emergencies, daily school activities and conduct of pre-planned events (of which the campus has many activities to conduct every school year) to achieve utmost safety and order, increase disaster resilience and promote DRRM discipline to the LSPU students and personnel.

Based on the findings and conclusions formulated, the following recommendations are advanced:

- a. Propose to formulate a Campus Disaster Risk Reduction and Management Contingency Plan for Top Natural and Human-Induced Hazards that will be utilized to minimize gap of DRR Knowledge and implementation between student and personnel;
- b. The DRR Prevention and Mitigation Measures needs to formulated to maximize installation of building safety and emergency preparedness requirements;
- c. Decrease the level of susceptibility to current risks and hazards thru enhanced Disaster Preparedness programs particularly in capability building and equipping both students and personnel;
- d. Improve the conduct of Disaster Response operations with fully-capable Emergency Response Team(s) through established Standard Operation Protocols; and,
- e. Well-planned program under Rehabilitation and Recovery has to be formulated all to guarantee the lessening of untoward incidents within the campus and increase its disaster resilience.

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# TRANSITION FROM OPEN PIT COAL MINE TO THE UNDERGROUND MINE IN SOFT ROCKS

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## ABSTRACT

*To achieve a successful and effective operation, the transition from open pit to underground mining requires accurate planning and analysis. Numerical modeling utilizing programs like FLAC3D has been an important tool for simulating and analyzing the complicated geomechanical behavior connected with this shift in recent years. The use of FLAC3D to develop a model for the switch from open pit coal mining to underground coal mining in soft rocks with using room and pillar mining method is explored in this abstract. It presents the development of model to analyze and simulate the complex dynamics of this transition.*

*The significant considerations that went into developing the model, such as geotechnical characteristics, rock mass behavior, and mine design parameters, are highlighted in the abstract. It highlights how essential proper input data are to producing reliable simulations and forecasts in soft rocks. The usage of FLAC3D for tracking pit wall stability during the transition period, evaluating the influence on nearby infrastructure, and optimizing underground mine design are covered in the abstract. The model's flexibility allows the investigation of various conditions and offers valuable insight about the transition process.*

*The research emphasizes the potential of the FLAC3D model to lead decision-making during the transition from open pit to underground mining through detailed analysis like choosing appropriate width for main entrance and cross section stopes and their interpretation. It emphasizes how important it is to understand the geomechanical behavior of the coal deposit, optimize the mine's design parameters, and ensure safety for employees. The room and pillar method is utilized to recover coal resources from deep underground mines, and the results from the model can help improve efficiency, sustainability, and risk prevention.*

**KEYWORDS:** *Underground mining, Open pit mining, Room and Pillar mining method, FLAC3D, Coal mining, Soft rocks.*

## INTRODUCTION

Mining plays an important role in case the world's growing demand for mineral resources, but does not come with its challenges. The conventional approach of extracting minerals from deposits that are close to the surface is open pit mining. However, open pit mining's impact on the environment and society lead to questions about its long-term viability. Exploring alternative mining techniques that can reduce these effects while maximizing resource efficiency.

While this research it will be concentrated on the benefits of underground mining and steps which shows the problem solving related to open pit mining like social, environmental, and economic aspects.

The first important issue that needs to be paid attention is the impact on the environment. Open pit mining requires considerable rock, vegetation, and topsoil removal, as well as the resulting destruction of deforestation, ecosystem, and soil erosion. In contrast, underground mining leaves less of a surface imprint, causing less environmental disruption.

Another significant factor that supports the switch to underground mining is resource extraction. Underground mining technologies can effectively access deeper mineral reserves that are unavailable using open pit methods.

The impacts on local communities are also an important consideration. Open pit mining can cause visual disturbances, noise pollution, and dust production, which can all affect the quality of life for those living nearby. The majority of mining operations take place underground and out of sight, minimizing these negative effects and creating mutually beneficial relations.

In this paper room and pillar was chosen as a transition method in soft rock conditions. For the extraction of coal and resources from soft rock formations, room and pillar mining is a common underground mining method. This mining method has been used for many years and has shown to work well in a variety of geological conditions. In the soft rock deposit, a system of connected rooms or galleries is built using the room and pillar mining method, leaving behind a series of support pillars. These pillars support the underground mine's structural integrity and allow the systematic and effective exploitation of the coal.



The underground mine's transportation and ventilation becomes more effective by the room and pillar mining method. Air can circulate individuals, equipment, and materials may move regarding due to the interconnected system of rooms and pillars. Because of this, the mining operation can continue achieving its productivity and safety goals.

However, room and pillar mining have a number of difficulties. To maintain the stability of the pillars and prevent excessive ground movement, the extraction of minerals from soft rock sources requires accurate engineering and design. To maximize the recovery of the mineral resource while maintaining safety, the pillars' size, spacing and stability of entrance must be optimized.

### METHODOLOGY AND SIMPLE DESIGN OF ROOM AND PILLAR MINING METHOD IN SOFT ROCKS

The stability of excavations and safety of working staff are important considerations when developing a mining plan. The dimensioning of coal pillars, width of entrance and stopes which are crucial to the mine's overall stability performance, safety is one essential component of ensuring stability. Researchers have spent a lot of time over the years trying to comprehend pillar strength, and numerous methods have been put forward by experts in the field.

Coal pillar design was initially developed by early research by Madden (1996), and Mark. C (1999) [1]. These researches gave empirical formulas and insights into the mechanics of pillar strength and stability of entrance of mining. Modern approaches, such as probabilistic design, have been developed, integrating numerical modeling methods to estimate stability of materials, however design methodologies have evolved through time [2].

The use of numerical modeling in designing performance analysis has become essential. It offers a practical and possibly better alternative to traditional stability methods. To determine stability of pillars and entrance, two-dimensional approximations and three-dimensional numerical FEA approaches have been used. When these numerical models are verified using data from actual excavations, they not only assist with predicting stability behavior but also improve our understanding of material performance.

In this work, a simple 3D model was created (Figure 1) and numerically analyzed using FLAC3D software. Based on geotechnical investigations, field observations, and global experience, geotechnical parameters of the coal orebody it was used average results of material properties for numerical model (Table 1). In case of soft rock materials like kaolin, coal, sandstone, limestone and several soft rock formations were taken into consideration and in the footwall and hanging wall in addition to a flat-lying, relatively shallow coal orebody with an average thickness of 5 m.

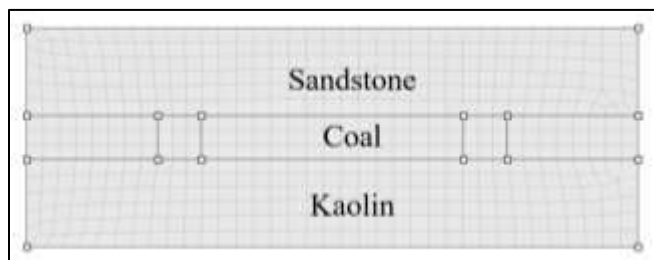


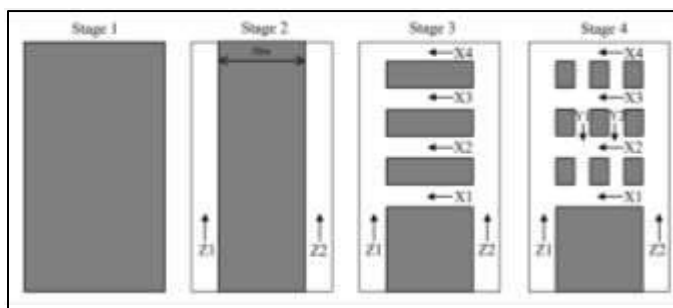
Figure 1. Simple model of soft rock formation

	UCS	Young's Modulus	Cohesion	Tensile Strength	Poisson's ratio	Bulk modulus (Gpa)	Shear modulus (Gpa)
Sandstone	53	15	19	5.2	0.30	12.5	5.76
Kaolin	19	7	6	1.9	0.37	8.97	2.55
Coal	9.7	2.5	2.7	0.85	0.31	2.19	0.95

Table 1. Input Parameters for Numerical Model

Given that both the kaolin and coal formations were categorized as weak rocks, the analysis used the Mohr-Coulomb failure criterion and assumed elasto-plastic deformation. Nine coal pillars altogether, made up of two main access tunnels which are

Z1 and Z2, additional galleries Y1 and Y2, four perpendicular cross-cuts X1, X2, X3, and X4. (Figure 2)



**Figure 2. Different Phases of the Stopping Activity**

The finite element model analyzed the structure, size, width, roof reinforcement, and excavation process in an effort to reproduce the excavation of room and pillar coal at a pilot scale. Insights into the stability of the coal pillars and the behavior of the excavations are offered by the findings of the numerical study. The use of numerical modeling tools allows a more thorough understanding of the performance of the mine, assisting in the creation of mining plans that are both safe and effective. The findings of this study add to our knowledge about coal pillar design and are helpful for planning future mining operations in related geological situations.

## RESULTS

The finite element analysis conducted in this study provides valuable insights into the displacements and stability of the excavated galleries and pillars in the coal mine. The results indicate that the maximum displacements are observed at the middle of the excavated galleries, particularly at the central pillar where the X2 and X3 galleries intersect with the Y1 and Y2 galleries. These sections are identified as the most critical areas, with convergence values ranging from 50 mm to 70 mm. In comparison, the main access galleries (Z1 and Z2) and the back end of the mine (gallery X4) show lower roof displacements of around 40 mm.

The total displacements along the cross-section are showing that the maximum roof displacement is around 50 mm at the central rooms. The pillars also deform in all three main axes due to stress redistribution and increased loading from mining activity.

Actual convergence measurements were performed using topographical equipment with targets placed on the roof and middle section of the pillars. The measurements show good agreement with the numerical analysis, with deformations in the pillars' sidewalls ranging from 10 mm to 20 mm.

The convergence development at the roof of the Z2 entry stope is depicted, showing that the tunnel face progresses up to 25 m from

the control point and then stops, with a measured convergence of 18 mm at that point. However, the convergence continues to increase beyond 25 m due to the excavation of neighboring stopes (X1, X2, Y1, Y2), leading to a final convergence value of 40 mm. This indicates that the stability conditions of the Z2 gallery's roof are influenced by the excavation of adjacent stopes.

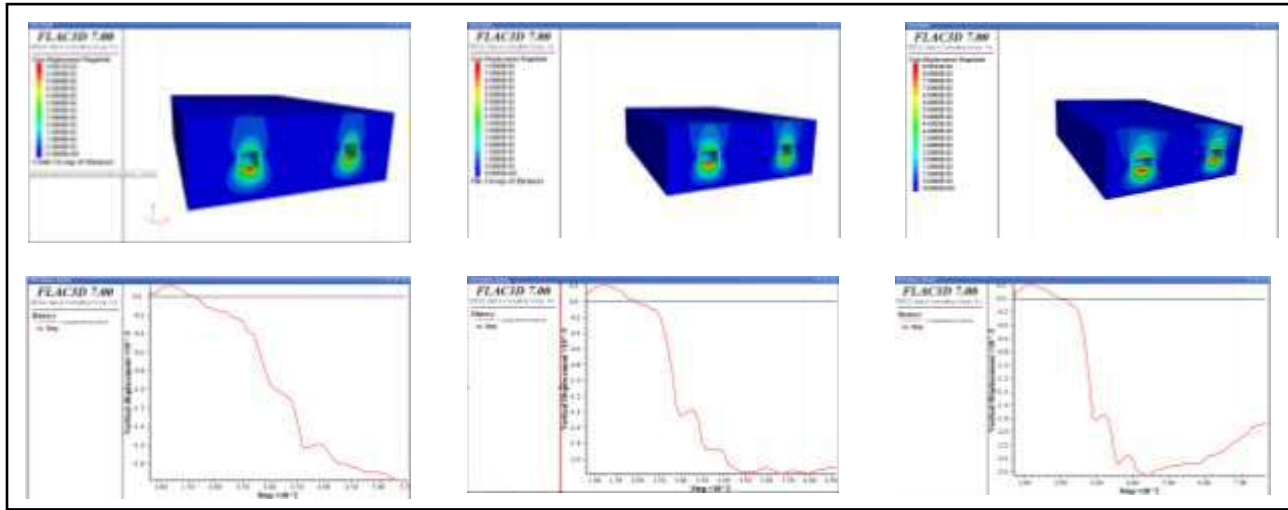
The actual performance of the pillars, both during and after the mining period, verifies their stability. In the worst-case scenario, where the yielding area progresses through the core of the pillar, immediate support measures such as bolting, or clamping of the pillar's sides can be implemented to remediate stability conditions.

However, stability of entrance and stopes are not less important comparing to pillars. To enhance stability further, a comparison was conducted involving three different types of main entrances with varying widths. The purpose of this comparison was to gain a better understanding of the impact of entrance width on stability. The three models had main entrances with widths of 5 meters, 7 meters, and 9 meters, respectively. The results were evaluated based on the vertical displacement of tunnels. (Figure 3)

In the first model, where the main entrance had a width of 5 meters, the vertical displacement indicated a higher level of safety. However, adopting a 5-meter width for the main entrance would result in narrower stope entries, making it challenging to carry out excavations at the maximum level. Additionally, this width could create difficulties for the entrance of working equipment.

In the second model, with a main entrance width of 7 meters, the vertical displacement suggested a slightly lower level of safety compared to the 5-meter width model. However, opting for a 7-meter width for the main entrance would allow for slightly wider stope entries, ranging from 5 to 6 meters. This width is more suitable for the entrance of working equipment, facilitating smoother operations.

The third model, featuring a main entrance width of 9 meters, exhibited lower safety levels in terms of vertical displacement. This width could potentially pose safety issues in practice, highlighting concerns regarding stability.



**Figure 3. Excavated tunnels and vertical displacement results for different size of width for entrance.**

Based on the comparison, it can be concluded that a 5-meter width for the main entrance provides a higher level of safety in terms of vertical displacement. However, the narrower width would limit stope entry sizes and create challenges for the entrance of working equipment. On the other hand, a 7-meter width, although showing slightly lower safety levels, allows for more manageable stope entry sizes and facilitates the entrance of working equipment. Lastly, the wider 9-meter width presents lower safety levels and potential safety issues.

Therefore, when considering the trade-off between safety, practicality, and operational requirements, it is recommended to select the 7-meter width for the main entrance, ensuring a reasonable level of stability while accommodating the necessary dimensions for stope entries and the smooth functioning of working equipment.

For the model of the main entries have been decided a width of 7 meters, while other apertures have a span of 5-6 meters, according to the measurements of the entry and openings. It was decided to set the width of stopes between 5-6 m and the width of the main entries as 7 m. Using 5 m high vertical walls cause the overall

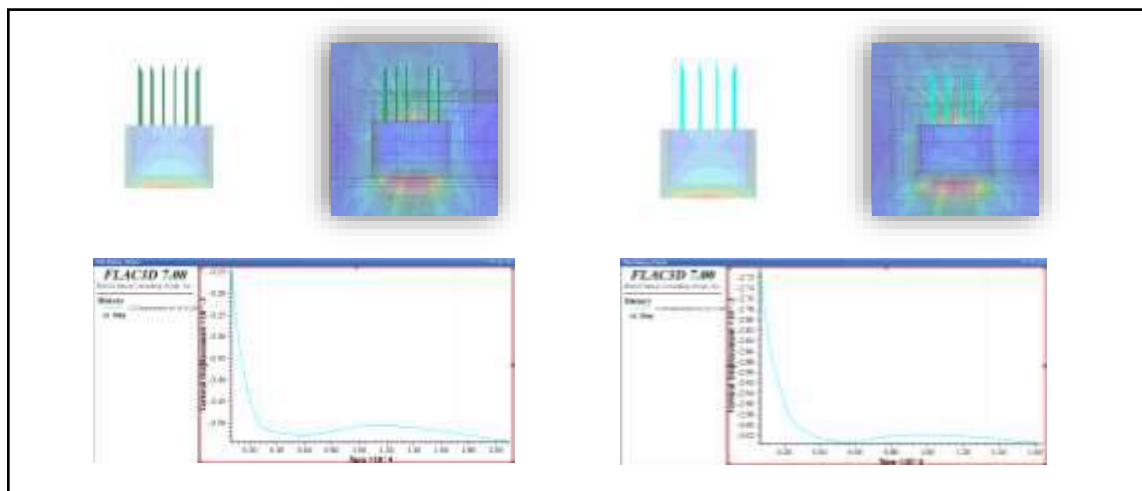
height of all galleries was 5 m, with matching the coal thickness. The pillars had a rectangular shape and were 5 m by 7 m in size.

The stability of the roof in tunnel excavations is a critical factor in ensuring the safety of personnel and preventing any potential hazards. The effectiveness of different support systems with varying widths and numbers of rockbolts was evaluated to understand their impact on roof stability.

The first support system design involved the installation of rockbolts with a width of 1 meter and a total of 6 rockbolts. The second design utilized a wider support system with a width of 1.4 meters and 4 rockbolts. The purpose of these designs was to compare their effectiveness in enhancing the stability of the roof.

The results clearly indicate that the implementation of a support system significantly improves the behavior and balance of the roof, thus preventing potential roof falls. The graph depicting the comparison demonstrates the increasing stability achieved with the installation of the support system.





**Figure 4. Two different rockbolts support and vertical displacement.**

In the first design, where rockbolts were placed at a width of 1 meter with a total of 6 rockbolts, a noticeable improvement in roof stability was observed. This design effectively prevented the roof from collapsing and provided adequate support to withstand the surrounding pressure.

The stability of the roof was further tested by the second design, which made use of a wider support design with a width of 1.4 meters and 4 rockbolts. This greater separation also well made it possible to support the roof adequately, assuring its stability and lowering the possibility of any potential failures.

The rockbolts utilized in both designs had a length of 2.4 meters and a typical bearing capacity of 120 kN, which is essential to note. The roof structure was reinforced in the model by the installation of these rockbolts in a grid pattern with 1.4 meter spacing.

The results demonstrate that the implementation of a support system with rockbolts significantly improves the stability and strength of the roof in soft conditions. The wider spacing of rockbolts, as seen in the second design, can provide optimal support while maintaining a reasonable width for equipment access.

While choosing the best support system design for tunnel excavations, it is suggested to take the individual geotechnical conditions and the load-bearing capacity needs into consideration. The research study highlights the significance of a well-designed support system for providing secure and stable tunnel operations and can be a useful resource for engineers and tunnel building professionals.

## CONCLUSION

In conclusion, modelling analysis conducted in this study provided insights into the displacements and stability of galleries,

entrance and roof structures in underground coal mining. Critical areas with the highest convergence values were predicting at the intersections of certain galleries, particularly at the central pillar. Actual measurements validated the numerical analysis, confirming the deformations in the pillars' sidewalls and the impact of neighboring stopes on roof stability.

Regarding the stability of entrances and stopes, a comparison of different main entrance widths revealed that a 7-meter width balances safety and practicality. While a 5-meter width offers higher safety, it limits stope entry sizes and equipment access. A wider 9-meter width poses safety concerns. Therefore, a 7-meter width is recommended to ensure stability and accommodate necessary dimensions.

The evaluation of support systems showed that installing rockbolts significantly improves roof stability. Designs with different widths and numbers of rockbolts demonstrated effective stability enhancement. The wider design with a width of 1.4 meters and 4 rockbolts provided excellent stability and reduced the risk of roof collapses.

In summary, this research highlights the importance of modeling, proper support system design, and consideration of geotechnical conditions in transition to underground coal mining. The findings contribute to improving efficiency, sustainability, and safety in the transition to underground mining, providing valuable guidance for professionals in the field.

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# ORGANIZATIONAL CITIZENSHIP BEHAVIOR AND EMPLOYEE PERFORMANCE: AN INPUT TO NON-TEACHING PERSONNEL'S ENHANCEMENT CAPABILITY TRAINING PROGRAM IN A STATE UNIVERSITY

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## ABSTRACT

*This study aimed to investigate the effect of organizational citizenship behavior on employee performance at Laguna State Polytechnic University. The researcher sought to assess the extent to which the employees of the non-teaching employees manifested organizational citizenship behavior core values such as altruism, conscientiousness, sportsmanship, civic virtue and courtesy. It also looked into the performance level of the non-teaching employees in terms of quantity of work, quality of work, job knowledge, cooperation, and human relation. The total sample of 87 was all non-teaching employees of from the Administrative Services. This study used the descriptive-correlation method to determine the relationship between organizational citizenship behavior, the respondents' profile, and the performance of employees. The primary data collection tool used was a survey questionnaire designed by the researcher and validated by field experts and analyzed using simple linear regression on SPSS V23. The Non-teaching employees were aged 20-30, mostly on a Job Order or Contract of Service status of employment. Hold a Bachelor Degree and shows 36 out of 87 were CSC passer including board examination from the PRC. The level of organizational citizenship behavior manifested by the employee was noted to have a highly observed interpretation based on the result. As to the level of performance of the non-teaching employees it was noted to have a highly performed explanation based on the result. The level of organizational citizenship behavior manifested by the employee has no significant difference to the profile variables presented. It concludes that the hypothesis was failed to reject. The level of employee performance manifested by the respondents has no significant difference to the profile variables in terms of age, employment status, years in service, education and eligibility. It concludes that the hypothesis was failed to reject. The level of organizational citizenship core values manifested by the employee has significant affect to the performance level of the non-teaching employees of LSPU, therefore, it concludes that the hypothesis is rejected. The results show that organizational citizenship behavior has a positive and significant effect on employee performance. The data indicate that OCB has a substantial effect on employee performance.*

**KEYWORDS:** *Organizational Citizenship Behavior, work performance, non-teaching employees*

## INTRODUCTION

Organizational Citizenship Behavior (OCB) is a concept that is constantly changing that focuses on how and why people give back to their organizations in ways other than their clearly defined job functions. Organizations have long been interested in how management affects employees' attitudes toward their jobs, as well as what kind of commitment people are ready to make to the company.

According to De Geus, 2020, findings obtained through the OCB have spurred public organizations to embrace citizenship behavior to boost performance. Indeed, public entities today struggle to sustain service levels under shrinking finances while also coming under increased scrutiny and performance demands from citizens (Hassan et al., 2015). Therefore, because OCB encourages staff to go above and beyond officially specified position criteria, it may be a crucial component of organizational responses to such difficulties. However, other researchers have discovered evidence of OCB's detrimental impacts, including occupational stress and role creep (Bolino et al. 2013; Koopman, Lanaj, and Scott 2016).

As Perkbox (2020, December 10) put it so well, employees are the company's propelling force. Therefore, it should not come as a surprise that the daily performance of a workforce has a substantial impact on a company's ability to prosper or fail.

If businesses want to succeed in today's market, they must figure out how to maintain their employees performing at their highest levels and get the most out of them. By assisting employees in developing within their roles and responsibilities, a business can establish a pipeline of future leaders in addition to aiding in the hiring, retention, and development of the most talented employees. all of which contribute to prosperity in the long run.

In addition to requiring continuous monitoring, evaluation, and planning, enhancing employee performance is a crucial step in achieving organizational objectives.

Employee performance, commonly referred to as job performance, is the total value that an employee brings to an organization in the form of a range of behaviors that support organizational objectives both directly and indirectly. Both task



performance and contextual performance, often known as extra-role performance, are components of job performance.

Training may be perceived by employees as an organization's effort to assist them in meeting the higher standards. Perceived organizational support is positively associated with diligence, and it is also positively associated with a drive to assist colleagues. This indicates that training opportunities may have a beneficial correlation with OCB, which is why it is being investigated in the present study.

## OBJECTIVE OF THE STUDY

This study aimed to provide input to training program that improved the quality and excellent service of the employees of the Laguna State Polytechnic University and reveal the relation of Organizational Citizenship Behavior and employee performance.

## MATERIALS AND METHODS

The research design used in the study was the descriptive-correlation method to determine the relationship between organizational citizenship behavior, the respondents' profile, and the performance of employees in the Laguna State Polytechnic University. The descriptive design was used to identify the description of the profile of the respondents' related factors. The correlation method was used to determine the relationship between organizational citizenship behavior, the respondents' profile, and the performance of the respondents.

The respondents of this study were the proportional total of 368 non-teaching employees across the campuses of Laguna State Polytechnic University. With the response rate of 23.64%, total of 87 respondents. It consists of the regular, casual, job order/contract or service which served the university.

The instrument used to gather data for the study are self-made survey questionnaire. Checklist-type of

questionnaire was utilized by the researcher to answer the problems stated. In addition, the questionnaire was constructed by adopting the statements from different sites and articles relevant to the considered indicators. The questionnaire was composed of three parts. The first part was used to determine the demographic profile of the respondents in terms of age, employment status, years in service, education and eligibility. The Second part determined the level of organizational citizenship behavior of the employees in terms of Altruism, Conscientiousness, Sportsmanship, Civic Virtue, Cooperation, and Courtesy using the 4-point Likert-type scales answerable by: 4-Always Observed, 3-Sometimes Observed, 2-Seldom Observed, and 1- Never Observed. Last part was utilized to determine the level of performance of the employees in terms of Quantity of Work, Quality of Work, Job Knowledge, Cooperation, and Human Relation using the 4-point Likert-type scales answerable by: 4-Highly Performed, 3-Performed, 2-Fairly Performed, and 1- Never Performed.

The data are gathered online, and the respondents answered with the use of Google Forms. Furthermore, a letter of confidentiality to the respondents were included in the survey to give them assurance that their personal information was kept confidential. Then data gathered from the administrative employees of Laguna State Polytechnic University-System. After collecting responses, the researcher sought advice, assistance, and supervision from the statistician for the encoding and interpretation of the results that supported the formation of findings and conclusions.

Frequency and percentage were used to measure the respondents profile variables. Mean and standard deviation were utilized to get the perceived level of OCB core values and employee performance. Analysis of variance were applied to obtain the significant difference of OCB and profile variables and employee performance and profile variables. Pearson R correlation were used to meet the significant relationship between OCB and employee performance.

## RESULTS AND DISCUSSION

Description of the Profile of the Respondents

**Table 1. Frequency Distribution of Respondents According to Age**

Age Range	Frequency	Percent
20-30	43	49.4
31-40	27	31.0
41-50	15	17.2
51 ABOVE	2	2.3
Total	87	100.0

Table 1 depicted a frequency distribution of 87 people who responded corresponding to their age. 49.4% of those surveyed were in the age range within 20 and 30, 31.0% seemed aged across 31 and 40, 17.2% got aged within 41 and 50, as well 2.3% had been aged 51 or above. This indicated that the sample was primarily comprised of respondents who were younger.

The table illustrated the frequency distribution of employment status among 87 respondents. The majority of respondents (78.2%) are working as Job Order/Contract of Service laborers. It was then followed by the 18.4% of respondents who are regular employees. Casual employees constitute the smallest percentage of respondents (3.4%).





**Table 2. Frequency Distribution of Respondents According to Employment Status**

Employment Status	Frequency	Percent
Regular	16	18.4
Casual	3	3.4
Job Order/Contract of Service	68	78.2
Total	87	100.0

Table 2 indicated that a large proportion of respondents are employed as being Job Order/Contract of Service employees. This may be because the job order or contractual of service system has become more flexible and enables organizations to hire and fire workers more readily and

don't item for them to be regular. It may also be suggestive of an abundance of informal and unstable employment in the job market. It is essential to remember that these data might not be representative of the entire population.

**Table 3. Frequency Distribution of Respondents According to Years in Service**

Years in Service	Frequency	Percent
Below 1 Year	12	13.8
1-5	41	47.1
6-10	19	21.8
11-15	8	9.2
16-20	4	4.6
21 Above	3	3.4
Total	87	100.0

Table 3 displayed the frequency distribution of 87 individuals who responded by years of service. Twelve (13.8%) of the people who responded have been employed for a period of time shorter than one year. 41 of those surveyed (47.1%) have served for 1 to 5 years, 19 (21.8%) for 6 to 10 years, 8 (9.2%) for 11 to 15 years, 4 (4.6%) for 16 to 20 years, and 3

(3.4%) for over 21 years. The vast majority of respondents have served in service for one to five years, and the total number of respondents declines as the number of years in service rises. This may suggest that the majority of respondents are somewhat relatively new in their respective professions.

**Table 4. Frequency Distribution of Respondents According to Educational Attainment**

Educational Attainment	Frequency	Percent
Bachelor Degree	80	92.0
Master's Degree	7	8.0
Doctoral Degree	0	0
<b>Total</b>	<b>87</b>	<b>100.0</b>

Table 4 demonstrated the frequency distribution among the 87 respondents based on their level of education. The plurality of those surveyed (80 of a total of 87) hold a Bachelor's degree, as shown. There are no participants with a doctoral degree, while 8% of respondents hold a master's degree.

In table 5, the frequency distribution of 87 respondents' eligibility for a civil service examination is

displayed. 19.5% of respondents are eligible for CSC Professional, 12.6% are eligible for CSC Subprofessional, 9.2% are eligible for Other people, 28.7% have no eligibility, and 29.9% have a score of 5.00. The majority of respondents were either ineligible for the civil service examination (28.7%) or received a score of 5.00 (29.9%), indicating that they were not adequately prepared for the exam.

**Table 5. Frequency Distribution of Respondents According to Eligibility**

Eligibility	Frequency	Percent
CSC PROF	17	19.5
CSC SUBPROF	11	12.6
OTHERS	8	9.2
NONE	25	28.7
5.00	26	29.9
Total	87	100.0



Additionally, it also showed that those deemed eligible for CSC Professional (19.5%) and CSC Subprofessional (12.6%) were better prepared for the exam than the others. Additionally, the frequency of 8 or having 9.2 percent are the others eligibility including board examinations from Professional Regulation Commission. This information can be utilized for future research on the most effective methods of getting ready for the civil service exam.

#### Level of Organizational Citizenship Behavior

The statistical tables presented on this part contain the level of organizational citizenship behavior: altruism, conscientiousness, sportsmanship, civic virtue and courtesy of the employees of the Laguna State Polytechnic University.

The Table 6 shows that the organizational citizenship behavior in regards to altruism is *always observed* among the respondents. The employee take initiative to assist new employees to the department ( $Mean = 3.84, SD = 0.37$ ) with a remark *always observed*. Likewise, the employees help other employees complete their tasks when the have been absent ( $Mean = 3.74, SD = 0.44$ ) and help other employees when their workload seems too much ( $Mean = 3.74, SD = 0.49$ ). Meanwhile, the lowest mean score ( $Mean = 3.62, SD = 0.49$ ) which shows that the employees volunteer to do tasks beyond expected responsibilities which indicated also as *always observed* by the respondents.

**Table 6. Level of organizational citizenship behavior as to Altruism**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I take initiative to assist new employees to the department.	3.84	0.37	Always Observed
I volunteer to do tasks beyond expected responsibilities.	3.62	0.49	Always Observed
I help other employees complete their tasks when the have been absent.	3.74	0.44	Always Observed
I help other employees when their workload seems too much.	3.74	0.49	Always Observed
I give suggestions to improve the overall quality of performance in our department.	3.63	0.49	Always Observed
Overall Mean	3.71		Always Observed

Note: 3.26 – 4.00 - Always Observed; 2.51 – 3.25 - Sometimes Observed; 1.76 – 2.50 - Seldom Observed; 1.00 – 1.75 - Never Observed

The overall mean was 3.71, showed that organizational citizenship behavior has *always observed* with regards to altruism. The results reveal that those surveyed always recognize using initiative in helping new employees within the department, serving to do duties above expected responsibilities, assisting other employees in completing their tasks even though they have been absent, assisting other employees while their workload appears excessive, and offering suggestions to enhance the general level of their performance in the department.

The findings indicated that respondents are extremely likely to take part in altruistic workplace behaviors, indicating that they concern about the overall performance of their department as well as have the willingness to put in additional

effort to assist their colleagues (Bolino, et al., 2013; Florescu & Nastase, 2014).

In table 7, it revealed that the organizational citizenship behavior in regards to conscientiousness is *always observed* among the respondents. The employee makes sure everything is settled at work before taking absence ( $Mean = 3.86, SD = 0.35$ ) with a remark *always observed*. In addition, the employees exhibit punctuality in the workplace ( $Mean = 3.72, SD = 0.50$ ). Hence, the lowest mean score ( $Mean = 3.44, SD = 0.83$ ) which shows that the employees barely absent from work and use day off which means that it is *always observed* by the respondents.

**Table 7. Level of organizational citizenship behavior as to Conscientiousness**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I exhibit punctuality in the workplace.	3.72	0.50	Always Observed
I observe on-time work breaks.	3.63	0.53	Always Observed
I barely absent from work and use day off.	3.44	0.83	Always Observed
I work beyond eight hours if needed.	3.66	0.57	Always Observed
I make sure everything is settled at work before taking absence.	3.86	0.35	Always Observed
Overall Mean	3.66		Always Observed

Note: 3.26 – 4.00 - Always Observed; 2.51 – 3.25 - Sometimes Observed; 1.76 – 2.50 - Seldom Observed; 1.00 – 1.75 - Never Observed



The level of organizational citizenship behavior with regards to conscientiousness pegged the overall mean 3.66 showing that it *always observed* among the respondents. The data demonstrates that employees are constantly observed demonstrating punctuality in their places of employment, observing promptly work breaks, being hardly missing from work and utilizing vacation days, and working above eight hours when necessary. Additionally, they ensure that everything at work is in order before leaving.

Conscientiousness is essential for a business because it demonstrates that employees are treating their roles carefully and completing their work in a timely manner (Kim et al., 2016). This information also indicates that employees take their roles seriously and are accountable for their actions (Soltani-Nejad et al., 2022). This is essential for a business because it can cultivate an atmosphere of trust and respect, leading to increased productivity and morale.

**Table 8. Level of organizational citizenship behavior as to Sportsmanship**

Indicative Statement	Mean	Std. Deviation	Interpretation
<b>As an employee...</b>			
I make sure to work with positivity.	3.92	0.27	Always Observed
I separate personal issues to maintain better work relationship.	3.87	0.33	Always Observed
I never talk down to a co-worker who has tried and been unable to complete a task.	3.83	0.41	Always Observed
I remain humble and continue to treat my co-workers with respect after being praised or awarded.	3.93	0.25	Always Observed
I assure to do better if I made a mistake.	3.92	0.27	Always Observed
Overall Mean	3.89		Always Observed

Note: 3.26 – 4.00 - Always Observed; 2.51 – 3.25 - Sometimes Observed; 1.76 – 2.50 - Seldom Observed; 1.00 – 1.75 - Never Observed

Table 8 illustrated that the organizational citizenship behavior in connects to sportsmanship is *always observed* among the respondents. The employee remains humble and continue to treat their co-workers with respect after being praised or awarded (*Mean*= 3.93, *SD*= 0.25) with a remark *always observed*. Additionally, the employees make sure to work with positivity and assure to do better if made a mistake (*Mean*= 3.92, *SD*= 0.27) respectively. Hence, the lowest mean score (*Mean*= 3.83, *SD*= 0.41) which implies that the employees never talk down to a co-worker who has tried and been unable to complete a task which indicates that it is *always observed* by the respondents.

The level of organizational citizenship behavior in connects to sportsmanship gauged the overall mean 3.89 presenting that it *always observed* among the respondents. It is founded on responses to all five indicating sportsmanship statements. This proves that employees exhibit positive sportsmanship-related behaviors and attitudes.

It demonstrates that employees sustain an upbeat mentality and exhibit appropriate sportsmanship-related

behaviors (Teal, 2013). This can assist organizations in fostering a positive and efficient work environment and fostering collaboration and teamwork (Fapohunda, 2013; Salas et al., 2015). They ensure to work with optimism, distinguish private problems to maintain productive relationships (Malinowski, 2015), never put down a coworker who has tried and failed to finish a task, remain modest and continue to treat coworkers with respect after receiving praise or an award, and promise to do better if they make a mistake (Apello, 2016).

Table 9 elucidated that the organizational citizenship behavior in relates to civic virtue indicators is *always observed* among the respondents. The employee is open to receive feedback (*Mean*= 3.89, *SD*= 0.39). Moreover, the employees communicate well with their fellow employees (*Mean*= 3.87, *SD*= 0.38). However, the lowest mean score (*Mean*= 3.63, *SD*= 0.51) which shows that the employees express their ideas freely in the workplace which signified also as *always observed* by the respondents.

**Table 9. Level of organizational citizenship behavior as to Civic Virtue**

Indicative Statement	Mean	Std. Deviation	Interpretation
<b>As an employee...</b>			
I take part in decision-making of the department.	3.45	0.57	Always Observed
I express my ideas freely in the workplace.	3.63	0.51	Always Observed
I communicate well with my fellow employees.	3.87	0.38	Always Observed
I seek clarifications on areas I do not understand.	3.85	0.39	Always Observed
I am open to receive feedback.	3.89	0.39	Always Observed
Overall Mean	3.74		Always Observed

Note: 3.26 – 4.00 - Always Observed; 2.51 – 3.25 - Sometimes Observed; 1.76 – 2.50 - Seldom Observed; 1.00 – 1.75 - Never Observed



The overall mean was 3.74, showing that the organizational citizenship behavior has *always observed* with relation to civic virtue. The results imply that employees taking an active role in making choices of the department, convey their ideas openly in the work environment, interact well with other staff members, seek clarifications regarding areas they don't understand, and are willing to getting feedback, all at an excellent level. This is an encouraging sign for the workplace as it represents an encouraging work environment. It demonstrates that employees are invested and ready to make a contribution to the accomplishments of the organization. This

sort of behavior additionally encourages trust and cooperation between employees, that can contribute to better efficiency and effectiveness.

Organizational citizenship behavior becomes crucial for any organization, as it may assist to create an enjoyable place to work which will lead to improved performance and productivity (Podsakoff et al., 2014). Organizations must attempt to establish an atmosphere of collaboration along with trust, and need to recognize and motivate employees who showcase civic virtue in their jobs (Zayas-Ortiz, et al., 2015).

**Table 10. Level of organizational citizenship behavior as to Courtesy**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I consider the opinion of others.	3.93	0.25	Always Observed
I greet my fellow employees and other guests.	3.95	0.21	Always Observed
I give advance notice if I cannot go to work.	3.91	0.29	Always Observed
I answer queries and concerns promptly.	3.89	0.36	Always Observed
I follow the instructions of my supervisor.	3.97	0.18	Always Observed
Overall Mean	3.93		Always Observed

Note: 3.26 – 4.00 - Always Observed; 2.51 – 3.25 - Sometimes Observed; 1.76 – 2.50 - Seldom Observed; 1.00 – 1.75 - Never Observed

Table 10 revealed that the organizational citizenship behavior pertaining to courtesy is *always observed* among the respondents. The employee follows the instructions of their supervisor (*Mean*= 3.97, *SD*= 0.18) which state *always observed*. As follows, the lowest mean score (*Mean*= 3.89, *SD*= 0.36) which shows that the employees answer queries and concerns promptly which indicates that it is *always observed* by the respondents.

The level of organizational citizenship behavior pertaining to courtesy depicts the overall mean 3.93 showing that it *always observed* among the respondents. The results indicate that employees constantly consider the opinions of others, greet coworkers and other visitors, provide notice in advance if they are unable to report to work, provide prompt responses to questions and concerns, and adhere to the directives of their supervisors. It means that employees are demonstrating an elevated standard of workplace courtesy.

This information is essential for managers and leaders in organizations because it provides a glimpse into the general state of workplace civility displayed by employees (Day & Nielsen, 2017). It also enables the discovery of areas where adjustments can be implemented to ensure that employees' interactions with others reflect the utmost level of courtesy (Elamin & Tlaiss, 2015). Organizations can establish a pleasant and courteous work environment if they are aware of the degree of courtesy displayed by their employees.

#### Level of Performance of Employees

The statistical tables presented on this part contain the level of performance as to quantity of work, quality of work, job knowledge, cooperation and human relation of the employees of the Laguna State Polytechnic University.

**Table 11. Level of performance of employee as to Quantity of Work**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I come to work earlier or on time.	3.36	0.61	Highly Performed
I complete tasks on time.	3.72	0.45	Highly Performed
I submit reports within the period of submission.	3.78	0.42	Highly Performed
I respond to calls and emails immediately.	3.75	0.44	Highly Performed
I relay communication such as request letters, memos, and advisories.	3.84	0.37	Highly Performed
Overall Mean	3.69		Highly Performed

Note: 3.26 – 4.00 – Highly Performed; 2.51 – 3.25 - Performed; 1.76 – 2.50 – Fairly Performed; 1.00 – 1.75 - Not Performed

Table 11 disclosed that the organizational citizenship behavior concerning to quantity of work is *highly performed* among the

respondents. The employee relay communication such as request letters, memos, and advisories (*Mean*= 3.84, *SD*= 0.37)





with a remark *highly performed*. Furthermore, the employees submit reports within the period of submission ( $Mean = 3.78$ ,  $SD = 0.42$ ). Otherwise, the lowest mean score ( $Mean = 3.36$ ,  $SD = 0.61$ ) which evinces that the employees come to work earlier or on time off which means that it is *highly performed* by the respondents.

The level of organizational citizenship behavior concerning to quantity of work shows the overall mean 3.69 showing that it *highly performed* among the respondents. In fact, the average results of standard deviation are quite low at 0.45, indicating that the scores are reliable and consistent. The employee has demonstrated outstanding performance in all domains, with the maximum rating (3.84) for transmitting communication including request memos, letters, and advisories. This demonstrates the employee's dependability

and punctuality in communicating with other staff members or colleagues (Trialih et al., 2017). The employee's work output is exceptional, and their ratings are consistent and reliable. This is an indication of their dedication to and performance on the job (Top et al., 2015).

In table 12 depicted that the organizational citizenship behavior in connects to quality of work is *highly performed* among the respondents. Similarly, the employee manages to prioritize tasks ( $Mean = 3.86$ ,  $SD = 0.37$ ) and perform tasks following the standards ( $Mean = 3.86$ ,  $SD = 0.35$ ) with a remark *highly performed*. Meanwhile, the lowest mean score ( $Mean = 3.77$ ,  $SD = 0.42$ ) which implies that the employees review reports for technical errors prior to submission which indicates that it is *highly performed* by the respondents.

**Table 12. Level of performance of employee as to Quality of Work**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I manage to prioritize tasks.	3.86	0.37	Highly Performed
I perform tasks following the standards.	3.86	0.35	Highly Performed
I provide prompt service.	3.79	0.41	Highly Performed
I review reports for technical errors prior to submission.	3.77	0.42	Highly Performed
I solicit the approval/consent of my supervisor(s) in performing actions and submitting reports.	3.84	0.37	Highly Performed
Overall Mean	3.83	0.28	Highly Performed

Note: 3.26 – 4.00 – Highly Performed; 2.51 – 3.25 - Performed; 1.76 – 2.50 – Fairly Performed; 1.00 – 1.75 - Not Performed

The level of organizational citizenship behavior in connects to quality of work gauged the overall mean 3.83 presenting that it *highly performed* among the respondents. The results indicate that the staff member is performing exceptionally well in all areas, alongside an overall mean score of 3.83 on a scale of 4. The relatively low standard deviation of 0.28 indicates that the worker's performance is uniform across all areas. This employee has the responsibility prioritizing tasks, performing tasks in accordance with standards, providing immediate assistance, evaluating records for technical shortcomings before submission, and obtaining approval/consent from their supervisor(s) prior to performing activities and submitting reports (Gunawan & Amalia, 2015; Nayak & Sahoo, 2015). These results demonstrate that this employee excels in all

aspects of quality control when is likely dependable and trustworthy as soon as it comes to completing assignments.

Table 13 explicated that the organizational citizenship behavior in relates to job knowledge indicators is *highly performed* among the respondents. The employee shares their job knowledge with other employees for work efficiency ( $Mean = 3.91$ ,  $SD = 0.29$ ). Moreover, the employees show passion for learning and expanding their skills ( $Mean = 3.86$ ,  $SD = 0.38$ ). However, the lowest mean score ( $Mean = 3.79$ ,  $SD = 0.41$ ) which shows that the employees perform tasks with enough work knowledge and look for innovative ways to improve procedures and processes which signified also as *highly performed* by the respondents correspondingly.

**Table 13. Level of performance of employee as to Job Knowledge**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I perform tasks with enough work knowledge.	3.79	0.41	Highly Performed
I show passion for learning and expanding my skills.	3.86	0.38	Highly Performed
I share my job knowledge with other employees for work efficiency.	3.91	0.29	Highly Performed
I look for innovative ways to improve procedures and processes.	3.79	0.44	Highly Performed
I contribute my knowledge and/or expertise for better services.	3.85	0.39	Highly Performed
Overall Mean	3.84		Highly Performed

Note: 3.26 – 4.00 – Highly Performed; 2.51 – 3.25 - Performed; 1.76 – 2.50 – Fairly Performed; 1.00 – 1.75 - Not Performed



The overall mean was 3.84, it showed that the organizational citizenship behavior is *highly performed* with relation to job knowledge. The results show that the aggregate mean is 3.84, indicating that the employee's job knowledge is excellent. Every single among the five indicative sentences has a high mean, ranging between 3.79 and 3.91. This further demonstrates the employee's superior job knowledge performance. In addition, the standard deviation across all of the five illustrative statements is low, with values ranging from

0.29 to 0.44, indicating that the employee's performance is consistent in all five areas.

The employee performs exceptionally well in terms of job knowledge. The high mean scores and low standard deviation scores indicate that the employee consistently performs well in all five areas. It's a positive indicator of the employee's suitability for the position (Anesukanjanakul et al., 2019; Beier et al., 2018).

**Table 14. Level of performance of employee as to Cooperation**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I collaborate well with my colleagues.	3.85	0.36	Highly Performed
I follow the rules and regulations of the department.	3.94	0.23	Highly Performed
I commend colleagues for their accomplishments.	3.83	0.41	Highly Performed
I show respect to ideas and opinions not similar to mine.	3.94	0.23	Highly Performed
I provide cordial service to my fellows and clients.	3.91	0.29	Highly Performed
Overall Mean	3.89		Highly Performed
Note: 3.26 – 4.00 – Highly Performed; 2.51 – 3.25 - Performed; 1.76 – 2.50 – Fairly Performed; 1.00 – 1.75 - Not Performed			

Table 14 disclosed that the organizational citizenship behavior in the matter of cooperation is *highly performed* among the respondents. The employee follows the rules and regulations of the department and show respect to ideas and opinions not similar to them (*Mean*= 3.94, *SD*= 0.23) which state *highly performed* respectively. Hence, the lowest mean score (*Mean*= 3.83, *SD*= 0.41) which shows that the employees commend colleagues for their accomplishments which indicates that it is *highly performed* by the respondents.

The level of organizational citizenship behavior in the matter of cooperation depicts the overall mean 3.89 showing

that it *highly performed* among the respondents. This indicates that the employee is consistently performing at a high level in terms of cooperation, and that the employee's performance is quite consistent throughout all the statements.

The data indicates that the employee possesses a high level of cooperation performance. This suggests that the employee is going to be a good team member who is ready to work together with others, adhere to rules and regulations, demonstrate respect for thoughts and views, and offer cordial support for colleagues and clients (Mulyani et al., 2020; Tanjung & Wahdiniwaty, 2020).

**Table 15. Level of performance of employee as to Human Relation**

Indicative Statement As an employee...	Mean	Std. Deviation	Interpretation
I express my thoughts and ideas with consideration with my fellow employees.	3.86	0.35	Highly Performed
I participate in programs that foster interaction of employees.	3.69	0.51	Highly Performed
I accept feedback from my fellow employees.	3.92	0.31	Highly Performed
I seek the assistance of my colleagues and supervisor.	3.89	0.32	Highly Performed
I maintain good relationship with other employees inside and outside the workplace.	3.95	0.21	Highly Performed
Overall Mean	3.86	0.22	Highly Performed
Note: 3.26 – 4.00 – Highly Performed; 2.51 – 3.25 - Performed; 1.76 – 2.50 – Fairly Performed; 1.00 – 1.75 - Not Performed			



Table 15 stated that the organizational citizenship behavior germane to human relation is *highly performed* among the respondents. The employee maintains good relationship with other employees inside and outside the workplace ( $Mean=3.95$ ,  $SD=0.21$ ) with a remark *highly performed*. Furthermore, the employees accept feedback from their fellow employees ( $Mean=3.92$ ,  $SD=0.31$ ). Otherwise, the lowest mean score ( $Mean=3.69$ ,  $SD=0.51$ ) which evinces that the employees participate in programs that foster interaction of employees which means that it is *highly performed* by the respondents.

The level of organizational citizenship behavior with regards to human relation reveals the overall mean 3.86 showing that it *highly performed* among the respondents. The mean score for each of the statements is greater than 3.5, demonstrating a high level of performance. Additionally, the

average deviation is quite low, indicating that the findings are consistent. All of the table's illustrative statements indicate that the employee's Human Relation skills are highly developed.

This demonstrated that the employee understands the significance of keeping up interactions with colleagues both inside and outside the workplace and is able to articulate what they are thinking with courtesy (Arimie & Oronsaye, 2020; Hartati, 2020).

#### Significant Difference of OCB and Profile of the Respondents

The statistical tables presented on this part contain the difference of organizational citizenship behavior when grouped according to profile variables.

**Table 16. Test of Significant Difference of OCB and Profile of the Respondents with regards to Age**

		df	SS	MS	F	Sig.	Analysis	Decision
Altruism	Between Groups	3	0.43	0.14	1.38	0.25	No Sig.	Accept
	Within Groups	83	8.66	0.10				
	Total	86	9.10					
Conscientiousness	Between Groups	3	0.23	0.08	0.63	0.60	No Sig.	Accept
	Within Groups	83	9.88	0.20				
	Total	86	10.11					
Sportsmanship	Between Groups	3	0.20	0.09	1.21	0.31	No Sig.	Accept
	Within Groups	83	4.66	0.06				
	Total	86	4.87					
Civic Virtue	Between Groups	3	0.34	0.12	1.10	0.35	No Sig.	Accept
	Within Groups	83	8.64	0.10				
	Total	86	8.99					
Courtesy	Between Groups	3	0.13	0.04	1.53	0.21	No Sig.	Accept
	Within Groups	83	2.27	0.03				
	Total	86	2.40					

Table 16 illustrated the age-related difference between OCB (Organizational Citizenship Behavior) and Profile. The significance of five variables was examined: altruism, conscientiousness, sportsmanship/obedience, civic virtue, and courtesy. The data indicate that there is no significant difference in either OCB profile as well as age group across all five variables. All five variables have Sig. values greater than 0.05, indicating there is no statistically significant distinction across the OCB profile and age group. This demonstrates that age has no effect on OCB. This result corresponds with previous study

data that suggests OCB is independent of age to a substantial degree. Workers who are older don't seem to differ all that much from those who are younger regarding their propensity to show compassion OCB. Therefore, despite the fact that younger people been discovered to be more focused on competition. They don't appear to place substantially less value on assisting coworkers, which is obviously a conclusion that is good because a good working environment influences organizational performance (Mauritz 2012).

**Table 17. Test of Significant Difference of OCB and Profile of the Respondents with regards to Employment Status**

		df	SS	MS	F	Sig.	Analysis	Decision
Altruism	Between Groups	2	0.52	0.26	2.52	0.09	No Sig.	Accept
	Within Groups	84	8.58	0.10				
	Total	86	9.10					
Conscientiousness	Between Groups	2	0.03	0.01	0.11	0.90	No Sig.	Accept
	Within Groups	84	10.08	0.12				
	Total	86	10.11					



Sportsmanship/ Obedience	Between Groups	2	0.16	0.08	1.46	0.24	No Sig.	Accept
	Within Groups	84	4.70	0.07				
	Total	86	4.87					
Civic Virtue	Between Groups	2	0.29	0.14	1.38	0.26	No Sig.	Accept
	Within Groups	84	8.70	0.10				
	Total	86	8.99					
Courtesy	Between Groups	2	0.02	0.01	0.40	0.70	No Sig.	Accept
	Within Groups	84	2.38	0.03				
	Total	86	2.40					

Table 17 showed the results of an analysis of differences between Organizational Citizenship Behavior (OCB) and Profile in relation to Employment Status. The results of the study revealed that there was no statistically significant difference between the two groups in terms of altruism, conscientiousness, sportsmanship/obedience, civic virtue, and courtesy. All of these Sig. values are below the 0.05 threshold, indicating that there is no statistically significant difference between the two categories. Regarding Employment Status, this table indicates that there is no significant difference between the OCB and Profile. The significance results support

the claim made by (Podsakoff et al., 2009) that citizenship behavior may be a major factor in inspiring employees to stay with their existing companies. This is true despite the fact that there was no discernible difference in the strength of the association between DC and citizenship behavior between part-time and full-time workers. They proposed that charitable deeds like helping others could raise staff spirits and foster a sense of loyalty to the business, which would help with employee retention.

**Table 18. Test of Significant Difference of OCB and Profile of the Respondents with regards to Years in Services**

		df	SS	MS	F	Sig.	Analysis	Decision
Altruism	Between Groups	5	1.38	0.28	2.90	0.02	No Sig.	Accept
	Within Groups	81	7.72	0.10				
	Total	86	9.10					
Conscientiousness	Between Groups	5	0.88	0.18	1.54	0.19	No Sig.	Accept
	Within Groups	81	9.23	0.11				
	Total	86	10.11					
Sportsmanship/ Obedience	Between Groups	5	0.31	0.06	1.12	0.36	No Sig.	Accept
	Within Groups	81	4.55	0.06				
	Total	86	4.87					
Civic Virtue	Between Groups	5	1.62	0.32	3.57	0.01	No Sig.	Accept
	Within Groups	81	7.36	0.10				
	Total	86	8.99					
Courtesy	Between Groups	5	0.19	0.04	1.41	0.23	No Sig.	Accept
	Within Groups	81	2.21	0.08				
	Total	5	1.38					

Table 18 it showed the significant difference of OCB and Profile in relation to Years in Service. The five variables which were tested concerning the significance. The two variables indicating that the variables have significant difference which was the Altruism having Sig. values of 0.02 and Civic Virtue corresponding with the Sig. values of 0.01. It implies that those with a longer period of service are more altruistic and possess greater civic virtue compared to those with a shorter duration of service. Meanwhile the three remaining variables indicate that there is no significant difference between the OCB and years in services in particular to conscientiousness, sportsmanship/obedience, and courtesy. These results demonstrate that people with more service years have a greater degree of OCB and service years in comparison to those with fewer service years. This suggests that duration of service can have a positive effect on organizational citizenship

behaviors with respect to years in service. Companies sometimes struggle to find the best staff. But it's considerably harder to keep employees. It's time to give back if you have staff who have supported you despite these difficulties. Awards for years of service are one method to honor their commitment and loyalty. Their loyalty and dedication deserve to be recognized (Pathak, A. (2023)).

Table 19 illustrated the education-related difference between OCB and Profile of the respondents. The significance of five variables was explored. The data indicate that there is no significant difference in either OCB profile as well as Education across all five variables. All five variables have Sig. values greater than 0.05, indicating there is no statistically significant distinction across the OCB profile and Education among the respondents. This demonstrates that education has no effect on OCB.





**Table 19. Test of Significant Difference of OCB and Profile of the Respondents with regards to Education**

		df	SS	MS	F	Sig.	Analysis	Decision
Altruism	Between Groups	1	0.31	0.31	3.00	0.09	No Sig.	Accept
	Within Groups	85	8.79	0.10				
	Total	86	9.10					
Conscientiousness	Between Groups	1	0.02	0.02	0.18	0.68	No Sig.	Accept
	Within Groups	85	10.08	0.12				
	Total	86	10.11					
Sportsmanship/ Obedience	Between Groups	1	0.05	0.05	0.80	0.37	No Sig.	Accept
	Within Groups	85	4.82	0.06				
	Total	86	4.87					
Civic Virtue	Between Groups	1	0.01	0.01	0.08	0.78	No Sig.	Accept
	Within Groups	85	8.98	0.11				
	Total	86	8.99					
Courtesy	Between Groups	1	0.01	0.01	0.50	0.48	No Sig.	Accept
	Within Groups	85	2.38	0.03				
	Total	86	2.40					

The importance of education can be understood by keeping in mind that a worker's educational background affects their capacity to comprehend new instructions or cutting-edge technologies. Their level of qualification will determine how responsive they are (Kasika, B. D. 2015).

In table 20, it showed the significant difference of OCB and Profile in relation to Eligibility of the respondents. The five variables which were tested regarding the significance. The data implied that there is no significant difference in either OCB profile as well as eligibility across all variables.

**Table 20. Test of Significant Difference of OCB and Profile of the Respondents with regards to Eligibility**

		df	SS	MS	F	Sig.	Analysis	Decision
Altruism	Between Groups	4	0.63	0.16	1.52	0.20	No Sig.	Accept
	Within Groups	82	8.47	0.10				
	Total	86	9.10					
Conscientiousness	Between Groups	4	0.98	0.24	2.19	0.08	No Sig.	Accept
	Within Groups	82	9.13	0.11				
	Total	86	10.11					
Sportsmanship/ Obedience	Between Groups	4	0.33	0.08	1.47	0.22	No Sig.	Accept
	Within Groups	82	4.54	0.06				
	Total	86	4.87					
Civic Virtue	Between Groups	4	0.94	0.24	2.39	0.06	No Sig.	Accept
	Within Groups	82	8.05	0.10				
	Total	86	8.99					
Courtesy	Between Groups	4	0.11	0.03	1.01	0.41	No Sig.	Accept
	Within Groups	82	2.29	0.030				
	Total	86	2.40					

All five variables have Sig. values greater than 0.05, implying that there is no statistically significant distinction across the OCB profile and Eligibility. This demonstrates that eligibility has no effect on OCB. Local authorities were frequently investigated. Policy areas include those pertaining to defense are clearly in the lead. These types of agencies are at the forefront of the delivery of public services, frequently (as in the case of education and health) deal with the general population on a daily basis, and are crucial for extra-role

behaviors because of this whereby selfless act of kindness, diligence, and other OCB qualities may directly affect results on people (De Geus, 2020).

#### **Significant Difference of Employee Performance and Profile of the Respondents**

The statistical tables presented on this part contain the difference of employee performance when grouped according to profile variables.

**Table 21. Test of Significant Difference of Employee Performance and Profile in relation to Age**

		df	SS	MS	F	Sig.	Analysis	Decision
Quantity of Work	Between Groups	3	0.56	0.19	1.97	0.12	No Sig.	Accept
	Within Groups	83	7.82	0.09				
	Total	86	8.38					
Quality of Work	Between Groups	3	0.54	0.18	2.44	0.07	No Sig.	Accept
	Within Groups	83	6.16	0.07				
	Total	86	6.70					
Job Knowledge	Between Groups	3	0.48	0.16	2.14	0.10	No Sig.	Accept
	Within Groups	83	6.17	0.07				
	Total	86	6.65					
Cooperation	Between Groups	3	0.22	0.07	1.64	0.19	No Sig.	Accept
	Within Groups	83	3.76	0.05				
	Total	86	3.99					
Human Relation	Between Groups	3	0.12	0.04	0.81	0.49	No Sig.	Accept
	Within Groups	83	3.99	0.05				
	Total	86	4.11					

Table 21 revealed that there is no significant correlation between age and employee performance or profile. This indicates that there is no relationship between employee age and performance or profile. For each criterion, the "Between Groups" column indicates the level of significance of the difference within the younger as well as older employee categories. As none of these figures are less than 0.05, it is possible to concluded that the two groups do not differ significantly. Within each age category, the "Within Groups" column indicates the significance level of the difference. As none of these values is less than 0.05, it can be determined that

there is also no significant difference between age groups. Given that what constitutes old varies greatly across many nations, cultures, industries, and industrial sectors, there is no universally recognized cut-off point between young and older personnel. In some instances, the term is also no longer as closely tied to chronological age as it formerly was. Given that there isn't a single acknowledged standard for what constitutes a "old employee," the problem of age classifications appears to be a prevalent factor among various approaches to the elderly workforce. Older workers are still employable because they are in the second half of their working lives and have not yet reached retirement age. (Pahos, N., & Galanaki, E. 2018).

**Table 22. Test of Significant Difference of Employee Performance and Profile in relation to Employment Status**

		df	SS	MS	F	Sig.	Analysis	Decision
Quantity of Work	Between Groups	2	0.13	0.07	0.67	0.51	No Sig.	Accept
	Within Groups	84	8.25	0.10				
	Total	86	8.38					
Quality of Work	Between Groups	2	0.20	0.10	1.26	0.30	No Sig.	Accept
	Within Groups	84	6.51	0.08				
	Total	86	6.70					
Job Knowledge	Between Groups	2	0.43	0.22	2.90	0.06	No Sig.	Accept
	Within Groups	84	6.22	0.07				
	Total	86	6.65					
Cooperation	Between Groups	2	0.08	0.04	0.84	0.43	No Sig.	Accept
	Within Groups	84	3.91	0.05				
	Total	86	3.99					
Human Relation	Between Groups	2	0.28	0.14	3.12	0.05	No Sig.	Accept
	Within Groups	84	3.82	0.05				
	Total	86	4.11					

The data presented in the table 22 compared the performance of personnel based on their employment status. The study measured five distinct facets of employee performance: work quantity, work quality, job knowledge, cooperation, as well as human relations. The results showed that there was no significant correlation between employment status and employee performance. All table values indicate that the data are not statistically significant. This result suggested that employee performance is not significantly affected by employment status. Motivation, commitment to the task, and

personality may be more significant in determining employee performance. Therefore, employers ought to assess employee performance based on these factors instead of employment status. Employers who use this exchange strategy do not aspire to uphold a long-term relationship with staff. As opposed to that, by employers look for a long-term partnership using a social exchange perspective with staff members and show you care about their personal health and career options by Cho and Johanson (2008).

**Table 23. Test of Significant Difference of Employee Performance and Profile in relation to Years in Service**

		df	SS	MS	F	Sig.	Analysis	Decision
Quantity of Work	Between Groups	5	0.28	0.06	0.56	0.73	No Sig.	Accept
	Within Groups	81	8.10	0.10				
	Total	86	8.38					
Quality of Work	Between Groups	5	0.54	0.11	1.43	0.22	No Sig.	Accept
	Within Groups	81	6.16	0.08				
	Total	86	6.70					
Job Knowledge	Between Groups	5	0.62	0.12	1.65	0.16	No Sig.	Accept
	Within Groups	81	6.04	0.08				
	Total	86	6.65					
Cooperation	Between Groups	5	0.40	0.08	1.79	0.12	No Sig.	Accept
	Within Groups	81	3.59	0.04				
	Total	86	3.99					
Human Relation	Between Groups	5	0.27	0.06	1.16	0.34	No Sig.	Accept
	Within Groups	81	3.83	0.05				
	Total	86	4.11					

Table 23 demonstrated was the significance of differences in employee performance as well as profile by length of service. The results of the analysis revealed that there are no significant differences across employees with different years of service. The quantity of work had the highest significance of difference with a value of 0.73, then came human relations with a value of 0.34, job knowledge with a value of 0.16, and cooperation with a value of 0.12. This indicates that the work performance of employees and profile do not vary considerably with respect to their length of service.

Years of service awards or service awards honor employees who have devoted a significant period of time to the business. It is a form of employee appreciation strategy that includes marking service milestones like 5, 10, or 20 years of employment. It should be highlighted that employees do not automatically receive them for merely reporting to work each day. They want to understand why these workers stayed for such a long time. These factors could include their successes, accomplishments, professional relationships, and shared learnings (Pathak, A. (2023).

**Table 24. Test of Significant Difference of Employee Performance and Profile in relation to Education**

		df	SS	MS	F	Sig.	Analysis	Decision
Quantity of Work	Between Groups	1	0.05	0.05	0.52	0.47	No Sig.	Accept
	Within Groups	85	8.33	0.10				
	Total	86	8.38					
Quality of Work	Between Groups	1	0.16	0.16	2.11	0.15	No Sig.	Accept
	Within Groups	85	6.54	0.08				
	Total	86	6.70					
Job Knowledge	Between Groups	1	0.19	0.19	2.52	0.12	No Sig.	Accept
	Within Groups	85	6.46	0.08				
	Total	86	6.65					
Cooperation	Between Groups	1	0.00	0.00	0.07	0.80	No Sig.	Accept
	Within Groups	85	3.98	0.05				
	Total	86	3.99					
Human Relation	Between Groups	1	0.09	0.09	1.93	0.17	No Sig.	Accept
	Within Groups	85	4.01	0.05				
	Total	86	4.11					

Table 24 information demonstrated that there is no significant correlation between employee performance and educational background. Each of the five categories' Sig. values exceeds 0.05, indicating that there is certainly no statistically significant distinction between the two groups. This indicates that education is likely not a significant predictor of employee

performance within these categories. Others agree that their job performance is primarily correlated with their educational background, but less directly, as it serves as a signaling or screening tool required for advancement or career development (Kasika, B. D. (2015).

**Table 25. Test of Significant Difference of Employee Performance and Profile in relation to Eligibility**

		df	SS	MS	F	Sig.	Analysis	Decision
Quantity of Work	Between Groups	4	1.04	0.26	2.91	0.03	Sig.	Reject
	Within Groups	82	7.34	0.09				
	Total	86	8.38					
Quality of Work	Between Groups	4	0.31	0.08	0.98	0.42	No Sig.	Accept
	Within Groups	82	6.40	0.08				
	Total	86	6.70					
Job Knowledge	Between Groups	4	0.14	0.04	0.45	0.78	No Sig.	Accept
	Within Groups	82	6.51	0.08				
	Total	86	6.65					
Cooperation	Between Groups	4	0.34	0.09	1.90	0.12	No Sig.	Accept
	Within Groups	82	3.65	0.04				
	Total	86	3.99					
Human Relation	Between Groups	4	0.25	0.06	1.31	0.27	No Sig.	Accept
	Within Groups	82	3.86	0.05				
	Total	86	4.11					

In relation to eligibility, table 25 showed a significant difference in employee performance and profile. Specifically, there was a 0.03-significance difference in the quantity of labor between the groups. It means that there was a statistically significant difference in the amount of work completed between the categories. With sig. values of 0.42, 0.78, 0.12, and 0.27, respectively, the quality of work, job knowledge, cooperation, and human relations did not differ significantly between groups. This indicates that there were no significant differences between the groups in these areas of performance. All tiers of government have studied OCB. The effectiveness of these agencies' performance particularly noticeable, and as a result, their organizational Public scrutiny of their employees'

professionalism is common. scrutiny. These groups work with citizens on the ground level of interaction as a supporter of good citizenship. This stands for a situation that is much different from the private sector, because in a sense, citizens in the public sector are owners in the sense that Taxes are used to support the organization, which was created by statute law. In fact, going above and beyond urgent service requirements to ensure citizens receive fair and equitable treatment (De Geus, 2020).

#### **Correlation between OCB and Levels of Employee Performance**

Correlation between organizational citizenship behavior and level of employee performance.

**Table 26. Correlation between OCB and Levels of Employee Performance**

Organizational Citizenship Behavior	Employee Performance	r-value	Degree of Correlation	Analysis	Decision
Altruism	Quantity of Work	0.403	Weak	Significant	Reject
	Quality of Work	0.537	Moderate	Significant	Reject
	Job Knowledge	0.447	Moderate	Significant	Reject
	Cooperation	0.398	Weak	Significant	Reject
	Human Relation	0.424	Moderate	Significant	Reject
Conscientiousness	Quantity of Work	0.534	Moderate	Significant	Reject
	Quality of Work	0.324	Weak	Significant	Reject
	Job Knowledge	0.358	Weak	Significant	Reject
	Cooperation	0.248	Weak	Significant	Reject
	Human Relation	0.265	Weak	Significant	Reject
Sportsmanship	Quantity of Work	0.317	Weak	Significant	Reject
	Quality of Work	0.573	Moderate	Significant	Reject
	Job Knowledge	0.404	Weak	Significant	Reject
	Cooperation	0.596	Moderate	Significant	Reject
	Human Relation	0.450	Moderate	Significant	Reject
Civic Virtue	Quantity of Work	0.309	Weak	Significant	Reject
	Quality of Work	0.569	Moderate	Significant	Reject
	Job Knowledge	0.614	Strong	Significant	Reject
	Cooperation	0.653	Strong	Significant	Reject





Courtesy	Human Relation	0.602	Moderate	Significant	Reject
	Quantity of Work	0.338	Weak	Significant	Reject
	Quality of Work	0.538	Moderate	Significant	Reject
	Job Knowledge	0.565	Moderate	Significant	Reject
	Cooperation	0.590	Moderate	Significant	Reject
	Human Relation	0.582	Moderate	Significant	Reject

Range:  $\pm 0.81$ -  $\pm 1.00$ - Very Strong;  $\pm 0.61$ -  $\pm 0.80$ - Strong;  $\pm 0.41$ -  $\pm 0.60$ - Moderate;  
 $\pm 0.21$ -  $\pm 0.40$ - Weak;  $\pm 0.00$ -  $\pm 0.20$ - Negligible

Table 26 indicated a moderate correlation between OCB and Employee Performance Levels. There is a moderate correlation between altruism, sportsmanship, and courtesy and quantity of work, quality of work, job knowledge, cooperation, and human relations. The range of r-values between 0.403 and 0.590 shows a moderate correlation across OCB and Employee Performance Levels. On the other hand, conscientiousness has a weak correlation with the same variables, with r-values ranging between 0.248 and 0.534. Civic Virtue has the strongest correlation with the same variables, with r-values ranging from 0.309 to 0.653, indicating a strong relationship between OCB and Employee Performance Levels. The data indicate that OCB has a substantial effect on employee performance.

The paper addresses the relationship between group-level Organizational Citizenship Behavior (OCB) and performance, with a focus on how the measurement of OCB (individual referent vs. group referent) moderates this relationship. The study found that the relationship between performance and individual OCB was weaker compared to OCB viewed as a group phenomenon, which was in line with the initial prediction. The findings suggest that measuring OCB at the group level, with the group as the reference point, yields a stronger correlation with performance. Nielsen et al. (2009) found that the relationship between OCB and performance at the group level was influenced by significant moderators such as the measurement of OCB, OCB rating source, and common rating source.

## CONCLUSION AND RECOMMENDATION

The non-teaching employees were aged 20-30, mostly on a Job Order or Contract of Service status of employment. Hold a Bachelor Degree and shows 36 out of 87 were CSC passer including board examination from the PRC.

The level of organizational citizenship behavior manifested by the employee was noted to have a highly observed interpretation based on the result. This shows that the organizational citizenship behavior always observed by the respondents.

As to the level of performance of the non-teaching employees it was noted to have a highly performed explanation based on the result. This reveals that the performance of the non-teaching employees is manifested among the respondents.

The level of organizational citizenship behavior manifested by the employee has no significant difference to the profile variables presented. It concludes that the hypothesis was failed to reject.

The level of employee performance manifested by the respondents has no significant difference to the profile variables in terms of age, employment status, years in service, education and eligibility. It concludes that the hypothesis was failed to reject.

The level of organizational citizenship core values manifested by the employee has significant affect to the performance level of the non-teaching employees of LSPU, therefore, it concludes that the hypothesis is rejected.

## RECOMMENDATIONS

In view of the findings and conclusions of the study, the following recommendations are given. It is recommended that the organization may recognize these employees who went extra mile of their work. Provide assistance to the young employees to have their CSC eligibility for them to be able to apply for a regular position if available. It is also recommended that the organization promote more opportunity to maintain this status of performance manifested by their employees. It is recommended for the organization to look out for those employees with shorter duration of service and let them take actively participate in the decision making of the organization. It is recommended for the organization to provide professional working environment that promotes satisfactory employment condition, and encourage them to prepare and take the Civil Service Examination for professional growth. It is suggested that the organization provide its members with the opportunities to learn necessary skills to continually meet the current and future job demands.

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# INCREASING THE EFFICIENCY OF WATER AND RESOURCE- SAVING IRRIGATION TECHNOLOGIES USED IN GREENHOUSE GROWING OF CROPS

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## ABSTRACT

*Increasing crop yields through the rational use of water and energy resources, the development of water and resource-saving irrigation technologies, as well as increasing the efficiency of their use based on the use of mathematical methods for modeling the cultivation of crops in greenhouses.*

**KEY WORDS:** *Irrigation regime, degree of salinity of soils, index of deepening, arrangement of seedlings, duration of the light period, heat supply.*

## INTRODUCTION

In the modern world, special attention is paid to the issue of ensuring a guaranteed supply of high-quality food to the population, rational and efficient use of available land, water, energy, food and drinking resources.

During the reduction of water resources due to climate change on the globe, the demand for water in our country Uzbekistan is also increasing. In this connection, to solve the most important economic problems in this area, the National Concept of Uzbekistan for the Development of the Water Sector until 2030 and the Strategy for Water Resources Management and Development of the Irrigation Sector for 2022-2026 were developed.

The Development Strategy of the Republic of Uzbekistan for 2022-2026 emphasizes the need for “radical reform of the water management system to ensure the rapid development of the national economy and high growth rates...”.

Based on this, the main attention was directed to increasing crop yields through the rational use of water and energy resources, the development of water and resource-saving irrigation technologies, as well as increasing the efficiency of their use through the use of mathematical modeling methods, including when growing agricultural products in greenhouses.

The processes of studying the moisture content of the salt, climatic, nutrient regimes of the soil were studied in the scientific works of A.N. Kostyakov, S.F. Averyanov, R.A. Muradov, E. Lyana, R.A. others. [1; 3; 5].

The dependence of the yield of agricultural crops grown in greenhouses on the depth of excavation, the duration of the light period, the degree of soil salinity, temperature changes, the density of seedlings and the basis of resource-saving technologies requires further study.

## GOAL

Development of science-based water and resource-saving technology and cultivation of agricultural crops in local greenhouses, taking into account their design features (for example, tomato, since the need for tomato both in the republic and beyond it is great) and is our main goal.

To achieve the above goal, studies were carried out to change water and resource-saving technologies in the cultivation of tomato plants in local greenhouses under the influence of such parameters as daylight hours, greenhouse depth, seedling density, average temperature difference, soil salinity.

## MATERIAL AND METHODS OF RESEARCH

Based on the research, seasonal irrigation rates and the yield of fractional experiments were determined, respectively, by developing an irrigation regime for the cultivation of tomato plants in local greenhouses;

In the course of the research, we were guided by generally accepted and other proven methods for conducting experiments in greenhouse conditions, processing observational data: analysis, comparison, mathematical statistics and mathematical modeling.

**Scientific and research were carried out** on the closed 800 m<sup>2</sup> area of Etibor Fayz LLC, 950 m<sup>2</sup> of the covered fields of the Temirkadam Ilkhomov Sanzharbek farm, 30000 m<sup>2</sup> of the area of Salar Yerkin Ganiev LLC, Kibray district of the Tashkent region, as well as m<sup>2</sup> hectares of the farm "Komoliddin Muydinovlar Sulolasi", on 6200 m<sup>2</sup> of the area of the farm "Mirzakhamdam limonlari" of the Kurgantepa district, 12000 m<sup>2</sup> of the area of LLC "Davron agrosanoat" of the Bulakbashi district of the Andijan region of Uzbekistan.

Of the most common tomato varieties in the Republic of Uzbekistan, such as “Pinkparadise F1”, “Lamia F1”, “Buran F1”, “Yusupovsky F1”, experiments were carried out on the





most popular tomato variety, resistant to diseases and transportation, adapted for winter cultivation. Lamia F1”.

The experiments were carried out in greenhouses with non-saline and slightly saline soil, with deepened and non-deepened floors of the structure. At the same time, it was recorded that with a greenhouse pit depth of about 1 meter, with a small amount of water resources, it is possible to obtain the maximum yield of tomato.

## RESEARCH RESULTS

In the process of growing tomatoes, the temperature regime of the air is important. The main values of the results of the analysis were obtained at constant daytime temperatures within  $+28^{\circ}\text{C}$  and night temperatures not less than  $+14^{\circ}\text{C}$ , i.e. at an average temperature of  $+21^{\circ}\text{C}$  the effect of short daylight hours and a long dark period of the day was taken into account in the autumn -winter season on crop productivity. In the process of growing tomatoes, diode lighting devices were also used.

When conducting an experiment with a fractional factor, the interrelated conditions of the factors were observed **under the conditions of a controlled agricultural system** UAS. Guided and regulated by the indicators of the regime and norms of tomato irrigation, the degree of soil salinity, the depth of tillage, the duration and light period, the depth of the greenhouse, the density of seedling placement, the effect of temperature on productivity, the results of fractional factor experiments and their economic indicators were obtained. At the same time, the representativeness of the experimental fields, the scheme and methodology for conducting field experiments when growing this tomato variety were taken into account.

**Development of a tomato irrigation regime depending on the** degree of soil salinity, the index of deepening or not deepening, the layout of seedlings, the duration of the light period and heat supply. Tomatoes were irrigated with drip irrigation based on the FAO CropWAT program.

In the initial stage (before flowering), the root-inhabited topsoil was provided with constant moisture for 25 days. In the development stage (before the first harvest ripened), the plants were watered every 3-5 days to provide a moisture layer of 0.40 m for 35 days. In the middle phase (fruiting phase), tomatoes were watered every 4-5 days. In the final (harvesting) stage, moisture was provided in 0.4 - 0.5 meter depth of the soil. The final watering for 8-12 days was carried out in order to harvest, waiting for the ripening of the last fruits. In the initial phase of cultivation, to provide moisture to the upper soil layer to a depth of 0.20 - 0.4 m, watering was carried out every 3 - 5 days for 25 days; in the stage of development of the tomato, the moisture supply of 0.4 m of the soil layer was carried out every 4-5 days. In the final stage, watering every 6 - 8 days was carried out in order to collect the entire crop.

In conditions of deep excavation of greenhouse soil, less evaporation was observed than in conditions without deepening. Under conditions of soil deepening in greenhouses, irrigation water savings were observed in relation to greenhouse conditions without deepening by 180-220  $\text{m}^3$

Based on the change and survey of factors affecting yield (Y) such as seasonal irrigation rate (M), soil salinity (S),

excavation depth (h), length of the light period (t), seedling density (n) and temperature fluctuation ( $\pm T$ ) of tomatoes grown in greenhouse conditions, **an irrigation regime was developed.**

**Yields depend on the irrigation regime.** The experiments were carried out in greenhouses with non-saline and slightly saline soil, with deepened and non-deepened floors of the structure. Let's take a look at the next two variations.

**Option 1:** with initial data:  $n = 25$  thousand seedlings/ha;  $h = 0.1$  m;  $t = 14$  hours/day;  $S = 1$  ds/m; temperature fluctuations  $T_{\text{orp}} = \pm 5^{\circ}\text{C}$ , adjusting the seasonal irrigation rate (M) within 3500 - 5000  $\text{m}^3/\text{ha}$ , the yield was analyzed. The yield varied between 75 t/ha - 84 t/ha.

**Option 2:** with initial data:  $n = 30$  thousand seedlings / ha;  $h = 0.1$  m;  $t = 16$  hours / day;  $S = 1$  ds / m; temperature change  $T_{\text{orp}} = \pm 5^{\circ}\text{C}$  and seasonal irrigation rate (M) 3500  $\text{m}^3/\text{ha}$ , the yield was 102 t/ha. With a change in the seasonal irrigation rate to 4000  $\text{m}^3/\text{ha}$ , the yield was 107 t/ha; at a seasonal irrigation rate of 4500  $\text{m}^3/\text{ha}$  and 5000  $\text{m}^3/\text{ha}$ , the yield was 108 t/ha; 107 t/ha, respectively.

By changing the method of planting and the depth of planting tomatoes in the second variant, a high yield was achieved. 9

**Effect (S) of soil salinity on tomato yield.** The degree of soil salinity in the greenhouse was determined on the basis of the NIIIIP methodology using a Chernyshev conductometer. Data were taken in the same varieties of non-saline and slightly saline soils (up to 4 ds/m) in greenhouses.

In the first variant, at  $M=5000$   $\text{m}^3/\text{ha}$ ;  $h=0.1$  m;  $t=14$  hours/day;  $n=25$  thousand seedlings/ha; temperature change  $T_{\text{orp}} = \pm 5^{\circ}\text{C}$ , in non-saline soils, the yield Y corresponded to 83 t/ha; in low salinity soils, the Y yield was 68 t/ha.

In the second variant, with  $M = 5000$   $\text{m}^3/\text{ha}$ ;  $h = 1$  m;  $t = 16$  hours/day;  $n = 30$  thousand seedlings/ha; temperature fluctuation  $T_{\text{agr}} = \pm 5^{\circ}\text{C}$ , in non-saline soils, the yield was 104 t/ha, while in slightly saline soil conditions, the yield reached 86 t/ha.

stopped at the water consumption of a tomato plant in the same conditions of non-saline and slightly saline soils of greenhouses.

With initial  $n = 30$  thousand seedlings/ha;  $h = 0.1$  m;  $t = 14$  hours/day; change  $T_{\text{agr}} = \pm 10^{\circ}\text{C}$  in a non-deepened greenhouse and non-saline soil conditions, water consumption corresponded to 4129  $\text{m}^3/\text{ha}$ , in slightly saline conditions, water consumption is 4421  $\text{m}^3/\text{ha}$ .

Under the same initial conditions, under conditions of deepening of the soil of the greenhouse by 1 m in non-saline and also in slightly saline conditions, water consumption corresponded to 4014  $\text{m}^3/\text{ha}$  and 4238  $\text{m}^3/\text{ha}$ .

Based on the above, it can be argued that in the variant under conditions of non-saline soils 115  $\text{m}^3/\text{ha}$  was saved, in conditions of low salinity of the soil 183  $\text{m}^3/\text{ha}$  of irrigation water was saved. 10; 12

**Influence of the depth of the greenhouse on the yield and water consumption of tomato.**

In the first variant ( $M = 5000$   $\text{m}^3/\text{ha}$ ;  $t = 14$  hours / day;  $S = 1$  ds / m; change  $T_{\text{orp}} = \pm 5^{\circ}\text{C}$ ;  $n = 25$  thousand seeds / ha) the yield in the greenhouse with planting on the surface soil at 0 - 0.10 m was 61 t/ha, with a greenhouse deepening of 0.50 m, the yield was 82 t/ha, with a deepening of 1.0 m, the



yield was 84 t/ha, with a deepening of 1.50 m, the yield amounted to 79 t/ha.

In the second variant  $M = 5000 \text{ m}^3/\text{ha}$ ;  $t = 15$  hours/day;  $S = 1 \text{ ds/m}$ ; change  $T_{\text{orp}} = \pm 5^\circ \text{C}$ ;  $n = 30$  thousand seeds / ha) with planting on the soil surface at 0 - 0.10 m, the yield was 73 t / ha, in greenhouses with a depth of 0.50 m - 91 t / ha, with a greenhouse deepening to 1 , 0 m, the yield was 92 t/ha, with the deepening of the greenhouse to 1.50 m, the yield was 86 t/ha.

From this it follows that due to energy savings during heating and cooling of greenhouses with soil deepening by 0.50-1.0 m, crop yields increase.

It should be noted that even under protected soil conditions, as a result of irrigation in the period from the initial stage to harvesting, the nutrients supplied to the plants contain a variety of mineral salts, increasing the mineralization of the soil. Soil salt gradually enters the lower layers , which in turn leads to gradual soil salinization. Therefore, it is recommended to wash the soil once a year, preferably in the summer.

## CONCLUSIONS

1. In the studies, the tomato was grown in traditional greenhouses, with the right choice and implementation of resource-saving technologies, the parameters of the greenhouse were optimized (depth, temperature difference, light period).
2. On the basis of field experiments, a formula was obtained showing the effect on the yield of the depth of planting seedlings in the greenhouse, the temperature range, the light period, the thickness of seedlings, seasonal irrigation rates, the degree of soil salinity according to the results of fractional factor experiments.
3. As a result of the field experiments, it was calculated that the most optimal option in terms of energy consumption is the option in which the depth of the greenhouse soil reaches 0.75-1.0 m.
4. It has been established that the seasonal irrigation rate for greenhouses with a certain depth of non-saline soil is 3300-3500  $\text{m}^3/\text{ha}$ , in conditions of soil salinity up to 4 ds/m, the seasonal irrigation rate was 4200-4500  $\text{m}^3/\text{ha}$ . While the seasonal irrigation rate for greenhouses with non-deployed soil and non-saline soil is 4000-4200  $\text{m}^3/\text{ha}$ , with soil salinity up to 4 ds/m, the irrigation rate was 4600-4900  $\text{m}^3/\text{ha}$ .
5. With an increase in the density of seedlings, the need for light intensity increases. It has been proven that under conditions of a soil excavation depth of up to 0.75-1.0 m, the optimal density of seedling placement is 30,000 seedlings/ha.
6. When growing tomatoes in greenhouse conditions, it is important to manage the difference between the maximum and minimum temperatures. Reducing the temperature to optimal values, that is, to 5-10  $^\circ \text{C}$ , by spraying water, shading (using a tour or spraying with wet clay) and airing greenhouses, it was possible to obtain the maximum yield.
7. According to the method of academician F.B. Abutaliev developed a system of soil moisture equations and substantiated the optimization of the

timing of planting seedlings and their top dressing, taking into account changes in moisture and nutrients in the soil.

8. As a result of theoretical studies, formulas have been developed for predicting the regime of heat, humidity and top dressing in greenhouse conditions. Based on them, the possibility of efficient use of thermal energy and water resources was created at a soil depth of 0.75-1.0 m for sustainable crop growth.
9. If the traditional method of growing tomatoes consumed 4510-5012  $\text{m}^3/\text{ha}$  of water, then in greenhouse conditions this figure was 3510-4015  $\text{m}^3/\text{ha}$  due to the use of fractional factors and water savings of up to 20-22% were achieved.
10. Based on the above analyzes of growing crops in greenhouses (on the example of uprooting tomato variety "Lamia F1". ) Recommended, soil depth 0.75 - 1.0 m, seedling density - 30,000 seedlings / ha and temperature within +11 , +31  $^\circ \text{C}$ .

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# RESULTS OF DRUG TREATMENT OF PATIENTS WITH METASTASIS OF TRIPLE NEGATIVE BREAST CANCER

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## SUMMARY

*Breast cancer retains its leading position in terms of the incidence of malignant neoplasms in women. Triple negative breast cancer (TNBC) accounts for 12–20% of the entire group of breast cancers (BC). TNBC is characterized by the absence of estrogen receptors (ER), progesterone receptors (PR) and HER-2/ neu expression . TNBC is a heterogeneous disease with an aggressive course, with a high risk of early local and distant metastasis to the visceral organs and/or brain. Relapse usually occurs between the 1st and 3rd years, and most patients die within 5 years of the initial diagnosis. Studies have shown that young women predominate among patients with TNBC. Triple negative breast cancer is often associated with BRCA mutations, especially when diagnosed at a young age. Chemotherapy remains the main treatment for patients with TNBC due to the lack of specific drug targets (hormone receptors or HER-2 amplification). However, at present there are no uniform standards for the treatment of patients with TNBC metastases. An important task remains the further study of new regimens and drug regimens for patients with generalized triple-negative breast cancer, which can improve the immediate and long-term results of their treatment.*

**KEYWORDS:** triple negative breast cancer, metastases, chemotherapy

Currently, breast cancer is one of the five most common cancers in the world and is the leading cause of death for women under the age of 50. Detection of breast cancer during preventive examinations throughout the country remains low, and the rate of neglect IIIB - IV stage , which is the leading criterion for the quality of diagnosis, on the contrary, is high. [1]. Over the past decade, the concept of breast cancer has changed. Breast cancer is a heterogeneous disease with different pathogenic pathways and includes several unique and distinct subtypes. For many decades, the TNM classification of breast cancer has been used all over the world, which reflects the quantitative characteristics of the tumor, the size of the primary lesion, the number of regional metastases and the presence of distant metastases [2,3]. To some extent, these quantitative characteristics reflected the biological tumor grade. With the development of molecular genetic research, several biologically distinct forms of this disease have been identified. This classification has become actively used in the clinic to personalize treatment and study new methods of therapy [5]. For every 1 million detected cases of breast cancer, more than 170 thousand are triple-negative breast cancer (TNBC) [6]. The phenomenon of the “paradox of triple negative breast cancer” describes the high sensitivity of TNBC to chemotherapy, despite an unfavorable prognosis in general [7]. Currently, chemotherapy is the main method of treatment for patients with TNBC, but there are no uniform standards for choosing a treatment regimen. Triple-negative breast cancer is characterized by a predominance of visceral metastasis, including the lungs ( $p=0.01$ ) and the brain ( $p=0.035$ ), less often - metastasis only to the bone, which occurs mainly in luminal subtypes of breast cancer ( $p=0.0031$ ) , and

HER-2-overexpressed tumors more often metastasize to the liver ( $p=0.17$ ) [8]. We have developed and proposed in clinical practice a new drug treatment regimen using bevacizumab , oxycloplatin and docetaxel for patients with metastases of triple-negative breast cancer. Intratumoral expression of VEGF and proliferative activity of tumor cells are much higher in patients with triple negative breast cancer than in patients with other tumor variants, which provides a biological justification for the use of angiogenesis inhibitors for the treatment of patients with TNBC [9]. Thus, the use of a chemotherapy regimen with bevacizumab proved to be effective in the treatment of patients with metastases of triple-negative breast cancer [9]. Oxaliplatin is an antitumor agent, a platinum derivative, capable of rapidly interacting with DNA, forming intra- and interhelix cross-links, which blocks its synthesis and subsequent replication [11]. Complete, partial, overall response and disease control rates were 3.8; 30.8; 34.6 and 69.2% respectively. The median follow-up time was 13.7 months. The median disease-free survival time was 6.7 months. (95% CI, 4.5–9.0), and the median overall survival (OS) was 13.3 months. (95% CI, 9.1–17.5) [12]. In addition, oxaliplatin does not have complete cross-resistance with cis- or carboplatin and remains effective in some cases of resistance to cisplatin or anthracyclines [10]. Thus, we propose this regimen of anticancer therapy for use in clinical practice.

**The aim of the work** is to improve the immediate and long-term results of treatment of patients with TNBC metastases by using a new drug treatment regimen that includes bevacizumab , oxaliplatin and docetaxel ; comparing its effectiveness with





regimens such as TAC, FAC, " cisplatin + paclitaxel "; evaluation of the treatment results of the " bevacizumab + oxaliplatin + docetaxel " regimen when prescribed in the first lines of therapy.

## MATERIALS AND METHODS

The study included 52 patients with triple negative breast cancer. The diagnosis of cancer was confirmed by histological and immunohistochemical methods. The median age was 54 (28–76) years. Prior to inclusion of patients in our study, all 62 patients underwent neoadjuvant chemotherapy. Of these, 12/62 (19.4%) patients received preoperative chemotherapy according to the AC regimen, 14/62 (22.6%) - according to the " carboplatin + docetaxel " regimen, 15/62 (24.1%) - according to the paclitaxel regimen, + carboplatin, 21/62 (38.9%) patients - according to the AC regimen, then chemotherapy with paclitaxel + carboplatin. Surgical treatment was performed in all patients. Madden mastectomy was performed most frequently - 45 (86.5 %) of 52 patients. 5 (9.6%) patients underwent mastectomy according to Pati, two (3.8%) patients underwent radical resection. Neoadjuvant treatment of patients was carried out between 2014 and 2016. In addition, all patients also received radiation therapy. After the manifestation of the progression of the disease, the patients underwent a comprehensive examination, including: clinical research methods; laboratory research methods (general blood test, biochemical blood test, blood test for the CA 15-3 tumor marker, urinalysis, histological and immunohistochemical examination of the primary tumor and regional metastases); methods of visualization of metastases (ultrasound, bone scintigraphy, CT, MRI, PET-CT, radiography). The timing of disease progression was counted from the end of primary treatment for detected breast cancer ( neoadjuvant chemotherapy, surgery, radiation therapy - according to indications) and until the appearance of distant metastases. When assessing the timing of progression, it was noted that they ranged from 2 to 181 months, the median was 21.8 months. In a quarter of patients, generalization of the process was detected within a period of 9.8 months. (first year of observation), another quarter - after 37.7 months. (after three years of observation).

At the first stage, for chemotherapy with various studied schemes, the patients ( n = 62) were randomly distributed into four groups. Group I included 16 patients, group II - 15, group III - 15, group IV - 16 patients. As the results of the examination of patients from all four groups showed, the defeat of one organ was observed quite rarely. Thus, metastatic lesions of the lungs

in the groups ranged from 4.5 to 19%, bones - from 4.5 to 20%, damage only to the liver was observed in 5% of cases. Most often there was a multiple lesion of various organs and tissues. In particular, the frequency of diagnosing metastases to the lungs and liver in the groups was from 4.5 to 5.0%, metastasis to the lungs and bones - from 4.5 to 8.7%, metastatic lesions of the lungs, skin and soft tissues - from 4.8 to 8.7%, metastasis to the lungs and distant lymph nodes - from 4.3 to 18.2%, metastatic lesions of the liver, skin and soft tissues - from 4.8 to 5.0%, liver and distant lymph nodes - 4.8%, lungs and brain - 5.0%, Multiple combined metastatic lesions of bones, skin and soft tissues were diagnosed in groups in 8.7% of cases. Metastases to the skin, soft tissues and distant lymph nodes were detected with a frequency of 4.8 to 18.2%. Multiple combined lesions of the lungs, liver, bones occurred in 4.3% of cases in groups. Metastases to the lungs, liver, lymph nodes were diagnosed by groups in 4.8% of patients. Combined metastatic lesions of the lungs, bones and lymph nodes were observed in 4.3% of cases. Metastases to the lungs, skin, soft tissues and lymph nodes were diagnosed by groups with a frequency of 4.3 to 9.1%. Combined damage to the liver, bones, skin and soft tissues was detected in 4.3% of cases in groups. Metastases to the liver, bones and distant lymph nodes were diagnosed in 5.0% of patients from group III. Combined metastatic lesions of the liver, skin, soft tissues and brain were diagnosed in 4.3% of the groups. Multiple metastatic lesions of the lungs, bones, skin, soft tissues and lymph nodes were detected in 4.5% of cases in group II and in 5.0% in group III. Thus, the groups were comparable in terms of the number of patients and the location and combination of triple negative breast cancer metastases in them ( $p < 0.5$ )

## RESEARCH RESULTS

In group I ( 16 patients ) as the first line of palliative chemotherapy for metastases of triple-negative breast cancer, a regimen previously not used in clinical practice was prescribed with the inclusion of bevacizumab 10 mg/kg, oxaliplatin 75 mg/m<sup>2</sup> intravenously by drip on the 1st day and docetaxel 75 mg/m<sup>2</sup> by intravenous drip in the 2nd day. Day 1 (interval between courses - 3 weeks ). The number of courses ranged from 4 to 8. In 66.7% of cases, 6-8 courses of chemotherapy were performed, in 33.3% - 4 courses. The assessment of the immediate therapeutic effect was carried out after 2, 4, 6 and subsequent courses of chemotherapy. Data on the therapeutic effect of the chemotherapy regimen with the inclusion of bevacizumab, oxaliplatin and docetaxel are presented in Table. 1.

**Table 1. Immediate effect of first-line chemotherapy ( bevacizumab, oxaliplatin and docetaxel) n =16**

Therapeutic effect	Number of patients	R
Full	5/ 16 (31.3%)	$p < 0.05$
Partial	7/16 (43.7%)	$p < 0.05$
Stabilization	3/16 (18.7%)	$p < 0.05$
Progression	1/16 (6.3%)	$p < 0.05$

The duration of remission varied from 5 to 13 months with a full effect, and from 1 to 7 months with a partial effect. The median time to progression was 8 months for full effect and 3.4 months for partial effect. Of the toxic reactions during

chemotherapy according to the " bevacizumab + oxaliplatin + docetaxel " scheme, neurotoxicity of stage 1-2 was noted - 76.2% of patients, neutropenia of stage 3-4 - 9.5%, thrombocytopenia of stage 1 - 4.8%, anemia 1-2 - 23.8%,



nausea / vomiting - 4.8% of the patient. The toxicity of the proposed regimen, taking into account strict adherence to drug doses ( oxaliplatin 75 mg/m<sup>2</sup>, docetaxel 70 mg/m<sup>2</sup>) and the number of chemotherapy courses (maximum 6–8 courses followed by maintenance injections of bevacizumab 10 mg/kg No. 3), was acceptable, the treatment was well tolerated by patients, not there was a need to reduce doses or cancel chemotherapy.

15 patients included in group II were prescribed TAC chemotherapy: docetaxel 75 mg/m<sup>2</sup> intravenously by drip (Day 1), doxorubicin 60 mg/m<sup>2</sup> by intravenous bolus (Day 1), carboplatin AUC 4 intravenous drip (1st day). The interval between courses is 3 weeks . The number of courses ranged from 2 to 7. In 45.5% of cases, 6 courses were performed. After TAC chemotherapy for triple negative breast cancer metastases, the immediate effect was evaluated.

**Table 2. Immediate effect of first line TAC**

Therapeutic effect	Number of patients	R
Full	2/15 (13.3%)	p < 0.05
Partial	3/15 (20.0 % )	p < 0.05
Stabilization	6/15 (40.0%)	p < 0.05
Progression	4/15 ( 26.7 % )	p < 0.05

The duration of remission varied from 5 to 6 months with a full effect, and from 1 to 17 months with a partial effect. It should be noted that the threshold for the duration of partial remission at 19 months. reached only one patient, which is explained by the initial lesion of only one area (metastases to distant lymph nodes). The median time to progression with full effect was 4.6 months, and with partial effect it was 5.8 months. Taking into account compliance with the intervals between chemotherapy courses and doses of drugs, the tolerability of chemotherapy according to the TAC regimen was acceptable. Of the toxic reactions during the use of chemotherapy according to the TAC scheme, neutropenia 1-2 st - 22.7%, 3-4 st - 9.1%,

thrombocytopenia 1 st -22.7%, anemia 1-2 st - 36.4 %, nausea/vomiting stage 1-2 - 40.9% of patients.

In group III, all 15 patients received first-line chemotherapy according to the FA C regimen : cyclophosphamide 500 mg/m<sup>2</sup> intravenously ( day 1), doxorubicin 50 mg/m<sup>2</sup> intravenously ( day 1), 5-fluorouracil 500 mg/m<sup>2</sup> intravenously drip (1st day). Interval between courses - 3 weeks \_ The number of courses ranged from 6 to 8 . The immediate effect of treatment according to the FAC scheme is presented in Table. 3. In group III, in most cases, after first-line chemotherapy according to the FAC scheme, progression of the disease was diagnosed, the full effect was not achieved in any patient.

**Table 3. Immediate effect of first line FAC**

Therapeutic effect	Number of patients	R
Full	0/15 (0.0%)	p < 0.05
Partial	2/15 (13.3 % )	p < 0.05
Stabilization	3 /15 (20.0%)	p < 0.05
Progression	10/15 (66.7%).	p < 0.05

Only 13.3 % of patients had a partial regression of the tumor. The duration of remission fluctuated with a partial effect from 1 to 8 months. The median duration of response to treatment was 4.5 months. Of the toxic reactions during chemotherapy according to the FA C scheme, neutropenia 1-2 st - 25% of patients, thrombocytopenia 1 st -10% of patients, anemia 1-2 st - 20% of patients , nausea / vomiting 1-2 st - 60% of patients sick. When prescribing in group II chemotherapy according to the TAC scheme and in group III chemotherapy according to the FAC scheme, the total dose of anthracyclines was taken into account - the maximum dose of doxorubicin did not exceed the

recommended 500 mg/m<sup>2</sup>. Patients were treated under strict hematological control. Blood tests were done at least once a week.

In group IV, 16 patients received chemotherapy according to the TR scheme: paclitaxel 135 mg/m<sup>2</sup> intravenously by drip (day 1), cisplatin 75 mg/m<sup>2</sup> by intravenous drip (day 2). The interval between courses is 3 weeks . In most cases (47.8%), 6–8 courses of chemotherapy were performed, 4 courses were administered to seven patients (30.4%). The immediate effect is presented in table. 4.

**Table 4. Immediate effect of first-line chemotherapy according to TP regimen**

Therapeutic effect	Number of patients	R
Full	3/16 ( 18.7 % ) _	p < 0.05
Partial	4 / 16 ( 25.0 % )	p < 0.05
Stabilization	2 / 1 6 (12.5%)	p < 0.05
Progression	7/16 (43.7%)	p < 0.05

The duration of remission ranged from 3 to 8 months. The median duration of response was 3.5 months. Of the toxic reactions during chemotherapy according to the TP scheme, neutropenia of 1–2 tbsp was noted . in 12/23 (52.2%) patients,

neutropenia grade 3-4 - 21.7%, thrombocytopenia grade 1 - 30.4%, anemia grade 1-2 - 56.5%, grade 3-4 - 8, 7%, nausea/vomiting stage 1-2 - 78.3% of patients. Analysis of the obtained results revealed differences in the effectiveness of



treatment with different chemotherapy regimens among the four groups.

As can be seen from the data, in group I, after antitumor therapy according to the scheme " bevacizumab + oxaliplatin + docetaxel ", an improvement in the results of direct efficacy was noted compared with the other three groups. Progression-free survival was assessed after first-line chemotherapy in four compared groups. Differences in relapse-free survival rates were noted among groups ( $p=0.09$ ), while group I shows an extension of remission after the first line of chemotherapy according to the " bevacizumab + oxaliplatin + docetaxel " regimen. The median duration of response to treatment during chemotherapy according to the scheme " bevacizumab + oxaliplatin + docetaxel " with a full effect was 7 months, with a partial effect - 3.4 months. With other regimens, the median time to progression ranged from 1.6 months to 1.6 months. with a partial effect in group IV up to 4.6 months. with full effect and 5.8 months. with partial effect for group II patients. Patients who were diagnosed with the progression of the process at the first stage after using the first-line chemotherapy with four regimens were prescribed individual chemotherapy, taking into account previous treatment, the general condition of the patient and the prevalence of the disease. We analyzed the overall survival of patients with metastases of triple-negative breast cancer, which was calculated from the start of the first-line chemotherapy of one of the four study regimens (" bevacizumab + oxaliplatin + paclitaxel ", TAC, FAC, TP ) to the death of patients in four study groups. groups.

## DISCUSSION

Triple negative breast cancer is an aggressive tumor subtype with a high risk of disease progression, early damage to internal organs and the central nervous system. Given the significant molecular heterogeneity, an interesting direction in the development of drug therapy for TNBC metastases is the study of regimens that are atypical for the treatment of other subtypes of breast cancer. As can be seen from the presented results, drug treatment using the new regimen " bevacizumab + oxaliplatin + docetaxel " showed high efficiency in the treatment of patients with metastases of triple-negative breast cancer. This study demonstrates a general trend towards improved outcomes in the treatment of TNBC metastases with the use of new antitumor therapy regimens that are not typical for other BC subtypes. Comparison of the effectiveness of other commonly used first-line chemotherapy regimens for TNBC metastases, such as TAC, FAC and TP, did not show any advantage over the drug regimen introduced into clinical practice. Toxicity in the bevacizumab, oxaliplatin, and docetaxel regimen was acceptable, and the treatment was well tolerated by patients. Improvement in progression-free survival was obtained in group I ( $p = 0.08$ ), where after the first line of chemotherapy four patients remained in remission (with a follow-up period of 12 to 20 months), which is 15–20% higher than in the other three groups.

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# ETHICAL CLIMATE, INNOVATIVE WORK BEHAVIOR, AND WORK ENGAGEMENT: A STRUCTURAL EQUATION MODEL ON THE QUALITY OF WORK-LIFE OF GOVERNMENT EMPLOYEES

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## ABSTRACT

*This research sought to determine the most suitable structural model for work-life quality using factors such as ethical climate, innovative work behavior, and work engagement. Four hundred local government employees from Region XI responded to a survey after being recruited through stratified sampling. The researchers used statistical methods such as mean and standard deviation, Pearson correlation coefficient, multiple regression, and Structural Equation Modeling (SEM) to analyze the data. The results showed that ethical climate, innovative work behavior, work engagement, and quality of work-life were all high. Additionally, there was a significant relationship between ethical climate, innovative work behavior, work engagement, and the quality of work-life. The effect of the exogenous variables on the quality of work-life was 22 to 22.6%. Additionally, the study found that work engagement was the best predictor of the quality of work-life. The study found that Model 5 was the best fit structural model for quality of work-life. The model showed that work engagement, along with its corresponding manifest variables of vigor, dedication, and absorption, were predictors of the quality of work-life. The manifest variables for the quality of work-life were adequate and fair compensation, use of capacities at work, and opportunities at work. The paper discusses these results and their implications for Human Resource Management in local government units.*

**KEYWORDS:** *ethical climate, innovative work behavior, work engagement, quality of work-life, structural equation model, government employees, public administration SEM, Philippines*

## INTRODUCTION

Seventy-five percent of employees in the Philippines are unhappy with their QWL compared to 87% in the rest of the world. In France and Belgium, 10% of employees in one workplace were experiencing depression [1]. Poor QWL can lead to various issues, such as health problems, personal relationship difficulties, and social life challenges. The Australian Institute reported that 24% of Australian workers have health issues due to poor QWL [2].

Quality of work life (QWL) has been a popular topic among public and private employees for over 30 years. One cannot discount the importance of quality of work-life. QWL is a process that aims to improve the work environment, methods, and outcomes of organizations while also enhancing employees' lives. Researchers have studied what employees consider to be important in terms of QWL. Quality of work life involves

adequate and fair compensation, use of capacities at work, occupied space by the work in life, working conditions, opportunities at work, constitutionalism at work, and social relevance and importance of work [3].

Research has shown a significant relationship between ethical climate, innovative work behavior, work engagement, and quality of work-life [4], [5], [6], [7]. There are still other factors that affect QWL. For example, work-life balance and job satisfaction [8]. All these can impact employees' working capacity, social integration, opportunities, and many others. When employees are delighted with their quality of life, they become more dedicated to their job, which could result in higher efficiency and productivity [9], [10].

Although there have already been many types of research conducted on these topics, the authors have not yet come across a structural model of quality of work-life using ethical climate,





innovative work behavior, and work engagement as exogenous variables, especially in the Philippine setting. Thus, to establish a model for QWL, the researchers challenged themselves to delve into this investigation. The findings of this study may become research-based data to solve the poor quality of work-life in some organizations.

## OBJECTIVES

This study intended to determine the best-fit model for the quality of work-life among government employees. The researchers investigated whether ethical climate, innovative work behavior, and work engagement influenced the quality of work-life. To achieve this goal, the researchers established specific objectives to guide the study.

1. Assess the level of ethical climate in the workplace among government employees by evaluating various factors such as the ethical environment, employee focus, community focus, obedience to authority, code implementation, self-interest, efficiency, rules and procedures, personal ethics, and adherence to laws and professional codes.
2. Describe the level of innovative work behavior among government employees by assessing core self-evaluations, organizational support for innovation, co-worker exchange, and creative self-efficacy.
3. Appraise the level of work engagement among government employees by measuring factors such as vigor, dedication, and absorption.
4. Ascertain the quality of work-life among government employees by evaluating factors such as adequate and fair compensation, working conditions, use of capacities at work, opportunities at work, social integration at work, constitutionalism at work, and the occupied space by work in life.
5. Determine the relationship between various factors and the quality of work-life among government employees, particularly the relationship between ethical climate and quality of work-life, innovative work behavior and quality of work-life, and work engagement and quality of work-life.
6. Determine the significant influence of ethical climate, innovative work behavior, and work engagement on the quality of work-life among government employees.
7. Determine the best fit structural model for the quality of work-life among government employees.

## HYPOTHESIS

1. There is no significant relationship between ethical climate and quality of work-life, innovative work behavior and quality of work-life, or work engagement and quality of work-life among government employees.
2. There is no significant influence of ethical climate, innovative work behavior, or work engagement on the quality of work-life among government employees.
3. There is no best-fit structural model for the quality of work-life among government employees.

## METHODS

This study examined the relationships between different variables using quantitative methods. The researchers used descriptive statistics like mean and standard deviation to describe the levels of the variables. They also used inferential statistics like Pearson  $r$  to determine if the relationship between variables was significant and multiple regression analysis to find out how vital the predictor variables were in the relationship [11], [12], [13]. In addition, the researchers used Structural Equation Modeling (SEM) to create the best model for understanding government employees' quality of work-life.

Studies that build structural models use SEM [14], [15]. SEM can show the relationships between observed and unobserved variables and provide meaningful and valid results [16], [17], [18], [19], [20]. Moreover, SEM can also identify the factors that create a causal relationship between dependent and independent variables using mathematical models and theories [21], [22], [23]. It provides consistency in research where it is essential to have a good fit [24], [25].

On the other hand, the researchers used stratified random sampling to recruit 400 regular government employees from the LGUs of Davao, Digos, Mati, Panabo, Samal, and Tagum to participate in the survey. The study included only the regular employees in its sampling because they could provide accurate answers to the questionnaire due to their length of service. Excluded as samples were the casuals and the job orders.



## RESULTS AND DISCUSSION

**Table 1**  
**Ethical Climate of Government Employees**

Indicator	SD	Mean	Descriptive Level
Ethical Environment	0.64	3.95	High
Employee Focused Climate	0.64	4.02	High
Community-focused Climate	0.63	3.88	High
Obedience to Authority	0.59	4.05	High
Code Implementation	0.51	4.06	High
Self-interest Climate	0.65	4.12	High
Efficiency Climate	0.57	4.03	High
Rules and Procedures Climate	0.69	3.83	High
Personal Ethics Climate	0.84	3.85	High
Law and Professional Codes Climate	0.83	3.89	High
<b>Overall</b>	<b>0.29</b>	<b>3.97</b>	<b>High</b>

Table 1 presents the survey results on the ethical climate in government workplaces. The survey included ten variables related to ethical climate, all of which received high mean scores. The overall mean score was 3.97, indicating that government offices frequently observed the variables of ethical climate. The standard deviation of .029 suggests that the responses were consistent among survey participants.

The study found that government employees experienced a high ethical climate in their workplace, reflected in the frequent observation of various aspects of ethical climate, including ethical environment, employee-focused climate, community-focused climate, obedience to authority, code implementation, self-interest climate, efficiency climate, rules and procedures climate,

personal ethics climate, and adherence to laws and professional codes.

Assessing the ethical climate of organizations is crucial because it affects employee behavior. Employee perceptions of their workplace's climate can influence their attitudes toward their organization [26], [27]. Employees who view their organizations as egoistic and less ethical are likelier to engage in corrupt practices influenced by individual motives [28]. Therefore, promoting a moral climate can help employees perform their work honestly. Administrations can encourage ethical behavior by implementing spiritual retreats and seminars on Integrity, Transparency, and Accountability in Public Service (ITAPS). These activities can help improve or shape employee values.

**Table 2**  
**Innovative Work Behavior of Government Employees**

Indicator	Mean	SD	Descriptive Level
Core-Self Evaluation	0.47	3.95	High
Organizational Support for Innovation	0.64	3.79	High
Co-worker Exchange	0.51	4.05	High
Innovative Self-Efficacy	0.44	3.99	High
<b>Overall</b>	<b>0.29</b>	<b>3.95</b>	<b>High</b>

Table 2 presents the results of a survey on innovative work behavior among government employees. The survey measured core self-evaluation, organizational support for innovation, co-worker exchange, and innovative self-efficacy. The overall mean score was 3.95, indicating a high level of innovative work behavior among respondents. The standard deviation of 0.29 suggests that the responses were consistent with the expected answers.

The survey found that government employees experienced a high level of innovative behavior, as reflected in their frequent experiences of core self-evaluation, organizational support for innovation, co-worker exchange, and creative self-efficacy [29]. This finding supports previous research suggesting innovative behavior can inspire employee trust and improve company performance [29], [30]. Without effective leadership, employees may turn to their peers and others for support [31], [13].



**Table 3**  
**Work Engagement of Government Employees**

Indicator	Mean	SD	Descriptive Level
Vigor	0.51	3.96	High
Dedication	0.54	3.96	High
Absorption	0.48	3.94	High
Overall	0.36	3.95	High

Table 3 shows the results of a survey on work engagement among government employees. The overall mean score was 3.95, indicating a high level of work engagement among respondents. The standard deviation of 0.36 suggests that the responses were consistent. Respondents reported high levels of vigor (M=3.96, SD=0.51), dedication (M=3.96, SD=0.54), and absorption (M=3.94; SD 0.48) when engaging in their work. These results suggest that government employees frequently demonstrate these indicators of work engagement.

The survey found that government employees experienced high work engagement, as measured by vigor, dedication, and

absorption [32]. Increased creativity, task performance, organizational citizenship behavior, and client satisfaction are associated with high levels of work engagement [33]. Organizations can provide supportive leadership to improve work engagement. This leadership type can inspire employee innovation and creativity [34], [14], [35]. Organizations must provide unrestricted movement and exercise opportunities to maintain good health, essential for work engagement [36]. In contrast, [37] found that vigor and dedication are the core dimensions of work engagement.

**Table 4**  
**Quality of Work-life of Government Employees**

Indicator	Mean	SD	Descriptive Level
Adequate and Fair Compensation	0.92	3.38	Moderate
Working Conditions	0.60	3.58	High
Use of Capacities at Work	0.49	4.11	High
Opportunities at Work	0.50	3.90	High
Social Integration at Work	0.78	3.70	High
Constitutionalism at Work	0.83	3.87	High
Occupied Space by the Work in Life	0.60	4.15	High
Social Relevance and Importance of Work	0.51	4.07	High
Overall	0.28	3.85	High

Table 4 presents the level of quality of work life among government officials. The data shows an overall high quality of work life, with a mean score of 3.85 and a standard deviation of 0.28. However, the adequate and fair compensation indicator received an average mean score of 3.38 (SD=0.92), suggesting that respondents only sometimes experienced sufficient and just compensation.

The high quality of work life found in the study suggests that respondents often agreed with the survey statements. According to [38] and [39], several elements contribute to an organization's quality of work life. In this study, the indicators of quality of work life (QWL) included adequate and fair compensation, working

conditions, use of capacities at work, opportunities at work, social integration at work, constitutionalism at work, occupied space by the work in life, and social relevance and importance of work [40].

Studies have shown that when employees are given ownership of their work and recognized for their contributions, their productivity can peak [41]. Furthermore, employees tend to identify more with organizations that acknowledge their potential and uplift their morale, leading to increased commitment [42]. Employees who enjoy a high quality of work life in their organization will likely want to stay [43]



**Table 5**  
**Relationship between the Exogenous Latent and Endogenous Latent Variables**

Exogenous Variables	Quality of Work-life (Endogenous Variable)							
	AFC	WCS	UCW	OAW	SIW	CAW	OSC	SRW
Ethical Climate	.190**	.226**	-.040	-.005	-.085	.278**	.169**	-.091
Innovative Work Behavior	.000	.000	.419	.915	.089	.000	.001	.069
Work Engagement	.313**	.203**	.132**	.063	-.061	.067	.038	.015
	.000	.000	.008	.206	.220	.182	.448	.762
	-.037	.045	-.019	.048	.183**	.361**	.447**	.134**
	.463	.367	.703	.336	.000	.000	.000	.007

\*\* The correlation is significant at the 0.01 level (2-tailed)

Legend:

AFC – Adequate & Fair Compensation

WCS – Working Conditions

UCW – Use of Capacities at Work

OAW – Opportunities at Work

SIW – Social Integration at Work

CAW – Constitutionalism at Work

OSC – Occupied Space by the Work in Life

SRW – Social Relevance and Importance of Work

Table 5 presents the results of a correlation test between the exogenous variables (ethical climate, innovative work behavior, and work engagement) and the endogenous variable (quality of work life), with a significance level of  $p < 0.05$ . The results show that all tests are significant and reject the null hypothesis that no significant relationship exists between the exogenous and endogenous variables. The result means that all exogenous variables substantially connect with the endogenous variable, quality of work life. The significant relationship between the variables is evident in a 2-tailed test, which indicates that the mean scores are substantial in both the upper and lower tails of the distribution. A 2-tailed test determines whether the mean is significantly greater or less than a specified value (X), resulting in a p-value of less than 0.05 and indicating significance.

Other research supports this finding. For example, [7] Menzel (2019) found that organizations with an ethical climate achieve a

high quality of work life, indicating a significant relationship between these variables. Additionally, an ethical environment can alleviate distress. [44] found that when an organization offers an ethical environment, employees experience less emotional and moral pain. Moreover, [4] found that happy employees are more likely to be innovative, impacting work-life quality. [45] also found that happiness at work influences employees' creative skills. [3] emphasized the importance of balancing work and other aspects of life to achieve a high quality of work life, as failure to do so can result in adverse outcomes. Finally, [6] found that work engagement and work-life balance are closely related. They emphasized that employees are more likely to want to stay in their organization when they achieve work-life balance. Interestingly, [46] reported that working from home can increase work-to-life conflicts and negatively impact work-life balance. However, work engagement can positively mediate such conflicts.

**Table 6**  
**Influence of the Exogenous Latent Variables on Quality of Work-life**

Exogenous Variables	Endogenous Variable			
	B	$\beta$	t	Sig.
Constant	1.158		4.397	.000
Ethical Climate	.173	.177	3.973	.000
Innovative Work Behavior	.235	.244	5.463	.000
Work Engagement	.272	.356	8.017	.000
R	.475			
R <sup>2</sup>	.226			
$\Delta R$	.220			
F	38.545			
p	.000			

Table 6 presents a regression analysis testing the influence of the exogenous variables (ethical climate, innovative work behavior, and work engagement) on the endogenous variable (quality of work life). The data shows that all three exogenous variables significantly influence the quality of work life. The combined influence of these variables accounts for 22.6% ( $R^2 = .226$ ) of the variance in quality of work life, indicating that 77.4% of the variance is due to other factors beyond the scope of this study.

Examining the individual beta coefficients reveals that work engagement has the most decisive influence on the quality of work life ( $B = .272$ ,  $p = .000$ ), followed by innovative work behavior ( $B = .235$ ,  $p = .000$ ) and ethical climate ( $B = .173$ ,  $p = .000$ ). The F-value of 38.545 with  $p = .000$  indicates that the regression model has significant predictive capability. In other words, work engagement has the most significant impact on the quality of work life. For every unit of change in government employees'





work engagement, there is a corresponding change in their quality of work life, holding other factors constant.

A study by [47] found that an organization's ethical climate can affect its employees' organizational citizenship behavior. Therefore, organizations must promote an ethical environment and implement corporate strategies supporting moral values, which can help employees become better members of the organization and improve overall organizational performance [47], [48], [49].

Leadership types can also influence employees' innovative behavior. [50] found that transformational and transactional leadership styles can facilitate employees' creative behavior and increase their creativity. In addition to leadership style, intrinsic

motivation and occupational self-efficacy strongly support employees' innovative behavior [51], [12], [14]. These findings suggest that organizations should modify their leadership styles and promote intrinsic motivation to encourage employee creativity. However, extrinsic motivation may also play a role [52], [53].

Finally, studies have shown that a high quality of work life can help alleviate life's pressures and improve mental health. For example, burnout can negatively impact an employee's mental health. However, when employees enjoy a high quality of work life, they are more likely to enjoy their work and avoid mental health issues [54], [55]. Additionally, employees with a high quality of work life are more likely to achieve a work-life balance [56].

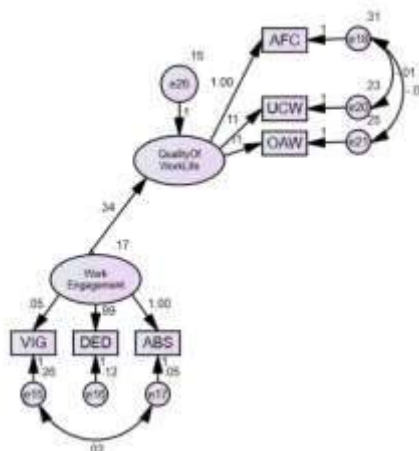


Figure 1. The Best-Fit Structural Model for Quality of Work-life

Legend:

VIG Work Engagement  
DED Vigor  
ABS Dedication  
ABS Absorption

AFC Quality of Work-life  
UCW Adequate and Fair Compensation  
OAW Use of Capacities at Work  
OAW Opportunities at Work

Table 7  
Generated Values for the Best-Fit Model

INDEX	CRITERION	MODEL FIT VALUE
Probability Value (P-value)	> 0.05	.093
Chi-Square/Degrees of Freedom (CMIN/DF)	0 < value < 2	1.448
Goodness of Fit Index (GFI)	> 0.95	.986
Comparative Fit Index (CFI)	> 0.95	.975
Normed Fit Index (NFI)	> 0.95	.972
Tucker-Lewis Index (TLI)	> 0.95	.952
Root Mean Square of Error Approximation (RMSEA)	< 0.05	.034
P of Close Fit (P-Close)	> 0.05	.837

Figure 1 presents the best-fit structural model for quality of work life. At the same time, Table 7 displays the generated values for this model, which meet the criteria for a good fit in structural equation modeling (SEM). The model shows work engagement with its manifest variables (vigor [VIG], dedication [DED], and

absorption [ABS]) as the best predictor of quality of work life. Of the eight observed variables for quality of work life, only three remained in the model: adequate and fair compensation (AFC), use of capacities at work (UCW), and opportunities at work



(OAW). This result indicates that these three variables are the most relevant for determining the quality of work life.

## CONCLUSION

This study's findings suggest a significant relationship between the exogenous variables of ethical climate, innovative work behavior, work engagement, and quality of work life. Additionally, the exogenous variables significantly influence the quality of work life. The findings suggest that the HR department of the organizations involved in this study should conduct action research to establish the grounds why the levels of these exogenous variables did not reach the very high mark, which is the expected level; develop a strategic plan based on the findings of their action research, and reengineer and recalibrate their policies to fit the present demands. These actions will help to improve the quality of work life for employees in these organizations. Future researchers may replicate this study in other locales to validate the findings of this study.

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# **“BALSA para sa PAGBASA” 30 MINUTES PUROK- BASED READING REMEDIAL SA BAGONG NORMAL: INTERVENTION FOR IMPROVING READING PERFORMANCE LEVEL OF GRADE – FIVE PUPILS STRUGGLING READERS**

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*Them: Teaching and Learning 1A*

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## **ABSTRACT**

*This action research was conducted to enhance the level of reading performance of pupils of Grade –Five struggling readers of Maasim Central Elementary School using the Balsa Para sa Pagbasa 30-minute Purok-based reading remedial program. This study employed the explanatory sequential mixed methods (single-experimental and phenomenological) design. Using Schutte Self-Report Emotional Intelligence Test, the EI level of the learners were identified while their experiences were captured through online interview using the validated interview guide. Frequency, mean, percentage and paired sample t-test were applied in treating the quantitative data and thematic analysis following Colaizzi’s method in analyzing the qualitative inputs. Robert Ebel’s Criterion of Mastery was used to determine the level of performance of Grade –Five Copper pupils struggling readers. Result showed that there is SIGNIFICANCE DIFFERENCE in the level of reading performance based on the result in the t – test. The increase in the pupils reading performance shows that using Balsa Para sa Pagbasa 30-minute Purok-Based program was effective in enhancing the reading performance of Grade V –pupil. This was supported by the participants’ narratives revealing the balsa para sa pagbasa purok-based remedial program was beneficial experience. They reported an opportunity to experience reading with purok chairman, a relieved confidence booster for them and a bond of friendship developed through reading. Thus, Balsa Para sa Pagbasa Purok-Based Reading Remedial Program should be institutionalized in elementary schools particularly at Maasim Central Elementary School and similar studies be conducted involving triangulation.*

## **CONTEXT AND RATIONALE**

Reading has a vital role in the learning process. It is one of the macro communication skills that can be correlated to the academic performance (Channa, & Nordin, 2015). Most of the activities and task in all the contents require the students to read. It is a mandatory skill that will help the students to connect with their lessons. In the actual learning context, these struggling readers will not understand the concepts, and they will fail to attain the learning competences expected of them because of a lack of skill in reading. In connection with the Education for All Agenda, it aims to expand and improve comprehensive early childhood care and education. It ensures all school-aged children have access to quality education. But the global pandemic of COVID-19 catastrophe has totally transformed education in many nations around the world, (Reimer et al., 2021). Due to the pandemic, students' face-to-face instruction was disrupted during the 2019–2020 school year. During the closing months of school in 2019 the majority of schools offered some virtual education, and the same scenario repeated itself at the start of 2021. Educators and parents have been actively researching the best approach to

continue formal education through remote or virtual learning throughout this time. Nonetheless, it remains unclear how effective remote or virtual learning is.

Furthermore, research predicts that virtual learning would heighten socioeconomic disparity in student learning due to disparities in children's opportunities to learn at home as many working parents already struggle to work and care for their children (Harris, 2020). Parents identify personal, technical, logistical and financial barriers regarding the challenges of distance learning during the Pandemic (Abuhammad, 2020). Parents generally had negative beliefs about the benefits of online learning and preferred traditional learning in early childhood settings (Dong et al., 2020). Parents tended to resist online learning for four main reasons: the shortcomings of online learning, young children’s inadequate self-regulation, lack of time and professional knowledge for supporting children’s online learning (Dong et al., 2020). Children from disadvantaged families received much less academic support from their parents and were less likely to have access to necessary physical resources such as a computer or a tablet (Azubuike et al., 2021; Andrew et al., 2020; Bol, 2020).



Based on the collated report in the Philippine Informal Reading Inventory (Phil-IRI) last school year 2020-2021, it was revealed that 20% of the elementary pupils got failing score in Reading Comprehension. It was declared that 25% of the total population of the students were classified as struggling readers. The satisfaction of the term “struggling reader” falls under frustration level. Technically, the frustration level reflects the incapacity of the pupils to read and understand text. None-reader, as a level, are classified as another critical issue. On this study, those pupils in the frustration level are the focus. This term is used for pupils who got low score both in oral reading and comprehension test. For grade 5 alone, 53% are classified as frustration reader which seems alarming for the reading teachers. This may lead to an increase of non-readers. It can infer from the data that these pupils need special attention. If they are not performing well in the subject, will have a hard time understanding some other subject like English since as their second language.

Based on these results, it is important to intervene as early as possible in order to help children that have seen their school year affected by the pandemic. If reading disabilities are not early addressed, difficulties tend to generalize to other domains, thus jeopardizing future knowledge acquisition, exposing students to consecutive experiences of failure, thereby diminishing their motivation to learn (Lyytinen and Erskine, 2016).

Moreover, with the frequent increases in oil prices due to the ongoing war of other nations, other basic commodities have triggered or affected much of our learners/underprivileged parents to educate their children because their individual income lags behind expenses. So, with the prevailing situation that we have, the researcher looked for some mitigating measures in which the researcher could reach out the learners especially those living in areas away from our learning station and also the researcher felt it hard for them to pay for their fare back/forth in coming to their respective reading kiosk just to have an access on their reading needed.

Maasim Central has been true to its mission to elevate the reading level of its pupils. Thus, the teacher has been religious in conducting the school’s reading program. However, the rate of the frustration level is still high. For this reason, the researcher formulated a program called the “BALSA para sa PAGBASA” 30 MINUTES PUROK- BASED READING REMEDIAL SA BAGONG NORMAL on their respective assigned purok. “BALSA para sa PAGBASA” is a way in which reading materials and some reading intervention were carried through this “BALSA” and brought to their respective purok in which the learners, teachers and the purok chairman worked collaboratively doing the tutorial reading for the struggling readers of grade five pupils. The program consisted of “BALSA” is a light -no -wheeled vehicle made by wood pulled by draught animals used for transporting goods, commodities. The Balsa were filled with school materials, such as various learning activity sheets, SLM, reading intervention materials and other goods like snack as reward and recognition to the learners, brought to the purok stations and create school settings in unconventional locations, wherever the struggling reader were. This initiative balsa program helps parents who

cannot afford to pay for their fare back and forth their children in getting their modules and to have access on their reading needed. This program balsa para sa pagbasa tried to make a difference in the lives of the younger generation, to give them hope that there is a chance for a brighter future despite the pandemic that we are facing now a days.

Thus, this study was conducted. This is to determine if there is an increase of reading performance level of grade five struggling reader using the **BALSA para sa PAGBASA 30 minutes** purok-based reading remedial as an intervention of improving the reading performance level

### **Innovation, Intervention, And Strategy**

The following strategies used as intervention are the following: “BALSA para sa PAGBASA” is a way in which reading materials and some reading intervention were carried through this “BALSA” and brought to their respective purok in which the learners, teachers and the purok chairman worked collaboratively doing the tutorial reading for the struggling readers of grade five pupils. The program consisted of “BALSA” is a light -no -wheeled vehicle made by wood pulled by draught animals used for transporting goods, commodities. The Balsa were filled with school materials, such as various learning activity sheets, SLM, reading intervention materials and other goods like snack as reward and recognition to the learners, brought to the purok stations and create school settings in unconventional locations, wherever the struggling reader were. This initiative balsa program helps parents who cannot afford to pay for their fare back and forth their children in getting their modules and to have access on their reading needed. This program balsa para sa pagbasa tried to make a difference in the lives of the younger generation, to give them hope that there is a chance for a brighter future despite the pandemic that we are facing now a days.

### **ACTION RESEARCH QUESTIONS**

The purpose of this Action research is to find out whether Balsa para sa Pagbasa 30-minute purok –based reading remedial program is effective in improving the reading performance of Grade V struggling readers - basis to enhance the reading performance of struggling readers of Maasim Central.

Specifically it sought answers to the following questions:

1. What is the performance in reading among Grade –V pupils before the start of the study?
2. What is the level of reading performance of struggling/frustration pupils in the pre- test conducted?
3. What is the performance in reading of Grade –V struggling /frustration pupils after being immersed in the program?
4. What is the level of reading performance of struggling/frustration pupils in post- test?
5. Is there a significant difference in the reading performance of Grade V pupils before and after the balsa para sa pagbasa purok-based reading remedial was implemented?



6. What are the experiences encountered by the pupils and purok-chairman participants in balsa para sa pagbasa program?
7. Based on the findings, what possible intervention / program could enhance the reading program of Maasim Central?

## ACTION RESEARCH METHODS

### A. Sampling Method/Research Participants

Research participants are the 10 Grade 5 pupils of Maasim Central Elementary School, officially enrolled for School Year 2021-2022.

A purposive sampling method was used in choosing the research participants. Results from the Pretest PHIL-IRI report served as a basis in selecting the research participants. There were five (5) males and five (5) females selected as research participants and shall be immersed in the balsa para sa pagbasa reading remedial program.

### A. Instrument/Research design

This research study utilized mixed methods design. For gathering, analyzing, and mixing both quantitative and qualitative data collected to some point during the research process from a single study to acquire complete understanding of the research problem (Creswell & Clark, 2011). The research design used was single experimental design for quantitative method and case study in analyzing the experiences encountered by the pupils and purok-chairman about the program. In gathering data, frequency count and percentage utilized for quantitative while the participants undergone one-on-one interview for qualitative method.

To determine the significance difference in reading performance of Grade V pupils before and after the balsa para sa pagbasa purok-based reading remedial was implemented; t-test was also used.

The test is done at the .05 level of significance.

Below is the quantification use in determining the level of reading performance.

### Robert Ebel's Criterion of Mastery

#### Percentage

81% – 100%  
61% – 80%  
41% – 60%  
21% – 40%  
1% - 20%

#### Level of Performance

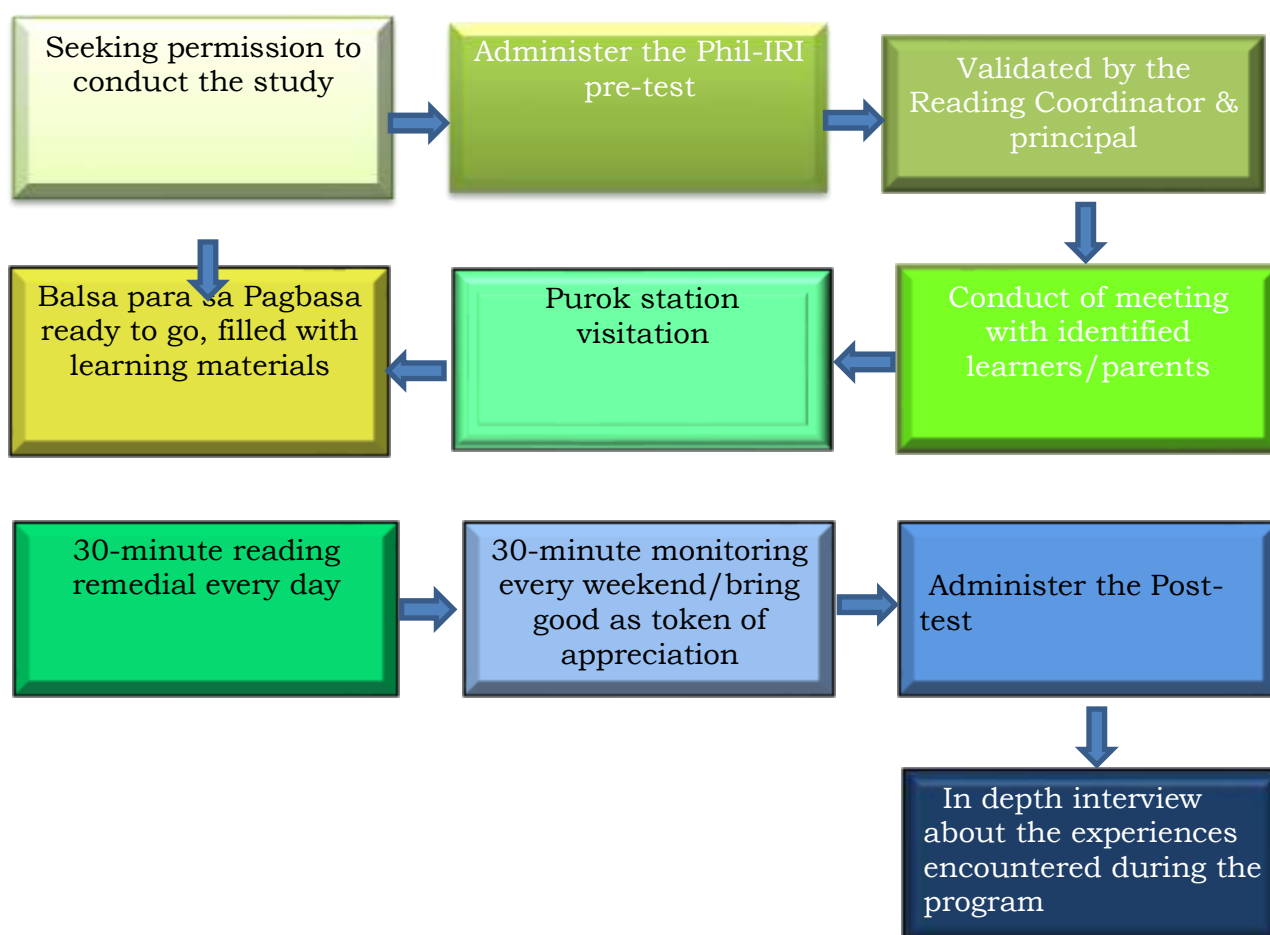
Very High  
High Performance  
Moderate Performance  
Low Performance  
Very Low Performance

### B. Locale

This study was conducted at Maasim Central Elementary School, Maasim 2 District. Barangay Poblacion, Maasim, Sarangani Province.



### C. Data Gathering Methods



**Figure 1. Data Gathering Procedure**

To know the benefits brought by the program to learning at purok station, two (2) questions were given to the parents, pupils, purok-chairman as well as to the teachers. These were: 1. What can you say about the Balsa para sa Pagbasa Program? Why do you say so? 1.2. What experiences do you get from Balsa para sa Pagbasa Program? Please tell me in details.

*Recording Procedure of the Interview.* Following the agreement, I prepare a guided statement and a cellular phone to record the interview process. I asked the parents, pupils, purok-chairman and teachers few questions about the

experiences during the reading remedial Program. Then, I extended gratitude and thanks to the participants for responding in the interview.

*Tabulation Procedure of the Data.* After gathering all the data for quantitative and responses for qualitative. The researcher tallied carefully the data collected. The researcher also recorded the conversation with the guided statements, then carefully studied the responses and listened attentively to the recorded interviews. The responses during the interview and discussions were grouped according to themes just like shown in the table 6 below.

## DISCUSSION OF RESULTS

**Table 1**

The Performance in reading among Grade V-pupils before the start of the study

Level of Comprehension	No. of Pupil
Independent	48
Instructional	50
Frustration	35
Total	133





Table 1 show that the performance in reading of Grade – V pupil there were 48 independent, 50 instructional **and 35 frustration reader** based on the result of the Phil-IRI test.

This implies that there was a variation of the performance in reading among Grade V based on the result of

the Phil-IRI test. It was found out that there were 35 frustration reader out of pupils that need a rigid intervention. Thus, the researcher finds ways to improve the reading performance of this struggling readers.

**Table 2**

Level of Performance in the Pre – Test of the frustration reader

Mean	Mean Percentage	Level of Performance
1.8	18%	Very Low Performance

Table 2 show that the Mean Percentage of Pre- Test was 18%. Using Ebel's Criterion of Mastery, it was found out that the obtained mean percentage of respondent's pupils reveals that the Pre-Test was **VERY LOW PERFORMANCE**.

This means that the level of performance of the frustration readers were **VERY LOW PERFORMANCE** based on the result of the Ebel's Criterion of Mastery.

**Table 3**

The Performance in reading of Grade V pupils after the treatment was given

Level of Comprehension	No. of Pupil
Independent	3
Instructional	5
Frustration	2

Table 3 show that the performance in reading of Grade – V struggling pupil after the study, there were 3 independent, 5 instructional and 2 frustration reader based on the result of the Phil-IRI post-test.

This signifies that the reading performance of the frustration readers were improved after the treatment of the Balsa para sa Pagbasa program.

**Table 4**

Level of Performance in the Post – Test

Mean	Mean Percentage	Level of Performance
8.2	82%	High Performance

Based on the table 4 data shows that the mean percentage of Post- Test was 82%. Using the Ebel's Criterion Mastery, it was found out obtained mean percentage of respondents' pupils

reveals that the post-test performance was **HIGH PERFORMANCE**.

**Table 5**

Significance difference between the Pre-test and the Post-test in the Reading Performance of Grade pupils.

Test	Mean	t-value	Remarks
Pre-test	1.8	0.0028	Significant difference
Post-test	8.2		

This means that there is **significance difference** between the pretest and the post- test in reading performance of Grade V pupils based on the t-value of 0.0028.

The data shows that after 6 months activity 8 or 80% of pupils improved their reading performance while 2 or 20% of respondents still need rigid intervention for further improvement. The increase in the pupils reading performance shows that it is very effective to teach reading using tutoring activities tool with Balsa para sa Pagbasa 30 minutes purok-based because it helps the pupils understand more the text

they've read and improve the camaraderie of pupil-teacher-parent relationship.

These are some excerpts from the responses of the Grade 6 participants whether the peer facilitation was helpful or not:

*"Opo Cher. Nakatulong talaga nang malaki sa akin po. 'Gusto ko ng magbasa ng mga kwento dahil marunong na akong bumasa at hindi na nila ako binu bully na hindi marunong bumasa. Maraming salamat talaga na mayroong programang ganito.'* (Yes, cher. It helped me very much. I like



to read stories because I can read and they don't bully me anymore. Thank you very much for having this program.)

Participant\_101

"Ahmm... Nakatulong, Ma'am. *"Nindot kaayo siya nga experience kay daghan kaayo me nga mga words nahibal.an kung paano magpronounce ug tama ninini. Pagkahuman sa among reading akoo jud mabatyagan nga adunay ko'y nahibalan.* (Ahmm... It helped, Ma'am. "It was

a great experience because we knew so many words how to pronounce it correctly. After our reading I feel like I know something.")

Participant\_102

This is in consonance to the study of Cojocariu and Nechita (2011) which established that emotional intelligence can be improved through a programme or interventio

**Table 6**

Themes and Thematic Statements on the participants experiences and finding reveals common threads concerning the implementing of Balsa para sa Pagbasa Program to learning at purok station.

ESSENTIAL THEMES	THEMATIC STATEMENTS
A good experience in reading	<i>Ana (her pseudo name) one of the pupils said. "Nindot kaayo siya nga experience kay daghan kaayo me nga mga words nahibal.an kung paano magpronounce ug tama ninini. Pagkahuman sa among reading akoo jud mabatyagan nga adunay ko'y nahibalan.</i>
	<i>"Nakatabang jud kaayo ug dako sir kay atleast makatabang ko sa mga bata ug makabalo pd asaon pagtudlo sa pagbasa sa akoang mga anak.... happy kayo nga nakapabasa ko nila tungod aning Balsa para sa Pagbasa nakabalo ug basa ang akoang anak ug nadungagan akoang kaalam".</i>
Confidence Booster	<i>"Ayos kaayo ang balsa para sa pagbasa sir kay tungod anah makasinabot nami sa akong anak kay dili najud ko cge ug buyag sa iyaha nga mubasa kay siya na man jd magbasa kay maghatag man daw ug incentive si titser". Jenifer (not her real name) one of the parents said.</i>
	<i>Ayos kaayo sir nalipay jud ko nga naapil ko aning Balsa para sa Pagbasa kay wala nako cege kasab.an ni mama nga dili ko kabalo mubasa ug unsaon nalang naku pagtubag aning mga leksyon kung dili ko naay uban kabalo mubasa kaya, piaagi sa balsa para sa pagbasa ganahan nako mag-answer sa akoang module.". RG (his pseudo name) responded.</i>
	<i>"Ganahan nako magbasa-basa ug mga story sir kay kabalo-balo naman ko mo basa dili nako nila kansiyawan na dili kabalo mo basa. Salamat jd ko ani inyung programa". Inday (not her real name) one of the pupils said.</i>
Bond of friendship was developed through reading	<i>Excited kaayo ko mag-adto sa station kay gusto nako makita ang akoang mga friends dayon magsabay me ug basa sa gihatag nga reading materials ni titser." Inday (not her real name) one of the pupils said</i>
	<i>"Nindot jud kaayo ang balsa para sa pagbasa program kay Nawala ang akoang pagkaulawon ug ganahan nako makihalubilo sa akoang mga higala..pasalamat jud ko ug dako sa reading program ni sir...RG(not her real name) one of the pupils said.</i>

From the data gathered on the benefits of parents, pupils, purok-chairman and teachers about the Balsa para sa Pagbasa Program to learning at purok-station, two (3) essential themes emerged as seen in the table 6. There are thematic statements that fall on a *good experience in reading, confidence booster and bond of friendship was developed through reading.*

### A Good Experience in Reading

From the interview conducted, it was revealed that participants benefited on the Balsa para sa Pagbasa Program to learning at purok-station was a *good experience in reading.* *Ana (her pseudo name) one of the pupils said. "Nindot kaayo siya nga experience kay daghan kaayo me nga mga words nahibal.an kung paano magpronounce ug tama ninini. Pagkahuman sa among reading akoo jud mabatyagan nga adunay ko'y nahibalan.*

This discussion of Ana supported by Louie respectively. *"Nakatabang jud kaayo ug dako sir kay atleast nakatabang ko sa mga bata ug nakabalo pd ko asaon pagtudlo sa pagbasa sa akoang mga anak.... happy kayo nga nakapabasa ko nila tungod aning Balsa para sa Pagbasa nakabalo ug basa ang akoang anak ug nadungagan akoang kaalam".*

### Confidence Booster

It was revealed in the interview that the participants benefited in the Balsa para sa Pagbasa Program to learning at purok-station was *Confidence Booster for them.* *"Ayos kaayo ang balsa para sa pagbasa sir kay tungod anah makasinabot nami sa akong anak kay dili najud ko cge ug buyag sa iyaha nga mubasa kay siya na man jd magbasa kay maghatag man daw ug incentive si titser". Jenifer (not her real name) one of the parents said. This revelation*



"Ganahan nako magbasa-basa ug mga story sir kay kabalo-balo naman ko mo basa dili nako nila kansiyawan na dili kabalo mo basa. Salamat jd ko ani inyung programa". Inday (not her real name) one of the pupils said.

"Ayos kaayo sir nalipay jud ko nga naapil ko aning Balsa para sa Pagbasa kay wala nako cege kasab.an ni mama nga dili ko kabalo mubasa ug unsaon nalang naku pagtubag aning mga leksyon kung dili ko naay uban kabalo mubasa kaya, piaagi sa balsa para sa pagbasa ganahan nako mag-answer sa akoang module.". RG (his pseudo name) responded.

#### Bond of friendship was developed through reading

From the interview conducted, it was revealed that participants benefited on the Balsa para sa Pagbasa Program to learning at purok-station the bond of friendship was developed through reading. "Excited kaayo ko mag-adto sa station kay gusto nako makita ang akoang mga friends dayon magsabay me ug basa sa gihatag nga reading materials ni titser." Inday (not her real name) one of the pupils said.

"Nindot jud kaayo ang balsa para sa pagbasa program kay Nawala ang akoang pagkaulawon ug ganahan nako makihalubilo sa akoang mga hagala.Pasalamat jud ko ug dako sa reading program ni sir...RG(not her real name) one of the pupils said.

#### REFLECTIONS/ CONCLUSIONS

**Firstly**, the level of performance of the frustration readers of grade five struggling reader were **VERY LOW PERFORMANCE** based on the result of the Ebel's Criterion of Mastery. This implies that they were struggling in reading and needed the reading remedial program.

**Secondly**, based on the table 4 data shows that the mean percentage of Post- Test of grade 5 struggling readers was 82%. Using the Ebel's Criterion Mastery, it was found out obtained mean percentage of respondents' pupils reveals that the post-test performance was **HIGH PERFORMANCE**. This signifies that the Balsa para sa Pagbasa program was effective in improving the level of reading performance of struggling reading.

**Lastly**, interview with the learner's participant disclosed that the balsa para sa pagbasa reading remedial program encounter proved to be beneficial experience to them. This is because the intervention provided them the opportunity to experience reading with purok chairman, a confidence booster for them and a bond of friendship developed through reading.

**Timeline of Research Activities**

Objectives	Strategy/ Activity	Time Frame	Financial	Persons Involve	Output/Remark
To orientate on the purpose and objectives of balsa para sa pagbasa 30 minutes program	Conduct Orientation / home visitation, monitoring	October, 2022	Personal/ MOOE	School Head, Teacher, Pupils Parents	Activity Design, attendance sheet
To check the venue and ask permission from BLGU	Purok visitation /BLGU approval	October, 2022	Personal	Teacher	Letters from BLGU
To identify the struggling reader of Grade Five	Supervised individual reading and exam	October, 2022	Personal/ MOOE	Teacher, pupils	Phil-Iri Tool Teacher- made-test
To develop the reading skills of selected pupils through repeatedly reading short passages	Repeated Reading Technique	November, 2022	Personal/ MOOE	School Head, Teacher, Pupils	Activity design, reading materials, activity sheet or copies of reading passages for marking errors
To improve reading comprehension by retelling a story to partners, using outlines.	Story retelling	December, 2022	Personal/ MOOE	Teacher, Pupils	Individual pupils' copies of the story outline, one per pupils



To activate and enhance existing knowledge before reading	Reconciled Reading	December,2022	Personal/ MOOE	Teacher, Pupils	Sheet of papers or copies of the reading passages for marking errors/vocabulary sheets
To identify the correct word or type of word that belong in the deleted passage of a text	Cloze Test Techniques	January, 2022	Personal/ MOOE	School Head, Teacher, Pupils	Phil – Iri Tool
Identify pupils with the low reading performance based on their result	Supervised Individual Reading	January, 2022	Personal/ MOOE	School Head, Teacher, Parents Pupils	Reading Tool
To provide pupils with a fun engaging way to learn	Word - Picture Matching	February, 2022	Parent sustainable support MOOE	School Head, Teacher, Parents Pupils	Activity sheets, Reading materials, Tutoring guide materials
To assist the reading performance of selected pupils	Tutorial activity	February, 2022	Parents/ MOOE	School Head, Teacher, Parents Pupils	Activity sheets and result
To develop the reading skills of selected pupils	One on one reading activity with the teacher	March, 2022	Parents/MOOE	School Head, Teacher, Parents Pupils	Reading Tool
To evaluate the performance of the pupils through conducting post-test and in-depth interview about the experiences encountered during the program	Post - Test	March, 2022	Personal, MOOE	School head, teacher, pupils	Teacher's made test

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# OPLAN TOKHANG 30 MINUTES CLASSROOM- BASED TUTORIAL PROGRAM: INTERVENTION FOR IMPROVING READING PERFORMANCE LEVEL OF GRADE – FIVE COPPER PUPILS STRUGGLING READERS

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## ABSTRACT

*This action research was conducted to determine the level of reading performance of pupils of Grade –Five Copper struggling readers of Maasim Central Elementary School using the oplan tokhang 30 minutes classroom-based tutorial program. A descriptive –correlational method was used. An adopted Validity and Reliability- VERY HIGH VALIDITY test and Robert Ebel's Criterion of Mastery was used to determine the level of performance of Grade –Five Copper pupils struggling readers. The teacher – made pre – test and the PHIL-IRI tool was used to determine the struggling readers and there were 10 pupils who were found to be very slow readers from the 27 pupils who were identified as struggling reader based on the result of the PHIL-IRI conducted. Gathered data were treated, analyzed and interpreted using frequency weighted mean. Result showed that the Pre – Test mean percentage was 18% described as LOW PERFORMANCE while Post – Test revealed 82%, HIGH PERFORMANCE. The increase in the pupils reading performance shows that using oplan tokhang 30 minutes classroom is effective in improving the reading performance of Grade V –Copper.*

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Above all, the Almighty and Heavenly Father, who makes all things possible and perfect in His time... The success of the researcher is because of You... And so, all glory for You.

## CONTEXT AND RATIONALE

In a fast- growing and technology – oriented society today, reading is essential for people to cope with the development and changes in the society. Learning to read begins far before children enter formal school. Most children learn to read fairly well. In fact, a small number learn it on their own, with no formal instructions before school entry. Learning to read begins far before children enter formal school. The researcher found out that those pupils who were identified to be very poor readers belong to a poor family with uneducated parents and can hardly afford to sustain financially. The level or skills of the very slow pupils are the following: doesn't know the sounds associated with all the letters, skip words in a sentence and don't stop to self – correct, can't remember words; sound out the same word every time it occurs on the page, frequently guess at unknown words rather than sounding them out, can hardly recognize letters in the alphabet, sound recognition of letters and words, can hardly read three letter words, and stammering while reading (Hall, 2009). According to Blumenfeld, P., Kempler, T. M. & Krajick, J. S. (2006) the following factors might be considered to be related to their low performance in school: no breakfast before going to school, unstable financial expenses in school for food, lack of interest due to no participation due to weak condition, lack of parents' monitoring and follow - up at home. These are the few reasons



why the researcher conducted strategies to address the poor performance – related problems of the pupils.

Therefore, the researcher formulated a strategy called “**oplan tokhang 30 minutes**” classroom-based tutorial. “**Oplan tokhang**” is a well-known program of the PNP, the police visiting the houses and knock of the individual suspected to stop their activities and submit themselves to authority for potential rehabilitation. So, the researcher strategically adopted the term instead of the highly profile person involved in the illegal drugs, the struggling readers based on the result on PHIL-IRI pretest and the researcher made pre-test were the respondent of the study. The researcher conducted a home visitation where use the term **oplan tokhang 30 minutes**, “**TOKHANG**” from the generic name TOK- meaning “**TOKTOK**” and **HANG**- meaning “**HANGYO**” were the teacher knock and plead make a polite request to allow their pupils to be part of the said program for potential rehabilitation in improving reading performance. The 30 minutes represent the time where the respondent were quarantine/rehabilitate for 30 minutes for reading based on the tutorial program using the tutorial tool. The researcher interviewed the parents of the respondent and explain the mechanics why there children involved of these program and conducting monitoring and follow-up at home. The **oplan tokhang 30 minutes** ways used helped in boosting the interest of pupils, resulting to improved reading ability.

Thus, this study was conducted. This is to determine if there is an increase of reading performance level of grade five-copper struggling reader using the **oplan tokhang 30 minutes** classroom –based tutorial program as an intervention of improving the reading performance level

### Innovation, Intervention, and Strategy

The following strategies used as intervention are the following:

1. **Oplan Tokhang 30 minutes** – is a program were the teacher knock and plead (make a polite request to allow their pupils to be part of the said program) for potential rehabilitation in improving reading performance. The respondent were quarantine/rehabilitate for 30 minutes for reading tutorial purposes.
2. **Repeated Reading Approach** – the student read repeatedly short passages until they achieve a satisfactory level of fluency
3. **Group Story Mapping**- which is based on Schema Theory, emphasize linking previous knowledge structure with reading materials.
4. **Story retelling**- emphasizes the importance of verbal rehearsal of a story. By retelling students relate information from the story to their own experiences.
5. **Reconciled reading**- which based on the Schema Theory, engages students in enrichment activities prior to reading the passage. In this way the students have the opportunity to activate and enhance existing knowledge before reading.
6. **Cloze Test Techniques** - also called (Deletion Test) is an exercise test or assessment consisting of text with

certain words removed where a participant is asked to replace the missing word.

7. **Supervised Individual Reading** – it is a supervision of teacher by the pupil’s task or seatwork.
8. **Word - Picture Matching** – matching exercise provides pupils with a fun, engaging way to learn..
9. **Peer Tutorial activity**- a class conducted by a tutor for a student or a small number of students.
10. **One on one reading activity with the teacher**- is a form of tutorial reading to develop an understanding of basic concepts, build specific skills, gain confidence, and become motivated to read and write.

### Action Research Questions

The purpose of this Action research is to find out the Oplan Tokhang 30 minutes Classroom –based tutorial program is effective in improving the reading performance of Grade V Copper struggling readers - basis to enhance the reading performance of struggling readers of Maasim Central.

Specifically it sought answers to the following questions:

1. What is the level of reading performance of pupils in the pre- test conducted?
2. What is the level of reading performance of pupils in post- test?
3. Is oplan tokhang 30 minutes classroom-based tutorial program effective in improving the readers as basis to enhance the reading performance of struggling readers?
4. Based on the findings, what possible intervention / program could enhance the reading program of Maasim Central?

### Action Research Methods

#### A. Respondents

The respondents of this study were Grade Five – Copper pupils of who belong to Slow /struggling Readers, Maasim Central Elementary School who were officially enrolled in school year 2018- 2019. There were five (5) males and five (5) females. They were taken purposively by the researcher as the subjects of this study.

#### B. Instrument/Research design

A descriptive –correlational method was used. This study used the teacher-made –pretest , the PHIL-RI tool, the Validity and Reliability design and the Robert Ebel’s Criterion of Mastery to determine the level of performance of Grade Five Copper struggling readers. It was validated by the School Principal and the Master Teachers.

#### C. Locale

This study was conducted at Maasim Central Elementary School, West Maasim District. Barangay Poblacion, Maasim, Sarangani Province.

#### D. Data Gathering Methods

In gaining the referential and their reliable outcome the researcher come up with the following procedure on the



conduct of the study. First, the researcher administered the PHIL- Iri pre – test to determine the reading performance of the pupils. From the PHIL – Iri conducted, it was in the class with 37 pupils these are two (2) independent readers, 8 dependent readers and 27 Frustration readers. Since, the result of the PHIL – Iri pre – test revealed 73% of the class belongs to Frustration Level, the researcher wanted to find out the level of performance of Frustration Readers if given another assessment tool. Hence, the researcher developed a teacher – made test based on the Tutorial Activity tool. The test includes items which tested their word recognition skills, word analysis skills, sentence comprehension skills word familiarization skills. It was validated by the Principal and Master Teachers of the school. The teacher – made test was then administered to the Frustration readers. Using Robert Ebel’s Criterion of Mastery, it was found out that 10 frustration readers have very low performance. Those 10 (ten) very low performing pupils,

undergone **Oplan Tokhang 30 minutes Classroom – based Tutorial Program** the whole – year round were the respondent visited the houses using the **oplan tokhang** program to ask permission with their parent to attend /surrender their children for potential rehabilitation in improving reading performance. They were listed and checked their attendance and monitored every day both school and at home for follow up purposes. The researcher conducted an orientation with the parent regarding the activities. The respondents were quarantine/rehabilitate every day for 30 minutes for reading using the classroom – based tutorial program based on the tutorial class program made by the researcher. Moreover, the researcher conducted **30 minutes monitoring every weekend** and bring goods as token of appreciation for their participation. After the tutorial activities have been completed a teacher – made post – test was administered to the respondents. Data gathered were treated, analyzed and interpreted using frequency weighted mean.

#### Robert Ebel’s Criterion of Mastery

Percentage	Level of Performance
81% – 100%	Very High
61% – 80%	High Performance
41% – 60%	Moderate Performance
21% – 40%	Low Performance
1% - 20%	Very Low Performance

## DISCUSSION OF RESULTS

Table 1

#### Level of Performance in the Pre – Test

Mean	Mean Percentage	Level of Performance
1.8	18%	Very Low Performance

N = 10

Table 1 show that the Mean Percentage of Pre- Test was 18%. Using Ebel’s Criterion of Mastery, it was found out that the obtained mean percentage of respondent’s pupils

reveals that the Pre-Test was **VERY LOW PERFORMANCE**.

Table 2

#### Level of Performance in the Post – Test

Mean	Mean Percentage	Level of Performance
8.2	82%	High Performance

N = 10

Based on the table 2 data shows that the mean percentage of Post- Test was 82%.Using the Ebel’s Criterion Mastery, it was found out obtained mean percentage of respondents pupils

reveals that the post-test performance was **HIGH PERFORMANCE**.

Table 3

#### Comparison of Pre – Test and Post - Test

	Pre – Test Result	Post – Test Results
Mean Percentage	18%	82%
LEVELPEROF PERFORMANCE	LOW PERFORMANCE	HIGH PERFORMANCE

The result in Pre – Test mean percentage was 18% described as **LOW PERFORMANCE** while Post – Test revealed 82%, **HIGH PERFORMANCE**.

It can be garnered from the data that there is an **INCREASE** in the level of performance of pupils based on the results in the Pre –Test which is **LOW** compared to the result in Post – Test which is described as **HIGH PERFORMANCE**.

The data shows that after a year round activity 8 or 80% of pupils improved their reading performance while 2 or 20% of respondents still need rigid intervention for further improvement. The increase in the pupils reading performance shows that it is very effective to teach reading using tutoring activities tool with oplan tokhang 30 minutes because it helps



the pupils understand more the text they've read and improve the camaraderie of pupil-teacher-parent relationship.

### Reflection

With the remarkable result and upsurge in the reading performance of pupils, the researcher could conclude that the level of performance during the pretest is **LOW compared** to the result in Post – Test which is described as **HIGH PERFORMANCE**. The data shows after the implementation, that the reading performance of the struggling readers improve. It was found out that oplan tokhang 30 minutes is effective in improving the reading performance of the struggling readers.

Hence, a program called OPLAN TOKHANG 30 minutes is therefore recommended to be implemented in every classroom in order to reinforcement the pupils with reading difficulties. This study could be beneficial to other researcher and parents as well as basis in developing further related studies.

### Milestone of the study

With the extraordinary result of the reading performance of the pupils, some teachers adopted the program and the researcher are planning to launch the program in the school level.

### Action Plan

Objectives	Strategy/ Activity	Time Frame	Financial	Persons Involve	Output/Remark
To orientate on the purpose and objectives of oplan tokhang katok 30 minutes program	Conduct Orientation / home visitation, monitoring	June, 2018	Personal/ HRPTA fund ( classroom) MOOE	School Head, Teacher, Pupils	Activity Design, attendance sheet
To identify the struggling reader of Grade Five Copper	Supervised individual reading and exam	June, 2018	Personal/ HRPTA fund ( Classroom) MOOE	Teacher, pupils	Phil-Iri Tool Teacher- made-test
To develop the reading skills of selected pupils through repeatedly reading short passages	Repeated Reading Technique	July 2018	Personal/HRPTA fund(Classroom) MOOE	School Head, Teacher, Pupils	Activity design, reading materials, activity sheet or copies of reading passages for marking errors
To improve reading comprehension by retelling a story to partners, using outlines.	Story retelling	August 2018	Personal/HRPTA fund, MOOE	Teacher, Pupils	Individual pupils copies of the story outline, one per pupils
To activate and enhance existing knowledge before reading	Reconciled Reading	September 2018	Personal/HRPTA fund	Teacher, Pupils	Sheet of papers or copies of the reading passages for marking errors/vocabulary sheets
To identify the correct word or type of word that belong in the deleted passage of a text	Cloze Test Techniques	October , 2018	Personal/ HRPTA fund (classroom) MOOE	School Head, Teacher, Pupils	Phil – Iri Tool
Identify pupils with the low reading performance based on their result	Supervised Individual Reading	October , 2018	Classroom PTA fund MOOE	School Head, Teacher, Parents Pupils	Reading Tool
To provide pupils with a fun engaging way to learn	Word - Picture Matching	November, 2018	Parent sustainable support MOOE	School Head, Teacher, Parents Pupils	Activity sheets, Reading materials, Tutoring guide materials





To assist the reading performance of selected pupils	Tutorial activity	November 2018	Parents and Classroom PTA fund MOOE	School Head, Teacher, Parents Pupils	Activity sheets and result
To develop the reading skills of selected pupils	One on one reading activity with the teacher	January – February 2019	Parents and Classroom PTA fund MOOE	School Head, Teacher, Parents Pupils	Reading Tool
To evaluate the performance of the pupils through conducting post-test	Post - Test	February 219	Personal, MOOE	School head, teacher, pupils	Teacher's made test

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# NON-TRADITIONAL THREATS TO INFORMATION-PSYCHOLOGICAL SECURITY: A PSYCHOLOGICAL DESCRIPTION OF BULLYING AND CYBERBULLYING PHENOMENA

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## ABSTRACT

*In this article, one of the threats to informational and psychological security - bullying and cyberbullying incidents - is highlighted as a psychological problem. Factors causing cyberbullying, reasons, circumstances differentiating cyberbullying from traditional violence, interdependence, psychological state of the participants of the event, and consequences are highlighted.*

**KEY WORDS:** *bullying, cyberbullying, violence, deviant behavior, aggression, flaming, trolling, defamation, slander, cyberstalking, grieving.*

In the 21st century, when Internet technologies are rapidly developing, many conveniences have been created for humanity and society. However, it has also led to an increase in information that poses a threat to the mental state and health of mankind. At the moment, the flow of information is increasing dramatically. Representatives of the younger generation are actively using the Internet, and there are specific problems in this area.

Various measures are being taken to ensure information and psychological security of the youth of Uzbekistan. In particular, the Law of the Republic of Uzbekistan "On protection of children from information harmful to their health" regulates relations in this field. As we explore modern informational psychological security threats, we first examine the concepts of bullying and cyberbullying as analyzed in the field.

Educators and psychologists are constantly faced with cases of violence, discrimination, shaming, laughing at, and insults between children and teenagers at school. This problem is studied in world psychology with the term bullying. This problem exists not only in a region, but also in the region of a nation and internationally [1]. In addition, this problem in the education system is not new.

As we live in the age of 21st century information technologies, we are faced with the problem of cyberbullying, a method of psychological trauma belonging to our century.

It is observed that the incidence and negative consequences of bullying and cyberbullying among teenagers are growing rapidly every year and are being researched.

The study of bullying problems began in the 1970s after the Norwegian psychologist D. Olweus. In Western science and practice, interest in the causes, factors, consequences, personality traits, prevention, intervention and prevention of bullying has grown by the 1980s. Russian experts

paid attention to this problem in the 2000s. In particular, V.G. Petrosyan, M.G. Nechaevoy, I.S. Berdysheva, V.I. Vishnevsky, I.S. Kona, D.A. Kutuzovoy, O. Malantsevoy, A.A. Strelbitskoi, E.I. Researchers such as Feinstein have begun publishing their work on bullying in the press[2].

The concept of cyberbullying was first defined by Bill Belsey. Cyberbullying is the intentional, repeated, hostile bullying of a person using electronic communication such as through information and communication technologies (eg, the Internet, social media posts, instant messages, e-mails, mobile phones, SMS messages sent to a pager). or threatening [2].

Scientifically, the problem of cyberbullying was one of the first to be studied in the USA in 1997. At that time, only 4 states had begun official actions against school violence. After the mass murder at the Colobine school in the USA, in which high school students Harris and Klebold injured 37 students and killed 13 students, the American Psychological Association publishes a special issue of the journal devoted to the problem of cyberbullying. A police investigation revealed that Harris was constantly bullied and bullied at school by teenagers, including that he received numerous threats of discrimination and physical violence on his social media site. It was from this place that his hatred against society arose and grew. Harris wrote in his diary to those around him [3]

In 2015, Child Helpline International recorded more than 16,000 calls for help from children in cases of cyberbullying [4]. In 2013, this association reported to the European Parliament that cyberbullying accounted for 7% of all complaints. EU Kids Online II Internet Development Fund [5] Russian scientists participating in the project noted that 10% of children were affected by cyberbullying during adolescence. These and other studies indicate that cyberbullying is becoming more common and that teenagers are more involved in it [6].



Foreign psychologists described the phenomenon of bullying and cyberbullying as follows.

In particular, D. Olweus defined traditional bullying as follows. "When a student is bullied or becomes a victim, when he or she becomes the target of repeated and repeated negative activities by one or more students" [7]. This definition has not lost its relevance, it has been enriched with additions in the following years. In the definition of D. Olweus, it is noted that the inequality of the aggressor and the victim does not include the features that determine the premeditated "negative" actions of the aggressor.

According to E. Roland: "Bullying is continuous physical and psychological aggression directed by an individual or a group to an individual who does not have the ability to defend himself in the same situation" [8].

Bullying is a rude way of communication - behavior, relationship dynamics and a violation of balance. is the enjoyment of inflicting psychological injury on physically or mentally stronger adolescents by physically or humiliating them. The concept of "bullying" - "violence" includes such components as "aggressive action", "aggression" [8].

Many researchers define "aggression" as an act intended to harm. As an instinctive behavior for self-defense and struggle for survival, aggression is present in every person, and we can see that aggression is manifested in one degree or another in all teenagers. As they get older, they learn to control their aggressive behavior or not to reveal it to others.

Bullying is one form of deviant behavior [3]. Violence is usually committed by an individual or a group.

The main aspect of cyberbullying is that during the communication process, the victim is affected by disseminating false information, discrimination and isolation through information and communication technologies. Even single individuals can poison someone's life enough to condemn them to living in fear every day.

Cyberbullying usually involves sending threatening messages to the victim, posting humiliating photos and videos on social media, or creating fake websites with fake, false information. It is not always known how the consequences of cyberbullying will end [9].

The relevance of the problem of cyberbullying is that the studied topic is a completely new field of research, and the terminological system has not been firmly formed. Some experts believe that cyberbullying can only happen between children and teenagers. When adults do this, it is called "cyber harassment" or "cyberstalking". (Aftab, 2011). Other experts prefer the following terms: "netsivilizovannost online", "online incivility" (incivility online) or "kibernetcivilizovannost", "cyber incivility" (Giumetti et al., 2012). Some psychologists refer to cyberstalking as a type of cyberbullying.

In these studies, factors that cause aggressive behavior in humans, reasons related to personality characteristics, information clarifying whether incidents are bullying or cyberbullying, classification of bullying and cyberbullying, gender differences in the implementation of bullying have been studied.

In particular, the following factors that cause aggressive behavior are listed:

- family environment,
- education,
- examples of aggressive behavior, including the plots of militant films shown on television, computer games, emotional pressure, frustrating situations, etc.

Long-term studies, i.e. longitudinal studies, show that the aggressive behavior formed in childhood remains as a character trait in the later stages of ontogenesis.

In the case of school bullying and cyberbullying, a teenager shows increased aggression in relation to his peers. In order to assert oneself, we can see a negative behavior with the aim of inflicting physical or mental pressure on a weaker peer [8].

The authors highlight 8 reasons why cyberbullying occurs.

- "desire for superiority" is a basic human need, maybe teenagers want to confirm their "superiority" by belittling and humiliating someone on the Internet;
- "subjective feeling of imperfection" - due to the experience of feeling depressed, weak;
- "Jealousy" - the feeling of not being able to see the well-being of others.
- "revenge" - in order to take revenge for the oppression and insult caused;
- "just for fun" - enjoying their actions;
- "conformism" - due to the change of opinion under the influence of the group;
- "problem in family relations";
- "low-level development of empathy" - that is, due to the fact that the attention is focused only on oneself and one's own concerns [9].

In order for the phenomenon to be called bullying, the following characteristics must be present:

- Several repetitions of aggression;
- deliberate action with the aim of causing damage;
- abusing his superiority over the victim (realizing that the victim cannot control the situation or completely abandon it). [7]

Bullying situations are classified as follows:

**1. Characteristics according to the object of aggression:**

- against gender (bullying against women);
- in relation to age (adolescent bullying);
- in relation to the nation.

**2. According to the medium of propagation:**

- school environment;
- between parents;
- cyberbullying.

**3. According to the nature of the aggressive activity (movement):**

- physical;
- verbal
- social bullying [1].

Bullying is an aggressive behavior involving face-to-face physical or verbal behavior towards a person. Physically aggressive behavior includes hitting, kicking, or pushing you (or simply scaring him), as well as stealing, hiding or destroying things, stalking, or humiliating you. Verbal abuse includes name-calling, teasing, insults, or other methods. Abusers are often brutal and hit repeatedly over long periods of time. A person can live in constant fear, tormented by questions such as when and how the evil will happen, what they will do.



Bullying behaviors include refusing to talk to a person, being included in groups or activities, spreading lies or rumors about a person, or making them do things they don't want to do.[8]

Today, the following types of cyberbullying are distinguished:

- flaming - "arguing just for the sake of arguing", the process of exchanging messages on a social network with many users. (chats, internet forums, social networks, etc.);
- trolling - posting provocative messages and comments for people to express their reactions in order to deepen the conflict
- **slander, slander**- dissemination of unfounded claims, information, and information intended to harm someone's reputation.
- **cyberstalking**- Internet stalking, slurring, slurring, and not giving up;
- **sexting**- sending and distributing photos and videos of an intimate nature;
- **Griferstvo**- causing moral or material damage in video games;
- disclosure of secrets - disclosure and announcement of personal information of a person, which he does not want to publicly announce, to everyone, to the public via the Internet;
- **pretending to be someone else's name**- Disguise oneself and create fake profiles in order to capture and harm others
- **catfishing** -rebuilding the victim's profile by stealing personal photos and information in order to create inappropriate content,
- **dissing**- broadcasting or broadcasting information that condemns the victim (or victims) online;
- phreeping - control of someone else's correspondence by the stalker, sending messages with inappropriate content on behalf of the victim [10].

#### *Gender differences in bullying and cyberbullying are seen in*

-Boys are more likely to use physical threats and actions, while girls are more likely to engage in verbal abuse.

- In cyberbullying, boys are usually bullied with "sexting" (sending messages of a sexual nature) or threats of physical harm. Girls, on the other hand, intimidate you by spreading lies and rumors, exposing your secrets, or kicking you out of social media groups, emails, friend lists, and the like [8].

Cyberbullying is a new problem of the 21st century, the Information Age, and the connection between bullying and cyberbullying, its specific aspects, the psychological state of the participants, and the consequences can be seen in the following cases:

- Bullying situations, such as violence, mental pressure, which can be encountered by humanity today, are a transformation into another form, passing from live real reality to virtual form, and any process in virtual reality, such as personal enmity, anti-social action, threat against state policy, can be easily transferred to real reality. in the absence of a border;
- Problems such as psychological pressure, threats of physical violence and intimidation, which existed before, continue today in the virtual world.

As mentioned above, cyberbullying occurs when someone harasses or threatens you using digital technologies such as the Internet, email, text messages, or social media. Unlike traditional bullying, cyberbullying does not require

face-to-face contact and is not limited to only a few witnesses at a time. Also, doing this does not require physical strength from him. Cyberbullying comes in all shapes and sizes, anyone with an internet connection or a mobile phone can cyberbully someone. Cyber attacks can plague you 24 hours a day, seven days a week. Bullying can happen anywhere, even in your own home where you may not feel safe. With just a few clicks, hundreds or even thousands of people can witness online harassment. The ways in which children and adolescents use cyberbullying can be as varied as the technologies they have access to. These can range from sending threatening or abusive messages via email, text, social media or instant messengers, to stealing your online identity to access your email account and harass and humiliate you. In cyberbullying, a person can create a website or social media page. can range from sending threatening or abusive messages via social media or messengers, to accessing your email account, to stealing your online identity to hurt and humiliate you. In cyberbullying, a person can create a website or social media page. can range from sending threatening or abusive messages via social media or messengers, to accessing your email account, to stealing your online identity to hurt and humiliate you. In cyberbullying, a person can create a website or social media page[8].

Also, participants with specific psychological characteristics participate in cyberbullying.

Psychologists divide cyberbullying participants into three groups based on their characteristics: stalkers, victims, and bystanders.

**Pursuers**- teenagers who are impulsive, not enthusiastic, but want to show themselves bold, have leadership qualities, can show aggressive behavior, do not feel the experiences of others.

**Victims**- teenagers who are shy, anxious, prone to tears, have difficulty communicating.

**Observers**As for , they are those who partially feel fear, need help, and at the same time support the persecutor [3].

In individuals affected by cyberbullying, the following psychological consequences are distinguished. Decreased confidence in one's "I", decreased self-awareness, depression, aggressive behavior, anxiety, insecurity, frequent mood swings, fear, suicidal tendencies and other tendencies

Victims of cyberbullying are the most vulnerable groups in need of psychological support. However, it should also be noted that not only the victim, but also the harassers and bystanders can suffer as a result of cyberbullying. Stalkers may suffer from the psychological consequences of their actions. In adulthood, they are likely to be lonely, because bullying others develops his high self-esteem, narcissism, aggression, authoritarianism, cynicism, social adjustment problems. As for the witnesses of cyberbullying, over time, even in adulthood, they may experience emotional distress, irritability, self-doubt, etc. [11].

Unlike physical abuse, the effects of psychological harassment are more likely to be long-term and ultimately have a negative impact on a person's mental health.

Based on the above, it can be concluded that as a result of the emergence and development of the Internet, the phenomenon of bullying and cyberbullying was one of the first to be scientifically researched in Western countries, and in the





territory of Uzbekistan, a complete study of this problem, the study of cyberbullying and its forms of manifestation, the formation of terminology and the statistics of cyberbullying incidents were carried out. there is a need to go.

Taking into account the possibility of young people actively using the Internet in Uzbekistan, in order to prevent the negative consequences of bullying and cyberbullying, it is necessary to expand the possibilities of developing the competence of parents, teachers and students in using the Internet. It may be appropriate to teach adolescent students safe online communication skills and competencies through school textbooks [12].

From the results of the conducted research, it can be concluded that the causes of the occurrence of cyberbullying and the forms of its manifestation are different. For this reason, in order to eliminate the factors that cause aggressive behavior, it is necessary to study the psychological environment in the family, the impact of negative emotional pressure on the young generation, the indifferences in the educational process in educational institutions, and the effects of militant film plots shown in the mass media, and the effects of computer games that promote violence on the Internet. It is important to convey the correct interpretation to the public.

Studying, diagnosing and eliminating the consequences of bullying and cyberbullying among young people in our region. Increasing the culture of communication through electronic means and the Internet in the young generation, deepening their understanding of their rights and duties, and improving the communication competence of Internet users in general is an urgent issue of today.

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# ADEQUATE SELF-ESTIMATION AS A FACTOR OF SUCCESSFUL INTERPERSONAL RELATIONSHIPS IN ADOLESCENTS

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## ANNOTATION

*The nature of interpersonal relationships in any community is quite complex. They manifest both the purely individual qualities of the personality - its emotional and volitional properties, intellectual capabilities, as well as the norms and values of society assimilated by the personality. In the system of interpersonal relations, a person realizes himself, giving to society what he perceives in him. It is the activity of the individual, his actions that are the most important link in the system of interpersonal relations. Entering into interpersonal relations of the most diverse in form, content, values, structure of human communities - in kindergarten, in the classroom, in a circle of friends, in various kinds of formal and informal associations - the individual manifests himself as a person and provides an opportunity to evaluate himself in the system of relations with others.*

**KEY WORDS:** *adolescence, self-esteem, self-confidence, interpersonal interactions.*

Self-esteem is a very important element in the psychological development of a teenager as a person, which is formed under the influence of various factors. Self-esteem also affects various areas of adolescent activity. The main factors influencing the formation of a teenager's self-esteem are the situation in the family, social factors, the Internet, academic performance, external data, relationships with teachers [1, p.226].

Self-esteem is an assessment by a person of himself, his qualities, abilities, capabilities, place in the system of relationships with other people [2, p. 352; 3, p. 44]. It is the most important component of self-consciousness and the self-concept of the individual, the result of an emotional and value attitude towards oneself and the process of self-knowledge. As the core of a person's self-awareness, self-esteem is an important internal mechanism for self-regulation of activities and behavior; it is formed in the process of interaction and communication with other people.

Self-esteem in psychological science is also considered in the context of the problem satisfaction / dissatisfaction of a person with himself, together with such concepts as "self-image" and "level of claims". The feeling of self-satisfaction plays determining role in activity, behavior, personal development and is considered as synonymous with self-esteem.

In the process of interaction, adolescents often experience difficulties due to various reasons. As a result, in the process of communication, contradictions, misunderstanding, barriers occur, as a result of which conflicts arise in a group of

adolescents, which are very often intractable. A teenager with a low status in a group has, as a rule, low self-esteem, a high level of personal and situational anxiety, communication difficulties, which prevents him from expressing himself. Over time, these qualities are fixed in the form of character traits, and having matured, such a person is unlikely to be successful in his activities. All these features also determine the peculiarities of the relationship of adolescents with each other, the style of communication and behavior [4, p.65].

A significant contribution to the development of the problem of interpersonal relations and the formation of self-esteem was made by B. G. Ananiev, M. S. Kagan, A. S. Makarenko, V. N. Myasishchev. The close relationship between the two problems - interpersonal relations and communication - can be traced in the works of A. A. Bodalev, A. E. Voiskunsky, V. A. Goryanina, M. S. Kagan, N. V. Kazarinova, V. N. Kunitsina, A. A. Leontiev, A. V. Mudrik, B. D. Parygina, etc. R. Burns, L.I. Bozhovich, I.S. Kon and others.

A person as a person is formed in a group, he is a direct and indirect spokesman for intra-group relations. The group is a significant factor in the socialization of the individual, i.e. the group itself acts as a collective subject of a certain type of activity, and through it the individual is included in the entire system of social relations. In this regard, the group most fully reflects the main features of the social system within which it is formed and functions. In adolescence, self-esteem is actively formed in young people, and society largely influences its



development, and it should be noted that in most adolescents, it is formed inadequately.

A holistic approach to the problem of active formation of adequate self-esteem involves considering the interpersonal relations of adolescents as an activity aimed at satisfying the central need of this age - communication with peers based on awareness, knowledge and evaluation of oneself, one's qualities. Therefore, the formation of adequate self-esteem of adolescents is of particular relevance. Each person evaluates himself, experiencing satisfaction or dissatisfaction from his personal qualities. Too high and too low self-esteem can become a source of internal personality conflicts. Self-esteem is a person's assessment of himself, his capabilities, qualities and place among other people. With the help of self-esteem, the behavior of the individual is regulated. Thus, relationships with other people are important and relevant for a person of any age. However, their importance increases precisely in adolescence.

Psychologists note that many factors influence the formation of self-esteem: the attitude of parents, position among peers, interaction with teachers. Self-esteem of a teenager is often ambiguous and unstable. On the one hand, he perceives himself as an exceptional and extraordinary person, and on the other hand, he is tormented by doubts about his significance and skill (Sorokoumova, 2007). Comparing himself with other people, a teenager learns new adult norms of behavior and relationships between people, forms ideals and standards to follow in life and work. As a result of this process, he either achieves true self-acceptance, when his own perception is closest to the ideal "I", or finds himself in a situation of acute intrapersonal conflict (Sidorov, 2006).

For example, it is believed that an adequate level of self-esteem contributes to the formation in a teenager of such personal characteristics as self-confidence, self-criticism, perseverance. The connection of adequate self-esteem with educational and social activity is manifested in the fact that such students have a large field of interests, a fairly high and stable level of academic performance, high social and personal status, their activity is aimed at various types of activities, while interpersonal contacts are moderate and aimed at knowledge of oneself and others in the process of communication and interaction.

The presence of excessively high self-esteem limits the adolescent in the possibilities of participating in various activities, such adolescents are more likely to choose those areas of activity in which they are confident of their success, and their communication is often of little substance and is aimed at confirming their self-esteem and asserting their status.

Low self-esteem in adolescence can adversely affect the realization of certain personal qualities and abilities and make it difficult to fully communicate with both peers and adults. The study of self-esteem of modern adolescents is a

serious and urgent task, the solution of which allows clarifying its psychological content in the conditions of modern realities, identifying conflict zones, and also determining its resources for effective personality development.

The formation of self-esteem is associated with the development of independence of adolescents. If independence is consciously granted to a teenager by adults, then there is no contradiction between the feeling of self-esteem that is forming in a teenager and the attitude of elders towards him, and therefore there is no dissatisfaction with the attitude of adults and, accordingly, there are no grounds for manifesting various forms of protest and proving one's adulthood. If the independence of a teenager arises only because of certain circumstances of life, while maintaining the attitude of adults towards him as if he were small, then a contradiction appears between this attitude and the feeling of self-esteem that is formed in the teenager, which is found in the clashes and conflicts of adolescents and adults.

According to Z.S. Kurbanova "self-esteem of a teenager is associated with his status in the group interaction of peers: adolescents occupying a high social status may have both adequate and inflated self-esteem; adolescents occupying an average level of social gradation, for the most part, have adequate self-esteem, however, in this social group there are adolescents with both low and high self-esteem; adolescents who occupy a low social status among their peers have, for the most part, low self-esteem, but there are also adolescents with high self-esteem" [ 5 , p. 94].

Work on the formation of an adequate self-esteem of a teenager should include various forms, methods, methods of organizing educational activities that allow revealing the subjective experience of students. When organizing extracurricular and extracurricular activities, it is necessary to include adolescents in group work [6, 7]. In our opinion, the inclusion of adolescents in group activities contributes to the development of the following skills in them: listening to others, empathy, adequately assessing their work, highlighting not only positive, but also negative aspects, and arguing assessments. Thus, a positive impact on the development of adolescent self-esteem can be provided by actively including them in group work and optimizing their relationships with peers.

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## FEATURES OF THE OPTIMAL CHOICE OF DENTAL IMPLANTATION TECHNIQUE. LITERARY REVIEW

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### ANNOTATION

*At the planning stage of dental implantation, it is important to choose the right type of dental implants to be installed, the area in the jaw where dental implants will be installed and their required number for full treatment and restoration of chewing load. Another important step in implantation planning is the choice of dental implantation technique. This article discusses the optimal choice of implantation technique depending on the nature of cylindrical and plate implants.*

**KEY WORDS:** *dental implantation, implantation technique, one-stage technique, two-stage technique, cylindrical implant, lamellar implant.*

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## ОСОБЕННОСТИ ОПТИМАЛЬНОГО ВЫБОРА МЕТОДИКИ ДЕНТАЛЬНОЙ ИМПЛАНТАЦИИ. ЛИТЕРАТУРНЫЙ ОБЗОР

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**Аннотация.** На этапе планирование дентальной имплантации важно правильно подобрать вид устанавливаемых дентальных имплантатов, область в челюсти, где будет устанавливаться имплантаты зубов и их необходимое количество для полноценной лечение и восстановление жевательной нагрузки. Еще одним важным этапом планирование имплантации является выбор методики дентальной имплантации. В этой статье обсуждается оптимальный выбор методики имплантации в зависимости от характера цилиндрических и пластиночных имплантатов.

**Ключевые слова:** дентальная имплантация, методика имплантации, одноэтапная методика, двухэтапная методика, цилиндрический имплантат, пластинчатый имплантат.



**Введение.** Дентальная имплантация была введена в стоматологии много лет назад. За последние десятилетие это направление стал самым распространенным направлением в хирургической стоматологии для полноценной восстановления беззубой челюсти.

Классификация дентальной имплантации можно делить на несколько категориям по тем или свойствам. По форме внутрикостной части, имплантаты бывают: в форме корней зубов (винтовые, цилиндрические); пластинчатой формы; комбинированной формы [3, 6, 18].

По конструкции имплантаты делятся на: Разборными и неразборными.

Результаты проведенных клинических и экспериментальных исследований в дентальной имплантологии подтверждают ряд положительных качеств по применению цилиндрических и пластиночных имплантатов с эффектом памяти формы, что отличают их от аналогов из титана [7, 12].

Цилиндрические имплантаты имеют высокую эффективность при использовании их в качестве опоры под ортопедической конструкций, имеет простой способ установление; имеет различные виды абатментов что создает условию надежной фиксации ортопедических конструкций [1, 18].

Пластиночные имплантаты состоят из внутрикостной и внекостной частей. Внутрикостная часть образует пластинку с отверстиями и размещается в толще губчатой кости челюсти. Внекостная часть образует шейку и размещается на уровне гребня альвеолярного отростка челюсти и слизистой оболочки. Следующая часть опорная головка выступает над слизистой оболочкой и предназначена для крепления зубного протеза [2, 13, 33].

**Цель исследования:** Проанализировать характеристики цилиндрических и пластиночных имплантатов и выбрать оптимальную методику имплантации в зависимости от возраста пациента.

**Материал и методы.** Современные научные литературы по особенностями цилиндрических и пластиночных имплантатов и по методики дентальной имплантации. Поиск проводился в системах Pubmed, e-library, cyberleninka и других по ключевым словам: дентальная имплантация, методика имплантации, цилиндрический имплантат, пластиночный имплантат, одноэтапный метод, двухэтапный метод, протезирование. Всего по теме исследования критически проанализированы 82 работ, опубликованных по теме исследования на русском и английском языках в период с 2012 по 2022 гг.

**Результаты.** Анализ современной литературы позволил выделить особенные характеристики цилиндрических и пластиночных имплантатов и выбрать оптимальной методики дентальной имплантации для каждого пациента с дефектами зубных рядов [9, 15].

Материалы для изготовления дентальных имплантатов можно разделить на группы: -металлические (из титана и его сплавов, кобальта хромового сплава, нержавеющей стали, серебряно-паладиевого сплава и др); - керамические (на основе оксида алюминия сапфира, коронка, оксида алюминия с добавками магния, биостекло-керамики, углеродной керамики и др); - металлокерамическими покрытиями (из биоинертной или биоактивной керамики и др) [6, 8, 16].

Цилиндрические имплантаты имеют пористую поверхность и более равномерно распределяет функциональные нагрузки на костную ткань челюстей. Установление имплантата достаточно легкая и быстрая, менее травматична для пациентов [17, 32]. Цилиндрические имплантаты сверху покрываются гидроксиапатитом или титановой плазмой и это дает возможность на увеличение наружной поверхности внутрикостной части. Гидроксиапатиты владеют остеокондуктивными свойствами, что стимулирует рост кости [10, 19]. Они способствуют “Приживлению” имплантата, иногда из-за гигроскопическими свойствами подвергается к загрязнению. Все цилиндрические имплантаты производятся разборными и относятся к двухэтапным имплантатам. Имеет внутрикостную часть и абатмент [4, 20].

В начальном этапе развития имплантологии когда изобрели пластинчатые имплантаты они стали очень популярными и широко использовались [14, 30]. Но в дальнейшем при их использовании врачи сталкивались с отдаленными осложнениями. Интеграция пластиночных имплантатов происходит когда образовавшиеся сгусток крови не фиксируется с поверхностью гладкого имплантата [1, 4, 7]. За счет этого остеогенные клетки не достигают поверхности самого имплантата и процесс остеиндукции и остеокондукции происходят на месте



некроза и от краев образовавшиеся костной раны. На этот процесс влияет также травматичный метод установление пластинчатых имплантатов. Из-за того что не достаточно происходит остеоинтеграция, установленные пластиночные имплантаты удерживаются за счет плотного прилегания в кости [5, 11, 18]. Во многих клинических случаях после установления пластинчатых имплантатов наблюдались фиброостеоинтеграция, после которого появляется подвижность. После неудачного установления таких имплантатов приходилось их удалить. После удаления их в кости образуются обширные дефекты окружающих тканей. В настоящее время благодаря современным методом направленной костной регенерации есть возможность восстановления образовавшегося костного дефекта, после чего можно проводить имплантацию [2, 21, 26]. Пластиночные имплантаты бывают разборными и неразборными. Неразборные одноэтапные пластиночные имплантаты имеют такие же части как у двухэтапные-внутрикостная часть и абатмент, но они соединены друг с другом монолитно что позволяет им быть более агрессивными [24, 25, 31].

Классификация в зависимости от метода установления дентальных имплантатов, они бывают одноэтапными и двухэтапными [1, 22, 28].

Двухэтапный метод имплантации в настоящее время является самым распространенным методом по всему миру и успел стать классическим методом. Данная методика состоит из двух этапов: первый этап - с помощью хирургического вмешательства устанавливается стержень то есть сам имплантат; второй этап - на этом этапе производится раскрытия имплантата и установление формирователя десны [5, 23, 27]. Интервал между первым и вторым этапом должен составлять не менее трех месяцев. Такой протокол операции используется только для разборных имплантатов.

Одноэтапный метод имплантации отличается от двухэтапным тем что после установки имплантата верхняя часть конструкции остается над слизистой оболочкой. По одноэтапному протоколу можно устанавливать неразборные имплантаты так и разборные, сразу фиксируя на них формирователя десны или же абатмента.

По мнению большинства авторов "Выживаемость" установленных имплантатов зависит от степени сохранности объема и качества костной ткани беззубых участков челюстей [5, 29, ].

При протезировании на дентальных имплантатах можно использовать различные виды ортопедические конструкции: несъемные (мостовидные протезы, различные коронки), съемные (частичные и полные).

**Заключение.** В клинической практики пластиночных имплантатов можно использовать как метод выбора. Современная технология как направленная костная регенерация позволяет избежать возникновения обширных дефектов костной ткани после удаления неудачно установленных пластиночных имплантатов.

Установка цилиндрических имплантатов менее травматичны, чем установки пластиночных имплантатов. Цилиндрические имплантаты более равномерно распределяет функциональную нагрузку на костную ткань.

Выбор методики операции дентальной имплантации с цилиндрическими и пластиночными имплантатами зависит от индивидуальных особенностей, состояние и объема сохранности костной ткани и от возраста пациентов с дефектами зубных рядов.

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# SOME FEATURES OF THE CLINICAL COURSE OF RECURRENT OBSTRUCTIVE BRONCHITIS IN CHILDREN WITH PRIMARY HYPOTENSION

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## ANNOTATION

40 children aged 3 to 7 years were examined. The main group consisted of 12 children with recurrent obstructive bronchitis, with a verified diagnosis of primary arterial hypotension (group 1), the comparison group consisted of 18 patients with recurrent obstructive bronchitis and normal blood pressure (group 2), the control group consisted of 10 conditionally healthy children. The examination included the collection of anamnesis, clinical and laboratory studies. It has been established that in the development of recurrent obstructive bronchitis in children with primary arterial hypotension, unfavorable factors of a family history, the pathological course of pregnancy and childbirth in the mother, and the features of the premorbid background in postnatal ontogenesis are important.

**KEYWORDS:** recurrent obstructive bronchitis, primary arterial hypotension, children, clinical features, clinical laboratory studies.

## INTRODUCTION

Acute respiratory viral infection in children of early age mainly affects the bronchi and is characterized by chronic and recurrent obstructive syndrome. The incidence of acute bronchitis is 200-400 per 1000 children. Recurrent obstructive bronchitis accounts for 20-30% of lung-bronchial diseases [2,4]. Recurrent bronchitis is a special nosological unit that requires careful consideration by general practitioners, as it is a risk factor for the development of a number of chronic diseases of the respiratory system. The disease occupies one of the leading places among respiratory diseases, and according to different authors, the frequency ranges from 5 to 40% [3,5]. A high prevalence of recurrent bronchitis in preschool children is observed in environmentally disadvantaged areas. Bronchitis on the background of an acute respiratory infection can cause recurrent bronchitis if it recurs 2-3 times in 1 year with obstructive syndrome. Recurrent bronchitis is often observed in young children, hyperreactive changes are observed based on the morphological characteristics of the bronchial trees under the influence of external environmental factors [11-16]. According to scientists, recurrent obstructive bronchitis in children can lead to the development of bronchial asthma, therefore it is important to carry out preventive treatment - preventive procedures [6-10]. The effect of systemic hemodynamic disturbances in children with recurrent obstructive bronchitis has not been studied. The most common primary arterial hypotension in the pathology of cardiovascular diseases in children is accompanied by many systemic changes, neurovegetative and endocrine imbalance, changes in central and regional hemodynamics, which strongly affects the course of inflammatory diseases of the respiratory tract [17-22].

**The purpose of the study:** to determine the characteristics of the clinical course of recurrent obstructive bronchitis in children with primary arterial hypotension.

**Sources and verification methods.** In our observation, children 1 were 40 children aged 3 to 7 years who were treated in a city clinic, 12 children with recurrent obstructive bronchitis, primary arterial hypotension formed the main group, group 2 consisted of 18 children with recurrent obstructive bronchitis and arterial blood their blood pressure was normal, 10 children formed the control group (healthy children). Both groups of patients were examined during the acute period of the disease. The examination methods included: anamnesis collection (genealogical, social, biological), clinical and laboratory examination. To evaluate the degree of development of bronchoobstructive bronchitis, the degree of severity of expiratory wheezing and the degree of development of cyanosis, the point scale of W. Tal et al. (1983) was used.

**Test results and discussion.** Analyzing the antenatal anamnesis collected from the mothers of the patients, it was found that the children in group 1, compared to children in group 2 and the control group, had pregnancy complications in their mothers, that is, anemia was observed (in group 1 - 33.3%, in group 2 - 27.7 % and control children - 20%), slow labor was observed in 41.6%, 22.3% and 20% of children.

Mothers of patients in group 1 experienced strong changes in the second half of pregnancy compared to mothers of children in group 2 and the control group, that is, severe toxicosis, chronic fetoplacental insufficiency were observed, and a decrease in arterial blood pressure (ABP) with primary arterial hypotension in pregnant mothers led to increased



hypoxia in the fetus. brought At birth, 16.6% of children in the 1st group and 11.2% of the children in the 2nd group had low weight gain. When the genealogical anamnesis was collected, 50% of the children in the 1st group, 61.1% more in the 2nd group, and less allergic diseases were observed in the control group (30%). Among relatives of children of both clinical groups, the following diseases were more often detected: chronic bronchitis, pneumonia, bronchial asthma, chronic sinusitis, tonsillitis, pharyngitis, otitis, etc. When we analyzed the diseases of patients in group 1, in the first year of life, 25% of anemia, 16.6% of rickets, 33.3% of hypotrophy were detected, in patients of group 2, these indicators were 33.3%, 22.2%, and 10%.

At the time of examination, 16.7% of children had recurrent obstructive bronchitis with primary arterial hypotension, 11.2% of patients had recurrent obstructive bronchitis with normotension, physical development indicators (body weight, height) were equal to below average, i.e. 10-25th centile. Gastrointestinal tract diseases (intestinal dysbacteriosis, giardiasis, biliary tract dyskinesia, worm infestation) were observed in 32.5% of children with primary arterial hypotension, the occurrence of gastrointestinal tract diseases in children of the 2nd group was 25%.

Allergy symptoms were observed in 58.3% of children in group 1, and in 38.8% of children in group 2, which can be attributed to immune characteristics, and in primary arterial hypotension, it is associated with systemic disorders of hemodynamics. The anamnesis of children with recurrent obstructive bronchitis revealed the following: unfavorable conditions in the family, deficiencies, parents' smoking, alcohol consumption. These mentioned factors were more observed in children with recurrent obstructive bronchitis in both groups compared to the control group. In children with primary arterial hypertension, the influence of surrounding negative mental influences was observed more - 33.4%, in children in group 2 - 16.7%, and 10% in children in the control group. In children under 4 years of age, primary arterial hypertension was detected in 75% of children with signs of bronchial obstruction, and in 66.7% of children in group 2.

Acrocyanosis in every 2 patients with primary arterial hypotension: blueness of the fingertips, was found in every 5 patients in group 2, blueness around the nose-lip was rarely observed. The majority of children in both groups were admitted to the ward with symptoms of acute respiratory infection: symptoms of rhinitis - recurrent obstructive bronchitis with primary arterial hypotension (BAG) in 83.3% and recurrent obstructive bronchitis with normal blood pressure (BP) in 94.4%, with pharyngitis (91.6%), with catarrhal otitis (10%), with conjunctivitis (8.3%), with laryngitis (16.7%) were observed in children. In the acute period of the disease, symptoms of atopic dermatitis were detected in 33.4% of children with primary arterial hypotension, in 27.8% of children with recurrent obstructive bronchitis and normal blood pressure. Most of the children in both groups had a dry, whistling cough from the first day, followed by a wet, sticky cough. Duration of cough in patients with primary arterial hypotension was ( $3.4 \pm 5.0$  days) and (in the second group -  $2.2 \pm 2.5$  days,  $r < 0.05$ ).

Expiratory wheezing with the involvement of additional muscles was observed in most of the children under observation. Among them, 25% of children with primary arterial hypotension, 11.2% of children in group 2 had mixed type of wheezing. Children with primary arterial hypotension had more moderate severity of bronchial obstructive syndrome, and patients in group 2 had more mild and severe degrees.

Percussion revealed a box-like sound in the lungs. During auscultation, hard breathing, prolongation of exhalation was observed. Diminished vesicular breathing was heard in 33.4% of children in group 1 and in 16.7% of children in group 2. Dry, whistling and 1-2 moist rales of different caliber were detected in the area of the lungs.

A general blood analysis of patients with acute recurrent bronchitis revealed leukocytosis compared to patients with primary arterial hypotension. Patients with primary arterial hypotension often complained of: sleep disturbances, profuse sweating, stable dermatographism, variable pulse, cephalgia, palpitations, squeezing pain in the heart area, spastic pain in the abdominal area.

## CONCLUSIONS

Thus, based on the results of the examination, the development of recurrent obstructive bronchitis in children with primary arterial hypotension - unfavorable circumstances in the family, deficiencies, the mother's pregnancy and the pathological course of the delivery process (toxicosis, arterial hypotension, chronic fetoplacental insufficiency, chronic intrauterine hypoxia), the presence of a premorbid background in the child (artificial nutrition, hypotrophy, anemia, rickets) is of great importance. The course of recurrent obstructive bronchitis against the background of primary hypotension was determined by the fact that children begin at an early age, acute respiratory infection often develops with broncho-obstructive syndrome, general intoxication and catarrhal symptoms are observed in the acute period of the disease, obstructive syndrome is often moderately severe, and changes in dynamics are gradually manifested. Prolonged course of recurrent obstructive bronchitis developed on the background of primary arterial hypotension should be considered as a risk factor, and vegetatropes drugs should be added to the therapy of these patients.

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## PROBLEMS OF PLANNING PRODUCTION ACTIVITIES OF LLC TASHKENT COTTON TEXTILE CLUSTER

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### ABSTRACT

*This article discusses the main problems of planning production activities in agricultural clusters, such as depreciation of networks and funds, dependence on suppliers, poor use of innovative technologies and equipment, etc. The analysis of information about the state of the agrocluster and ways to control the effective use of material, financial and information resources is given.*

**KEY WORDS:** *Agricultural sector, SWOT analysis, dependence on suppliers, innovative technologies, business planning, labor.*

Scientific and practical work on clusters began with large-scale reforms in all areas aimed at increasing the competitiveness of the country's economy based on the modernization and diversification of key sectors, deepening democratic reforms in the Action Strategy for five priority areas of development of the Republic of Uzbekistan in 2017-2021 [1].

In order to further deepen structural reforms and attract direct investment in the development of cluster production in agriculture, introduce effective methods of growing raw cotton, grain crops and other crops, organize deep processing and produce competitive products with high added value and, on this basis, increase productivity and wages in the agricultural sector, by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On measures to create a modern agro-industrial cluster in the Kuyichirchik district of the Tashkent region" 01.12.2018 № 974, it was created the agricultural cluster "Tashkent Cotton Textile cluster"[2].

Underestimation and insufficiently effective planning of production activities, and as a result, the compilation of a planning system for production activities that is unsuitable for extremely dynamic and unstable market conditions, which is not capable of achieving the set goals and stable development, leads to economic losses. Therefore, it is necessary to responsibly approach the issue of planning the production activities of the enterprise.

In order to prevent any consequences during planning, we will consider the main problems that arise when planning the production activities of the agricultural cluster LLC "Tashkent cotton textile cluster".

The emergence and development of new technologies, fluctuations in market demand and conjuncture determine the process of planning the production activities of an enterprise. Therefore, industrial enterprises need to pay attention not only

to internal capabilities, but also to evaluate external factors that affect the planning process and adapt to their changes.

The external environment of the agricultural cluster LLC "Tashkent cotton textile cluster" assumes the influence of the state, consumers, suppliers and competitors on the agricultural cluster.

Thus, production and technical factors should be attributed to internal factors affecting the planning process, and suppliers to external factors.

The analysis of internal capabilities carried out in the second chapter of this work, as well as the assessment of the influence of external factors, made it possible to conduct a SWOT analysis of the enterprise, which involves the study and study of strengths and weaknesses, opportunities and threats.

Table 1 presents the SWOT analysis of LLC "Tashkent cotton textile cluster".

Through this analysis, the strengths and weaknesses of the enterprise are identified. Along with numerous opportunities, the enterprise in question has a certain set of threats, which will be avoided by thoughtful management actions and well-coordinated work of the entire team.

Thanks to the results of the SWOT analysis, it became possible to formulate the main problems of planning the production activities of the organization in question.

The main problems of planning the production activities of Tashkent cotton textile cluster LLC include:

1. Wear and tear of networks and funds.

At this stage, from time to time, Tashkent cotton textile cluster LLC undergoes a large replacement of equipment unsuitable for work, as well as repair of heating mains. Large expenses go to repair emergency areas, but it must be remembered that the replacement of equipment cannot solve issues, because in addition to physical wear and tear, the equipment becomes obsolete and morally. It is poorly automated and therefore inefficient in production.



**Table 1**  
**SWOT - analysis of LLC "Tashkent cotton textile cluster"**

Strengths	Weaks
<ul style="list-style-type: none"> <li>➤ Availability of own diesel power plants in order to provide LLC "Tashkent cotton textile cluster"</li> <li>➤ Presence of a centralized planning and economic department</li> <li>➤ Clearly articulated strategy</li> <li>➤ Compensation of missing costs LLC "Tashkent cotton textile cluster"</li> </ul>	<ul style="list-style-type: none"> <li>➤ Wear and tear of networks and funds</li> <li>➤ High energy costs</li> <li>➤ State regulation of tariffs for thermal energy (capacity), for transportation of thermal energy, for drinking, industrial water, wastewater treatment</li> <li>➤ Low liquidity ratios</li> <li>➤ Dependency on suppliers</li> </ul>
Possibilities	Threats
<ul style="list-style-type: none"> <li>➤ Increase in the number of new technological connections</li> <li>➤ Emergence of new large customers of works</li> <li>➤ Introduction of new advanced technologies</li> <li>➤ Acquisition of innovative equipment</li> <li>➤ Optimization of costs for the types of activities provided</li> <li>➤ Restoration of power supply to consumers in case of emergencies by concluding an agreement.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Failure of production equipment</li> <li>➤ Untimely commissioning of production equipment</li> <li>➤ Change of political regime</li> <li>➤ Natural disasters</li> <li>➤ Reducing the value of assets under the influence of inflation indicators</li> <li>➤ Tightening the position of the tax authorities</li> </ul>

Obsolete and worn-out equipment of substations, thermal power plants and boiler houses causes low efficiency in their operation and an increasing number of failures with corresponding negative consequences. With outdated equipment, the number of accidents and leaks is high, resulting in large losses.

## 2. Dependence on suppliers.

LLC "Tashkent cotton textile cluster" uses the Just In Time system - this is a system of supply of goods that allows the company to get rid of large stocks. When using the just-in-time delivery system, a special schedule is drawn up, which indicates when and how much goods will be delivered.

However, this system has its drawbacks. Disadvantages include inability to cope with unexpected events (breakdowns, possible downtime among workers), economic situation, difficulty in reducing changeover times and related costs, dependence on high quality supplied materials, need to work in a stable production although demand often fluctuates.

## 3. Weak use of innovative technologies and equipment.

The introduction of innovative technologies and equipment makes it possible to increase the competitiveness of the enterprise, the efficiency of production activities, reducing costs.

The main goals of innovation are to minimize the cost of production and improve the quality of technological, organizational and personnel decisions.

- reducing the share of manual labor and improving working conditions;
- ensuring a continuous and stable production process, reducing non production time costs;

- reduction of labor intensity and material consumption per unit of output;
- improving the efficiency of equipment use;
- diffusion of innovation in other organizations on a commercial basis.

In the course of the analysis, it was revealed that a single integrated system for automating and managing the activities of the enterprise has been created and is being used at Tashkent Cotton Textile Cluster LLC. This system is called "Lexema". It allows top management to view and analyze information about the state of the enterprise, and also allows you to solve the problems of managerial, accounting and production accounting, control the effective use of material, financial and information resources.

However, the modules are not fully implemented at the enterprise. Since planning at the enterprise of Tashkent cotton textile cluster LLC is assigned to the planning and economic department, today the following system modules have been introduced at the enterprise, such as:

1. Module "Business planning", which is designed for the formation of planned estimates and calculations, plan-fact analysis.

2. Module "Budget management". This module is used for planning and modeling various options for the budget, the implementation of the functions of management, control and analysis of the financial and economic activities of the enterprise.

3. The module "Financial planning", used for planning financial resources, drawing up the financial plan of the enterprise.

4. The module "Accounting for production", which is designed for monthly closing costs.



Thus, in order to eliminate the identified problems and improve the process of planning the production activities of Tashkent cotton textile cluster LLC, it is necessary to apply measures that will be discussed in the next chapter of this research work.

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## OVERVIEW OF AI BASED E- HEALTHCARE SYSTEM

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### ABSTRACT

*E healthcare is a new and emerging concept that uses the internet and Internet related services to improve the efficiency of healthcare. It involves use of tools like Artificial Intelligence (AI), Big Data etc. to improve the quality of healthcare. Hence being a developing concept, it has dragged the attention of academic scholars, that's the reason for choosing E- Healthcare systems for this review. The main aim of this review paper is to summarize the literature on benefits and challenges for E healthcare. This paper also emphasizes on the relevance, need and features of E healthcare systems. It has provided a special emphasis on the benefits of E healthcare for developing nations and how the developing countries prove themselves as opportunities for E- healthcare.*

*The paper describes the potential advantages of E healthcare, organizational benefits, social benefits etc. Along with the benefits this paper also covers the various drawbacks of E healthcare systems, the need for improvement. It has also focused on relevance of use of Artificial Intelligence in the improvement of health care services. The paper will cover almost every detail about E- healthcare systems in a brief and summarized form. It also contains the introduction, Emergence and historical Background of E healthcare.*

*Hence this paper will be critically evaluating the term E health, E healthcare, Manual Healthcare, E healthcare systems and all the related terms like big data etc. The main headings to be covered under this paper are Introduction, Features, Scope, Benefits and limitations/ Challenges.*

### INTRODUCTION

E-health care is an emerging concept used to monitor various health conditions by using the technologies and helps the health organizations in formulating and analyzing their strategies and policies. The concept was first brought into consideration in 1999 when the electronic communication and technological achievements were combined in a single thread for the very first time.[1] The concept has been improved a lot with passing time and emergence of new upgraded technologies. Although E-healthcare is a relatively older concept but its significance is improved only with the latest technological developments like introduction of big data, artificial intelligence (AI), sensors, drones, block chains, Internet of Medical Things (IoMT) etc. By using the above-mentioned technologies one can track a patient's current and past status and inform the doctors prior to any mi's happenings.[2]

According to a Canadian Researcher Eisenach, "e-health is a field emerging at the nexus of medical IT, public health, and business,

enabling improving conditions for providing public health services over the Internet and related Internet technologies".[3]

WHO (World Health Organization) has defined E- health care as use of the information communication technologies to monitor and manage the treatments of the healthcare service users.

Various Artificial Intelligence tools are used in healthcare systems in order to ensure the efficient functioning of health services and make them less time consuming and more reliable.

Various conceptual definitions are available in order to define E healthcare but the major similarity in all the concepts is all of them has emphasized the importance of Internet and internet technologies in order to provide a user oriented and user-demanded health care system and services.[4] Hence one can conclude that the term E- health is surrounded by various innovations and technologies based on internet and internet's potential. These innovative technologies have helped to develop the concept of big data which has enabled the digital transformation of the healthcare system by collection of data and





information about the patients. These health care systems increase efficiency of the healthcare organizations as well as provide them with financial benefits.[5]

Some of the benefits associated to E-healthcare systems:

- a) Safety in terms of making a decision regarding how a medical procedure will be implemented.
- b) Provide easy access to the information all healthcare institutions.
- c) Increases efficiency
- d) Increases quality of work etc.
- e)

Artificial intelligence refers to the problem solving and decision making capability of a machine/ computer systems similar to that of a human being. It involves expert systems, natural language processing, speech recognition, machine vision etc. The application of Artificial Intelligence in hospitals, clinics and other healthcare facilities helps the healthcare system to become faster, smarter and more efficient to help the people worldwide.

#### Features of E- Healthcare systems

The term e health care is not restricted to a limited extent but has a wide area to be covered, based on the above scope some of the characteristics of e healthcare system are as follows: -

##### a) Efficient

Efficiency refers to the ability of doing a work in a cost-effective manner. The main aim kept forward to development e- healthcare system was to reduce the cost of management of various functions related to the manual health care services. Hence it definitely leads to a cost-effective management of the healthcare services. Efficiency can be achieved by avoiding unnecessary diagnostics, cut in the overhead costs and better involvement of patients by improved communication.[6]

##### b) Enhanced Care quality

E healthcare systems provide a wide variety of information about the patients, it tells about their past record as well their present status along with all the diagnosed reports and their recovering history. All these information help to improve the quality of health care. It allows comparison between diverse care providers, focus on quality assurance, and aims that the patient receives the best quality suppliers.

##### c) Based on Evidences

The healthcare services are very crucial in nature hence the services related to it need to be handled really carefully. The E- healthcare systems should be designed as per value and competence-based models not only

presumed but proven by scientific assessment. Although it seems to be an easy task but a lot is needed to be done in this sector.[7]

##### d) Empower consumers and patients

E healthcare system empowers the consumers and the patients by enabling them to expand their knowledge and access their records online. It provides with new opportunities for the patients by providing them with various facilities like patient centered medicine facility, personal access to one's data, availability of multiple supplier choices etc.

##### e) Encourage patient participation

E healthcare systems provide with a well facilitated proactive care. It also provides the consumers with other benefits like one click services, available even at home, secure services, available at convenience of the patients etc. all these things encourage a link and mutual consent between the doctors and patient.[8]

##### f) Expansion of Knowledge

As E health is an emerging concept based on various technological developments and keeps on changing as per the new innovations and need of the era, it enables the physicians and consumers to educate about the recent technological developments through online sources, by using the systems etc. It also provides the patients and the providers with the latest researches and healthcare information.

##### g) Enables Exchange of Information

E healthcare system creates an environment which enables easier exchange of information as well as easy communication between the consumers and service providers.

It also ensures discussions and communication among various health care institutions on regular and frequent occasions.[9]

##### h) Extends opportunities

E healthcare system has extended the health care opportunities beyond the conservative boundaries of the manual healthcare systems. E healthcare has facilitated the consumers to achieve health services from international service providers without much paperwork. The facilities provided can be from a small advice / suggestion to a more complex and compound medication.

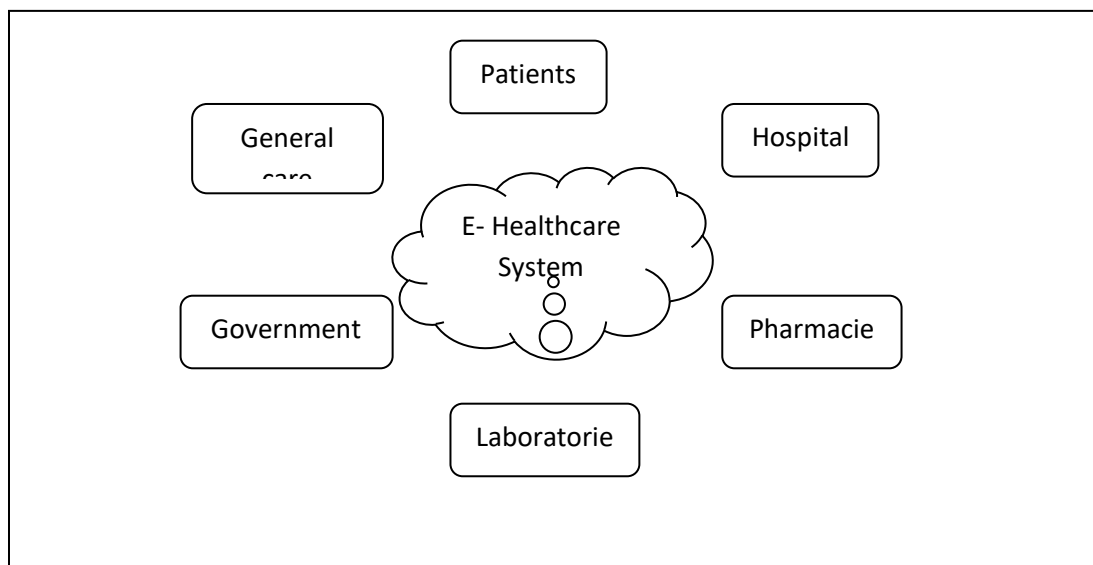


Figure 1 fig of E-Healthcare System

**i) Ethical functioning**

Ethics is a concept that is needed to be thoroughly studied before implementing any system, policy, strategy or any action performed by anyone. Similarly Ethical code of conduct is applied to E- healthcare system as well. It ensures moral norms to be followed while using a e healthcare system. For example: Privacy, Informed consent etc.

**c) For Taking Care of the Patient**

- **Maternal Care:** AI technologies can help in reducing the maternal mortality rate and after childbirth problems. It can predict the expected risk at the time of delivery by diagnosis of the mother prior to the childbirth. It also ensures more frequent and sophisticated care throughout the pregnancy period. Hence use of AI helps to reduce the Maternal Morbidity and problems during and after the pregnancy period.

**Application of Artificial Intelligence in E- healthcare system:**

**a) Discovery and development of medicines**

The use of Artificial Intelligence has paced up the process of discovery of new drugs and medicines in the pharmaceutical industries. Some of the examples are Pfizer is using a machine learning based system named as IBM Watson to find Immuno- oncology treatments, Sanofi is using Exscientia's Artificial Intelligence to find metabolic disease medication etc.

If Artificial Intelligence is utilized in to their best use it will bring results that can result in making the drugs development faster and cheaper.

- **Assistance by Robotics:** Adding to the medical staff personells certain robots are designed to assist the patients throughout their treatment journey. Some of these robots involves Exoskeleton robots used to assist the paralysed patients in walking again. There are artificial limbs, arms and other body parts available as well that are based upon AI technologies that ensures better assistance to the patients.

These are a few of the implementations of Artificial Intelligence in the healthcare systems.

**b) Used for clinical Trials**

Clinical trials refers to the testing of the newly manufactured drugs and medications on humans and animals for the first time. Artificial Intelligence has the potential to shorten the time of the trial cycle by providing the required data at the right time and right place without consuming much of time. The data can be saved in the forms of graphs and diagrams which make it easy to understand and reach to a conclusion. By keeping track of the trial information one can easily decide on the efficacy and success rate of the trial.

**Benefits of E healthcare System:**

E healthcare systems keeps into account cost effective and secured use of facts and Internet Communication Technologies (ICT) for the sake of health, healthcare services and other health related fields.[10]

- I. It ensures quick access to the records and information of the patients that helps in efficient management of the healthcare.
- II. By using E healthcare system one can save costs of duplication, paperwork etc. making it a cost-efficient means to manage health and health related fields.



- III. As E healthcare system is based on automated process and AI technologies the chances of medical errors reduce to almost nil and better clinical decisions can be made.
- IV. These systems facilitate better communications which acts as a bridge for the gap between the patient and the service provider.[11]
- V. By using the healthcare systems, the patient's condition can be monitored and recorded on real time.
- VI. It is a time saving means to improve the quality of care.
- VII. Through e health systems the patients are provided with the decision to manage their health on their own which facilitates better health decisions.
- VIII. Life becomes really convenient by using these systems as these can keep track of the daily activities of the consumers like heart rate, eating habits etc.
- IX. Development of e healthcare systems bought E-commerce to health care.
- X. These systems provide the consumer with better health care as it improves all the aspects of patient care like patient centric, on time actions etc.[12]
- XI. These systems also provide with healthcare guidelines and how to develop a healthy environment which again proves to be beneficial for the consumers as by these systems healthier lifestyle is encouraged.
- XII. These systems can also be used as a distance learning tool as these keep the basics about the common health problems etc.[13]

#### Limitations of E healthcare system

- Due to digital divide, it is really difficult to get access to the electronic health information.
- Not every system is designed in an ethical manner, which leads to the issues related to privacy, security etc.
- Sometimes due to misinterpretation of the data, these systems can lead to distrust and unwanted interference in the doctor-patient relationship.
- The information provided by these systems are based on medical researchers which means there is a lot more use of medical study-based words which are not easy to be understood by the commoners.[14]
- As the building block for these systems is Internet as well as they have a continuous need for Internet access hence the cost for the internet services is increased.
- In order to operate these systems, one should be well trained and equipped to their technology, due to it the need for skilled staff and new technology is increased
- It is really time consuming to keep the health records up to date and modify them almost every day.
- The access of these systems is limited to a certain boundary due to lack of basic infrastructure like internet connection in remote rural area.
- It is must be responsibility of all the systems that they should be systematically managed from time to time as and when required.

- Sometimes the basic software required are not available or sometimes the software used is not responding in the same manner.

#### Scope of AI based E healthcare systems in Developing Nations

- E health care system has a great opportunity to improve public sector i.e government owned healthcare institutions in developing nations.
- E- Healthcare system contribute to the overall growth and development of the nation as developing and underdeveloped countries confront many health-related problems and late access to the healthcare services.[15]
- E healthcare systems has strategic benefits as usually in developing nations there is a lack of proper healthcare management and the access is limited to some extent.
- The E healthcare system can provide improved quality and efficiency of the healthcare services, this thing also makes it preferable.
- In developing nations government also provides assistance for the development of E healthcare systems in order to attain improved quality, accessibility and capability of health sector.
- E healthcare system also provide improved facilities to the patients and the consumers which lead to boosting up the morale of the consumers to avail the benefits of E healthcare system.
- E healthcare system reduces the costs that can be proven beneficial in case of any emergency.

#### CONCLUSION

This paper is based on the study of the benefits and challenges of E healthcare systems. During the study one can easily draw a conclusion that E healthcare systems are providing most of the benefits to society and patients. Along with it the study helps to drag the attention of the researchers toward the various limitations that are needed to be observed as soon as possible in order to ensure efficient functioning of E healthcare systems.

There are various technological and logistical issues that are needed to be addressed. It is also observed that e healthcare system is more like a boon for the developing nations but still there is a long way to go now as well. Along with the introduction to new and innovative technologies the E healthcare also needs to be updated. As India is one of the fastest growing economies of the world, it is also a developing nation hence it also faces some similar issues in management of Healthcare services. These issues are addressed in an effective manner with the introduction of E healthcare and E governance concepts by the government, Hence from here we can easily get an idea that how developing an E healthcare system has become the need of the hour in order to compete with other nations as well as for the development and welfare of one's own nation.



The various AI technologies used in Healthcare system helps one to understand the emerging need and requirement of development of AI tools to improve the Healthcare services.

The need for e health systems is increasing day in day out due to the emerging need of improvements in healthcare services, need for timely availability of healthcare services like early diagnosis, quick response to fatal diseases, early awareness about severe problems etc. as from the point of view of the providers development of e healthcare systems is necessary to save time, reduce complexity of work, easy and timely availability of patients data etc. all these requirements make the concept of E health more crucial and development of e healthcare systems has provided with the need fulfillment of both consumers and providers.

After critically examining the scope, need, benefits and limitations in the paper we can conclude that E health is a concept that cannot be ignored at any cost, it can be termed as the integral part of any healthcare institution including hospitals, clinics, chemists etc. that can never be studied separately. The growth and expansion of this concept has also led to expansion of terms like “M health”, “Big Data” etc. Implementation of AI strategies and techniques in E healthcare systems has led to improvement of healthcare services contributing to the improvement in the quality of life of the people. But it has many a limitations as well which are in a need for a quick response and critical focus. Development of more efficient AI tools can be considered as a solution to most of the prevalent health care problems. Hence, E healthcare systems are in a great need for new innovations and acceptability.

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# EMPOWERED ORAL CARE: NAVIGATING SELF-MEDICATION IN DENTISTRY

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## ABSTRACT

*Self-medication in dentistry is an emerging practice wherein individuals diagnose, select, and administer oral health remedies without professional guidance. This review article aims to provide a comprehensive overview of self-medication in dentistry, focusing on its types, benefits, risks, influencing factors, and the role of dental professionals. The article explores the different types of self-medication commonly observed in dentistry, including over-the-counter products, alternative therapies, natural home remedies, and the use of nutraceuticals. It also highlights emerging trends such as online information and e-commerce, mobile health applications, and the influence of social media on self-medication practices in dentistry. The benefits of self-medication in dental care, such as accessibility, convenience, immediate symptom relief, and cost-effectiveness, are discussed. However, the potential risks and limitations, such as delayed diagnosis and treatment, misdiagnosis, masking underlying issues, adverse reactions, and overreliance on self-medication, are also addressed. The article explores the influencing factors behind self-medication in dentistry, including cultural beliefs, healthcare accessibility, and patient knowledge. It emphasizes the role of dental professionals in guiding and educating patients about self-medication practices, and highlights strategies for promoting safe and effective self-medication.*

**KEYWORDS** – Dental practice, analgesics, OTC medicines, toothache.

## INTRODUCTION: UNDERSTANDING SELF-MEDICATION IN DENTISTRY

Self-medication in dentistry is a growing phenomenon where individuals diagnose, select, and administer medications for oral health conditions without professional guidance. This article explores the prevalence, patterns, benefits, risks, influencing factors, and the role of dental professionals in self-medication.

Self-medication in dentistry encompasses a range of practices, including over-the-counter remedies and alternative therapies. It provides immediate relief, autonomy, and cost-effectiveness. However, it also carries risks such as delayed diagnosis, adverse reactions, and medication misuse.

Factors influencing self-medication in dentistry include cultural beliefs, healthcare accessibility, and patient knowledge. Dental professionals play a crucial role in educating patients about self-medication, promoting responsible practices, and guiding product selection and self-assessment.

The article highlights the need for further research, improved regulation, and enhanced patient-provider communication in self-medication. By understanding self-medication complexities, dental professionals can collaborate with patients to ensure optimal oral health outcomes.<sup>1,2</sup>

In summary, this article provides a comprehensive overview of self-medication in dentistry, addressing its scope, benefits, risks,



influencing factors, and the role of dental professionals. It emphasizes the importance of informed decision-making and responsible practices for patients' oral health.

### Commonly Used Self-Medication Products in Dentistry

Self-medication in dentistry involves the use of various over-the-counter (OTC) products that individuals can purchase and use without a prescription. These products are readily available in pharmacies, supermarkets, and online platforms, providing individuals with accessible options to manage common oral health issues. This section highlights some of the commonly used self-medication products in dentistry.

1. Analgesics (Pain Relievers): These medications help reduce pain and inflammation, providing temporary relief until professional dental care can be sought.

#### 2. Oral Analgesic Gels:

Oral analgesic gels containing ingredients like benzocaine or lidocaine are applied topically to the affected area to provide localized pain relief.

#### 3. Antiseptic Mouthwashes:

Antiseptic mouthwashes containing ingredients such as chlorhexidine or essential oils are used for maintaining oral hygiene and managing gingival inflammation.

#### 4. Desensitizing Toothpaste:

Desensitizing toothpaste contains ingredients like potassium nitrate or stannous fluoride, which help alleviate tooth sensitivity.

#### 5. Oral Rinses:

Oral rinses are used for various purposes, including freshening breath, reducing plaque formation, or alleviating specific oral conditions.

#### 6. Dental Adhesive Products:

Dental adhesive products, such as temporary dental cements or denture adhesives, are used to provide temporary fixes for loose dental restorations or to improve denture stability.

#### 7. Dental Floss and Interdental Cleaners:

Dental floss and interdental cleaners are essential self-medication tools for maintaining oral hygiene. Individuals use these products to remove plaque and food debris from between the teeth and along the gum line, promoting gum health and preventing dental problems.

#### 8. Oral Moisturizers:

Individuals experiencing dry mouth or xerostomia can use oral moisturizers in the form of sprays, gels, or rinses. These products help alleviate discomfort and provide temporary relief by hydrating the oral tissues.

It is important to note that while these self-medication products can provide temporary relief or support oral health maintenance, they are not substitutes for professional dental care.

Dental professionals play a crucial role in educating patients about the appropriate use of self-medication products, including dosage, frequency, and potential side effects. By promoting responsible self-care and encouraging regular dental check-ups, dental professionals can ensure that individuals receive the most effective and appropriate care for their oral health needs.

### Self-Medication Practices for Common Dental Conditions<sup>4,5,6</sup>

Self-medication refers to the practice of individuals using over-the-counter (OTC) medications or home remedies to manage common dental conditions without seeking immediate professional dental care. While self-medication can provide temporary relief for minor dental issues, it is important to understand the appropriate practices and limitations associated with self-treatment. This section discusses self-medication practices for common dental conditions to help individuals make informed decisions about their oral health.

#### 1. Toothache:

Toothaches are a common dental complaint and can be managed through self-medication until professional dental care can be obtained. Over-the-counter pain relievers such as acetaminophen or NSAIDs like ibuprofen can help alleviate toothache pain. It is important to follow the recommended dosage and consult a dental professional if the pain persists or worsens.

#### 2. Gum Inflammation:

Gum inflammation, also known as gingivitis, can be addressed through self-medication practices. Regular brushing with a soft-bristled toothbrush and a fluoride toothpaste can help remove plaque and reduce gum inflammation. Additionally, using an antiseptic mouthwash containing chlorhexidine or essential oils can help control bacterial growth and promote gum health.

#### 3. Mouth Ulcers:

Mouth ulcers, also called canker sores, can be managed using self-medication practices. Over-the-counter oral analgesic gels containing benzocaine or lidocaine can provide temporary pain relief. Avoiding spicy or acidic foods and maintaining good oral hygiene can help facilitate the healing process.

#### 4. Tooth Sensitivity:

Tooth sensitivity to hot or cold stimuli can be managed through self-medication. Using desensitizing toothpaste containing ingredients like potassium nitrate or stannous fluoride can help reduce tooth sensitivity over time. It is important to follow the instructions on the packaging and continue using the toothpaste as recommended for optimal results.



#### 5. Temporary Dental Restorations:

If a temporary dental restoration, such as a crown or filling, becomes loose or dislodged, temporary dental cement available over-the-counter can be used to temporarily secure the restoration until professional dental care can be obtained.

#### 6. Oral Hygiene Maintenance:

Self-medication in oral hygiene maintenance involves regular brushing with fluoride toothpaste, flossing, and using interdental cleaners to remove plaque and food debris. These practices can help prevent dental issues such as cavities and gum disease. Additionally, using an antiseptic mouthwash or saline rinse can further support oral hygiene.

It is crucial to note that self-medication practices should only be used for temporary relief and maintenance, and should not replace professional dental care. If symptoms persist, worsen, or are accompanied by severe pain or swelling, it is important to seek dental advice promptly. Dental professionals play a vital role in providing accurate diagnosis, comprehensive treatment, and personalized care for dental conditions.

### Factors Influencing Self-Medication in Dentistry<sup>3,4</sup>

Self-medication in dentistry refers to the practice of individuals using over-the-counter (OTC) medications or home remedies to address dental issues without seeking immediate professional dental care. Several factors can influence self-medication practices in dentistry, shaping individuals' decisions to self-treat oral health conditions. Understanding these factors is crucial for healthcare providers and policymakers to promote responsible self-care and ensure the safety and efficacy of self-medication practices. Here are some key factors that influence self-medication in dentistry:

#### 1. Accessibility and Affordability:

The availability and affordability of OTC medications and self-care products play a significant role in self-medication practices. When individuals have easy access to affordable OTC products, they may be more inclined to self-treat dental issues, particularly if they perceive them as minor or manageable.

#### 2. Knowledge and Information:

The level of knowledge and information individuals possess about dental conditions and available self-medication options greatly influences their decision to self-medicate. If individuals have a good understanding of common dental problems and the appropriate use of OTC products, they may feel more confident in managing certain conditions themselves.

#### 3. Previous Experiences:

Past experiences with self-medication and the outcomes achieved can influence future self-medication practices. Positive experiences, such as successfully managing a minor dental issue

with self-medication, may encourage individuals to continue self-treatment for similar conditions in the future.

#### 4. Perception of Severity:

The perception of the severity of a dental condition plays a role in determining whether individuals choose to self-medicate or seek professional dental care. If individuals perceive the condition as mild or temporary, they may opt for self-medication. However, if they believe the condition is serious or worsening, they are more likely to seek professional help.

#### 5. Time and Convenience:

Self-medication offers convenience and the ability to address dental issues quickly without the need for scheduling appointments or visiting a dental professional. Individuals with busy schedules or those who prefer immediate relief may choose self-medication as a time-saving option.

#### 6. Cultural and Social Factors:

Cultural beliefs, social norms, and personal preferences can influence self-medication practices in dentistry. In some cultures, traditional home remedies or natural products are widely used and trusted for oral health care. Additionally, social influences, such as recommendations from family or friends, can shape individuals' decisions to self-medicate.

#### 7. Healthcare System Factors:

The structure and accessibility of the healthcare system can impact self-medication practices. Factors such as long waiting times for dental appointments or limited access to affordable dental care may drive individuals to self-medicate as a temporary solution.

It is important to note that while self-medication can be appropriate for certain minor dental conditions, it has limitations and potential risks. It is crucial to educate individuals about the importance of seeking professional dental care for more serious or persistent oral health issues. Dental professionals play a vital role in providing accurate information, guidance, and monitoring the appropriate use of self-medication products.

By considering these influencing factors and promoting responsible self-care, healthcare providers and policymakers can empower individuals to make informed decisions about self-medication in dentistry, ultimately improving oral health outcomes and ensuring patient safety.

### Patient Education and Counseling for Responsible Self-Medication<sup>4,5</sup>

Patient education and counseling play a crucial role in promoting responsible self-medication practices in dentistry. By providing individuals with accurate information, guidance, and support, healthcare providers can empower patients to make informed decisions regarding self-care for their oral health. Here are key



considerations for patient education and counseling to ensure responsible self-medication:

#### 1. Understanding Dental Conditions:

Patients should have a clear understanding of different dental conditions, their causes, symptoms, and potential risks if left untreated. By explaining the nature of common dental problems, dental professionals can help patients differentiate between minor issues suitable for self-medication and conditions requiring professional intervention.

#### 2. Exploring Self-Medication Options:

Dental professionals should provide comprehensive information about OTC medications, home remedies, and self-care products available for dental conditions. This includes explaining the proper use, dosage, and potential side effects of each product to ensure patients are equipped with accurate knowledge.

#### 3. Benefits and Limitations:

Patients need to be aware of the benefits and limitations of self-medication. Emphasize that self-medication is suitable for minor, temporary issues and provide guidance on identifying warning signs that indicate the need for professional dental care. Encourage patients to seek prompt dental attention if their symptoms worsen or persist.

#### 4. Safety Considerations:

Discuss the importance of reading product labels, understanding ingredients, and following recommended guidelines for OTC medications and self-care products. Highlight potential risks, contraindications, and adverse reactions that may occur, especially for patients with certain medical conditions or taking other medications.

#### 5. Proper Oral Hygiene Practices:

Reinforce the significance of maintaining good oral hygiene practices, including regular brushing, flossing, and using antimicrobial mouth rinses. Educate patients on the proper techniques for oral hygiene and emphasize its role in preventing dental issues that may necessitate self-medication.

#### 6. Follow-Up and Monitoring:

Encourage patients to keep dental appointments for routine check-ups, even if they practice self-medication. Regular monitoring allows dental professionals to evaluate the effectiveness of self-care practices, provide necessary adjustments, and identify any underlying issues that may require professional intervention.

#### 7. Open Communication:

Foster an environment of open communication, where patients feel comfortable discussing their self-medication practices and concerns. Address any misconceptions or misinformation they may have and provide personalized recommendations based on their specific oral health needs.

#### 8. Collaborative Decision-Making:

Engage patients in shared decision-making regarding their oral health care. Discuss treatment options, including both professional interventions and self-medication, and involve patients in determining the most appropriate course of action based on their preferences, comfort level, and the severity of their condition.

#### 9. Regular Education Updates:

Keep patients informed about advancements in self-medication products, changes in guidelines, and any new research findings related to responsible self-care. Provide educational materials, pamphlets, or online resources to support ongoing patient education.

By integrating patient education and counseling into dental care, healthcare providers can promote responsible self-medication practices while ensuring patient safety and optimal oral health outcomes. Empowering patients with accurate information and fostering a collaborative approach to decision-making can contribute to a more informed and engaged patient population.

### Challenges And Potential Consequences of Inappropriate Self-Medication<sup>5</sup>

Inappropriate self-medication in dentistry can lead to challenges such as delayed professional diagnosis and treatment, masking underlying issues, incorrect diagnosis, inadequate treatment, adverse reactions and side effects, masking progression of serious conditions, and dependency on self-medication. To address these challenges, promoting responsible self-medication practices is crucial, which involves educating individuals about its limitations, encouraging regular dental check-ups, and emphasizing the importance of professional diagnosis and treatment. Dental professionals play a vital role in providing guidance, monitoring self-medication practices, and raising awareness to minimize potential risks and improve oral health outcomes.

### Regulation And Legal Considerations Surrounding Self-Medication in Dentistry<sup>6</sup>

Self-medication in dentistry, like in any healthcare field, is regulated to ensure patient safety and proper use of medications and self-care products. Key aspects of regulation and legal considerations in this area include drug classification and accessibility, scope of practice, advertising and promotion, informed consent and patient education, documentation and record-keeping, adverse event reporting, and professional liability.

1. Drug Classification and Accessibility: Medications are categorized based on safety, abuse potential, and therapeutic use. Over-the-counter (OTC) medications undergo strict scrutiny to ensure safety, labeling, and proper usage instructions.





Prescription medications require evaluation and authorization from a licensed healthcare provider.

2. **Scope of Practice:** Dentists have defined boundaries for their responsibilities and activities. They can diagnose and treat oral health conditions within their expertise. Dentists may recommend OTC medications or self-care products, but they must stay within their scope of practice.

3. **Advertising and Promotion:** Regulations monitor the accuracy of claims made by manufacturers and distributors to ensure truthful information. Dental professionals should be cautious when recommending specific products and avoid endorsing those without sufficient evidence or regulatory approval.

4. **Informed Consent and Patient Education:** Dental professionals have a legal and ethical obligation to provide informed consent. This includes explaining the benefits, risks, side effects, and limitations of self-medication. Patients should be fully informed to make autonomous decisions.

5. **Documentation and Record-Keeping:** Accurate documentation of patient interactions, including self-medication discussions, is important. It serves as evidence of provided information, patient consent, and rationale for recommendations. It facilitates care continuity, collaboration, and compliance with legal and regulatory requirements.

6. **Adverse Event Reporting:** Healthcare professionals and patients should report adverse events related to medications or self-care products. Dental professionals need to be aware of reporting mechanisms and proactively report concerns to regulatory authorities. This supports product safety monitoring and regulatory improvement.

7. **Professional Liability:** Dental professionals have a duty of care towards patients. Failure to provide appropriate advice and recommendations can lead to allegations of professional negligence. Staying updated on regulations and guidelines is crucial to fulfill the duty of care.

Adhering to regulations and legal considerations ensures patient safety and responsible use of medications and self-care products in dentistry. Continuous education and awareness of updates are vital for compliance and providing optimal care within the legal framework.

### Strategies for Promoting Safe and Effective Self-Medication in Dentistry<sup>7</sup>

Promoting safe and effective self-medication practices in dentistry involves patient education, empowerment, clear communication, product selection guidance, regular check-ups, collaboration with healthcare providers, continued professional development, and monitoring/follow-up. These strategies help dental professionals ensure that patients are well-informed,

actively participate in their oral health management, make responsible choices, and receive appropriate care when needed. By implementing these strategies, dental professionals can facilitate safe and effective self-medication practices that contribute to overall oral health.

### Healthcare Professional's Role in Guiding Self-Medication Practices<sup>8</sup>

Self-medication, the practice of treating one's own health conditions without professional guidance, is common in dentistry and other healthcare domains. Healthcare professionals, such as dentists and dental hygienists, play a crucial role in guiding and supporting safe self-medication practices. They educate patients about self-medication, assess its suitability, provide recommendations and guidance, assess and monitor risks, promote adherence and compliance, recognize limitations, and engage in continuous professional development. By fulfilling these responsibilities, healthcare professionals ensure patient safety, optimize treatment outcomes, and prevent potential complications associated with self-medication.

### Future Directions and Research Priorities in Self-Medication in Dentistry<sup>9</sup>

As self-medication practices become more prevalent in dentistry, it is important to identify future directions and research priorities to ensure their safe and effective use. These include evaluating the efficacy and safety of self-medication products, understanding consumer behavior and decision-making, developing effective education and training programs, assessing adverse effects and risk, exploring the role of digital tools, investigating patient outcomes and satisfaction, and informing regulatory frameworks and policy development. Addressing these research priorities will contribute to patient safety, improve treatment outcomes, and promote responsible self-medication practices in dentistry. Collaboration among dental professionals, researchers, regulatory bodies, and industry stakeholders is crucial for advancing this research agenda.

### CONCLUSION: BALANCING THE BENEFITS AND RISKS OF SELF-MEDICATION IN DENTISTRY

Self-medication in dentistry has both benefits and risks, requiring a balanced approach. While it offers convenience and cost-effectiveness, there are potential adverse effects and risks of incorrect usage. Healthcare professionals play a crucial role in guiding responsible self-medication practices through patient education, counseling, and monitoring. Regulatory bodies should establish clear guidelines and standards, and ongoing research is needed to evaluate product efficacy and safety. Collaboration is key in promoting responsible self-medication. By empowering patients, ensuring adherence to recommended practices, and recognizing the limitations of self-care, the potential benefits can be maximized while minimizing risks. Overall, with proper guidance, self-medication in dentistry can contribute to improved oral health outcomes and patient empowerment.



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# STUDY OF PHYSICOCHEMICAL PROPERTIES OF WILD HONEY SAMPLE FROM SANGAMNER TALUKA OF MAHARASHTRA

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## ABSTRACT

Honey is the thick (opaque) viscous liquid produced by honey bees from the nectars of flowers. It is used in breakfast to retain energy in daily life. Honey's nutritional value is determined by the amount of glucose & minerals present in honey. It is dependant on the season of honey. The physico-chemical features of honey may be used to determine overall quality of the product.

The physico-chemical characteristics of wild honey sample Collected from Sangamner Taluka of Maharashtra State are investigated in the current research to determine overall quality of honey.

Honey samples from villages in the Sangamner Taluka were used in investigation. The moisture content, ash content, PH, colour intensity, electrical conductivity, Viscosity, specific gravity, glucose, sucrose, Fructose & total protein content of the collected samples were all determined by using various methods. Those honeys with low moisture content, high glucose content & high mineral content have a high calorific value & longer shelf life than others. The findings of the research indicate that the wild honey samples collected are of high quality & which gives high nutritional content.

The outcome of this research the nutritious benefits of honey in the daily diet & suggest that it might be utilized as a source of extra income for farmers.

**KEY WORDS :** Honey, physical properties, chemical properties Quality, Glucose.

## INTRODUCTION

Honey, one of the major products, is a sweet Viscous natural Fluid made from the nectar of plants. Properties and compositions of bee honey depends on its geographical Floral origin, season & environmental Factors [1]. Honey bees (*Apis mellifera*) collect a liquid Secretion from flowers, called nectar [2-5]. Honey & beekeeping have a long history in India. Honey was the first Sweet food tasted by the ancient Indian inhabiting rock shelters & forests [6-7].

The genus name *Apis* is Latin for 'bee' & '*mellifera*' is the Latin for honey bearing referring to the species production of honey for the winter [8-9]. All India Beekeepers Association was formed during 1938-39 and the first Beekeeping research station was established in Punjab in 1945 by the Indian Council of Agricultural Research. The production of honey in India increased significantly towards the late 1990s. 70% of honey production comes from informal segments [10-11]. Honey is the major bee product which has important nutritional value & provides significant economic

contributions. Honey has become one of the most commercial agriculture products in many countries in the World [12-13].

The physicochemical properties of honey are helpful for the comparison of natural honey samples from different locations. The physicochemical properties provide the parameters for characterization & classification of honey [14].

The present study deals with the different Physicochemical parameters of honey samples found in three different locations of three villages (Chincholi Gurav, Talegaon Dighe, Paregaon BK) of a Sangamner Taluka.

The sweet substance produced by honey bees from the nectar of blossoms or from Secretion on living plants which bees collect, transform & store in honeycombs [15]. It is concentrated aqueous Solution of Invert sugar that comprises a mixture of other compounds like carbohydrate amino & organic acids aromatic substances minerals pigment Waxes & Pollen grains to make it complex [16,17,18].



The quality of honey sample depends on various Physiological factors such as climate, soil etc. Honey contains sugar, protein, moisture, vitamins, minerals, Enzymes polyphenus. [19]. Honey is sweet & viscous substance made by several bee honey bees. C the best known of which are honey bees [20-21]. Honey is sweet because of its high concentration of the monosaccharides Fructose & glucose. it has about the same relative Sweetness as sucrose (table sugar) [22-23].

## METHODS

**Collection of Sample-** In collection of samples Honey sample were collected from three different location of villages in Sangamner taluka, during September 2021 – October 22. Total 12 different honey samples were collected as follows .

6 from agricultural area, 4 from forest area, 2 from road sides. Area wise honey sample collected in equal quantities i.e. 100 gm each & this collected honey sample put in air tight sterilized Plastic containers. They were labelled, brought to the laboratory & stored at 0.4°C until analysis completed [24].

- 1) **Agricultural Area-** In agricultural area there are 6 honey sample were collected. Farmers engaged in the cultivation of traditional crops like onion, Wheat, gram, Sorghum, maize, Soybeans etc. in this area provided & independent system in which the bees assist to carry out cross pollination. This agricultural area includes location viz, Chincholi gurav, Paregay, Talegaon Dighe. The distance between the two sampling is approximately 1-10 km [25].
- 2) **Forest area-** The Paregaon Khurda is situated 12 km away from Sangamner Taluka. The forest is famous for woody plants, forest Irrigation, Gravel crusher project etc. There are total 4 samples of honey collected from the Paregaon Khurda forest area. The following wild plant species were found in forest area Acacia (babul), neem tree (*Azadirachta indica*), chinch (*Tamarindus indica*), Aaral (*Phyllanthus emblica*) [26].
- 3) **Road side area-** There are 2 honey sample from road side area. The distance between these two collected sample near about 25 meter from the road side. This road side area location viz, Talegaon Dighe, Paregaon Khurda, Chincholi gurav. The distance between the two sampling is near by 1-4 km [27].

## Physicochemical Analysis

Honey samples were analyzed for pH, electrical conductivity, moisture content, protein content, Glucose, fructose & Fructose Glucose ratio. This physicochemical analyses done following AOAC method. (Association of Official Agricultural chemists) [28].

Physicochemical Parameters-

### 1) Determination of pH

The pH of honey sample was measured by pH-meter. The pH of 10% WIV solution of honey sample prepared boiled water & measured pH of this given sample by using pH-meter instrument. The pH meter was calibrated by using externally standard buffer of pH 4.0, 7.0 & pH 9.0 to measuring the pH of sample.

### 2) Determination of electrical conductivity

The electrical conductivity was determined by a conductivity meter (model No: 660B). Electrical conductivity meter was first calibration with water and then conductivity meter was dipped into honey solution (10%) & reading was noted after stable of instrument. Honey contains electrolytes, in the form of acids and minerals, it exhibits varying degrees of electrical conductivity. Measurements of the electrical conductivity are used to determine the quality of honey in terms of ash content [29].

### 3) Determination of moisture content

The moisture content of honey samples were determined by using refractometer reading at 20°C & Percentage moisture obtained from AOAC Standard table. Moisture content was determined by using refractometer. The refractometer was calibrated by adjusting zero. After that 2-3 drops of honey noted in the record for all honey samples.

### 4) Determination of Total Reducing sugar Assay:

3,5 Dinitrosalicylic acid (DNSA, IUPAC Name) 2-hydroxy-3,5-dinitrobenzoic acid is an aromatic compound that reacts with reducing sugars & other reducing molecules to form 3-amino-5-nitrosalicylic acid, which absorbs light strongly at 540 nm (in case of glucose).

Procedure : Take three test tube of 20 ml & took an amount of glucose Stock Solution in each test tube as per table given below prepared a blank, in which case added 500 µl of DW instead of sample for incubation Put 15 min in water bath. Add 3 ml DNSA kept tubes. (Glucose solution + DW + DNSA) in boiling H<sub>2</sub>O bath for 15 min. Cool at room temperature & Absorbance was measured at 540 nm.

Std for DNSA method (sr.no.)	Conc. of glucose (µmol)	Amount of working solution (µl)	Volume of DW (µl)	Amount of DNSA (ml)
1	1	100	1400	3
2	2	200	1300	3
3	3	300	1200	3
4	4	400	1100	3
5	5	500	1000	3
6	—	—	1500	3





### 5) Determination of Glucose, Fructose & Fructose-Glucose ratio

Glucose Percentage is determined iodometrically in a weak alkaline medium & the value is subtracted from reducing sugar percentage to arrive at fructose percentage & Fructose-glucose ratio.

**Glucose %** = Normality of sodium thiosulphate solution ) x (B-S) x 0.009005 / (0.1N x Wt of sample) x 100.

**Fructose %** = Reducing sugar % - Glucose %

**Fructose Glucose ratio** = 
$$\frac{\text{Fructose \%}}{\text{Glucose \%}}$$

### 6) Determination of sucrose content

In this type of determination sucrose content of the honey samples determined according to the procedure of Lane & Eynon method (1923) [30]. 2.6 gm of honey were weighed & then transferred to a 500ml volumetric flask. Standardized Fehling A & B solution were transferred to a 250ml conical flask, with 7ml H<sub>2</sub>O & 15 ml of honey solution. The conical flask was heated & 1ml methylene blue was added. Titration was carried out adding the diluted honey solution until the indicator was decolorized. Determining sucrose content was carried out by inversion, adding to ml dil HCl, 50 ml dilute honey solution & H<sub>2</sub>O to 100ml Volumetric flask. Heating in H<sub>2</sub>O bath then cooling & dilute up to mark. Finally, the Lane-Eynon method was applied and sucrose content was obtained by difference.

Apparent sucrose = (Invert sugar / 100 gm honey after inversion) – (sugar content before inversion) x 0.95

The result was expressed as gm apparent sucrose / 100g honey.

### 7) Determination of lipid content

Lipid content was determined by Bligh & Dyer (1959) method [31]. Homogenize the sample 20 g with 16ml D.W. 40 ml of chloroform and 80 ml of methanol at the speed of 9500rpm for 1 min at 4 degree.c. Add 40 ml chloroform and homogenize for 30 seconds. After centrifugation of the homogenate at 2000 rpm at 4 degree c for 20 min transfer the supernatant in to a separatory funnel & allow it to separate. Determine lipid content gravimetrically by measuring triplicate aliquots of the chloroform layer into tared containers, evaporate the solvent & weigh. Calculate the lipid content.

### RESULT

The results of honey sample having different Parameters collected in three different locations of Sangamner taluka were compared with the Codex Alimentarius & European standards [32].

It is observed that studied physicochemical Parameters are within the normal range (Table 1 & 2).

- 1) **pH** : The mean pH values of honey samples obtained from three different locations of Sangamner Taluka were within range 3.8-5.2. The pH is an important parameter during extraction of honey, It increases shelf life & quality of honey [33].
- 2) **Electrical conductivity** : The mean values of electrical conductivity in honey samples obtained from three different locations of Sangamner taluka were within the range of 0.07 to 0.116 mS/cm. EC is one of the most considerable factors for determination of the physical characteristics of honey. It is also useful for the identification of honey quality & purity [34].
- 3) **moisture content** : The mean value of moisture content in honey sample obtained from three different locations of Sangamner taluka were within the range 15.98 - 18.28%.
- 4) **Reducing sugar** : The mean values of reducing sugar in honey sample from the different locations of Sangamner taluka were within the range of 58.92-64.72% .Honey is a mixture of two reducing sugars namely glucose & Fructose.
- 5) **Glucose** : The mean concentration of glucose in honey sample obtained from three different locations of Sangamner taluka were within the range of 20.22-24.12%.
- 6) **Fructose** : The mean concentration of fructose in honey sample obtained from three different locations of Sangamner taluka were within the range of 32.12-42.60%.
- 7) **Fructose-Glucose ratio** : The mean concentration of fructose-glucose ratio in honey sample obtained from three different locations of Sangamner taluka were within the range of 1.10-1.92.
- 8) **Sucrose** : The mean concentration of sucrose in honey sample obtained from three different locations of Sangamner taluka were within the range of 1.014-1.432g/100g.
- 9) **Lipid** : The mean concentration of sucrose in honey sample obtained from three different locations of Sangamner taluka were within the range of 1.014-1.432g/100g.

### CONCLUSION

Total results of physicochemical parameters indicates that the nutritional quality of honey was different from species to species and from location to location. The honey obtained from agricultural and forest areas has highest nutritional quality than honey obtained from road side area. The average value of the physicochemical parameters found in the honey samples showed that honey harvested from the studied area is safe for human consumption referring to Codex Alimentarius standards [35,36,37]



**Table- 1 :**

Physical properties of honey sample from three different location of sangamner taluka of Ahmednagar district.

Collection Site	PH	Electrical conductivity (mS/cm)	Moisture Content (%)
Agricultural Area	4.4 ± 0.16	0.088 ± 0.002	17.20 ± 0.90
Forest Area	3.8 ± 0.10	0.06 ± 0.004	15.98 ± 0.92
Road side Area	5.2 ± 0.20	0.116 ± 0.005	18.28 ± 0.80
Standards of codex,1998& 2019	3.4- 6.1	0.8 mS/ cm	22%

**Table- 2 :**

Chemical properties of raw honey sample from the different location of sangamner taluka of Ahmednagar district.

Parameters Sites of Collection	Total reducing sugar	Glucose %	Fructose %	G/F Ratio	Sucrose g/100g	Lipid g/100g
Agricultural Area	62.10 ± 2.12	23.82 ± 0.42	38.02	1.62	1.32 ± 0.20	0.32 ± 0.06
Forest Area	64.72 ± 1.2	22.28 ± 0.88	42.01	1.68	1.62 ± 0.12	0.28 ± 0.02
Road side Area	58.92 ± 1.32	24.78 ± 0.40	36.16	1.32	1.06 ± 0.32	0.34 ± 0.06
Standards of codex,1998 & 2019	>60 %	23-32%	31.2-42.4%	>0.95	<5 g/100g	0.10-0.50 g/100g

± Indicates standard deviation

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# PROXIMAL HUMERUS FRACTURES, ANATOMY, EPIDEMIOLOGY, MECHANISMS OF ACTION, CLASSIFICATION, CLINICAL PRESENTATION, IMAGING PRESENTATION, DIFFERENTIAL DIAGNOSIS, TREATMENT AND COMPLICATIONS

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## SUMMARY

**Introduction:** Proximal humerus fractures (PHF) make up 5 to 6% of all fractures presented in adults. Approximately 67 to 85% of proximal humerus fractures are managed non-surgically, however with technological advances, improved techniques and increased patient demand, the rate of surgery is increasing. The use of open reduction internal fixation (ORIF) has remained stable, hemiarthroplasty has decreased and reverse shoulder arthroplasty (RSA) has increased.

**Objective:** to detail current information related to proximal humerus fractures description, anatomy, epidemiology, mechanisms of action, classification, clinical presentation, imaging presentation, differential diagnosis, treatment and complications.

**Methodology:** a total of 35 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 24 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: humerus fractures, Neer, proximal humerus, osteosynthesis and humerus prosthesis.

**Results:** Fractures of the proximal humerus figure between 4 and 5 % of all fractures, 5 and 6 % in some other bibliographies; among those of the humerus they are the most common with 45 %. Fractures of the proximal humerus are more frequent in women, presenting higher rates compared to men, presenting a ratio of 2:1, possibly also due to alterations in bone density. Fractures of the proximal humerus at birth are infrequent, representing a rate of 10.1/100,000 births.





**Conclusions:** Fractures of the proximal humerus account for 4 to 6 % of all fractures; among those of the humerus they are the most common at 45 %. Approximately 85 % of these fractures are non-displaced. Fractures of the proximal humerus have a bimodal distribution. Fractures of the proximal humerus are more frequent in women, presenting higher rates compared to men, presenting a ratio of 2:1. The most common mechanism of injury is the fall on the upper limb in extension at the same height. It is of utmost importance to know the correct anatomy in order to have a better impact on the quality of treatment. Affected individuals classically come with the upper limb held to the thorax with the contralateral hand and showing swelling, pain on palpation, pain during mobility and sometimes crepitus. A good examination should be performed for possible neurovascular involvement. All patients suspected of having a proximal humerus fracture should have radiographic imaging. There are several classifications, however the most widely used is the Neer classification. It is important to make a correct differential diagnosis. The main goal of treatment is to relieve pain and restore function. There are various types of treatment that will depend on the type of fracture and the patient's clinical condition. Among the most common complications are neurovascular injury, thoracic injury, myositis ossificans, pseudarthrosis, shoulder stiffness and osteonecrosis.

**KEY WORDS:** humerus, fractures, osteosynthesis, trauma.

## INTRODUCTION

Proximal humerus fractures (PHF) account for 5-6% of all fractures in adults. Treatment of these fractures in the setting of low-energy falls in the elderly is increasingly recognized as these events support the overall impact of the direct and indirect value of fragility fractures and osteoporosis. As the population ages, individuals with compromised bone density increase. The general operative and non-operative management of proximal humerus fractures is of paramount importance in the current literature(1).

The medical, functional and fracture-related difficulties form a real challenge in the management of these fractures. Approximately 67-85% of proximal humerus fractures are managed non-surgically, however with technological advances, improved techniques and increased patient demand, the rate of surgery is increasing. The use of open reduction internal fixation (ORIF) has remained stable, hemiarthroplasty has decreased and reverse shoulder arthroplasty (RSA) has increased(2-6).

## METHODOLOGY

A total of 35 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 24 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: humerus fractures, Neer, proximal humerus, osteosynthesis and humerus prosthesis.

The choice of bibliography exposes elements related to proximal humerus fractures, anatomy, epidemiology, mechanisms of action, classification, clinical presentation, imaging presentation, differential diagnosis, treatment and complications.

## DEVELOPMENT EPIDEMIOLOGY

Fractures of the proximal humerus figure between 4 and 5 % of all fractures, 5 and 6 % in some other bibliographies; among those of the humerus they are the most common with 45 %. The incidence of these fractures varies according to the region. It is more frequent in the elderly population because it is interrelated with osteoporosis; bibliographies report up to 300,000 cases per year being more common than hip fractures. Approximately 85%

of these fractures are non-displaced. Fractures of the proximal humerus present a bimodal distribution, presenting the first peak of incidence in individuals between 10 and 14 years of age, to later appear between 80 and 84 years of age. Fractures of the proximal humerus are more frequent in females, presenting higher rates compared to males, presenting a ratio of 2:1, possibly also due to alterations in bone density, and when these fractures occur in children under 18 months of age they should be thoroughly evaluated because they may be due to non-accidental trauma. Proximal humerus fractures at birth are infrequent, representing a rate of 10.1/100,000 births(7-13).

## ANATOMY

The shoulder shows the greatest range of motion compared to the rest of the joints in humans, due to the structure of the glenoid cavity which is shallow and its surface is only 1/4 of the size of the humeral head; therefore the soft tissues are fundamental for the stability of the shoulder, both muscle, capsule and ligaments. The proximal humerus is between 35° to 40° of retroversion taking into account the epicondylar axis. Neer presents a division of the bony segments in 4, being in order the following:

- I: humeral head.
- II: lesser tubercle or trochlea.
- III: greater tubercle or trochleter.
- IV: humeral diaphysis.

The deforming muscular forces exerted on the bony segments are:

- a. The trochleter is directed superiorly and posteriorly by the supraspinatus and external rotators.
- b. The trochlea is directed medially by subscapularis traction.
- c. The diaphysis of the humerus is directed medially by the pectoralis major.
- d. The insertion of the deltoid generates abduction of the proximal fragment.

In the vascularization we find that the primary vascular action comes from the anterior and posterior humeral circumflex arteries; in addition the arcuate artery which is the continuation of the ascending branch of the anterior humeral circumflex artery, enters through the bicipital groove and irrigates a large part of the head of the humerus. Small branches coming from the posterior humeral circumflex artery, which arrive through the osteotendinous vascular anastomoses of the rotator cuff, also

converge at the head of the humerus. Fractures of the anatomic neck are rare, with poor prognosis due to its poor vascularization. In the innervation we find that the circumflex nerve passes just anteroinferior to the glenohumeral joint, penetrating the quadrangular space. It may present a traction lesion due to its rigid fixation to the posterior fascicle, the deltoid and its proximity to the inferior capsule, being probable its lesion due to anterior dislocations or anterior fracture-dislocations(1,8,14,15).

### MECHANISM OF INJURY

The most common mechanism of injury is the fall on the upper limb in extension at its own height, usually present in elderly individuals and in osteoporotic women. Young people show proximal humerus fractures due to high energy impact trauma, such as in motor vehicle accidents, these cases usually present as higher risk fractures and dislocations, with major soft tissue disruption and some other related injuries. Between 25% of proximal humerus fractures in children from traumatic falls are linked to sports, 33% linked to motor vehicle accidents(8,10,11). Some less common mechanisms are:

- Pathologic fractures: probably due to the presence of malignant or benign lesions in the proximal humerus.
- Excessive abduction of the shoulder in an individual with osteoporosis, where the trochlea does not allow rotation of the humerus.
- Seizures or electric shocks.
- Direct trauma, related to trochlear fractures.

### CLINICAL PRESENTATION

It is always important to take a correct and complete history accompanied by an individualized physical examination. In those over 65 years of age, the clinical presentation usually follows a low energy fall with the arm outstretched due to an attempt to break the fall. Affected individuals classically come in with the upper limb held to the chest with the contralateral hand and showing swelling, pain on palpation, pain on motion and sometimes crepitus. Perilesional ecchymosis is probably not evident at the beginning; ecchymosis is usually present on the chest wall and flank, so it is important to differentiate from those generated by a thoracic alteration. It is necessary to make a good examination to evaluate the function of the circumflex nerve, which can be evaluated by the presence or absence of sensitivity in the lateral part of the proximal portion of the arm located superior to the deltoid. Because of pain, motor function tests cannot always be performed. The distal part may be displaced inferiorly due to a loss of deltoid tone and not due to a certain glenohumeral dislocation; generally, this improves 4 weeks after the fracture, however if this is maintained it may be due to a circumflex nerve injury. It is necessary to visualize in the inspection the signs of open fracture, ecchymosis that can reach up to the thorax, arm and forearm. Frequently there is crepitus and pain at the fracture site. The loss of the deltoid contour suggests a concomitant dislocation of the shoulder which is usually due to a high energy mechanism. In addition, the presence of an associated neurovascular lesion should be evaluated(1,8,15).

**Figure 1. X-ray showing fracture of the left proximal humerus.**



Source: The Authors.



## IMAGING PRESENTATION

All patients suspected of having a proximal humerus fracture should have radiographic imaging performed. Suggested projections include the following:

- True AP or "Grashey" projection.
- Scapular Y.
- Lateral axillary.

The Velpeau projection is often used when there is an inability of the individual to perform the axillary lateral radiographic position. It is performed with the individual's arm held in internal rotation in a sling and the film is taken up and down with the subject leaning backward into the beam field.

West Point radiograph, the subject is placed face down on the x-ray table, the altered shoulder is elevated on top of the table and the cassette is held against the top of the shoulder; the x-ray beam is focused on the axilla. It provides a tangential projection of the anteroinferior border of the glenoid rim.

CT is often used for preoperative planning, especially when the exact location of the humeral head, greater tuberosity and when there is intra-articular comminution. CT directs towards the appropriate surgical treatment by differentiating which procedure may be better, fixation or reconstruction.

Magnetic resonance imaging is rarely indicated, however it can be used to define an associated rotator cuff disorder(1,8,15).

## CLASSIFICATION

Among the first classifications used for the proximal humerus was that of Ernest Codman, who in 1934 defined the fractures based on the affectation according to 4 anatomical parts: humeral diaphysis, articular surface, greater tuberosity and lesser tuberosity; this categorization did not take into account the fracture displacement, nor separated the fractures of the surgical neck and the anatomical neck(16,17).

In 1970 Neer's classification system was released, which is the most commonly used when talking about proximal humerus fractures. Neer developed Codman's classification of the four main anatomical segments, in addition to quantifying and qualifying fracture displacement. Neer conceptualized displacement as a fracture fragment displaced more than 1 cm or with an angulation greater than 45 degrees. Using the above, he defined fractures as one-, two-, three-, or four-part fractures. With this method of classification, all non-displaced fractures are grouped together while displaced fractures require more individualized groupings. Neer's classification system is described below.

The four fragments are: trochlea, trochlea, humeral diaphysis and humeral head.

The fracture types are:

Fractures in one fragment: there is no displacement of the fragments, regardless of the number of fracture lines.

Fracture in two fragments: they can be in anatomical neck, surgical neck, trochleter and trochlete.

Fracture in three fragments: it can be of the surgical neck and trochleter, as well as of the surgical neck and trochlete.

Fracture in four fragments.

Fracture-luxation.

Fracture with repercussion of the articular surface(8,14,16).

Figure 2. Neer classification.



**Source:** Koval KJ, Zuckerman JD. Fracturas y luxaciones. 2 ed. Madrid: Marban; 2003.

In 1980 the AO/OTA classification was made, classifying proximal humerus fractures according to the involvement of the articular surface, anatomical location and dislocation. It divides fractures into 3 major groups and complementary subgroups according to fracture location, presence or absence of dislocation and status of the surgical neck.

Type A: extra-articular unifocal fractures that include the greater tuberosity or the surgical neck.

A1: a unifocal extra-articular tuberosity.

A2: a unifocal extra-articular impacted metaphysis.

A3: a unifocal extra-articular non-impacted metaphysis.

Type B are bifocal fractures that include some unusual dislocations.

B1: extra-articular bifocal with metaphyseal impaction.

B2: extra-articular bifocal without metaphyseal impaction.

B3: extra-articular bifocal with glenohumeral dislocation.

Type C: all intra-articular anatomical fractures of the neck, including dislocation and division of the humeral head.

C1: articular with slight displacement.

C2: impacted joint with large displacement.

C3: articular with dislocation(1,8,16).

In 2004, Hertel et al. gave a form of binary classification in lay blocks. The so-called Codman-Hertel system allows the identification of predictors of humeral head ischemia generated by fractures. They showed the importance of fracture morphology, in addition to presenting medial hinge disruption and medial calcar extension less than 8 mm as notable predictors for fracture fragment and head vascularity. Resch et al. formed a similar classification system however this was based more on fractures impacted in valgus versus varus(16,18,19).



**Figure 3. X-ray showing fracture of the right proximal humerus.**



**Source:** The Authors.

#### **DIFFERENTIAL DIAGNOSIS**

There are several differential diagnoses among which we can mention:

Acute fractures, chronic fractures, related complications, subcoracoid impingement, calcific tendonitis, SLAP lesion, glenohumeral internal rotation deficit, lesser garter shoulder, posterior labral tears, partial thickness tears, full thickness tears, glenohumeral arthritis, adhesive capsulitis, avascular necrosis,

scapulothoracic crepitus, proximal biceps tendinitis and proximal biceps tendinopathy, acromioclavicular separation, distal clavicle osteolysis, acromioclavicular arthritis, dislocation, associated labral injuries or pathology, suprascapular neuropathy, scapular wing - medial or lateral, brachial neuritis, thoracic outlet syndrome, quadrilateral space syndrome, scapulothoracic dyskinesia, os acromiale, muscle tears(1,20,21).

**Figure 4. X-ray showing fracture of the left proximal humerus, after osteosynthesis.**



**Source:** The Authors.

## TREATMENT

The main objective of treatment is to relieve pain and restore function. Most of the fractures of the proximal humerus do not show any benefit with surgical techniques, however in the most complicated cases it is essential(22).

At the moment, several clinical trials recommend immobilization with a sling and consequent mild progressive rehabilitation in surgical and anatomical fractures of the neck with minimal displacement. The permissible value of displacement with respect to a solitary fracture of the greater tuberosity is still under discussion. The current literature emphasizes early surgical management in these solitary two-part injuries.

Progressive physical therapy and rehabilitation schemes consist of early and mild pendulum exercises for the shoulder starting approximately 10 to 14 days post-injury, or depending on the patient's symptomatology.

Analyses have shown a success rate of approximately 80% to 85% in non-surgical treatment when examining all types of proximal humerus fractures, however, we can state that conservative management presents a higher success rate in: Fracture of the greater tuberosity displaced less than 3-5 mm. Surgical neck fractures minimally displaced in one, two and three parts according to the Neer classification previously mentioned. Individuals who are not ideally suited for surgery(15).

Fractures in 1 fragment or minimally displaced: they are the great majority with up to 85% of frequency in fractures of the proximal humerus. The use of a sling with rotation locking is recommended. Radiographic control should be performed periodically as a control for possible loss of fracture reduction. In stable or impacted fractures, it is recommended to start early shoulder mobility usually within 7 to 10 days. Exercises of pendulum can be done and later passive exercises of mobility amplitude. Active range-of-motion exercises can be performed 6 weeks after the injury, and counter-resistance exercises can be performed at 6 to 12 weeks. Full range of motion and function is not expected for 12 months.

Fractures in 2 fragments:

Fractures of the anatomic neck: infrequent and complex to manage through closed reduction, so they usually require open reduction and internal fixation especially in young people or a prosthesis such as a shoulder hemiarthroplasty. This type of fracture has been strongly associated with osteonecrosis.

Fractures of the surgical neck: in irreducible fractures and fractures in osteopenic bone, open reduction and internal fixation should be performed. If it is possible to reduce the fracture and there is good bone quality, percutaneous fixation by means of threaded wires or cannulated screws, if possible, should be chosen.

Greater tubercles fractures: when they present displacement of more than 5 mm to 10 mm, they require open reduction and internal fixation with or without repair of the rotator cuff;



otherwise, pseudoarthrosis and subacromial entrapment may occur. When this occurs in the context of anterior dislocation, it may become reduced after reduction of the glenohumeral dislocation; if so, it should be managed conservatively. Solitary trochlear fractures should be approached through a superior incision, separating the deltoid muscle.

Lesser tubercles fractures: a posterior dislocation must be ruled out. They can be managed in a closed manner, except when the displacement of the fragment generates a blockage of internal rotation. There are clinical trials indicating that surgery is no more beneficial than non-surgical treatment in patients 60 years of age or older with 2-part proximal humerus fractures, suggesting that the current practice of surgically treating most of these fractures in older adults may not be beneficial(8,14,23).

Fractures in 3 fragments: unstable due to the action of opposing muscular forces, they also present some difficulty to reduce in a closed manner. Displaced fractures require surgical fixation, however in very fragile individuals or in those in whom surgery is contraindicated, they can be treated conservatively. Young people can undergo open reduction with internal fixation, maintaining vascularization. The deltopectoral approach is frequently used to approach the shoulder, as it can be extended to have a good field to enter the proximal humerus area. Open reduction with internal fixation and arthroplasty can be performed through this approach. In older individuals, the use of a partial prosthesis may be favorable. Locked plates improve fixation in osteoporotic bone, with good results.

Fractures in 4 fragments: related to osteonecrosis with a percentage of 4-35%. Sometimes if the head of the humerus is inside the glenoid cavity and remains with the soft parts intact, an open reduction with internal fixation can be performed. Another means of treatment is to make a fixation through locked plates, screws, sutures and/or needles. An alternative in the elderly may be hemiarthroplasty, which relieves pain, but has variable results in terms of function. Four-part fractures impacted in valgus form a pattern of injury associated with a lower rate of osteonecrosis and show optimal performance with open reduction and internal fixation(8).

In some studies, intramedullary nailing has been shown to be better to locking plate in reducing total complication, surgical blood loss, surgery time, post-surgery fracture recovery time and post-surgery humeral head necrosis rate in proximal humeral fractures(24).

Fracture-dislocations can be in:

- Two fragments: subsequent to reducing the dislocation, generally managed in a closed manner, with the exception of presenting displaced fragments.
- Three and four fragments: in young individuals, open reduction with internal fixation can be performed, and in older individuals, hemiarthroplasty.

The brachial plexus and the axillary artery are located close to the fragments of the humeral head in anterior fracture-displacements. After fracture healing, re-dislocation is rare. Hemiarthroplasty is indicated in fracture-dislocations of the anatomic neck because of the high rate of osteonecrosis. These injuries are associated with a high frequency of myositis ossificans after several attempts at closed reduction. Fractures of the articular surface or Hill-Sachs lesion, inverted Hill-Sachs lesion: they are frequently linked to posterior dislocations. Individuals with humeral head depression greater than 40 percent usually require hemiarthroplasty; in individuals around 40 years of age, open reduction with internal fixation should be suggested initially if possible(8,14).

Currently, the use of reverse shoulder arthroplasty in proximal humerus fractures is increasing due to the decrease of hemiarthroplasty, on the other hand, the rates of internal fixation and open reduction remain stable. Reverse shoulder arthroplasty is the treatment of choice in 3-part, 4-part and segmental fractures of the proximal humeral head in physiologically older individuals. This procedure shows functional results, range of motion and improved satisfaction when compared to other surgical procedures. Although the reported complication rates of RSA exceed those of ORIF or hemiarthroplasty, revision and reoperation rates are lower(2).

**Figure 5. Intraoperative image showing fracture of the left proximal humerus, after osteosynthesis with plate and screws.**



**Source:** The Authors.

**Figure 6. Intraoperative image showing fracture of the left proximal humerus, after osteosynthesis.**



**Source:** The Authors.

#### **COMPLICATIONS.**

Complications include the following:

Vascular injury: not very common, representing approximately 5% to 6%. Mainly due to axillary artery involvement. The incidence increases in older patients due to its association with arteriosclerosis and the decrease of elasticity in the blood vessel

wall. Sometimes the vascular lesion goes unnoticed due to the good collateral circulation in the shoulder.

Injury of the brachial plexus: infrequent, representing only 6%.

Injury to the circumflex nerve: mainly in anterior fracture-dislocations, because it is located on the inferior capsule, being injured by traction or laceration. When there is a complete injury





of the circumflex nerve without improvement in about 2 to 3 months, it is necessary to perform a complementary electromyographic study and a surgical exploration.

Thoracic injury: it can be generated due to an intrathoracic dislocation when there is a fracture-luxation of the surgical neck, so it is essential to rule out possible pneumothorax or hemothorax.

Myositis ossificans: rare and related to chronic non-reduced fracture-dislocations, frequent attempts of closed reduction, as well as to approaches in which the deltoid muscle is sectioned.

Shoulder stiffness: its incidence can be reduced by good physiotherapy. Recalcitrant adhesions may require open arthrolysis.

Osteonecrosis: may occur in approximately 3-14% of three-part proximal humerus fractures, 4-34% in four-part fractures and a high percentage in anatomic neck fractures.

Pseudoarthrosis: primarily seen in displaced fractures of the surgical neck with two fragments and soft tissue interposition, it can also be due to excessive traction, inadequate fixation, large fracture displacement, poor bone quality, infection or systemic disease. This can be managed surgically with open reduction and internal fixation, which can be with or without bone grafting; another form of appropriate treatment would be through prosthetic replacement.

Consolidation in bad position: it is generated after an inappropriate closed reduction or by the failure of an open reduction with internal fixation, resulting in an entrapment of the trochleter on the acromion, with the consequent restriction of the range of mobility of the shoulder(8,14).

## CONCLUSIONS

Fractures of the proximal humerus account for 4 to 6 % of all fractures; among fractures of the humerus they are the most common at 45 %. Approximately 85% of these fractures are nondisplaced. Fractures of the proximal humerus have a bimodal distribution. Fractures of the proximal humerus are more frequent in women, presenting higher rates compared to men, presenting a ratio of 2:1. The most common mechanism of injury is the fall on the upper limb in extension at the same height. It is of utmost importance to know the correct anatomy in order to have a better impact on the quality of treatment. Affected individuals classically come with the upper limb held to the thorax with the contralateral hand and showing swelling, pain on palpation, pain during mobility and sometimes crepitus. A good examination should be performed for possible neurovascular involvement. All patients suspected of having a proximal humerus fracture should have radiographic imaging. There are several classifications, however the most widely used is the Neer classification. It is important to make a correct differential diagnosis. The main goal of treatment is to relieve pain and restore function. There are various types of treatment that will depend on the type of fracture

and the patient's clinical condition. Among the most common complications are neurovascular injury, thoracic injury, myositis ossificans, pseudoarthrosis, shoulder stiffness, malunion and osteonecrosis.

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# A STUDY ON EFFECT OF VISUALIZATION IN SOCIAL MEDIA MARKETING FOR HUMAN RESOURCES

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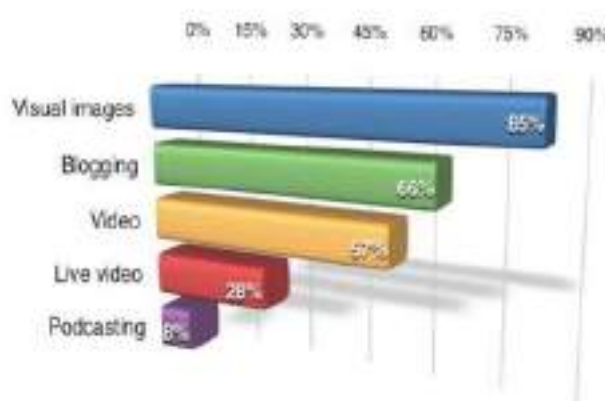
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## ABSTRACT

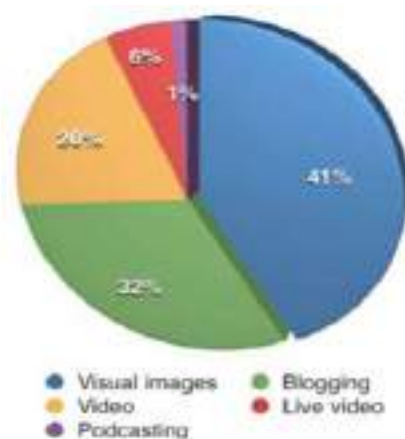
*We all think we have great taste[1]. It's the classic argument of "data wins." Practitioners and analysts alike know social media by its many websites and channels: Facebook, YouTube, Instagram, Twitter, LinkedIn, Reddit and many others. The power of social media marketing (SMM) is driven by the unparalleled capacity of social media in three core marketing areas: connection, interaction, and customer data, extracted from investopedia[2]. In this paper after study on visualization effect in social media marketing, we conclude that the more targeted your social media marketing (SMM) strategy is, the more effective it will be for human resources.*

## 1. INTRODUCTION

Social Media Examiner's own 2017 Social Media Marketing Industry Report found that 85% of the 5,000 online marketers surveyed use visuals, up from 74% in 2016 [3].



The report also revealed that 41% of respondents said that visuals are the most important type of content, beating out blogging for the top spot [3].



Visuals summarize content into smaller, and easier to process chunks, and when you select the right visuals, they offer more comprehensibility than text-based explanations or only audios.

## 2. LITERATURE REVIEW

### Visuals Stick in Long Term Memory

According to Dr. Lynell Burmark, education consultant who writes and speaks about visual literacy: "...unless our words, concepts, ideas are hooked onto an image, they will go in one ear, sail through the brain, and go out the other ear. Words are processed by our short-term memory where we can only retain about seven bits of information (plus or minus 2) [...]. Images, on the other hand, go directly into long-term memory where they are indelibly etched."

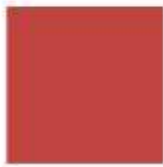


### Transmit Messages are Faster

According to the Visual Teaching Alliance: The brain can see images that last for just 13 milliseconds. Our eyes can register 36,000 visual messages per hour. We can get the sense of a visual scene in less than 1/10 of a second. 90% of information transmitted to the brain is visual.

Visuals are processed 60,000X faster in the brain than text. 40 percent of nerve fibers are linked to the retina. All this indicates human beings process visual information more efficiently than text.

#### Graphic Description



#### Textual Description

A plane figure with four equal straight sides and four right angles.

### Improve Comprehension

Stanford University's **Robert E. Horn**, explained this relationship clearly "When words and visual elements are closely entwined, we create something new and we augment our communal intelligence ... visual language has the potential for increasing 'human bandwidth'—the capacity to take in, comprehend, and more efficiently synthesize large amounts of new information."

### Incorrect use of visuals

When off-topic graphics appear on the screen, such as those used for purely decorative purposes, learners will subconsciously try to figure out the message and reason for the image.

## 3. MATERIALS AND METHODS

Four ways you can leverage social media to enhance your HR activities



### 3.1 Boost recruitment efforts

More and more organizations are now adopting social recruiting to reach passive candidates, reduce time to hire and make quality placements. With the right set of strategies for social media recruitment, nothing can stop you from recruiting your next best

employee[4]. For believers in social recruiting, the method offers a more-efficient and cost-effective alternative to conventional online recruiting, like Indeed.com. Discover the top Applicant Tracking Systems (ATS) for CEOs, including GoHire, Lever, Workday, Greenhouse, Bullhorn, Cezanne HR, and SmartRecruiters, to streamline hiring and attract top talent [6].

### 3.2 Improve employer branding

Highlighting your company culture on your social media accounts is a surefire way to improve employer branding. For instance, if your organization is all for diversity and inclusion, reflect that in your job openings and the content that you create[4].

### 3.3 Strengthen training programs

Employee training and development programs are now being tightly integrated with social media to make learning more fun and increase participation. Social media polls and surveys can be used to understand what employees expect from training programs[4]. If you're looking for a career and not just any old job, set your sights on a company that invests in its employees by offering training and development programs. Research shows both companies and employees reap the benefits, including increased job satisfaction levels, internal promotion opportunities and better retention. According to a report by Training Magazine, companies in the U.S. spend an average \$4.5 billion on training and development programs for employees—so make sure you cash in on this opportunity[7]. As the costs of the Great Resignation continue to grow, companies need more ways to attract and retain employees. One clear approach is to offer more training and development — according to a 2019 LinkedIn study, 94% of employees said they would stay with their employer if it invested in their development [11].

### 3.4 Improve employee recognition

With the continuing trend of remote work, many organizations are now using social media to keep up their employee recognition game. Because employees and managers don't get to meet face-to-face more often due to remote work, it's easy to slack on employee recognition and appreciation[4]. Valuable employee recognition is vital in keeping your workers motivated towards being more productive and achieving your business objectives. However, creating robust employee recognition programs can be challenging for most employers and HR professionals, especially if they have many employees to manage [9].

## 4. DISCUSSIONS

Social recruiting refers to the process of recruiting candidates through social media platforms, like LinkedIn, Facebook, and Twitter, and other websites, including online forums, job boards, and blogs. Due to today's talent shortage, job-seekers have the freedom to be more selective when choosing their employers. As a result, candidates have started to do extensive research about organizations before attending interviews[5].





## 5. CONCLUSION

In today's digital age, social media recruiting has become a popular tool to attract and find the best candidates and engage them in a more personalized and informed way. Employer branding is crucial for attracting talented candidates. As a member, you'll get career advice and industry insights sent directly to your inbox so you can keep up with which companies are doing the most for their employees. And then you can go join them. Appreciating your workers is one of the best things you can do to keep them motivated and remain loyal. As a result, they may even turn out to be your brand ambassadors, which results in attracting top talent [8].

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# PHARMACOLOGICAL APPLICATION OF THIOPHENE DERIVATIVES

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## ABSTRACT

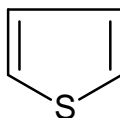
Thiophene nucleus has been established as the potential entity in the largely growing chemical world of heterocyclic compounds processing promising pharmacological characteristics. The knowledge of various synthetic pathway and the diverse physicochemical parameters of such compounds draw the especial attention of medical chemist to produce combinatorial library and carry out exhaustive efforts in the search of lead molecules. Thiophene is a five membered, sulfur containing hetero aromatic ring generally used as building block in drugs. Its structural metabolism leads to the formation of reactive metabolites. These compounds are widely spread in nature & have diversified application in design of new drug molecule. Thiophene has been established as the potential entity in largely growing chemical world of heterocyclic compounds possessing a pharmacological characteristics. A series of thiophene compound can be synthesized through various routes with pharmacological activity.

The simple five-membered heterocycle is thiophene, with sulphur atom. It also undergoes electrophilic aromatic substitution very readily. Sulphur is the least electron donor as compared to nitrogen and oxygen. Thiophene is similar to benzene in reactivity. Thiophene is the least reactive of the three because the p orbital of the lone pair of electrons on sulphur that conjugates with the ring is a 3p orbital rather than the 2p orbital of N or O, so overlap with 2p orbitals on carbon is less good. Thiophene undergoes more or less normal Friedel-Craft reactions, although the less reactive unhindered (acetic anhydride, Ac<sub>2</sub>O) are used instead of acid chlorides, and weaker Lewis acid than AlCl<sub>3</sub> are preferred. The regioselectivity is the - the 2-position is more reactive than 3-position. The present review includes the properties, synthesis, and a wide spectrum of biological activities of thiophene based scaffolds, and summary of thiophene containing active pharmaceutical ingredients (APIs) available in the market.

**KEY WORDS :** Thiophene, Medicinal Importance, Biological Importance, Reaction of thiophene.

## INTRODUCTION

The heterocyclic compounds are widely distributed in nature & it is essential for life [1-3]. The number of vast pharmacologically active heterocyclic compounds many of which are regular clinical use [4-7]. Thiophene belongs to the class of heterocyclic compounds containing five membered ring made up of one sulfur as a hetero atom which has formula C<sub>4</sub>H<sub>4</sub>S [8-10]. Thiophene and its derivatives in petroleum or coal. Thiophene is taken from sulfur and another Greek word phaino which means shining. Thiophene structure found in natural products & is incorporated in several pharmacological active compounds [11,12].



Thiophene was discovered as a contaminant in benzene. Thiophene has a structure that is analogous to the structure of pyrrole, furan, & due to its electron cloud, it behaves like a reactive benzene derivative [13-16]. Thiophene is used in two ways. The most interesting chemically is the use of thiophene either as a central ring or part of a fused ring. The second use of thiophene is replacement of a pendant



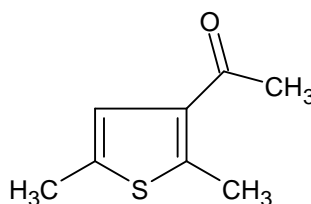
aromatic rings biologically important molecules with thiophene. In this article the most remarkable aspects of medicinal chemistry of thiophene along with their biological activities will be reviewed[17-20].

Thiophene derivatives provides useful intermediaries in various areas of science & industry, with a wide range of applications, and therapeutic properties[21]. Thiophene derivatives attract both great academic interest, and interest from the agrochemical, pharmaceutical and dyndustrie, as well. Heterocyclic compounds have historically played an important role in the search for bioactive products[22]. It observe than 75% of drugs in clinical use have at least one heterocyclic ring in their chemical structure[23]

### A) ROUTES FOR THIOPHENE NUCLEUS FORMATION

A principal route to alkyl substituted thiophene is the reaction of a dicarbonyl compound with phosphorous pentasulphide[24-26].

An alternative route has that has been used in the friedel craft acylation followed by wolf- kishner reduction. Thiopheneacylate preferentially in the  $\alpha$  position and thus 2- acyl- 5 alkylthiophene can also be accessed by this route from 2- alkyl thiophenes. When both  $\alpha$  positions are alkyl substituted, acylation occurs in the  $\beta$ - position to produce 3-acyl-2, 5- dialkylthiophenes such as 2,5 – dimethyl-3- acetylthiophene[27-30].

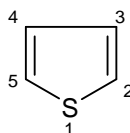


Synthetic approaches to the construction of thiophene and substituted thiophene have been efficiently developed. Thiophene ring can be constructed from non- heterocyclic precursors by two reaction pathways.

1. Construction of thiophene ring from appropriately substituted open chair precursors:  
This method involves the introduction of sulphur into a starting material containing the complete carbon skeleton.
2. The functionalization at the position  $\alpha$  &  $\beta$  to the sulphur atom of the preconstructed thiophene nucleus.  
This method employ either the reaction of a mercaptoacetate with a 1,3dicarbonyl compound or the reaction of a thioacetate with a 1,2 – dicarbonyl compounds[31-34].

### Properties of Thiophene

Thiophene is a five membered heteroaromatic compound containing sulfur atom at 1 position. It has formula  $C_4H_4S$  & the chemical name is thiacyclopentadiene[35-37].



Thiophene was discovered as a contaminant in benzene. It has molecular mass of 84.14 g / mol & density is 1.051 g / mol & melting point is  $-38^\circ C$ . It is soluble in most organic solvents like alcohols & ethers but insoluble in water. The lone pair on sulfur are significantly delocalized in the pie electron system & behave like a benzene derivatives. The similarity between the physicochemical properties of benzene & thiophene is remarkable.

E.g – Boiling point of thiophene is  $84.4^\circ C$  & Boiling point of benzene is  $81.4^\circ C$  both are well known example of bioisoterism. It can be easily Nitrated, Sulfonated, Halogenated Acylated but cannot be Alkylated & Oxidized[38].

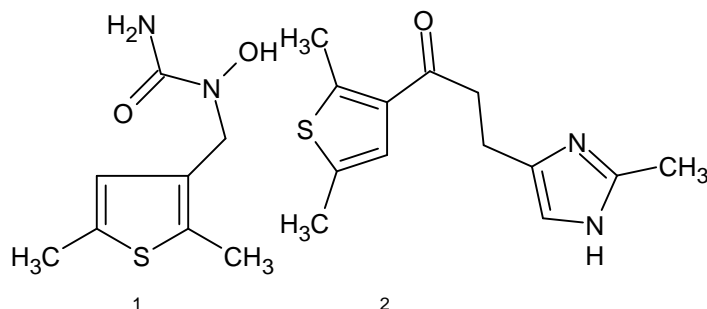
### Medicinal Importance Of Thiophene

In medicinal purpose the thiophene derivatives shows anti – inflammatory, antimicrobial, analgesic, antihypertensive & antitumor activity. They are also used in inhibitors of corrosion of metals[39].

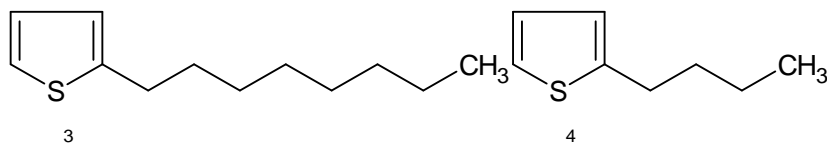
The substituted thiophene having significant antihypertensive activity. Many thiophene derivatives has developed as chemotherapeutic agents. Thiophene is one of the most important heterocycle exhibiting remarkable pharmacological activities. The thiophene compound exhibits various activities like example 1- [1-(2,5 – dimethyl – thiophene – 3 yl) ethyl] -1 – hydroxyurea (1) shows antiinflammatory activity; the maleate salt of 1 – (2, 5 – dimethylthiophen -3 yl) – 3 – (5 – methyl – 1H – Dimethyl – 4 – yl) – 3- (5 – methyl -1 H –



imidazole – 4 – yl)propan – 1 – one(2)act as serotonin antagonists & is used in treatment of Alzheimer's disease. The latter has also been employed in the formulation of links for computer printers by Xerox group & act as raw material for herbicides / Pesticides.

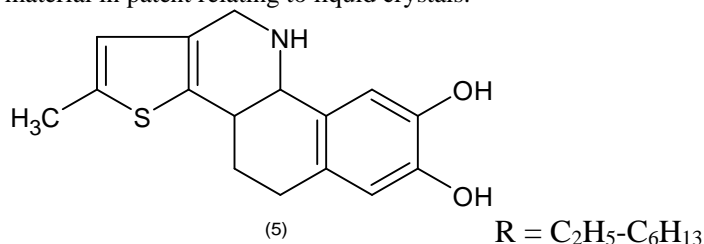


2 – octylthiophene (3) has been employed in the synthesis of anti – atherosclerotic agent. 2 – butylthiophene (4) has been employed as a raw material in the synthesis of anticancer agent[40-44].



### Biological Activity of Thiophene

As far as biological activity is concerned. Fused heteroaromatic system are often of greater than monocyclic compounds. Thiophene derivatives are known to be associated with broad spectrum of biological activity like antifungal, antibacterial, benzothieno [3,2 – e ] triazolo, thieno – pyrimidines S – triazine etc. Thiophene can be fused with various heterocyclic system give rise to new heterocyclic system with enhanced biological activity[45-47]. Thiophene derivative have been derivative have been very well known for their therapeutic applications. Many thiophene derivatives have been developed as chemotherapeutic agents and are widely used. Thiophene nucleus is one of the most important heterocycles exhibiting remarkable pharmacological activities. It also has application in metal complexing agent and in the development of insecticides. The higher alkylated thiophenes (5) also have other uses like 2-hexylthiophene has been used extensively as a raw material in patent relating to liquid crystals.



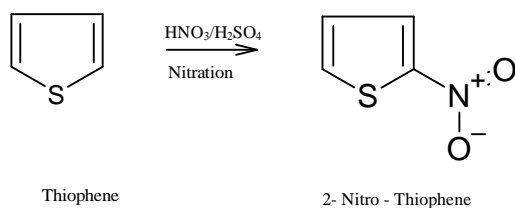
As far as biological activity is concerned, fused hetero-aromatic systems are often of greater interest than monocyclic compounds[48-51].

### Reaction With Electrophilic Reagents

#### 1) Nitration –

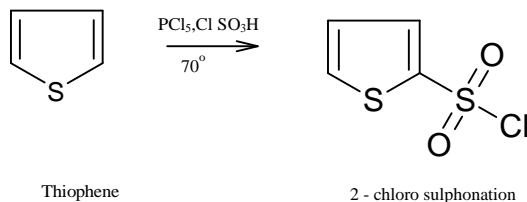
Thiophene is treated with nitrating mixture (Conc. HNO<sub>3</sub> & conc. H<sub>2</sub>SO<sub>4</sub>) gives 2 – nitro – thiophene.





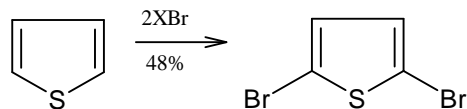
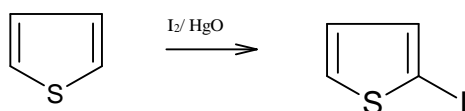
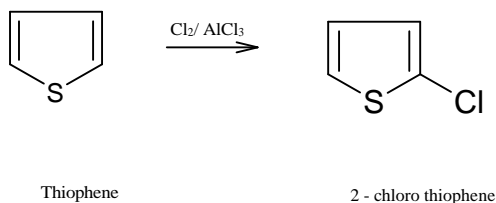
## 2) Sulphonation

Sulphonation of thiophene by cold concH<sub>2</sub>SO<sub>4</sub> it gives thiophene 2 – sulphonic acid& 2 – chlorosulphonation is efficient.



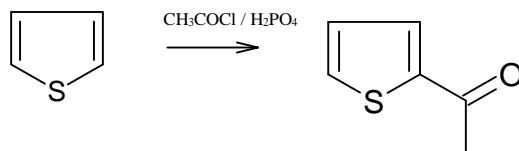
## 3) Halogenation

Halogenation of thiophene is carried out with Cl<sub>2</sub> at 2 – chlorothiophene& 2,5 – dichlorothiophene while in presence of HgO, thiophene reacted with iodine gives 2 – iodothiophene.



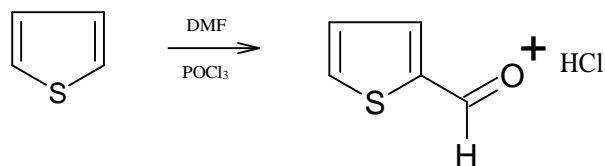
## 4) Friedel Craft Acylation

Thiophene react with acid chloride in presence of H<sub>2</sub>PO<sub>4</sub> as catalyst, it gives 2 – acetyl thiophene.



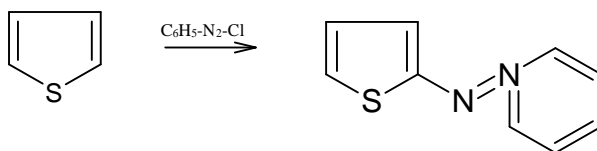
## 5) Vielsmeier Hack Reaction

The Vielsmeier reaction of thiophene react with DMF in presence of POCl<sub>3</sub> it gives thiophene 2 – carboxy aldehyde.



## 6) Diazo Coupling

Diazocoupling reaction of thiophene with benzene diazonium chloride at 5 °C, it gives 2-phenyl azothiophene.



## CONCLUSION

For the informational data the thiophene is significantly important class of heterocyclic compound & their application is challenging in chemotherapy of various alignments. A thiophene moiety has attracted a great deal of interest of medicinal chemist & biochemist & as a lead molecule for designing potential bioactive agents. Further we can include many other derivative of thiophene can be synthesized which will be expected to show potent pharmacological activities.

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# A STUDY ON ABANDONMENT OF SHOPPING CART BY CUSTOMERS WITH REFERENCE TO AMAZON

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## ABSTRACT

*Shopping cart abandonment is a critical issue for online retailers, but understanding the reasons behind this behaviour from a customer's perspective is equally important. This project aims to conduct a qualitative study using interviews and surveys to explore the factors that influence customers to abandon their shopping carts. It will also evaluate the effectiveness of different design and usability strategies to reduce cart abandonment rate. The study will focus on understanding the emotional and cognitive processes that lead to cart abandonment and identifying the specific pain points in the online shopping experience. The findings of this study will help retailers to develop more customer-centric strategies and improve their online shopping experience, thereby reducing cart abandonment rates and increasing customer loyalty.*

**KEY WORDS:** cart abandonment, customer perspective, Amazon, customer loyalty

## INTRODUCTION

A high cart abandonment rate can be caused by a number of different things, but it ultimately points to a bad user experience, a skewed sales funnel, and a convoluted checkout process. Therefore, simply improving your user experience and plugging holes in your sales funnel could drastically lower your cart abandonment rate and increase sales and income for your e-Commerce store.

For online companies, shopping cart abandonment poses a serious problem because it results in lost sales and potential clients. While businesses may concentrate on enhancing the technical parts of their online shopping experience, it is equally crucial to comprehend the causes of cart abandonment from the viewpoint of the client. There are several variables that can affect a customer's decision to leave their shopping basket, including the mental and emotional processes that go into an internet shopping experience. Thus, in order to create efficient ways to lower cart abandonment rates, it is essential to comprehend the customer's perspective and pinpoint any pain points in the online buying experience.

Additionally, the problem extends beyond simply increasing value by attracting customers and persuading them to add items to their "shopping cart" to making sure they don't depart empty-handed. The problem, also known as shopping cart abandonment, worries online companies a lot. According to research, (Pappas 2016) the ratio of abandonment to purchase in full is almost 1:4. As a result of around 71% of these lost sales opportunities (Cho, 2004), online retailers are continually utilising cutting-edge technologies to attempt and find a solution. In fact, many businesses are focused on providing services to lower sales revenue loss by providing technology solutions for the same. However, these are reactionary approaches that neglect to identify the potential cause.

Customers quit their shopping carts for a variety of reasons, such as unanticipated costs, a difficult checkout procedure, technological difficulties, comparative shopping, a lack of trust, and hesitation. Online merchants can take measures to lower cart abandonment rates by providing free delivery, streamlining the checkout process, clearly outlining their return and exchange policies, and fostering customer trust through social proof and reviews. Online merchants may boost sales and revenue and enhance the general shopping experience for their customers by lowering cart abandonment rates.

## II. REVIEW OF LITERATURE

**L.L.Yusuf, D.Tamara, N.J.Setiadi (2021)** this paper investigates the determinants of shopping cart abandonment. Perceived cost, complicated checkout, entertainment motivation, emotional ambivalence, information overload of the product are considered as those determinants of shopping cart abandonment. Quantitative study was undertaken for this study. And path analysis was taken in structural equation modelling. This results that customers didn't observe future variables as determinant factor for the shopping cart abandonment, but took only entertainment motivation and put all products in the cart that they wishes to purchase.

**AP Kapoor, Madhu V (2021)** states that this cart abandonment was experiencing by the online retailers from the advent of online shopping. By the upcoming trends this cart abandonment was getting severe compared to early times. This cart abandonment become very familiar but that checkout abandonment is still not much familiar. This study not only investigates cart abandonment but also checkout abandonment. The findings of this research shows that cart abandonment is a result of many variables from cross channel price variation, offers, ratings, reviews, designs etc., whereas checkout abandonments is a result of shipping policy and account weakness.





**D Jiang, Guangling Zhang, Lu Wang (2021)** states about the development of e-commerce results in online platforms increasing the online shopping cart capacity. Wide range of products is included in online shopping cart even without buying, but not leaving the cart empty. These results the products stuck in shopping carts, this is called behaviour of shopping cart abandonment. This results that online shopping cart abandonment occurs in shopping carts in major platforms, forgetting the cart page is the reason that has led to shopping cart abandonment.

**LG Benson, TTR Nodoro (2022)** this research investigates the factors that impact on the consumers online shopping cart abandonment in South Africa. Perceived security risk, perceived cost, organisation and research are the factors which impact the consumers in online shopping cart abandonment. Quantitative research design was adopted in this study for that data were collected form. The result shows that the perceived security risk, perceived cost, organisation, research have a significant impact on the shopping cart abandonment. The finding of this study brings business insights to the customers and motivate of cart abandonment.

**TM Rausch, ND Derra, L Wolf (2022)** states that this online shopping cart abandonment rates forms a biggest challenge for e-commerce companies can reduce their success with their competitors. At the same time the booming of internet's commercial usage resulted in rapid growth of data about consumer's behaviour. The finding of this paper indicates the incline with regular outperforms the remaining models that provide score. But incline boosting leads to compute infeasible a decision or regression may be suitable alternative in balancing the trade-off between model and prediction.

**R. Gul, MR Arshad, S Batool (2023)** this study investigates the factors influence the shopping cart abandonment

specifically in culture of Pakistan. This online shopping cart abandonment is basically not implemented based on consumer purchasing decision.. This paper examines the framework and results the managers of Pakistani industry that they may be able to reduce the online shopping cart abandonment behaviour among the customers and make betterment in reducing such online shopping cart abandonment to improve the Pakistani economy by increasing the sales and profits of the industries.

**S. Wang, JH Cheah, XJ Lim (2023)** this paper states that the COVID-19 pandemic has created the online shopping in forefront of retail purchasing. This research concentrate on the problem of shopping cart abandonment is still e-retailer's issues. This research examined the online shopping cart abandonment theory, context and methods to provide comprehensive review of current stage of research and constructive future research agenda. This result shows that most research was found by stimulus-organism-response model and the buyer behaviour.

### III. RESEARCH METHODOLOGY

#### 3.1 OBJECTIVES

- ✓ To study the factors that lead to abandonment of shopping cart.
- ✓ The study the impact of various factors on shopping cart abandonment

#### 3.2 HYPOTHESES

H1: There is a significant association between the Gender and Shopping cart abandonment.

H2: There is a significant association between the Income and Shopping cart abandonment.

H3 : There is a significant relationship between abandonment of shopping cart and lack of trust, high shipping cost, technical issues, lack of payment options

#### 3.3 RESEARCH DESIGN

Design	Descriptive Research Design
Type of data	Primary
Sample size	267
Data Analysis Tools	Chi square test, Correlation and regression analysis

### IV. DATA ANALYSIS

#### CHI SQUARE ANALYSIS

1. Hypothesis: There is a significant association between the Gender and Shopping cart abandonment.

#### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Abandonment Of Cart * Gender of the respondent	265	97.6%	2	2.4%	267	100.0%



#### Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	78.392 <sup>a</sup>	4	.000
Likelihood Ratio	90.923	4	.000
Linear-by-Linear Association	51.602	1	.000
N of Valid Cases	265		

#### INTERPRETATION

Here the calculated value is lesser than the 0.05 that is  $0.000 < 0.05$  so the  $H_0$  is rejected and the alternate hypothesis  $H_1$  is

accepted there is significant relationship between the Gender and Shopping cart abandonment.

- Hypothesis : There is a significant association between the Income and Shopping cart abandonment.

#### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Abandonment Of cart * Income of the respondent	265	97.6%	2	2.4%	267	100.0%

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.284E2 <sup>a</sup>	8	.000
Likelihood Ratio	118.219	8	.000
Linear-by-Linear Association	58.662	1	.000
N of Valid Cases	265		

#### INTERPRETATION

Here the calculated value is lesser than the 0.05 that is;  $0.000 < 0.05$ .

So the  $H_0$  is rejected and the alternate hypothesis  $H_1$  is accepted there is significant relationship between the Income and Shopping cart abandonment.

#### REGRESSION ANALYSIS

Hypothesis : There is a significant relationship between abandonment of shopping cart and lack of trust, high shipping cost, technical issues, lack of payment options

#### ANOVA<sup>b</sup>

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	106.554	265	26.638	184.633	.000 <sup>a</sup>
	Residual	11.254	2	.144		
	Total	117.807	267			



Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.582	.113		5.156	.000
	Lack of trust	.162	.125	.179	1.300	.197
	Technical issues	.365	.136	.415	2.684	.009
	Lack of payment option	.345	.096	.396	3.587	.001
	High shipping cost	-.016	.139	-.019	-.115	.908

## INTERPRETATION

Based on regression analysis of the variables, lack of payment option and technical issues were found to be the main reasons behind shopping cart abandonment

## V.CONCLUSION

Several variables, a lack of payment choices, and technical difficulties during the checkout process, were identified as contributing to shopping cart abandonment based on the analysis of the survey data. Another important aspect that contributed to cart abandonment was the lack of trust in the website or vendor.

Online shops should think about addressing these problems to lower cart abandonment rates by providing free or discounted delivery, giving a variety of payment choices, assuring a quick and easy checkout procedure, and fostering customer trust through security measures and open communication. Retailers should also follow up with abandoned cart consumers via emails, offering incentives like discounts or free shipping to attract them to complete their purchase.

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# A STUDY ON THE AWARENESS OF CASHLESS TRANSACTIONS: A CASE STUDY OF NAMPALLY AREA

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## ABSTRACT

*A study on the Awareness of cashless Transaction in the Nampally area of Hyderabad city has been analysed by using the simple percentage method. The study is based on the data collected through a primary survey during the month of December, 2022. The data is represented through pie diagrams. A sample size of 101 respondents was selected using a random sampling method for the study. The respondents in the study belonged to the age group of 16- 50 years. 50% of the total respondents are in the age group of 16-20 years & 50% are in the age group 21-50%. Respondents in the survey belong to different levels of education. 12% of the total sample respondents are illiterate and the rest are literate. The respondents consist of business people like general store owners, bangle store keepers, owners of tea stalls, textile shop owners, government & private employees, students and so on. Secondary data was also collected from journals & websites. The present study shows that all types of respondents are aware of the concept and modes of cashless transactions, independent of age, sex, education and occupation. The pattern & purpose of usage of these modes of transactions varies among the sample respondents. So, we can say that, to make India a cashless economy is a right step in the right direction.*

## INTRODUCTION

Cashless economy is an economic system in which transactions are mainly done through electronic methods, and it refers to a state in which there is no complete absence of physical cash. It rather refers to a situation in which goods and services are bought and paid for, through digital methods. It indicates an economic system which widely uses electronic technology in its financial transactions. Cashless transactions economy does not mean shortage or scarcity of cash it rather indicates a culture of people settling transactions digitally. Cashless economy is the economy in which transactions are done online by debit/credit cards, mobile wallet, e- wallets, UPI Apps, cheques or direct transfer of funds from one account to another through digital banking. Digital transactions or cashless transactions bring in transparency, accountability and productivity in the economy. Cashless transactions economy does not mean shortage or scarcity of cash it rather indicates a culture of people settling transactions digitally. Digital India is a leading program of the government of India with a vision to convert India into a digitally authorised society and knowledge economy. The government has implemented a major change in the economic environment by demonetizing high value currency notes of Rs.500 and Rs.1000 from 8th November 2016 and pushing India towards a cashless future.

**TYPES OF CASHLESS TRANSACTIONS:** There are various types of cashless transactions which are used by the public in India to perform their day -to -day activities. Given below are a few kinds of cashless transactions that are widely utilised in India.

**E-wallet:** E-wallet is an electronic device wallet. It is an electronic card which is used for digital transactions through a computer or a smartphone. An E-wallet is the same as a credit or debit card. To make the transactions with an e-wallet, it needs to be linked with the individual's bank account. We can utilise e-wallet for subsidised exchange or web based shopping. Examples: paypal, payoneer, transferwise, skrill and payza

**Mobile wallets:** It is a mobile payment method, it is any of various payment processing services operated under financial regulations and performed from or via a mobile device. Instead of paying with cash, cheque, or credit cards, a consumer can use a **payment app** on a mobile device to pay for a wide range of services and digital or hard goods. It can be installed as an app or a built-in feature on a smartphone. Examples: Gpay, paytm, phonepay etc

**UPI APPS: Unified Payments Interface (UPI)** is an instant real-time payment system developed by National Payments Corporation of India (NPCI). The UPI ID of the recipient can be used to transfer money.. It is used on mobile devices to instantly transfer funds between two bank accounts.. It runs as an open source application programming interface (API) on top of Immediate Payment Service (IMPS), and is regulated by the Reserve Bank of India (RBI). The interface facilitates inter-bank peer-to-peer (P2P) and person-to-merchant (P2M) transactions. The Unified Payments Interface (UPI) is a technology that combines multiple banking services, smooth fund routing, and merchant payments into a single mobile app that can be used by any bank that participates..  
Examples: SBI pay, gpay, paytm, etc





**Aadhaar Enabled Payment System:** It is a network of Micro ATMs using Aadhaar authentication. AePS is a bank-led model which allows basic interoperable banking transactions at PoS (MicroATM) through the Business correspondent of any bank by using Aadhaar authentication.

**Credit & Debit cards:** A **debit card** is a card that can be used in place of cash to make payments. These cards come under the category of plastic cards. These are like credit cards, but the money for the purchase must be in the bank account of the cardholder at the time of a transaction, which is transferred directly from the cardholder's account to the recipient's account to pay for the purchase. A debit card is used to make a purchase with one's own money. A credit card is used to make payment by borrowing money. A credit card is a payment card, which is based on the concept of accrued debt.

**Online Transfer- NEFT or RTGS:** The NEFT mode is used when the transactions are of smaller values. RTGS is used in high-value transactions. The National Electronic Funds Transfer system was introduced in November 2005 to replace the Special Electronic Fund Transfer (SEFT) system that was in use at the time.

The least complex technique for the cashless exchange is online exchange utilising NEFT or RTGS. With a specific end goal to do online cash exchange, you require web managing an account office. Online exchange utilising NEFT or RTGS is relatively speedier than cheque or DD. In this, online exchange should be possible from any place utilising a web office.

**CHEQUE:** A **cheque** is a document/bill of exchange that orders a bank (or credit union) to pay a specific amount of money from a person's account to the person in whose name the cheque has been issued. **Drawer-** the person who writes the cheque, has a transaction banking account (often called a current, cheque, chequing, checking, or share draft account) where the money is held. The drawer writes various details including the monetary amount, date, and a payee on the cheque, and signs it, ordering their bank, known as the drawee, to pay the amount of money stated to the payee.

**Demand Draft** Demand draft is another primary way of cashless transaction. It is a very safest method to receive payment from anyone. Demand draft (DD) never gets defaulted as it is signed by the banker. The drawbacks of DD and cheque are you need to visit a bank in order to deposit cheque and demand draft. The clearance of cheque or DD takes additional time. Demand Draft also called DD is a way to initiate transactions from one bank to another. It is a negotiable instrument that guarantees payment of a specific amount of money to the specified payee.

**PROBLEM IDENTIFICATION:** As an extension of the demonetization process, the cashless transaction system is implemented, which impacts significant changes in the behaviour of consumers. Cashless transactions have many advantages such as improved transparency and accountability, speedy transactions of large amounts of money with lowered

risk & time. In India most of the consumers are heavily dependent only on the cash economy, now the consumers have to switch from cash to cashless electronic transactions. Most of the consumers have been using cash for purchase of products and services, except a few. Currently the government announced restrictions for the traditional cash transaction and offers electronic transfer, which push the consumers to adopt and implement cashless transactions for their needs. In the context of the above, this study makes an attempt to understand the concept of cashless transactions, awareness of the people about cashless transactions in the surrounding area of Nampally, Hyderabad city, the usage pattern & the purpose of the usage of these modes of transactions

## OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

- To know the concept of Cashless transactions.
- To understand the different modes of Cashless transactions.
- To study the awareness among the people about cashless transactions.
- Examine the utilisation pattern & purpose of usage of cashless transactions among people.

## REVIEW OF LITERATURE

Richa Goel, Seema Sahai, Anita Vинаik, Vikas Garg (2019), "Moving from cash to cashless economy:- A study of consumer perception towards digital transactions". The study aimed to find out consumers' awareness on cashless transactions. The focus of the study was to assess the trust of consumers on cashless transactions. The benefits and future trends of cashless transactions were also analysed in the study. The study was conducted by collecting responses from around 280 respondents who were aware about digital means of payment. The findings of the study stated that a lot of people in the country do not use digital means of payment. People also don't feel safe in sharing their personal and financial information over the internet. There is still a lot to be done to make India a digital economy. For smooth implementation of cashless systems in India, the following measures are recommended: Government has to bring transparency and efficiency in the e-payment system, strategies used by government and Reserve Bank of India to motivate cashless transactions are by licensing payment banks, promoting mobile wallets and withdrawing service charge on cards and digital payments. A financial literacy campaign should be conducted by the government continuously to make the population aware about the advantages of electronic payments

Sheetal Thomas & G. Krishnamurthi (2017): Examined that there is enormous potential that rural economy in India can become a cashless economy. The rural population is ready to learn it, with one person receiving benefits soon the rest of the village will follow. Keeping the level of consumption patterns and the recent trends into mind. The study suggested that the government can plan for implementation of basic support systems like, incentivizing the use of internet through free data and smart phones, distribution of laptops to students taking higher education in nearby towns. Another way is by creating



awareness about digital transactions and financial literacy among rural people by partnering with different educational institutions and NGOs.

Dr. Seema Rathi and Gunjan Bhayana(2018) in their “ STUDY ON AWARENESS LEVEL OF CUSTOMERS TOWARDS THE VARIOUS MODES OF CASHLESS TRANSACTIONS”Haryana) found out that the customer is aware about various modes of cashless transactions. But, their degree of customer awareness varies between different modes of transactions. In some modern modes of transactions like e-wallet, net banking and Point of sales, the degree of awareness is low. So, it is suggested that the government and other organisations should focus on increasing the awareness level of customers regarding the use of these modes of payments

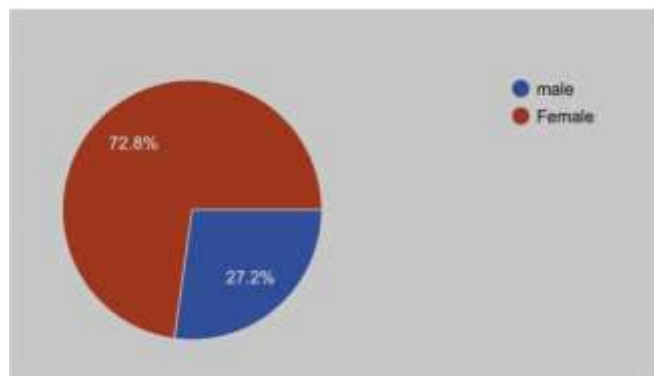
## RESEARCH METHODOLOGY AND SOURCES OF DATA

The study is conducted to obtain data of the people about their attitude towards cashless transactions and the awareness about the cashless transactions. The usage pattern & purpose of usage of these modes of transactions The study project is conducted in the surrounding areas of Nampally ,Hyderabad city.Primary data is obtained on the selected topic, survey method is used for collecting data with the help of questionnaires. The response from the respondents is collected and analysed ,using a simple percentage method. The data is represented through pie charts or pie diagrams, & schedules. A sample size of 101 respondents was selected using the random sampling method for the study. The sample includes both literate and illiterate populations. It comprises students, government servants, private servants, shopkeepers, drivers, vegetable vendors and bangle store keepers.Secondary data was collected from different sources such as articles published in different journals & newspapers, periodicals,, and websites, etc.

**LIMITATIONS:**The investigation carried out in this study is confined to the Nampally area of Hyderabad city and the study is based on a convenient sample survey method. Hence, the very nature of the study sets limits to the universal acceptability or temporal validity of the findings.

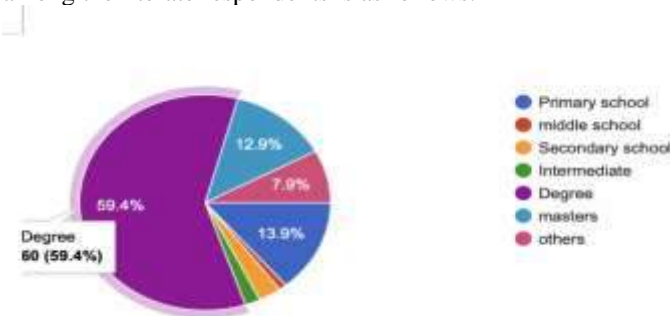
## ANALYSIS OF DATA

The present study has been done in the vicinity of Nampally area of Hyderabad city. A total of 101 respondents have given their feedback on cashless transactions. They belong to the age group of 16-50 years. Of the total respondents 50% of them are in the age group of 16-20 years and another 50% are in the age group of 21-50 years. Of this, 27% are male and 73% are females.

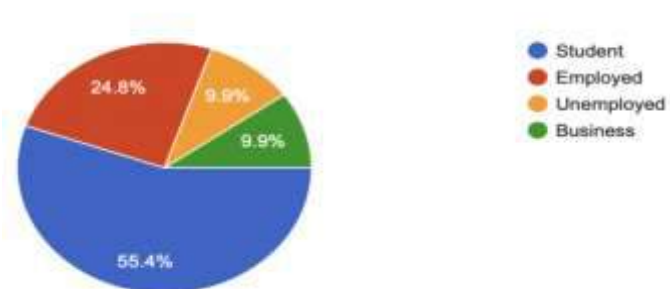


## RESPONDENTS' STATURE

The respondents in the survey belong to different levels of educational qualification. 12% of the respondents are illiterate. And the distribution of the levels of educational qualification among the literate respondents is as follows:



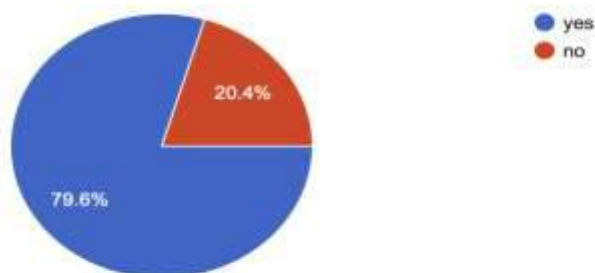
Of the total respondents 12.9% of them have studied till primary level,5.9%have studied middle,secondary & intermediate level combinedly, 59.4% have studied till degree level 13.9% have studied till master's degree and rest have done other vocational Courses.



The respondents consist of students, business people like general store owners, fruit vendors, tea stall owners, textile shops, bangle store owners , government and private servants etc.

## AWARENESS, USAGE PATTERN OF DIFFERENT MODES OF CASHLESS TRANSACTIONS AND THEIR PURPOSE OF USE

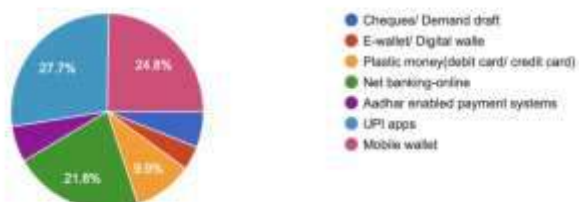
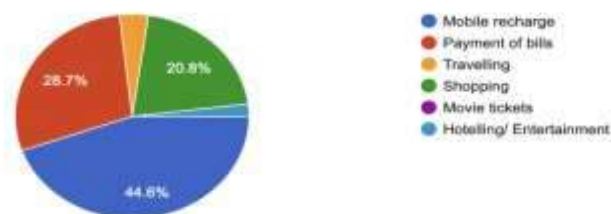
**Awareness:** As the data reveals, about 79% of the study respondents are aware of cashless modes of transactions.



	FREQUENCY	PERCENTAGE
Awareness of cashless transactions	79	79
<b>USAGE PATTERN:</b>		
checks/ demand draft	6	6
E-wallet- paytm/free charge	4	4
Plastic money- debit card/ credit card	10	10
Net banking online	22	22
Aadhar card- aadhar enabled payment system	6	6
UPI apps	27.7	27.7
Mobile wallet	24.8	24.8
<b>PURPOSE OF USAGE</b>		
Mobile recharge	45	45
Payments of bills	29	29
Travelling	4	4
Purchases	20	20
Movie Tickets/entertainment	2	2

**USAGE PATTERN:**As the data of usage pattern of different modes of transactions indicates that of the total respondents 6% have used cheques/demand for their day to day transactions 4% have used E-wallets & pay tms 10% have used plastic money debit/credit cards 22% have used online net banking 6% have aadhar enabled payment system 27.7 %have used UPI APPS and 24.8% have used mobile wallets.

#### PURPOSE OF USAGE



Of the total respondents, most people used cashless modes of transactions for mobile recharge, payment of public utility bills and shopping.

#### Major Findings

The findings of the study show that a large no. of people i.e., about 79% of the respondents are aware of cashless transactions. In case of usage pattern of different modes of transactions it is observed that of the total respondents:

- 27.7% use UPI apps.
- 24.8% use mobile wallets.
- 21.8% use methods of online Net banking
- 9.9% use plastic money (debit or credit card)

And the majority of them expressed that they are using these modes of transactions without any difficulty. They also expressed that due to the government's demonetization policy



and due to cash shortage they got to know about the electronic cashless transactions. The government's policy to bring in transparency and fairness in cash transactions, limited the bank's transactions in cash. This forced them to look for alternative modes of cash transactions.

Another finding of the study is that, the respondents are using cashless modes of transaction for the following purposes:

- 44.6% for mobile recharge.
- 28.7% for the payment of public utility bills.
- 20.8% for the purpose of shopping
- 3.9% for travelling
- 2% for hoteling/ entertainment

Some of the respondents want to perform their transactions only in cash as they feel it is the safest and the easiest way of transactions. They expressed strong inhibitions against cashless transactions. They do not want to share their personal & financial data.

## CONCLUSION

So we can conclude in the light of this study that we can introduce cashless transactions in India. But main challenges of the working of cashless transactions in India are lack of infrastructure facilities for cashless transactions like less no. of swipe machines due to their high cost, poor internet facility, digital illiteracy, cyber-crimes and cyber frauds, illegal access to the personal data of the customers. Therefore, it is important to strengthen internet security and protection from online mischiefs. Hence, the government needs to put in more efforts to promote digital literacy and to educate people about the benefits of electronic payments. Efforts should be made to convert urban areas as cashless areas. Therefore different strategies and policies need to be implemented to realise the goal of cashless society and digital India to be achieved. And the present study shows that all types of respondents are aware of the concept & modes of cashless transactions, independent of age, sex, education and profession. The usage pattern & purpose of usage varies among the sample respondents. So, we can say that, to make India a cashless economy is a right step in the right direction.

## SUGGESTIONS

To make India a cashless economy the following steps are suggested:

1. There is a need to improve digital literacy among the people.
2. Combined effort from govt, banks, college employees, students and stakeholders is required to popularise the different modes & benefits of cashless transactions.
3. Internet facility & infrastructure should be improved & strengthened especially in rural areas. To make e-payment systems more efficient, strategies used by government and Reserve Bank of India need to be made more popular & effective.
4. Govt must remove or reduce the service charges of these electronic transactions.
5. The internet usage among students should be made 100% by providing free data laptops and smartphones.

6. Most importantly it is for the government to gain trust of the public in these types of transactions & to improve cyber security.

To conclude, there are some challenges like cyber crimes and cyber security and lack of infrastructure. We can achieve it with time and effort, which is required from all the stakeholders of the society including the government and NGOs in future.

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# THE MEDIATING ROLE OF INFORMATION COMMUNICATION TECHNOLOGY LITERACY ON THE ATTITUDE TOWARDS LEARNING WITH SOCIAL MEDIA AND ONLINE NEWSPAPER READING BEHAVIOR OF STUDENTS

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## ABSTRACT

The study aimed to determine if information communication technology literacy significantly mediates the relationship between the attitude towards learning with social media and the online newspaper reading behavior of the students. A quantitative correlation design and mediation technique was used to investigate the relationship between and among the three variables. This study used questionnaires that had been modified and pilot tested by experts. A stratified sampling technique was used to select and interview 300 college students. The questionnaire was personally handed to the respondents by the researcher via face-to-face and Google e-survey. The statistical tools used were a mean, product-moment correlation, and path analysis. The study's findings showed high levels of attitude towards learning with social media, online newspaper reading behavior, and information communication technology literacy. Moreover, the study's findings indicated a significant connection between and among the three variables. Results showed that information communication technology literacy partially mediated attitude towards learning with social media and online newspaper reading behavior.

Keywords: *ict literacy, social media, online newspaper, technology, path analysis, library science, Philippines*

## I. INTRODUCTION

The foundation of effective learners' study routines in any area of expertise can establish by developing reading skills. Promoting newspaper reading may improve students' reading habits, knowledge, and awareness. As one of the most effective mass mediums for communication, newspapers serve four primary purposes as they gather media: they provide information, amusement, persuasion, and cultural transfer (Owusu-Ansah, 2017).

In the present, print news is now declining because of the presence of the internet and the availability of different information online. The heaps of this information become one of the most significant challenges in online newspaper reading behavior in distilling reliable and quality news; lack of knowledge of credible and trustworthy news sources usually leads readers to misinformation and fake news (Staff, 2017). The reliability of newspapers corresponds with the knowledge that the

material is pertinent to the readers. It is also essential, especially for students, to know the relevance of news topics to avoid becoming reluctant readers and considering them less valuable (Qayyum & Williamson, 2014)—besides, people who read newspapers online access news via digital platforms or websites. When people search for information online, they are influenced by many things, like their reading preferences, recommendation layout, popularity, and news content. Studies found it had difficulty recommending good online news when dealing with complicated online user behavior (Liu et al., 2019).

On the other hand, incidental exposure to online news is becoming a common approach to keeping up with current events. Furthermore, using social media platforms to share news has also become routine. While this information became available online, breaking news and stories spread rapidly without considering truthfulness. Spreading rumors and false information are rampant and will cause harmful effects on people if not detected efficiently (Alkhodair et al., 2020). While some students tend to read news



on social media because of convenience and easy access, it is also inevitable for them to acquire fake news and low-quality news that leads them to believe false information.

In the Philippines, internet use gradually increased during this pandemic, and most spent hours on social media. Filipinos became active internet users who disclosed themselves to misinformation and online manipulation. Various social media groups and news channels created a problem, as some have altered their concentration to hyper-partisan content, with some disinformation included (Tuquero, 2022). In Davao City, subscription numbers have dropped because digital media and newspaper distributors struggle to distribute newspapers to subscribers. The dramatic changes brought on by the Covid-19 epidemic have made this more difficult (Urquiza, 2021). Contrarily, despite the number of studies on attitude towards learning with social media, online newspaper reading behavior, and information communication literacy. The researcher has yet to discover any research examining the connection in determining the mediating role of Information Communication Technology literacy between attitude towards learning with social media and online newspaper reading behavior of college students, particularly in the Davao Region. Thus, the researcher believes it is essential to focus on the elements that can increase online newspaper reading behavior and student's perception of learning with online platforms as a learning tool. The researcher wants to know how ICT literacy directly affects students' attitudes about using social media for learning and online newspaper reading behavior.

## II. LITERATURE REVIEW

This portion shows the related studies on the relationship between attitude towards learning with social media and ICT Literacy, ICT Literacy and online newspaper reading behavior, and attitude towards learning with social media and online newspaper reading behavior. The independent variable is attitude towards learning with social media. The dependent variable is online newspaper reading behavior, and the mediating variable is Information Communication Technology Literacy (A. Adeoye & B. Adeoye, 2017).

Social media platforms' existence has changed college students' news consumption and use behavior. The primary cause is the democracy of various media systems that declines news consumption. Additionally, the escalation of mobile access and exposure to social media news is one of the global trends (Yanardağoglu, 2020). Factors include that news on social media directs news consumers to their favorite news outlet and enables them to browse within that outlet (Vermeer et al., 2020). Meanwhile, the study by Vraga and Tully (2019) stated that those who value news literacy and news literate are more likely to be cynical of the information quality presented on social media. In addition, readers with higher news literacy reduce the likelihood of using social media. In contrast, those who access news from social media are less suspicious of online news, leading to misinformation (O'Sullivan, 2019).

Social Media and technology have become news sources for a group of people. Their information-seeking behavior nowadays relies on this digital context to locate pertinent information on a topic that matters. Likewise, they initially utilize social networking sites to accumulate knowledge and share information (Aref, 2013). Additionally, students use social media to discuss political issues, and the more they use social media heightens their political knowledge (Intyaswati, 2021). Moreover, various news channels on social media sometimes result in a decrease in news effectiveness. According to Park's study from 2019, news overload links to a decline in news effectiveness, which raises the number of people who avoid news on social media. News efficacy influences the favorable relationship between social filtering and perceived news overload.

In contrast to the study of Soroya (2021), people mostly preferred traditional media to social media and only sought information from internet resources like official websites of newspapers and forums. Furthermore, Social media exposure, on the other hand, is significantly associated with information overload and anxiety among various information sources. Information overload was also linked to information anxiety, leading to information avoidance.

In fact, in the study of Karslen and Aalberg (2021), widespread fake news leads to people decreasing their trust in news presented on social media. Readers with higher news literacy increase the likelihood that people will use social media as one of their news sources rather than as their primary source (Schulz et al., 2022). It also added that news sharing via Facebook may contribute to declining trust in news. Nevertheless, people refrain from sharing low-quality news that can damage their reputation; however, the desire for information sharing on social media significantly influences news sharing for those who rely more on credibility and may use more heuristic selection methods (Tuquero et al., 2019). Besides, the instantaneous sharing of news for lack of time, religiosity and awareness positively impacted the spread of false information. However, verifying news before spreading it had no impact on the spread of false information. The study's findings also indicate that social platform users who actively take corrective action are less likely to spread false information due to a lack of time (Talwar et al., 2020).

ICTs, which are becoming more and more common in our society, offer opportunities for the pedagogical process. Our community increasingly relies on ICTs, which open up prospects for educators and students alike. Most educational institutions incorporate ICT for students to become globally competitive. Even libraries have the necessary skills to provide quality service. Acquiring ICT in the workplace helps the corporation accelerate its performance and develop inventions to transform production and increase economic growth through quality advancement. The same applications transpose the demand for different kinds of labor and workers (Bresnahan & Yin, 2017).



ICT comprehension moderates the association between social media and learning outcomes in developing students' language skills (Bakeer, 2018). Along with this, students develop technology skills, problem-solving skills, improved critical thinking, intensified knowledge, and feel a sense of connection in the industry they are taking (Son et al, 2018). Students increase their participation due to familiarity with social networking sites, and they can express themselves. Teachers can stimulate discussion, especially students who are non-participative in class (Agrawal, 2016). These educational technologies uplift independent and active learning, increasing students' motivation and self-reliance and becoming responsible for their learning (Adil, 2021; Akay, 2016; Carpenter & Harvey, 2020; Norman, 2019).

Nevertheless, the study by Supardi et al. (2021) shows a significant involvement of ICT competence and social media engagement tasks in students. The higher level of ICT basic skills creates a higher utilization of social media. Teaching digital literacy develops further in the project's lifetime and afar. With the aid of ICT, it could establish new methods in education to support non-formal learning. Social media enables students to connect globally, allowing them to connect and collaborate beyond the classroom (Using Social Media for Learning, 2021).

According to Soroya and Ameen (2020), the digital environment has a notable influence on the reading manner of individuals. The presence of digital environments affects readers on their reading habits. Students got hooked on digital forms of reading and started to rely less on printed ones (Nurfitrana et al., 2019). Freeman (2013) asserted that the majority of adolescents prefer online news instead of traditional news media. This behavior influences their exposure to the digital world at an early age (Belyh, 2019). Young adult reading habits manifest in their print preferences and behavior with physical books (Loh & Sun, 2019). As they get older, they shift to reading online from printed format. Additionally, digital newspapers are becoming common and replacing printed newspapers. Factors include the internet, habits, sex, and political interest in consuming digital news (Bergström, 2020).

With the massive shift from traditional news to online, many people read news on their digital devices. A study conducted by Pew Research Center found that more than 86% of US adults obtain news often or sometimes from smartphones, computers, or tablets (Shearer, 2021).

This development resulted in online newspapers adopting blogs, commenting features, and other interactive activities engaging news consumers. While news consumers interact with each other, studies also show that reading on-screen can increase the comfort, media-richness, engagement, and data-evidenced practice of education (Nicholas, 2016). Performance expectancy refers to a

person who is more likely to apply technology when they grasp that this will help to perform their job effectively (Hamzat & Mabawonku, 2018). Furthermore, news readers are more likely to access news articles online because they can multitask; while browsing information online, readers can browse ads without turning them away. Conversely, the study by Choi et al. (2016) shows that online news availability makes readers inclined to news topics rather than news articles. Besides, user sharing performance depends on motives for sharing news outlets, different content characteristics, and news outlets (Karnowski et al., 2020).

Students perceive online news as helpful in providing current and timely information. Students believe online news keeps users' needs and interests, goes into general audience interest and community well-being, and serves fresh information (Seguin et al., 2018). Additionally, students' performance improves when news combines with technology, such as the various online platforms. Like the study conducted by Kim et al. (2016), they created a platform to use academic resources in newspapers in the classroom called Twitter News in Education (TNIE). They found out that using TNIE gives the classification of the latest news and news content, and based on their selection of the news, students can quickly form productive discussion or debate groups. Furthermore, media platforms such as social media have been accepted and commonly utilized for social news. These platforms serve as a source of information for news consumers, offering them linked references, up-to-date sources, accuracy, promotion of current work, convenience, security, credibility, reliability, stability, easy identification, copyrighted, confidence-building, and information that has filtered. However, disadvantages were also enumerated, such as lack the knowledge to cite sources properly, time constraints, and lack of credibility and quality of information sources (Mansour, 2016).

The internet's use allows news consumers to get updates 24/7 on screen without hassle. Aside from the timeless, fresh information that can be accessed online, several studies showed that reading information online is beneficial. Increased reading because more information is available online, increased reading speed, improved skimming ability, changed patience as readers, and multitasking (Allcott, 2021). Similarly, social influence affects how people adopt new technologies (Graf-Vlachy & Buhtz, 2018). As studied by Damerji and Salimi (2021) indicated that acceptance of new technologies is significantly influenced by technological preparedness. Technology readiness (TR) describes a person's propensity to adopt and use new technologies. Through the application of technology adoption, it contributes to society by enhancing their abilities and developing their capacities for intelligent use of technological tools (Huda, 2019). Students showed positive attitudes toward reading online because it improves their knowledge. Additionally, reading online varies with reading purposes, technology usage, and skills (Nga, 2021).



The study by Intravia et al. (2018) found that online news readers are more likely to have unfavorable views of the legitimacy of the police. On the other hand, positive attitudes develop the students in reading news in a digital format. The study also suggested adding electronic newspaper subscriptions to the collection development policy (Owusu-Ansah et al., 2017). Also, Ranaweera (2021) mentioned in their study that the adoption of reading newspapers online resulted from the positive influence of online behavior, online activities, and social media.

In contrast, reading online newspapers contains too many advertisements, small font sizes, poor internet connectivity, and a lack of knowledge on the proper use of technology, resulting in poor online news reading habits (Kumar, 2020). Furthermore, reading newspapers online stimulates the reading interest of the students. It is also an effective tool for developing the habit of reading and is effective for the general audience (Notari & Camassola, 2017). Online news reading is done regularly, such as done regularly, such as reading the news at a set time each day and keeping up with it all day. Additionally, incidental exposure to online news is increasingly popular to stay updated on current events. (Yadamsuren & Erdelez, 2011).

The study was anchored on the theory of the Technology Acceptance Model (TAM) of Fred Davis (1985). This theoretical model best explains users' behavior of accepting ICT. The acceptance of technology resulted in social changes in how people interact. With online platforms, mobile technology, and web applications, users can interact and feel a sense of belongingness even in the virtual environment. The Planned Behavior Theory by Ajzen (1991) is another theory that backs this research, describing a person's intention to execute a given behavior. This theoretical framework understands the underlying beliefs relating to the utilization of ICT in reading news. Likewise, if a user believes that using a particular technology provides better substitutes, news readers would likely read online news as it provides users with engaging tools such as email that links to journalists and officials, documents available to view, databases, and hyperlinks (Smith, 2005). Moreover, the study also supports Altheide's (2016) media logic theory, which clarifies the significance of media and information technologies for social life and communication. Social media is a news source; people can easily convey and communicate information by posting news articles on different social media platforms. Hence, social interaction will augment if the information can be easily shared.

Figure 1 displays the conceptual framework for this study, which lists the variables used in the investigation. This study's independent variable focuses on the attitude towards using social media, measured in terms of social media learning, social learning communications, interactive learning, information seeking, and information sharing. Social media learning is the knowledge acquired using social media platforms. Social learning communications refers to exchanging ideas and information through technology and online platforms. Interactive learning refers to the hands-on teaching method to help students to be more

engaged and retained in the lesson. Information seeking refers to students' information-seeking behavior in finding information through online platforms. Information sharing refers to sharing students' information using social media (Knezek et al., n.d.). The study's dependent variable is online newspaper reading behavior, which is depicted by the indicators: Performance expectancy, effort expectancy, social influence, facilitating conditions, attitude, habit, counter-intentional habit, behavioral intention, and user behavior. Performance expectancy refers to a person who is more likely to utilize technology when they recognize this will help to perform their job effectively. Effort expectancy is the convenience of a particular technology without exerting too much effort. Social influence refers to human behavior in technology adoption. Facilitating conditions refer to the use of technology devices in reading online news. Attitude refers to the positive and negative influence of online newspapers. Habit refers to the reading habit of news consumers. Counter-intentional habit refers to the frequency of reading online news by news readers. Behavioral intention refers to the intention of news reading in accessing online news. Use behavior refers to students' technology use (Schoneville, 2007).

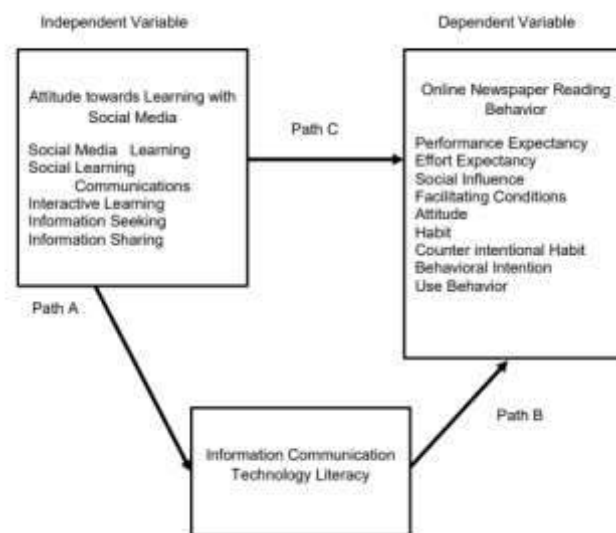


Fig. 1 Conceptual Paradigm of the Study

The mediating variable is Information Communication Technology Literacy (ICT Literacy) refers to the ability to aptly operate with modern information and communication technology (ICT) or think critically and creatively while utilizing ICT responsibly and ethically. ICT in a learning environment helps learners gain confidence in performing their respective activities (A. Adeoye & B. Adeoye, 2017). The researcher has not found any studies that correlate online newspaper reading behavior and attitude towards learning with social media, nor a study that evaluates the connection in figuring out the mediating role of information communication technology and online newspaper reading behavior of students in the local setting. The researcher is interested in determining whether ICT literacy mediates the student's attitude towards learning with social media and online





newspaper reading behavior. As such, the study's findings may be an added literature and contribution to new knowledge.

Inadequacy of local studies on this topic, the results of this study's analysis are anticipated to add a reference in library and information science literature in the Philippines and the local setting. Additionally, this study will shed light on college students across the globe to become responsive to change and be optimistic and responsible in reading online newspapers. Likewise, on the social value of this research, this can be helpful to college faculty and administrators in reading the behavior of online newspapers, especially for students. Notably, the results of this investigation can serve as a foundation for college administrators to formulate specific programs and strategies that will enhance the attitude toward learning with social media of students in general. Additionally, this can be used as a basis for librarians to develop collections that enhance students' attitudes about reading newspapers. Lastly, this study can be used as secondary data for future researchers in other dimensions or for future expansion of this content.

## METHOD

An overview of the research methodology, study setting, study participant and tool, data gathering techniques, statistical techniques, and ethical considerations are provided in this chapter.

### Research Respondents

In this study, the participants were college students from higher educational institutions in Davao City. Each institution has 150 students, so the total number of respondents was 300. According to Minsel (2022), a sample size of 300 offers a reasonable margin of error. The number of respondents is adequate for mediating research.

Stratified random sampling was used in this research, and this technique divides various groups known as strata based on the comparison. The selection is made so that it accurately reflects the entire population. (CFI Team, 2022).

Similarly, this technique was chosen because it is a more practical approach to selecting a smaller number of respondents that would be used instead to represent the entire population. The researcher applies a specific fraction or percentage to its population subgroups to make it proportionate. Three hundred respondents multiplied by 0.05 with 150 respondents from each HEIs received questionnaires. Respectively, inclusion criteria were also used in selecting the college students from higher educational institutions in the Davao Region; hence, non-participants and students who declined to answer the questionnaire were excluded. Additionally, the researcher guarantees that all data included in the study, which may

generate conflict or threaten their work, will be treated with strict confidentiality.

Moreover, the research was conducted in Davao City, the Davao Region's administrative capital of Mindanao, where the third-most people live. Davao City is one of the island's most important economies, recognized for its booming economy, urban growth, and contemporary facilities (About Davao, 2022).

## Materials and Instrument

The questionnaire created by different researchers was modified and adjusted for the study. Three sections comprise this questionnaire: Online Newspaper Reading Behavior, Attitudes toward Learning with Social Media, and Information Communication Technology. Furthermore, the survey questionnaire employed the five-point Likert scale identifying that 4.20-5.00 was very high in descriptive equivalent and measures were always manifested, 3.40-3.39 was moderate in descriptive equivalent and measures were oftentimes manifested, 2.60-3.39 was moderate in descriptive equivalent and measures are sometimes manifested, 1.80-2.59 was low in descriptive equivalent, and measures are seldom manifested, 1.00-1.79 was very in descriptive equivalent and measures are almost never manifested.

The research adapted and modified the 29-item survey questionnaire formulated by Knezek et al. (n.d) to the attitudes toward learning with social media. Attitude towards learning with social media had five indicators: social media learning, social learning communications, interactive learning, information seeking, and information sharing. On the other hand, the online newspaper reading behavior consists of a 27-item survey questionnaire adapted from the study of Schoneville (2007). The questionnaire measured the level of online newspaper reading behavior of College Students. Online newspaper reading behavior had nine indicators: performance expectancy, effort expectancy, social influence, facilitating conditions, attitude, habit, counter-intentional habit, behavioral intention, and use behavior. Information Communication Technology Literacy adapted and modified the 12-item questionnaire by A. Adeoye and B. Adeoye (2017). Cronbach's Alpha was utilized to weigh the reliability of this questionnaire. The Attitude towards Learning with Social Media gained a value of .959. Additionally, the Online Newspaper Reading Behavior got a value of .949. In contrast, Information Communication Technology Literacy obtained a value of .947. All variables in the questionnaire resulted in  $\geq 0.9$ , which means excellent and reliable for the study (Statistics How To, 2023). Moreover, internal and external validators also examined the questionnaire, which obtained a value of 4.68 by merely calculating the total number of values and dividing it by the total number of values in the data collection.



## Design and Procedure

The study applied a design for descriptive-correlational research as a non-experimental quantitative research method.

This method was used to compile data, facts, and study-related information. In this study, mediation was also tested. The researcher investigated the relationship between the three variables.

Correspondingly, the descriptive-correlational research design describes two or more variables to evaluate their relationship with little or no effort to control unnecessary variables. It also describes how one occurrence is related to another (Lappe, 2000). This research technique is appropriate in the study to explain and examine the correlation between online newspaper reading behavior, attitude towards learning with social media, and information communication technology literacy.

Furthermore, the general mediation test was used to measure the connections between the predictor and the criterion variables, the mediator and the criterion variables, and the predictor and the mediator variables. These associations should all be considered significant. The relationship between predictor and criterion should be diminished (to zero in the case of complete mediation) after the relationship between the mediator and criterion variables has been controlled. The mediator's variables control whether or when an impact or relationship happens. (Baron & Kenny, 1986). This research utilized information communication technology literacy as a mediator to explain the connection between attitude towards learning with social media and the online newspaper reading behavior of the students and equates between the two groups.

As a result, after pre-testing and using experts for validating the questionnaire and Cronbach Alpha to calculate, the researcher took the following steps to collect data for the study. The researcher prepared three questionnaire sets for internal validation in the first step. In the second step, external validations were done by some experts in the corporate section after the internal validations. After the questionnaires, the third step included validations, revisions, and suggestions. In the fourth step, the researcher asked for an endorsement from the university's adviser and dean of the graduate school to perform the investigation. In the fifth step, the researcher sought authorization from the Research Office of the target participants. In the sixth step, the survey questionnaire was distributed to the college students after the approval and endorsement form. Seventh step, the questionnaire was administered face-to-face and Google e-survey; then, the researcher sent the Google e-survey to students' email and stated the research tool's objectives, the same as the face-to-face survey. Eight step, after the respondents had responded to the survey questions, the researcher retrieved all the items in a week. Lastly, all information obtained from respondents was totaled and collated by the researcher, who then subjected it to statistical computation and analysis.

Survey results were treated thoroughly and scientifically validly using statistical tools. The statistical tools the researcher employed were mean, Product-Moment Correlation (Pearson  $r$ ), and Path Analysis. Mean is a set of numbers' average or most prevalent value and measures the central tendency of a probability distribution along the median and mode (Taylor, 2023). This statistical instrument was utilized to characterize the level of Online Newspaper Reading Behavior, Attitudes toward Learning with Social Media, and Information Communication Technology Literacy in this study.

Additionally, the Product-Moment Correlation (Pearson  $r$ ) was coined by Karl Pearson (1948), which is frequently used to evaluate associations of variables (Chee, 2015). In this study, Product-Moment Correlation (Pearson  $r$ ) was used to analyze the importance of the correlation between variables as in this study. Lastly, Path analysis was utilized to establish the mediating effect of information communication technology literacy on the relationship between attitude towards learning with social media and online newspaper reading behavior. This statistical tool is a multiple regression analysis that evaluates causal theories by examining the connection between a dependent variable and two or more independent variables (Crossman, 2019).

Subsequently, this investigation has been evaluated by the University of Mindanao Research and Ethics Committee (UMERC). It has been assessed to have sufficiently completed the study of ethical protocol requirements with Compliance Certificate for Study Ethics Protocol Review no. UMER-2022-169. Because the study's conclusions were confidential, the researcher ensured that the respondents were properly anonymized. Following that, the researcher followed the UMER's suggestions or requirements. In addition, the researcher sought informed consent from survey respondents, demonstrating that they were aware of the study's goals.

## RESULTS AND DISCUSSION

This portion emphasizes the study's main conclusions, the tabulated data, and the analysis and interpretation of the information gathered from the respondents, focusing on the mediating role of information communication literacy on social media learning and online newspaper reading behavior of students.

### Level of Attitude towards Learning with Social Media

Table 1 Level of Attitude towards Learning with Social Media			
Indicators	Mean	SD	Descriptive Level
Social Media Learning	3.79	.686	High
Social Learning Communications	3.81	.788	High
Interactive Learning	3.75	.885	High
Information Seeking	4.09	.663	High
Information Sharing	3.87	.769	High
Overall	3.86	.653	High



Table 1 shows the level of attitude towards learning with social media. The table reveals an overall mean score of 3.86, or a high level. The indicator that gained the highest mean is information seeking, with 4.09, which means high in level. The second highest mean is information sharing which gained 3.87, with a high descriptive level—followed by social learning communications which have a total mean of 3.81, which means a high level. Additionally, social media learning garnered a total mean of 3.79, with a high descriptive level, followed by interactive learning, which achieved the lowest mean of 3.75, with a high description. Furthermore, the participant's responses to the various indicators are consistent, as shown by the standard deviation of all indicators is less than 1.00.

As mentioned earlier, the findings indicated that the attitude towards learning with social media indicators was high, which implies that the student's attitude towards learning with social media is constantly observable. The result resonates with the study of Agrawal (2016) that students increase their participation due to familiarity with social learning sites, and they can express themselves. Additionally, using social media in teaching enables students to participate, especially non-participants in class. Nowadays, class interactions are integrated with technology and online platforms, resulting in students developing technology skills, problem-solving skills, improved critical thinking, intensified knowledge, and feeling a sense of connection in the industry they are taking (Son et al., 2018).

### Level of Online Newspaper Reading Behavior

Table 2  
Level of Online Newspaper Reading Behavior

Indicators	Mean	SD	Descriptive Level
Performance Expectancy	3.85	.870	High
Effort expectancy	4.05	.812	High
Social Influence	3.70	.882	High
Facilitating Conditions	3.88	.723	High
Attitude	3.77	.868	High
Habit	3.44	.987	High
Counter Intentional Habit	3.63	.838	High
Behavioral Intention	3.69	.713	High
Use Behavior	3.02	1.130	Moderate
<b>Overall</b>	<b>3.67</b>	<b>.708</b>	<b>High</b>

The data Shown in Table 2 are the level of online newspaper reading behavior of students in selected schools in Davao City, which procured an overall mean of 3.67 or a high level. Effort expectancy garnered the highest mean of 4.05, a high level, followed by facilitating conditions with a 3.88 total mean, high at the descriptive level. Specifically, performance expectancy gathered the third highest mean of 3.85, meaning this indicator is

high. Attitude is next to performance expectancy, garnered 3.77, which means high at the descriptive level—followed by social influence, which has a mean of 3.70, with a high descriptive level. However, behavioral intention (3.69), counter-intentional habit (3.63), and habit (3.44) got the lower means but are still high in level. Use behavior garnered the lowest mean of 3.02, with a moderate descriptive level. Moreover, participants' responses to the various indicators are also consistent, as shown by the standard deviation of all indicators is less than 1.00.

The above results indicated that most participants have access to online newspapers. The digital environment has an essential effect on the reading behavior of individuals. According to Nicholas (2016), while news consumers interact with each other, studies also show that reading on-screen learning can increase the comfort, media-richness, engagement, and data-supported practice of education. Freeman (2013) also asserted that most adolescents prefer online news over traditional news media. This behavior influences their exposure to the digital world at an early age (Belyh, 2019). Digital environments affect readers' reading habits, resulting in a shift in reading online from printed format. Additionally, digital newspapers are becoming common and replacing printed newspapers. Factors include the internet, habits, sex, and political interest in consuming digital news (Bergström, 2020).

### Level of Information Communication Literacy

Table 3  
Level of Information Communication Literacy

Indicators	Mean	SD	Descriptive Level
1. assess whether an online resource (e.g. web page, blog, wiki, video, podcast, academic journal article) or person is credible and trustworthy	4.24	.822	Very high
2. write online on a web page for private use	3.54	1.110	High
3. write online for blog entry for reading by my fellow students	3.32	1.230	Moderate
4. write online for a web page for reading by my tutor	3.21	1.190	Moderate
5. write online for a web page for reading by anyone in the world	3.30	1.219	Moderate
6. write in different media for people to read on-screen	3.46	1.122	High
7. communicate with others online	4.21	.847	Very High
8. keep up-to-date with information from organizations by subscribing to email alerts	3.97	.955	High
9. use advanced search options to refine search	4.05	.864	High
10. use advanced search options to limit search	3.98	.914	High
11. add comments to blogs, forums or web pages, observing netiquette and appropriate social conventions for online communications	3.74	1.074	High
12. use bookmarking to organize and share information	3.93	1.056	High
<b>Overall</b>	<b>3.74</b>	<b>.740</b>	<b>High</b>





Shown in Table 3 are the data on the level of information communication literacy which obtained a total mean of 3.74 or a high level. The high level could be ascribed to the respondents' positive score in most of the items; this infers that the participants' responses to information communication literacy were often manifested.

Moreover, items 1 and 7 garnered the highest mean with a very high description. While items 2, 6-12 garnered the higher mean or high level. Item no. 3-5 got the lowest mean of 3.32 and below, which means moderate level. The abovementioned results imply that students were indulging in technology. Their ICT literacy was high but moderate in writing online for blog entries. The results manifest today that more industries take in technologies, particularly in educational institutions incorporating ICT for students to become globally competitive. Even libraries have the necessary skills to provide quality service. Acquiring ICT in the workplace helps the corporation accelerate its performance and develop inventions to transform production and increase economic growth through quality advancement. The same applications transpose the demand for different kinds of labor and workers (Bresnahan & Yin, 2017).

### Correlation Analysis of Variables

Table 4  
Correlation Analysis of the Variables

Pair	Variables	Correlation Coefficient	p-value	Decision on H <sub>0</sub>
IV and DV	attitude towards learning with social media and online newspaper reading behavior	0.656	0.000	reject
IV and MV	attitude towards learning with social media and information communication technology literacy	0.631	0.000	reject
MV and DV	information communication Technology literacy online newspaper reading behavior	0.622	0.000	reject

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Presented in Table 4 above are the outcomes of the relationship between attitude towards learning with social media, online newspaper reading behavior, and ICT Literacy of the students. By doing a thorough analysis, it could be gleaned that the indicators of attitude towards learning with social media and online newspaper reading behavior of students revealed a computed r-value of 0.656 with a probability value of <0.05 which is significant at 0.01 level; this implies that there is a significant relationship between attitude towards learning with social media and online newspaper reading behavior. Thus, contrary to the null hypothesis, the two variables do not have a significant relationship. Indeed, the result above stated a significant correlation between attitude towards learning with social media and online newspaper reading behavior. In other words, people with higher news literacy increase the likelihood that people will use social media as one of their news sources rather than as their primary source (Schulz et al., 2022). Readers' trust in news presented on social media decreases due to the widespread use of fake news.

In contrast, those who value news literacy and news literate are more likely to be cynical of the information quality presented on social media (Vraga & Tully, 2019). In addition, people with higher levels of news literacy are less likely to access news from social media. In contrast, those who access news from social media are less suspicious of online news, leading to misinformation (O'Sullivan, 2019).

Moreover, table 4 shows the test results of the relation between attitude towards learning with social media and ICT literacy. The results found that attitude towards learning with social media and ICT literacy displayed a computed r-value of 0.631 with a probability value of <0.05 which is significant at 0.01 level. The findings indicate a significant relationship between the variables mentioned above. Hence, the null hypothesis stating that there is "no significant relationship between attitude towards learning with social media and ICT literacy" is rejected.

Furthermore, the attitude towards learning with social media are found to be substantially correlated with ICT literacy which notes that the students with high literacy level in ICT are more positive towards using social media in their learning activity. The previous statement supported the study of Supardi et al. (2021) that ICT skills and social media engagement activity contribute significantly to students. The higher level of ICT essential skills creates a higher utilization of social media. Teaching digital literacy develops further in the project's lifetime and afar. With the aid of ICT, it could establish new methods in education to support non-formal learning. Social media enables students to connect globally, allowing them to connect and collaborate beyond the classroom (Using Social Media for Learning, 2021).

Additionally, the findings of the relationship between ICT literacy and online newspaper reading behavior of the students can be found in the table. By doing a comprehensive analysis, it could be inferred that the indices of ICT literacy have a strong correlation toward online newspaper reading behavior of the students, which has a significant relationship with an r-value of 0.622 and a probability value of <0.05, which is significant at 0.01 level. Therefore, the null hypothesis between the two variables is rejected. In addition, results imply that the student's ICT skills affect their reading habits which hook them to read digital news content.

Performance expectancy refers to people being more inclined to use technology when they believe it will help them perform their job effectively (Hamzat & Mabawonku, 2018). In the same way, online news enables news readers to multitask while browsing information on the web, and readers can browse ads without turning them away. Further, students showed positive attitudes toward online reading because it improves their knowledge. Additionally, reading online varies with reading purposes, technology usage, and skills (Nga, 2021). The study by Intravia et al. (2018) found that online news readers are more likely to have unfavorable views of the legitimacy of the police.





On the other hand, students develop positive attitudes by reading news in a digital format. The study also suggested adding electronic newspaper subscriptions to the collection development policy (Owusu-Ansah et al., 2017). Also, Ranaweera (2021) mentioned in their study that reading online news resulted from the positive influence of online behavior, online activities, and social media.

### Mediation Analysis of Three Variables

Table 5  
Mediation Analysis of Three Variables

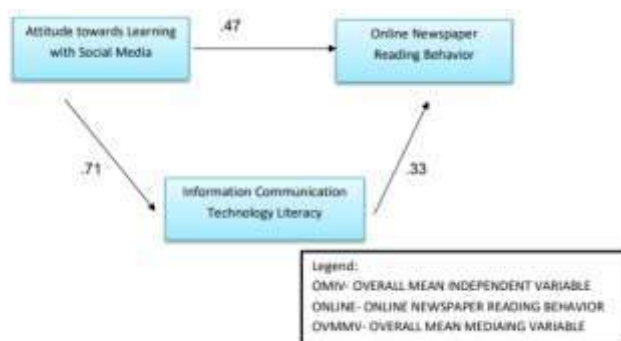


Figure 2 Results of the Mediation Computation

Regression Weights: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
OVMMV	← OMIV	.715	.051	14.052	***	
online	← OMIV	.474	.057	8.305	***	
online	← OVMMV	.332	.050	6.602	***	

### Partial Mediation

There are numerous debates and schools of thought in existence that serve as mediators. The mediator, information communication technology literacy, explains how or why the predictor, attitude toward social media learning, and the dependent variable, online newspaper reading behavior, are related in this research.

The initial step evaluated whether a mediating effect exists between or among the variables. The casual stages method analysis is terminated if the impact is not statistically significant. Complete mediation has occurred if the IV's impact on the DV is no longer significant after the study. It implies that all effects are under the control of the mediating variable. Furthermore, only partial mediation is accomplished if the path analysis is significantly reduced but still significant in the final stage; this shows that although the MV mediates some of the IV, the remaining amount is either direct or mediated by non-framework components. Only partial mediation was employed because the impact of the IV on DV is still significant even after MV is reduced.

The mediation of information communication technology literacy, attitude towards learning with social media, and online newspaper reading behavior is shown in Table 5. Figure 2 shows the impact size calculations in the mediation test among three components. The third variable, information communication technology literacy, had to pass through three stages, as shown in the table, to serve as a mediator. In the table, steps 1 through 4 are labeled. At the significance level of 0.01 in step 1, online newspaper reading behavior was shown to predict information communication technology literacy, the mediator. Step 2's attitude towards learning with social media at a significance level of 0.01 predicts the relationship between online newspaper reading behavior and significance. At the 0.01 level of significance, it was also demonstrated in step 3 that information communication technology literacy significantly influences attitude towards learning with social media. The significance of the three steps (Paths A, B, and C) calls for additional mediation analysis using path analysis. Information communication technology literacy is one of the independent variables (attitude towards learning with social media) the mediator mediates in some measure. Additionally, other aspects are either directly or indirectly mediated by variables not considered in the model. Additionally, partial mediation was successful because the impact was significant at 0.01.

Furthermore, distinguished in Figure 2, the Path analysis results show that the path online newspaper reading behavior to information communication technology literacy, information communication technology literacy to attitude towards learning with social media, and attitude towards learning with social media to online newspaper reading behavior are significant, with signs unchanged; this means that information communication technology literacy influences the relationship between attitude towards learning with social media and online newspaper reading behavior. The initial results revealed a 0.71 rise in attitude towards learning with social media for every unit increases attitude towards learning with social media. Additionally, every unit increase in attitude towards learning with social media is accompanied by a 0.47 rise in online newspaper reading behavior. Also, for every unit increase in information communication technology literacy, there is a corresponding 0.33 increase in online newspaper reading behavior.

In summary, because information communication technology literacy is just a partial mediator, it cannot be deemed that attitude towards learning with social media influences online newspaper reading behavior only through information communication technology literacy. Thus, it is just one of the many factors that affect online newspaper reading behavior. The figure depicts the mediation analysis of the study's three variables.



## CONCLUSION AND RECOMMENDATION

Students perceived the attitude towards learning with social media as often manifested, meaning they use this online platform in their learning; this would imply that social media is now part of the pedagogical method of teachers to stimulate students' participation and intensify the learning strategies of students as well. Several studies affirm that these educational technologies uplift independent and active learning, increase students' motivation and self-reliance, and become responsible for their learning (Adil, 2021; Akay, 2016; Carpenter & Harvey, 2020; Norman, 2019). Given that students perceive the attitude towards learning with social media as high, there is still room for improvement, particularly in intensifying class activities that increase students' interactive learning when social media is used.

Consequently, the results have shown a high level of online newspaper reading behavior resulting from most of the items receiving high scores from the respondents. In like manner, students perceive online news to help provide current and timely information. Students believe online news keeps users' needs and interests, goes into general audience interest and community well-being, and serves fresh information (Seguin et al., 2018). Students should be encouraged to learn sufficiently, primarily that news and information nowadays can be accessed in digital format. Libraries should intensify online newspaper literacy programs to increase access and enhance students' attitudes about reading online news. They should use this information to add reliable literature to their study and lesson. As a result, the use behavior, one of the lowest mean indicators of the dependent variable, will rise to a higher level.

Aside from the timeless, fresh information that can be accessed online, several studies showed that reading information online is beneficial. Increased reading because more information is available online, increased reading speed, improved skimming, change in patience as readers, and multitasking (Allcott, 2021). Likewise, schools should continue to integrate ICT in all programs and formulate activities that could improve and increase the ICT literacy of their students.

The results above and the findings presented that the variables under the study are significantly correlated. The former discussed data support the idea that attitude towards learning with social media is statistically significant with online newspaper reading behavior. Also, the study's findings signify that information communication technology literacy strongly affects the correlation between attitude towards learning with social media and the online newspaper reading behavior of the students. As a result, it is necessary to comprehend the role of information communication technology literacy in influencing the attitude towards learning with social media and online newspaper reading behavior of students' relationships. Furthermore, the abovementioned describe the relationships between the variables in the study. These assumptions are similar because the current study concerns

the student's attitude towards learning with social media and online newspaper reading behavior as mediated by information communication technology literacy. Indeed, using the mediating effect causal steps technique, this study found a significant correlation between information communication technology literacy and attitude towards learning with social media, demonstrating that the variables had a limited mediating impact. Schools should establish and implement these programs and policies to guarantee that ICT and social media services are fully utilized as fundamental teaching, learning, and business tools within appropriate use restrictions; this applies to students increasing their ICT literacy level and becoming responsible users of social media.

The results resonated with Baron and Kenny's (1986) perspective, which contends that a mediator influences the outcome rather than vice versa. There have been identified that online newspaper reading behavior influences attitude toward learning with social media via information communication technology literacy; however, this result does not change the direction. As a result, only a portion of the mediation was successful. The regression coefficient was significantly decreased in the last phase, but it remained significant with the same signs. An MV mediates some of the IV, but some are directly or mediated by non-model components. Only limited mediation was used in this case because the influence was still substantial. The deficiencies of the IV and DV should be considered in future research, and the gap should be filled with an intervention program. Finally, additional characteristics not included in the analysis should be the focus of future research because they might weaken the interrelation between the variables.

Finally, the findings are supported by the following theories, which are anchored in this study, such as the Technology Acceptance Model (TAM) theory, coined by Fred Davis (1985), which explains users' behavior of accepting ICT. Similarly, Ajzen's (1991) Theory of Planned Behavior outlines an individual's desire to carry out a specific behavior. This theoretical framework comprehends the underlying beliefs associated with using ICT in news reading. Lastly, the study resonated with the media logic theory by Altheide (2016), which explains the importance of media and information technologies for people's social life and communication.

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## APPLIED ASPECTS AND ROLE OF SHAT CHAKRA IN ANORECTAL DISEASES

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### ABSTRACT

*Chakra plays importance in balance of body. The Sukshma sharira (subtle body) is the part of our body and it is the moderator of the Whole body. There are six primary Chakras namely Muladhara, Swadhisthan, Manipura, Anahat, Vishuddha and Ajna Chakra. In addition to these six are two other centers of awakening are Bindu and Sahastrara chakra. It requires consistency and significantly evolved states of consciousness for acquiring its perception. Yoga is the way to achieve the ultimate Moksha.*

### INTRODUCTION

The Sukshma sharira is the part of our body and it is the moderator of the Whole body according to Yoga shastra. In Veda and Upanishad explanation about Shat Chakra is mentioned, Surya Upanishad, Hamsashodopanishad, Yogakundalyupanishad.<sup>1</sup> The discovery of Chakra was done by Yogis, Rishis and Sages of various traditions in India and throughout the world. It is not possible to Chakra by physical dissection of the body, but by psychic introspection. According to Acharya Charak the word Chakra means wheel in Sanskrit. Chakra means "Wheels of light" according to literary text. Wheel represents center of energy it has been an essential part of human evolution through ages. Wheel are located throughout the body and it can be considered passage for energy to enter and exit our body and help to regulate all type of energy flow, i.e. physical, mental, spiritual and emotional. Various nervous plexus can be represented by Chakra which is having different functions according to their area of supply. These plexuses look like form of spokes around wheel. Life is energy by itself by which we derive from various things. Physical and mental activities of the body require energy, this is derived from chakra which transmitters of energy. Chakra are continuously spinning in our Aura, right from the bottom of our tailbone, to a few inches above the crown of our head. The concrete pictures of Chakras are merely symbolical in conveying their subtle nature. Similarly english translations like pelvi plexus etc. does not convey their actual location.<sup>2</sup>

### AIM AND OBJECTIVE

To Study role of Shatchakra in the management of anorectal diseases.

### MATERIALS AND METHOD

Various ayurvedic texts, published review articles, research papers, and from the internet have been reviewed for this article.

### BALANCING THE CHAKRAS

Combination of various techniques help for balancing the chakras, visualization techniques, breathing techniques, chanting, quietening and use of essential oils, stimulating fragrances, exercising and meditating over the Chakras, sound, color and light therapy using the colors and sounds which heal the Chakras and bring about their balance etc. Proper balance of chakra is very important as imbalance can lead to imbalance of energies in the body at various levels of Chakras, thus this may lead to many physical and mental disorders. One or more of the Chakras can be disturbed or imbalanced at a time or the balance of one Chakra can cause imbalance of all other Chakras. Person become brilliant, his agni function is improved and freedom from all diseases, his Vak Chaturya improves and obtains Mantra Siddhi.<sup>3</sup>

### APPLIED ASPECTS OF SHAT - CHAKRAS RELATION BETWEEN SHAT - CHAKRA AND ENDOCRINE GLANDS

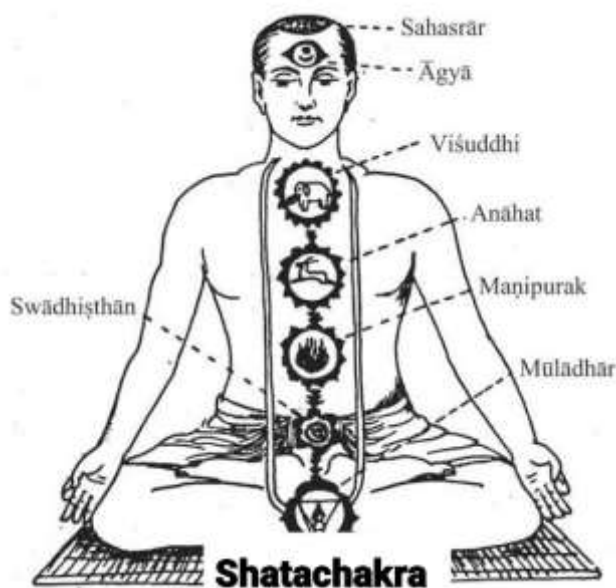
The hormonal endocrine and exocrine glands are also considered to be associated with the Chakras of supernormal energy. As it is place of pelvic region it helps in curing dreadful diseases like Infertility, Dhatugata Vikara, disorders of genitals organs etc.<sup>4</sup> The stimulation of chakra is associated with the activities at the physical level, mental and emotional levels in the body. The meditation of Kundalini Jagrana leads to penetration and stimulation of the Shat Chakras. The association of processing within the body may be understood in gross scientific terminology by considering the eternal connection of the Shat Chakras with the endocrine glands. By Vatadosha Chakra might be controlling Endocrine glands present in same area, if the site of endocrine glands and Shat Chakra in the body is considered. The seven Chakras are associated with each one of the seven endocrine glands, and also with a group of nerve plexus. Each Chakra can be related with particular parts of the body and particular functions within the body controlled by that plexus or that endocrine gland associated with that Chakra.

**Relation Between Shat – Chakra and Vata Dosha-** Sthana of Swadisthana and Muladhara Chakra is Linga and Guda. The function of Apana Vayu is Nishkrama of Mutra, Shukra thus establishing relationship between Swadhisthana, Muladhara and Apana Vata. Hrudaya is the place of Anahat Chakra and vital function of Prana Vayu is in Hrudaya that is establishing relationship between Anahat Chakra and Prana Vayu. Sthana of Vishuddha Chakra is Kantha and plays the function of Udana Vayu is Vakpravrutti with the help of Kanth hence establishing relationship between Vishuddha Chakra and Udana Vayu. Nabhi is the Sthana of Manipur Chakra and Saman Vayu is Agni Samipastha which is at the level of Nabhi thus developing relationship between Manipur Chakra and Saman Vayu. Ajna Chakra represents union of Prakriti and Purush i.e. Avyakta hence not related to any Vayu.

Thus Ayurveda has stated that Shat -Chakra and Vata Dosha which actually works together as a system to balance physical and mental health of an individual.

## ROLE OF SHAT CHAKRA IN ANORECTAL DISORDERS

**Muladhara Chakra-** The important function of Apana Vata is Nishkrama of Mutra, Shukra in males through the Linga Marga and Nishkrama Karma of Purisha through the Guda Marga<sup>5</sup>. The Muladhara Chakra governs the immune system, skeletal system (i.e. support); lower digestive tract, i.e. colon, rectum, anus.<sup>6</sup> The Muladhara chakra or root chakra is said to be responsible for diseases related to pelvic region. If this Chakra is blocked then physical issues like constipation, arthritis, colon disorders etc. The Kundalini yoga of this chakra helps in unblocking of this chakra. By practising meditation of this chakra helps in activation of this chakra. Unblocking of this chakra helps to relieve the constipation. Constipation is one of the main cause of Anorectal diseases. Passage of hard faecal matter causes ulceration that leads to formation of fissure. Chronic constipation is said to be cause of fistula in ano. Concentration on muladhara chakra helps to regulate the passage of motions.



**Swadhisthana chakra-** This chakra is situated in lower abdomen. Concentration at this chakra helps to prevent diseases of lower abdomen and heal it. Kundalini practices that helps to control and balance the energy in Svadhisthana chakra include vajroli mudra (contraction of the genitals), ashwini mudra (contraction of the anus), which helps in improving musculature of pelvic floor, which prevents the prolapse of haemorrhoids.

**Manipura chakra -** This chakra controls the coeliac plexus, thus helps to control the diseases of abdominal region. Concentration on this chakra helps to control digestion. It also helps in metabolism as place of Agni is in manipura chakra. Indigestion is said to be root cause of all diseases, hence it is necessary to maintain the digestive system in its proper state. Concentration on this chakra helps to unblock this chakra which helps in improving the digestion. Thus helps to relieve the constipation and reduce the ama formation.

**Anahata chakra-** This chakra is said to be bridge between upper chakra and lower chakra of the body. It is also known as heart chakra. If the heart chakra is blocked then it directly affects the heart, lungs, chest, arms and hands. When misaligned, poor circulation, high or low blood pressure, other lung and heart condition can result. Concentration on this chakra will help to improve function of heart, improve the blood circulation, purify the blood, lower the blood pressure. Thus directly or indirectly will help to prevent or cure anorectal disorders.

**Vishuddha chakra –** This Chakra is also known as throat chakra. This chakra represents inspiration and expression. The word vishuddha itself means purifying the body from harmful substances. The throat chakra restores the energy by removing and detoxifying the impurities from body and mind. It allows mind to become stay still. Thus concentrating on this chakra will help to remove toxic impurities from body.



**Ajna chakra**- This chakra is also called third eye chakra. It is known as centre of perception, consciousness and intuition. The person with blocked ajna chakra has indecisiveness, confusion, lack of focus, depression. The imbalance in ajna chakra has effects on neurons of brain, eye problems, migraine, headache, brain disorders, insomnia, endocrine imbalance and disorders in pituitary and pineal gland, hypothalamus. Concentration on this chakra helps to improve consciousness of mind, and helps to relieve stress. Stress is one of the factor for causing anorectal disorders.

**Sahasrara chakra**- This is chakra is located on the top of the head, it is also known as crown chakra. The word Sahasrara means thousand or infinite. The awakening of this chakra leads to universal balance of body, mind and spirit. If this chakra is blocked then there is lack of inspiration, desire to oversleep, confusion in mind. The meditation on this chakra promotes self-awareness, emotional regulation and relaxation. The unblocking of this chakra leads for balancing and peace of body. Thus it is necessary to concentrate on this chakra which helps to relieve stress and help to prevent anorectal diseases.

## DISCUSSION

**Ayurveda & Chakras** - These Chakras are explained in Yoga literature alone without any base of anatomical or physiological grounds. Concepts of Chakras have association to the Ayurvedic concepts. Chakras are placed at regular intervals, one above the other. The main task of Chakras is to distribute Prana to our physical bodies.(3)

The mixture of Ayurvedic medicine, treatments, diet changes, Yoga, meditation and Chakra healing techniques and methods when combined in effective way, have helped in comprehensive healing of many psychosomatic disorders.

## CONCLUSION

The relation between Shareera, Manas and Atma are interlinked with each other. So the topic Shatchakra and its applied aspect is the most wonderful relevance with the Anorectal diseases.

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# ENHANCING QUALITY AND EFFICIENCY: THE POWER OF POKA-YOKE

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## ABSTRACT

*Poka-Yoke is known as mistake-proofing or error-proofing. This concept can be applied to the process to prevent mistakes from occurring, stop the error from further processing, and warn that the error has occurred. Poka-yoke is a simple and powerful quality control tool that can be used in any industry to reduce or eliminate errors. In the advanced technology world, this has become the need of the hour. In this paper, the author wants to talk about the evolution, challenges, and benefits of implementation with examples.*

**KEYWORDS:** Poka-yoke, mistake-proofing, Toyota Production System, Constraints, Bar-code, Error prevention and Employee empowerment.

## INTRODUCTION

Organizations strive for excellence in their products and services in today's rapidly evolving world. Ensuring quality and minimizing errors is crucial for success. One powerful methodology that has gained widespread recognition is Poka-Yoke, a technique rooted in mistake-proofing principles. This article explores the evolution, challenges, and benefits of implementing Poka-Yoke in the current business scenario while providing noteworthy examples of its application.

## EVOLUTION OF POKA-YOKE

Poka-Yoke, a Japanese term meaning "mistake-proofing," was developed by the renowned engineer Shigeo Shingo as part of the Toyota Production System in the 1960s. Shingo recognized the need to eliminate human errors by implementing foolproof mechanisms. He believed that defects arise due to deficiencies in the process rather than the individuals involved. Thus, Poka-Yoke was designed to prevent errors from occurring or to detect them before they cause significant problems.

## CHALLENGES OF IMPLEMENTING POKA-YOKE IN THE CURRENT SCENARIO

While Poka-Yoke offers immense potential for improving quality and efficiency, several challenges arise when implementing it in today's complex business landscape. These challenges include:

**1. Cost and Resource Constraints:** Introducing Poka-Yoke systems may require substantial investments in equipment, technology, and employee training. Organizations operating on limited budgets might face difficulties in allocating resources to implement comprehensive mistake-proofing measures.

**2. Resistance to Change:** Implementing Poka-Yoke necessitates a cultural shift within an organization. Resistance to change from employees, especially those accustomed to traditional practices, can hinder the adoption and acceptance of new methods.

**3. Process Complexity:** Modern manufacturing and service processes often involve intricate workflows, making it challenging to identify and implement effective Poka-Yoke solutions. Analysing and understanding the underlying causes of errors can be a complex task, requiring a multidisciplinary approach.

## BENEFITS OF IMPLEMENTING POKA-YOKE WITH EXAMPLES

Despite the challenges, implementing Poka-Yoke techniques can bring significant benefits to organizations. Here are some notable advantages:

**1. Error Prevention:** Poka-Yoke systems are designed to prevent errors from occurring in the first place. By incorporating foolproof mechanisms, such as physical or visual cues, organizations can reduce the likelihood of mistakes, leading to improved product quality and customer satisfaction.

**2. Increased Efficiency:** Poka-Yoke helps streamline processes by eliminating the need for rework or corrections. By catching errors early or preventing them entirely, organizations can reduce wastage, optimize resource allocation, and enhance overall operational efficiency.

**3. Enhanced Employee Empowerment:** Empowering employees to participate in mistake-proofing processes can boost morale and engagement. By involving frontline workers





in the design and implementation of Poka-Yoke solutions, organizations tap into their valuable expertise and insights.

**4. Cost Savings:** While initial implementation costs may be a challenge, Poka-Yoke can result in long-term cost savings. By reducing defects, organizations can minimize customer complaints, returns, and warranty claims, leading to improved financial performance.

## IMPLEMENTATION DETAILS FOR THE EXAMPLES OF POKA-YOKE

### 1. Food Packaging Industry

In the food packaging industry, one implementation of Poka-Yoke involves the use of automated sensors and vision systems. These systems are integrated into the packaging line and are programmed to detect missing or incorrect product labels. The sensors scan each package as it moves along the line, checking for the presence and accuracy of labels. If a label is missing, misplaced, or incorrect, the system triggers an alert, and the packaging line may be stopped automatically to prevent further errors. This allows operators to address the issue promptly and ensure that all packages are correctly labeled before they are shipped.

### 2. Banking Sector

In the banking sector, Poka-Yoke can be implemented in online banking systems to prevent errors during fund transfers. One approach is to incorporate validation checks at various stages of the transaction process. For instance, when entering the recipient's account details, the system can verify the account number's format, length, and other parameters to ensure it matches the expected format. Additionally, the system can provide real-time feedback, such as displaying the recipient's name associated with the entered account number, allowing users to verify the accuracy before confirming the transaction. These validation checks help prevent errors, such as entering incorrect account numbers, and provide an opportunity for users to rectify any mistakes before completing the transaction.

### 3. Retail Industry

In the retail industry, Poka-Yoke techniques can be employed to improve inventory accuracy. Barcode scanning systems and automated alerts play a crucial role in this implementation. When products are scanned during the sales process, the system not only records the sale but also compares the scanned barcode with the recorded inventory count. If there is a discrepancy between the scanned barcode and the expected inventory count, an alert is triggered, notifying the employee of a potential error. The employee can then investigate the issue, such as checking for misplaced items or identifying any stock inaccuracies, and take appropriate corrective actions to reconcile the inventory records.

### 4. Manufacturing Assembly Lines

In manufacturing assembly lines, various Poka-Yoke methods are utilized to prevent errors during product assembly. One common approach is the use of visual cues, such as color-coding or unique shapes on components. These visual cues help

assembly line workers easily identify the correct components and their correct placement. For example, a specific color coding can be used to differentiate between similar-looking but functionally different parts, reducing the chances of assembly mistakes. Additionally, fixtures or jigs can be employed to guide the assembly process, ensuring proper alignment and preventing incorrect assembly. These aids provide clear instructions to the workers, reducing the likelihood of errors and ensuring consistent quality in the final products.

Please note that the specific implementation details may vary based on the context, industry, and organization. These examples highlight the general principles of Poka-Yoke and the techniques commonly employed in various industries.

## CONCLUSION

Poka-Yoke stands as a powerful methodology for enhancing quality, reducing errors, and improving operational efficiency. Despite the challenges associated with its implementation, organizations that embrace Poka-Yoke can achieve significant benefits, including error prevention, increased efficiency.

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## SYMBOL OF DARKNESS IN ARVINDA ADIGA'S *THE WHITE TIGER*

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### ABSTRACT

*In the novel, The White Tiger, the novelist, Arvinda Adiga uses the symbol 'darkness'. Through the image darkness he unfolds the world before us which is visualised more prominently in a contrast world of light. The village life is symbolised as darkness where the narrator grows up. The darkness world is a complete world and people never feel awkward unless and until they experience the world of light, i.e., the amenities of the modern urban world. V.S Naipaul also writes a non-fiction book entitled as, 'India: An Area of Darkness'.*

**KEY WORDS:** *Darkness, light, image, village life, urban life.*

Darkness is referred in the novel about the village life area where people live with minimum advantages. They do not get education-facility. The narrator's father was a rikshaw puller and was a poor man. In spite of his poverty, he sent his son to school. But his son could not pursue his studies not because he was dull but because of his father's demise and consequent poverty. After the death of his father, he had to work in hotel as a waiter. Darkness does not only refer to the poor economic condition of the downtrodden people but, the corruption, lawlessness of the rich people in the rural areas is also darkness. Darkness is also referred to ignorance. Knowledge is light. Darkness is not only village it also in some parts of metro cities like in Old Delhi as the author mentioned in *TWT*.

Many-a-times, the author refers to the word 'darkness' which shows the sharp contrast of the Delhi, Bangalore like big cities grandeur, light and education. The street lights, the lights from the shopping malls, cinema halls, in metro trains, buses, etc enlighten the city in the literary sense. The economic conditions of the people, the health facilities, the high living style, the freedom they get, the road-transport condition which they get in Delhi and in Bangalore etc., all are light in other sense. But crime is also there in the so called 'enlighten' area. For example, Balram, the narrator hides himself after the murder of his employer, Mr Mukesh. He The following lines are from the novel,

'The police searched for me in darkness: but I hid myself in light

In Bangalore!

(*The White Tiger*, P-118)

In village, most of the poor people are ignorant, easy-going type, but in Delhi or in Bangalore, the narrator finds brightness in terms of big buildings, broad road, parks, malls, hotels, flats, cars etc. In village people like with nature; they keep their animals with them.

The darkness can also be seen in city life also. Amidst the pompousness of city life, we find hollow life of some people, whose wise leave them, who stay with prostitute and bribe people. There are hard-hardened criminals like murderers, who like in a luxuriant home.

The reference of the word 'Darkness' always shows the plight or negative remark of the particular rural region. In such a reference we find about the unemployment problem of the backward region. In such areas unemployed youths search their job daily. Sometimes they get and sometimes they do not get. Their numbers are in thousands. They are unable utilize their time because of lack of opportunities, better work place. The following excerpt will show it:

'...young men sit in the tea shops, reading the newspaper, ...or sit in their rooms talking to a photo of a film actress.' (*TWT*, P-54)

This is the feature of darkness or rural areas. Youths remain jobless. They while away their time. They waste their productive energy with doing anything. This is one reason for which youths migrate to urban areas.

In many places the word 'Darkness' is written with capital 'D'. As if it is specific area or the writer tries to emphasise that area. In other example we find about the darkness and the dwellers of it when Mukesh, the employer of the narrator, Balram. When he makes mistake his employer scolds him as 'stupid' and tells that the reason of stupidity that he has come from the 'Darkness'.

(*TWT*, P-267)

Here, in the remark the condition or the circumstance is not blamed, the people come from that area are termed as stupid. As if it is because of their stupidity, they could not improve their lot so they dwell in the darkness.

As the name symbolically suggests as darkness so the dweller try to come out of the darkness in search of light. They



have their ambition. So, they come to the urban areas to improve their conditions.

In the following lines we find that the narrator's condition is improved and he meets one man who is also trying to improve his condition. When someone from his birth place or in the same type 'dark' place meets him then they both feel happy. He feels proud. They come to the city to become rich, great. Their ambition leads them to the city.

"...you feel proud when you see one of your own kind showing some ambition in life." (TWT, P-231)

In the many places we find the reference of 'darkness' in the novel. There are numerous examples. When the narrator drives his car, he meets some people from the darkness. The narrator describes the conditions of the people who live in 'darkness' in the city like Delhi. He describes that such people have come from 'darkness' and their physical appearances, their 'thin bodies', 'filthy faces', show their pathetic conditions. They are resembled with animals. They live under bridges, they make fires there, in their hair there are lice. (TWT, Pp-119,120)

They come to Delhi from Darkness to change their lot, to meet their minimum opportunity to survive. Some of them succeed in their lives but many remain the same in the new places. So, in the city also there are such dark places as the village. Even in Delhi the whole places are not bright places. The narrator says that both 'light and darkness flow in Delhi'. To him the Old Delhi area is a dark area. The New Delhi is a bright place. His employer Mr Mukesh lives in the New Delhi area, which is a modern place. (TWT, p-251)

We cannot say that all of them come from darkness. They may be the original inhabitant of the places, but they also live in darkness. So, the word darkness has multiple meanings. It may mean the backward places of any locality, be it a village or a town or city area. The common characteristics of darkness is that such people and places are backward places where poor people live without any modern facilities to improve their lives.

In the novel, 'The White Tiger', the narrator, Balram calls his birth place, i.e., village area as 'Darkness'. Whatever he learnt there he remembered even in the bright places like in Delhi and in Bangalore. Although he left his birth place at an early age he has learnt a lot about many things. He learnt about how to keep himself in a pleasant mood in the 'darkness' only. (The White Tiger-P-250)

In a different book, viz., 'An Area of Darkness', written by V.S. Naipaul the whole country India is called an area of Darkness in comparison with other developed countries of the world. He writes about India; about the places he visited and remarks that the places are dark places for many reasons, the way of thinking, uncleanliness, and in that context he praises Gandhiji who worked for sanitation. The following line as the following:

"I have travelled lucidly over that area which was to me the area of darkness" ... (An Area of Darkness' p-24)

However, in such backward areas spirituality and genuine human compassion can be found. Although people's economic conditions are not improved, new developed amenities are not there, yet in the village or dark areas people live nature, with animal very peacefully. According to the author the whole area near the bank of holy river Ganga is the area of darkness. But we see spirituality in the area. To the author the banks of the

ocean are brighter place in India than the bank of the rivers. So, the dark area is not confined only to the narrator's locality, Laxmangarh, but the whole river side of India.

Thus, we can say that although many poets, nature lover may praise village, but because of lack of various modern facilities, job scarcities, lacking of health- facilities, lacking of advance study opportunities, travelling facilities etc., such places are termed as 'darkness'. We hope at the progress of time such darkness will be wiped out without compromising with nature and humanity. Because where there are darkness people hanker after light. For instance, the narrator's father, Vikram Halwai, was a rickshaw- puller but he wanted his son to be an educated man. Halwai means a sweet-maker. The narrator says that everyone knows about the title in the 'darkness'. He sent his son to the school. In school he could show his talent. But unfortunately, the death of the narrator's father changed his fate.

Such areas remain as dark areas because of people's dishonesty also. The headmaster of Balram's school does not utilize all the money given to the children's mid-day meal by government. He dishonestly took money by depriving the food of the school children. Moreover, in such place the laws are not observed. For example, Mr. Mukesh of Balram's employer's relative once warns him that he should not think he is in 'darkness'. He should keep in mind that he is living in Delhi. (TWT, P-141)

There are CCTV cameras in many places in Delhi. So, in such places, laws are strictly observed than in darkness i.e., the rural areas. All the darkness will be eliminated if people will become honest, not like the head master, which is just an example and if there will be strict laws for the corrupted ones. However, there is a remark of the narrator while he stood beneath the statue of Mahatma Gandhi, he makes the following remark:

"...Gandhi leading his followers from darkness to the light." (TWT, p-281)

From the above remark we can derive that if people from darkness will follow the path of Mahatma Gandhi, then they can get light. Such paths are obviously non-violence, following truth, having faith in spirituality, emphasize upon the local work, industries, cleanliness, education etc.

The End

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# HEALTHY LIFESTYLE, ITS ESSENCE, CONTENT, STRUCTURE AND ACTIVATING CONDITIONS

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## ABSTRACT

*This article discusses that healthy lifestyle is the choice of living conditions according to a person's health. It is a high hygienic culture of individual social groups and the whole society, procedures that create conditions for increasing the body's protective capacity and procedures against habits that harm the body are important.*

**KEY WORDS:** *Increasing immunity, training, physical activity, exercise, personal hygiene, alcohol, smoking, healthy lifestyle, increased heart rate, increased pressure, decreased appetite, indigestion, rational and correct response to events, activity.*

A healthy lifestyle is one of the main factors of our society. A healthy lifestyle is important not only for the young generation, but for everyone. This is the personal health of a person, it is the extension of the life of each person, the health of each person's generation. A healthy lifestyle also starts from childhood. If we guide all the young generation to a healthy way of life, if they grow up physically and mentally healthy, a healthy way of life will be established in our society, and our people, who will ensure the future of our independent country, will be healthier and stronger.

A healthy lifestyle is behavior and education aimed at maintaining, strengthening and improving the health of a certain population. A healthy lifestyle is not only a medical, but also a socio-economic category that depends on the development of production and production relations. "Standard of living" (or level of well-being) describes the size of material and spiritual needs, as well as their structure. This concept is used to assess the minimum and maximum level of material and spiritual needs of a particular individual, social class or society as a whole [1].

Pedagogical innovative principles of healthy lifestyle development among students serve to a certain extent in the implementation of tasks defined in the Law of the Republic of Uzbekistan LRU-406 "On State Policy Regarding Youth" adopted on September 14, 2016, Decisions of January 29, 2019 "On wide promotion of a healthy lifestyle in Uzbekistan and involving the population in physical education and mass sports", the concept of "Youth of Uzbekistan – 2030" and other regulatory and legal documents on the health of the country's population.

A healthy lifestyle is a person's choice of living conditions in accordance with health, that is, a high hygienic culture of individual social groups and society as a whole. Procedures that create conditions for increasing the body's protective capacity, procedures against habits that harm the body, and proper hygienic procedures play an important role. Increasing the body's protective capacity, proper use of various types of training and recreation, rational nutrition, proper physical activity, exercise, training, maintaining personal

hygiene, paying special attention to one's health, good environmental conditions, etc. In this case, it should be taken into account that children cannot create the necessary environment. Therefore, the creation of such conditions mainly depends on parents, organizers of educational activities, and teachers. That is, the child's future behavior depends on his environment from infancy.

A healthy life is not compatible with unhealthy habits. Alcohol and other intoxicating substances, as well as smoking, prevent the formation of a healthy lifestyle. Harmful habits are a risk factor for many diseases and have a negative impact on the health of children and young people. This is the main condition for the formation of a healthy lifestyle. It improves the functioning of important organs and organ systems, so it plays a major role in the formation of a healthy lifestyle. Correct organization of movement activities actively supports the growth and development of the body, increases the body's work capacity, and increases resistance to various diseases. And if you move less, changes will develop in the body. "Healthy lifestyle" is a philosophical concept that deeply expresses the scale of material and aesthetic diversity of the real life activities of society, social groups, and individuals, leading a person to a prosperous and prosperous life. A healthy lifestyle is a form of life activity conditioned by individual characteristics and socio-cultural factors. A healthy lifestyle is a state of harmony with all levels, that is, physical, mental, spiritual, as well as with the external environment, being" [1]. A healthy lifestyle is a concept of human life aimed at improving and maintaining health through proper nutrition, physical education, morals and giving up bad habits. We all face this concept. Nowadays, you can achieve good results by following its simple rules: improving your health and improving your appearance. So what does a healthy lifestyle include? First of all, it is to give up alcohol, tobacco and drugs. These factors have a negative effect on the human body. Everyone knows this, but unfortunately, not everyone knows about their consequences. Alcohol abuse is one of the urgent problems of our country. Wide sales and advertising of alcoholic products, social, economic and psychological tensions, lack of organization of free time and





rest are the reason why the population, including the young people, resort to drinking. "Risk factors" are associated with morbidity and mortality, so their study and assessment are relevant to both psychology and medicine [2]. However, based on the results of many studies, it should be noted that today the representatives of the medical field cannot solve the health problem on their own without turning to pedagogues and psychologists. The health problems of the employees of the medical field are increasing year by year [3].

Alcoholic life is one of the most important factors leading to early death as the antipode of a healthy lifestyle. Alcoholism is a huge social evil that "destroys" a person from the inside and causes great harm to society. "National disaster", "collective suicide of the nation", "the road leading to the catastrophe of humanity" - this is how scientists and society of many countries assess alcohol abuse. Is alcoholism a disease or an immorality? The beginning of systemic intoxication is a lack of courage, lack of culture and will, and the period of mental dependence on alcohol begins as a disease. One of the most common harmful habits is smoking. There is no organ or system in the human body that is not adversely affected by cigarette smoke and its components. A smoker's central nervous system is under constant stress due to the stimulating effects of nicotine. But at the same time, less blood flows to it (due to the spasm of cerebral vessels) and the amount of oxygen needed to maintain the active functioning of the brain decreases. But the oxygen given to the brain is used with difficulty by the brain cells, so the mental capacity of the smoker decreases, the memory weakens and the will power is affected. In addition, he feels very restless, has problems sleeping and has frequent headaches. Addiction is the manifestation of drug addiction when it is used to achieve an intoxicating effect.

Features of addiction compared to alcoholism and smoking:

- young people are more often affected, so the medical and social consequences, --especially reduced life expectancy;
- addiction develops much faster;
- the risk of diseases such as HIV infection, viral hepatitis B and C increases dramatically;
- the degradation of the person develops in a short time;
- health effects are more serious and irreversible;
- withdrawal symptoms are more severe.

Components of a healthy lifestyle:

**Sports, Physical Activity.** Morning exercise is mandatory exercise. It helps the body wake up from sleep, improves metabolism and strengthens the immune system. A person can adequately respond to external physical and mental stimuli. As a result, we feel less stressed, love and think better.

Sports exercises have a positive effect on the body. The state of health is very good, regular sports training provides muscle tone, increases endurance and mobility, and also helps to increase immunity and harmonious functioning of the musculoskeletal system and cardiovascular system.

Thanks to sports, your figure is not at risk of extra pounds and obesity. Doing discipline-sports makes a person disciplined, increases responsibility and contributes to an active life position.

**Proper Nutrition.** Balanced nutrition strengthens the immune system, normalizes metabolism, improves memory and appearance. It should be based on healthy food. Many people start eating right to get results, but unfortunately, they do not make this process a lifestyle. This is a common mistake. If you do not eat well in life, then all your results can quickly evaporate.

**Hardening.** Hardness strengthens the nervous system, normalizes blood pressure, metabolism, has a good effect on the heart and blood vessels. Its main preventive value is that it does not cure the disease, but prevents its occurrence. In addition, it is suitable for any healthy person, regardless of age and level of physical development.

**Healthy Sleep.** Healthy sleep is one of the best ways to maintain health, strengthen the immune system and prevent many diseases. People who sleep 7-8 hours are certainly doing the right thing, but not everyone gets enough sleep. Lack of sleep causes a lot of stress in the whole body, the consequences of which can be serious. This is increased heart rate, increased pressure, decreased appetite, upset stomach, loss of ability to respond rationally and correctly to events.

A healthy lifestyle is primarily an active health activity aimed at maintaining and strengthening health. A person's lifestyle is not formed by itself, but a healthy lifestyle is purposefully formed throughout life.

The main condition for the formation of a healthy lifestyle is the correct organization of movement activities that actively support the growth and development of the body, increase the body's work capacity, and increase resistance to various diseases. Yes, everyone's health is in their own hands. The solid foundation of a child's health depends on his nutrition, and the foundation of health laid in childhood affects the quality of a person's entire later life. Proper nutrition and a healthy lifestyle are mandatory conditions for ensuring a high resistance of the child's body to diseases.

A child's daily diet should fully satisfy the growing organism's need for necessary nutrients and energy and fully restore the energy spent during the day. In this regard, it is very important for schoolchildren to know about basic healthy eating habits. Each stage of the child's age differs from the previous one in the rate of growth and maturation of physiological systems, the quality of changes in the tissues and organs of the growing organism. Therefore, nutrition at each stage of a child's age is characterized by special requirements, taking into account these requirements, it is possible to contribute to the normal development of the child's mind and body, and to increase his life potential.

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# INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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## ABSTRACT

*The paper seeks to investigate the effect of intellectual capital on the financial performance of deposit money banks in Nigeria. Managing intellectual capital will help deposit money banks enhance their financial performance via increased return on assets, return on equity and return on sales. Intellectual capital increases the market value of organizations, improves better communication, optimizes utilization of potentials, increases value creation ability, and better image, enhances customer satisfaction, motivates employees, and indeed enhances most business processes. Intellectual capital theory and knowledge-based theory were adopted as baseline theories for the study as they emphasize the importance of using the human ability to create new business processes which result in better services for consumers and ensure improved financial performance of the organization. The paper concludes that there is a positive relationship between intellectual capital and the financial performance of deposit money banks in Nigeria, thus intellectual capital should be recognized as an important business resource.*

## INTRODUCTION

Financial performance is the measurement of the results of an economic entity's policies and operations in monetary terms to determine its overall financial health over a given time frame (Gaspardo, 2004). The financial performance is normally announced through periodic financial statements and it is targeted at producing complete and reliable information to assist the users in take an informed investment decision. Financial Performance is crucial to organizational survival and continues patronage by the stakeholders. Financial performance is a natural result of business operations involving the use of both physical capital and intellectual capital. The ownership of intangible assets especially intellectual capital has become more important in this modern era where technology and knowledge have significant roles in company operating activities, (Ofurum & Aliyu, 2018)

Over the past two decades, there's been a transition from an industry-based environment to a high-technology innovation-based environment that focuses on expertise, creativity, skills, and dedication of organizational members and this forms the intellectual capital of such an organization. In the industry-based environment, the physical assets like plants, machinery, materials, equipment, etc., were of utmost importance and made up the bulk of the organization's assets and value, while in the latter- knowledge, ability, skills, experience, and attitude of workers, assume greater significance, (Madumere & Ubani, 2022). Rapid technological advancement has altered organizational systems as the new systems are mainly driven by technology, knowledge, expertise, relations with stakeholders, etc., which may be collectively described as Intellectual Capital (Ahangar, 2011). In recent times, intangible or intellectual assets have been recognized as the prominent resource needed for organizational survival and growth. Companies that provide services such as software programming, financials,

pharmaceutical; banking, hoteling, hospitality, consulting, accounting, legal, educational services, etc. depend to a considerable extent on their intellectual capital for earning revenues.

Though organizations and governments have begun to see that intellectual capital is a critical factor in generating a sustainable competitive advantage in recent years, intellectual capital has not been widely explored (Pedrini, 2007). The global economy has brought focus to the regional aspects of economic growth and has changed the perspective of economic growth from production (output) aspects to the resource (input) aspects, as production has become more knowledge-based (Rodriguez & Martí, 2006). In developing economies, intellectual capital components can function as pillars that support economic growth and additional efforts to increase intellectual capital levels affect the economy positively, (Ståhle & Bounfour, 2008). The banking sector, according to Kamath, (2010) is an ideal area for intellectual capital research because the sector is "intellectually" intensive as compared to other sectors thus this paper examines the impact of intellectual capital on the financial performance of deposit money banks

## INTELLECTUAL CAPITAL

Stewart, (2020) defines intellectual capital as the total stocks of collective knowledge, information, technologies, intellectual property rights, experience, organizational learning and competence, team communication systems, customer relations, and brands that can create value for a firm. Similarly, intellectual capital is seen as the group of knowledge assets that are attributed to an organization and most significantly contribute to an improved competitive position of this organization by adding value to defined stakeholders. Roos & Roos, (2021) define intellectual capital as the hidden assets of the company not fully captured on the statement of financial



position; while Chokri & Zehri, (2012) defines it as the intangibles such as patents, intellectual property rights, copyrights, and franchises. (Isanzua, 2015, Fatima & Ousama, 2015; Poh, 2018) defined intellectual capital as a residual being the difference between the book value of the firm and its market value. The limitations on financial statements in explaining firm value underline the fact that the source of economic value is no longer the production of material goods, but the creation of intellectual capital (Chen, Cheng, & Hwang, 2005).

Intellectual capital includes human capital and structural capital wrapped up in customers, processes, databases, brands, and systems; and has been playing an increasingly important role in creating corporate sustainable competitive advantages (Kaplan & Norton, 2004). Among Intangible assets especially Knowledge is gaining more prominence than ever before as a matter of survival and of achieving competitive advantage (Latif, Malik, & Aslam, 2012), as new skills and technology will continue to be successful and intellectual capital has become a critical driver for sustainability. Intellectual capital cannot be complete without adjoining human capital, relational capital, and structural capital components; (Al-Musali & Ismail, 2014). According to Chokri & Zehri, (2012), intellectual capital from a managerial perspective can be defined as the knowledge, applied experience, organizational technology, relationships, and professional skills that provide a competitive edge in the market. Intellectual capital is knowledge that can be converted into value or profit. It is the value embedded in the ideas embodied in people, processes, and customers.

## FINANCIAL PERFORMANCE

Financial performance is a measure of how much a company's ability to create profit, profit, or revenue. How to measure the company's financial performance in creating profits, especially companies in the financial industry such as Banking. This can be viewed from the financial statements. The financial statements consist of; (a) a Balance Sheet, (b) Income, (c) Cash flow, (d) Changes in the capital, (Fatihudin & Mochklas, 2018). Financial performance is the company's financial condition over a certain period that includes the collection and use of funds measured by several indicators of capital adequacy ratio, liquidity, leverage, solvency, and profitability. Financial performance is the company's ability to manage and control its resources (Poongavanam, Mohammed, & Rengamani, 2017). Firm financial performance is used as a tool to measure an organization's current development and potential growth. Although there are many indicators estimating financial performance, the choice of appropriate ratios depends on the characteristics of studied objects and study purposes. Return on equity and return on sales are two of the most used ratios to measure financial performance, (Nhung, Huyen, & Daphne, 2021). Waddock and Graves (1997) used return on asset, return on equity, and return on sales to measure the company's financial performance, whereas Rufet al. (2001) used return on equity, return on sales and growth in sales in the study of the determinants of financial performance. Margarita, (2004) has measured financial performance based on return on asset, return on equity, and return on sales to study the relationship between social responsibility and corporate financial performance. Mara

& Nicoleta, (2019) used return on equity to evaluate the financial performance of studied companies. Many researchers agree that the use of those financial ratios gives them valuable information on a firm financial performance. While return on equity shows the efficiency of equity, return on sales reflects the effectiveness of the company's cost management. In other words, one ratio refers to the capacity to use capital (input of capital), and the other refers to the ability to manage the operating cost (output of capital).

## INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE

Meressa, (2016) examined the relationship between intellectual capital and firm performance in Iran using Pulic's model. In this model, the value-added intellectual coefficient is used to evaluate firms' intellectual capital. Also, the relationship between intellectual capital and firms' market value is examined. In addition to intellectual capital, the relationship between the components of intellectual capital that is, human and structural capital and performance is also investigated. The empirical data is collected from 100 firms listed on Tehran Stock Exchange (TSE) during the period 2000-2006. The results support the hypothesis that human and intellectual capital is positively related to performance (Tobin's Q), and intellectual capital can be taken into consideration for improving the performance of Iranian firms. Also, the value-added intellectual coefficient proves to be an effective tool that can be used by current decision-makers in Iran's capital market. Thus, intellectual capital is the main source of value creation in the modern economy.

On the other hand, Kurfi, (2017) investigated the impact of intellectual capital on the financial performance of listed Nigerian deposit money banks from 2010 to 2014 by adopting the VAIC model. The Regression results show that there was a positive significant influence of IC on financial performance. Specifically, the results showed that structural capital and capital employed influence the financial performance of Nigerian food products deposit money banks. Based on the resource-based theory, the results prove that deposit money banks can enhance financial performance by emphasizing intellectual capital. Additionally, Ogbodo, (2012), examined the effect of intellectual capital on the financial performance of 15 quoted commercial banks in Nigeria using the VAIC model through a panel data analysis for six years from 2010 to 2015. The results revealed that there is a positive and statistically significant relationship between Intellectual Capital and the financial performance of deposit money banks in Nigeria at a 5% level of significance.

Empirical findings show that human, social, and customer capital have a positive and direct effect on product, process, and organizational innovation which results in increased financial performance. Human capital has a significant impact on banks' performance directly and indirectly. These findings suggest that the development of effective techniques of knowledge management, enabling banks to accumulate the intellectual capital necessary to adapt to a constantly changing





environment, represents an effective tool for achieving the goals of both bank managers and policymakers.

## INTELLECTUAL CAPITAL THEORY

The theory of intellectual capital is a prominent theory that has not only challenged large attention but already considerably promises an increase in business results in the future. The base of the theory lies in the fact that tangible assets (land, buildings, equipment, and money) of today's leading deposit money banks around the world have less value than intangible assets, which have not been quoted in their business balances. This hinges on the fact that: the wealth of an organization is based on human capital, structural capital, and consumer capital. Value creation happens when one kind of capital turns into another. The value has been created whenever the human ability (human capital) creates new business processes (structural capital) which result in better services for consumers and increase their loyalty (consumer capital) (Njuguna, 2014). In this study, the theory will help in elaborating intellectual capital and its role in organizational performance.

The intellectual capital theory is based on the premise that, in contemporary circumstances, intangible assets not disclosed in the balance sheet are very important for the firm's operations, since they can significantly increase the value of assets or the market value of the firm (Kolaković, 2003). This theory is based on the belief that the wealth of the firm depends on human, structural, and relational capital, and value is created by converting one form of capital into another form (Kolaković, 2003). A significant contribution to the development of the theory of intellectual capital gives Penrose in her "The theory of the growth of the firm" from 1959, in which she points out that the unique intangible intellectual resources and unique capabilities of the firm are the key determinants of business performance (Krstić, 2014). At the same time, she emphasizes the importance of management in using available internal resources, i.e. their experience and skills in converting resources into products that will meet the needs of the consumers, thus contributing to the exploitation of market opportunities.

## KNOWLEDGE-BASED THEORY

Originating from the strategic management literature, this perspective builds upon and extends the resource-based view of the firm initially promoted by Penrose (1959). The knowledge-based theory of the firm considers knowledge as the most significant resource of a firm Njuguna, (2014). Its proponents argue that because knowledge-based resources are usually difficult to imitate and socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance.

This knowledge is embedded and carried through multiple entities including organizational culture and identity, policies, routines, documents, systems, and employees Njuguna, (2014). Although the resource-based view of the firm recognizes the important role of knowledge in firms that achieve a competitive advantage, proponents of the knowledge-based view argue that

the resource-based perspective does not go far enough. Information technologies play an important role in the knowledge-based view of the firm in that information systems can be used to synthesize, enhance, and expedite large-scale intra- and inter-firm knowledge management (Alavi and Leidner 2001).

## CONCLUSION

Intellectual Capital is the knowledge-based equity of organizations and has attracted a significant amount of practical interest. There is now widespread acceptance of Intellectual Capital as a source of competitive advantage. Intellectual capital plays a significant role in value creation in today's economies and organizations, where organizations in knowledge-based economies have been depending on knowledge assets rather than tangible assets to enhance their performance. Intellectual capital is therefore knowledge that can be converted into profit by exploiting the non-financial and nonphysical resources of the company. Intellectual capital is one of the human capital assets that boost banks' efficiency and financial performance hence efficient intellectual capital would increase banks' financial performance.

Therefore, there is a need for deposit money banks in Nigeria to pay more attention to human and intellectual capital. A situation where human and intellectual capital is not being recognized in the financial statement is a huge anomaly given the critical role it plays in corporate performance. Intellectual capital plays a significant role in value creation in today's economies and organizations, where organizations in knowledge-based economies have been depending on knowledge assets rather than tangible assets to enhance their performance.

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# CUSTOMER ADAPTATION TO INTERNET BANKING CHANNELS: A STUDY OF NIGERIAN BANKS

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## ABSTRACT

*The aim of this research was to examine customer adaptation factors of internet banking channels in Nigeria. Drawing from its theoretical baseline, the study was anchored on Technology Acceptance Model (TAM). Descriptive survey design was used in accessing the study's subjects. While the population of the study comprise of customers of deposit banks in Nigeria; however, it accessible population was limited to customers of banks operating in Rivers State. A total of 400 respondents were conveniently administered copies of questionnaire. Data obtained through this process were analyzed and a total of 3 hypotheses were tested using Regression Analysis and Partial Correlation Coefficient. Results retrieved from these tests revealed a positive and significant relationship between customer adaptation factors such as perceived trust and security & privacy and banking mobile apps. Based on the findings, study concludes that the issues of perceived trust, security and privacy are important determinants in the adaptation of internet banking channels. Specifically, perceived trust was found to be a significant factor in using bank mobile apps in carrying out transactions. In view of the above conclusions, this research recommended that bank managers wanting their customer service experience and patronage should pay more attention to new channels of presenting innovative online services like making banking mobile apps to be more user-friendly and interactive. They should ensure that the issue of security and customer privacy is taking seriously, because this is one of the strategic ways of building customer trust in online transactions.*

**KEYWORDS:** Internet Banking Channels, Customer Adaptation, Mobile App.

## 1. INTRODUCTION

Increasing globalization and financial competitive environment, have put enormous pressure banks to continuously innovate and find new strategic channels through which they can differentiate their products and services and thus achieve competitive advantage (Jenkins, 2017). Banks in this digital age have now realized the strategic importance of the internet as a useful channel to improve customer service experience and service satisfaction. According to Khanifar, Niya, Jandaghi, Molavi and Emami (2012), since the mid-1990s, there has been a fundamental shift in banking delivery channels toward using self-service channels such as electronic banking, mainly the use of automated teller machines (ATMs) and online banking. In essence, clients has shifted from using traditional banking to internet banking system.

The internet has provided a more convenient avenue for customers to carry out banking transactions on one hand, and at the same time, has allowed banks to practice new generations of banking services without being compelled to invest in physical branches (Furst, Lang & Nolle, 2002; Gilmore, Gallagher & Henry, 2007; Jenkins, 2017). The emergence of internet banking channels have had a positive impact on operational efficiency of financial institutions; as they have reduces the operational costs of banks, facilitate personalized service provision to customers, reduced lead time, and generally improves banking services,

which have led to not only satisfying customers, but also, served as a retention strategy that makes customers continue using the products and services of a banking institution. (Couto, Tiago, & Tiago, 2013). Injection of Information Technology (IT) facilities like online banking has led to improved service quality and superior service delivery within the banking sector. Interestingly, the reason for this paradigm shift has been argued by numerous scholars to be perceived usefulness, perceived ease of use, security and privacy provided by online banking (Khanifar, et al., 2012; Jenkins, 2017; Couto et al., 2013).

Conceptually, online banking constitutes a fusion of conventional banking and web technology, being increasingly patronized by banking sectors worldwide. Chong et al., (2010) internet banking channels refers to the system that allows customers to transact business with the bank on different digital channels. Additionally, internet banking channels offers convenience to its users through performing activities at any time of the day (24 hours) and from anywhere in the world (Abu-Assi et al., 2014). Internet banking channels as banking service that allows customers to access and perform financial transactions on their bank accounts from their web-enabled computers. According to Agwu (2018), innovative channels of delivering e-banking services include Point-of-Sale (POS), ATMs, mobile banking, telephone banking, and internet banking. Among the aforementioned, one of the most prevalent channels of providing new banking services is the POS terminal,



which is an electronic device used for credit and/or debit cards transactions at retail locations, such as shops, restaurants, and hotels. It enables customers to perform banking transactions using their credit or debit cards, 24 h a day (Kajuju 2016). The other channel of e-banking is the ATM. An ATM is defined as an automated telecommunication device that enables consumers to access banking services without any need for a bank operator (Sarlak 2010). Mobile banking is a service provided by financial companies, and it allows customers to benefit by using their mobile phone devices to perform banking transactions such as transferring funds, saving money, and paying bills. Also, internet banking is another popular channels used by financial institutions. As such, internet banking is defined as the acquisition of banking services via the internet. It provides a vast range of potential advantages because of the attainable and user-friendly application of technology (Yiu et al. 2007). It handles banking transactions on the internet via websites (Sarlak 2010). Additionally, is telephone banking; whose services enable clients to accomplish some banking transactions like applying for account balance information or transferring money through the telephone (Hosseini and Mohammadi 2012).

Despite the fact that the internet has an ever-growing importance in the banking sector because of the advantages it brings to both the entities and their customers, not all the financial entities that have adopted e-banking have been successful (Ortega et al., 2007). The issue of trust, privacy, internet bullying, among others have had an overbearing effect on the adaptation of online banking especially in developing countries. According to Wungwanitchakorn (2002), in most developing countries, internet banking is still in its early stages. Only a few banks are developing such services while others merely use the web to provide information about products and services. Thus, it can be concluded in this regard that bank customers are still not accustomed to using electronic channels to manage their financial affairs. This low adaptation rate is an indication of the hazards of introducing new products and services into the marketplace; the vast majority of product and service innovations fail, at considerable cost to the financial institutions introducing them. Moreover, those services perceived as necessary by such adapters must also be identified. The identification of personal characteristics related to the adoption of internet banking is critical for market targeting and the identification of innovative features can help banks in product design and in formulating campaigns that will encourage the adoption of the service (Tan and Teo, 2000).

It is believed that human behavior, in general, takes time to adjust and accept radical changes within its macro environment. Banking through online medium is not alien in this regard. Banking customers accustomed to branch confined banking exhibit diverse apprehensions toward instant adaptation of online banking facility. According to Sohail and Shanmugham (2003), customer adaptation describes beliefs about having necessary resources and opportunities for an individual's intention to perform. These are facilitating conditions, which refer to the

availability of resources, i.e. the technological resources and infrastructure needed to engage in the adaptation. Lee and Allaway (2002) suggested that the adaptation of electronic banking depends on the service firm's resource management by lowering delivery costs and by releasing service personnel to provide better and more varied service.

In addition, consumer adaptation of a good or a service refers to the acceptance and continued use of a product, service or idea. According to Baraghani (2007), consumers go through "a process of knowledge, persuasion, decision, implementation and confirmation" before they are ready to adapt to changes in product or service. Thus, consumer adaptation is the process that describes the steps consumers follow in deciding whether or not to use a new product, service or innovation. These stages in the adoption process are awareness, interest, evaluation, trial and adoption. Awareness is to communicate the availability of the new product or service. Interest is to communicate benefits of new product or service to gain consumer interest. Evaluation emphasizes the advantages of new product over alternatives currently on the market. Usage refers to how the customer is able to use the internet banking services in any transaction (Bearden et al., 2001). Theories such as diffusion of innovation, Technology Acceptance Model (TAM), reasoned action, etc; are among the prominent theories that can back the adaptation process of new system or innovation.

Based on these theories, certain factors are responsible for the adaptation of online banking channels. This makes it imperative for banks to identify the factors which are decisive for their customers to embrace online banking and avail cost effective service delivery. It is important to mention that this research aimed to validate factors such as perceive trust and security & privacy which influence online banking adaptation among banking customers and test their individual causal significance toward the used of mobile app. Also this research introduced customer satisfaction as a moderating variable in order to test its effect on customer adaptation of the use of internet banking channels.

## **2. LITERATURE REVIEW**

### **2.1 Theoretical Review**

#### **2.1.1 Technology Acceptance Model**

Technology Acceptance Model (TAM) is another baseline theory this research used. TAM was introduced by Davis (1986) to describe the usage behavior of new technologies. According to Rauniar, H., Rupak., G., Greg, R., Rawski., A., Jei, A., Yang., T., Ben, J., & Benhnson, E. (2014), two theoretical constructs were found useful in conceptualizing the TAM. They include Perceived Usefulness (PU) and Perceived Ease-Of-Use (PEOU). These constructs were examined with respect of new innovation, which explains the intention to use a new technology. PU is defined as the extent to which a user trusts that by using a particular system, it would improve his or her job performance. More so, PEOU was defined as the extent to which a user trusts

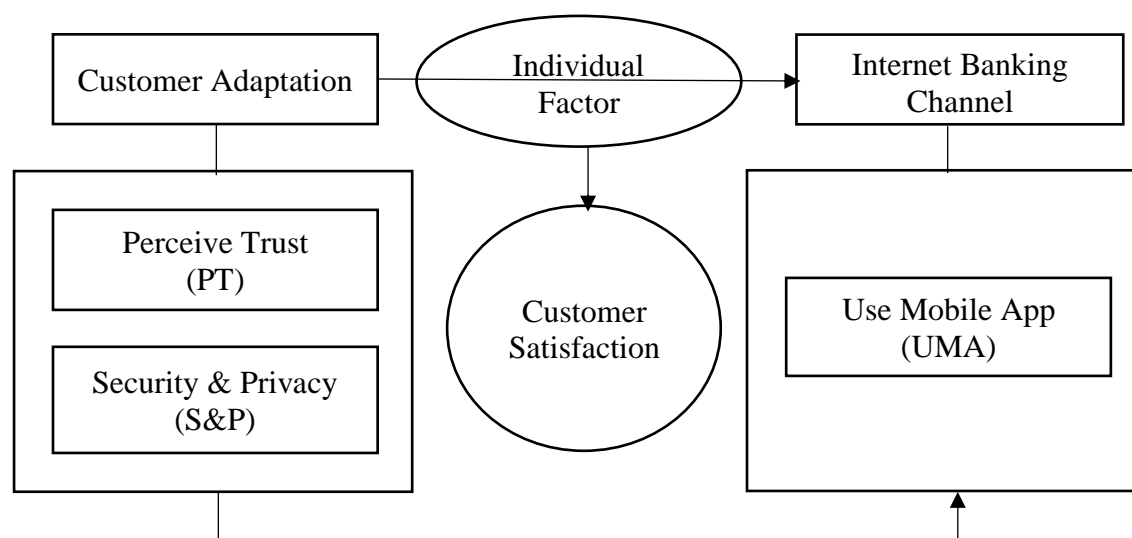


that by using a particular technology, it would be free from effort (Cheung, C.M. & Thadani, 2012).

More so, TAM assumes that the individual behavior is volitional. However, the theory does not include behavioral control construct, which means that behavior is directly at the discretion of oneself. In other words, this model does not explain cases

where consumers are not able to perform transactions due to insufficient money, even though there is an intention to do so (Loh, 2011). It is important to state that customer satisfaction is likely to have a stronger impact on customer adaptation and intention to use internet banking.

## 2.2 Conceptual Review



### 2.2.1 Internet Banking Channel

According to Chong et al., (2010) internet banking channels refers to the system that allows customers to transact business with the bank on different digital channels. Additionally, internet banking channels offers convenience to its users through performing activities at any time of the day (24 hours) and from anywhere in the world (Abu-Assi et al., 2014). Internet banking channels as banking service that allows customers to access and perform financial transactions on their bank accounts from their web-enabled computers

According to Agwu (2018), innovative channels of delivering e-banking services include Point-of-Sale (POS), ATMs, mobile banking, telephone banking, and internet banking. Among the aforementioned, one of the most prevalent channels of providing new banking services is the POS terminal, which is an electronic device used for credit and/or debit cards transactions at retail locations, such as shops, restaurants, and hotels. It enables customers to perform banking transactions using their credit or debit cards, 24 h a day (Kajuju 2016). The other channel of e-banking is the ATM. An ATM is defined as an automated telecommunication device that enables consumers to access banking services without any need for a bank operator (Sarлак 2010). Mobile banking is a service provided by financial companies, and it allows customers to benefit by using their mobile phone devices to perform banking transactions such as transferring funds, saving money, and paying bills. Also, internet banking is another popular channels used by financial institutions. As such, internet banking is defined as the acquisition of banking

services via the internet. It provides a vast range of potential advantages because of the attainable and user-friendly application of technology (Yiu et al. 2007). It handles banking transactions on the internet via websites (Sarлак 2010). Lastly is telephone banking; whose services enable clients to accomplish some banking transactions like applying for account balance information or transferring money through the telephone (Hosseini and Mohammadi 2012).

### 2.2.2 Customer Adaptation

It is believed that human behavior, in general, takes time to adjust and accept radical changes within its macro environment. Banking through online medium is not alien in this regard. The identification of personal characteristics related to the adaptation of internet banking is critical for market targeting and the identification of innovative features can help banks in product design and in formulating campaigns that will encourage the adoption of the service (Tan and Teo, 2000). TAM model suggests that customer adaptation behavior is determined by the intention to use a particular system, which in turn is determined by the perceived usefulness and perceived ease of use of the system (Davis, 1989). Liao and Cheung (2002) utilized an alternative research approach which assumes that customer adaptation is determined by intention to perform the behavior. However, factors affecting the adaptation of a new information technology are likely to vary with the technology, target users, and context (Moon and Kim, 2001). Banking customers accustomed to branch confined banking exhibit diverse apprehensions toward instant adoption of online





banking facility. Customer adaptation of a good or a service refers to the acceptance and continued use of a product, service or idea. According to Baraghani (2007), consumers go through “a process of knowledge, persuasion, decision, implementation and confirmation” before they are ready to adopt a product or service. Thus, customer adoption is the process that describes the steps consumers follow in deciding whether or not to use a new product, service or innovation. These stages in the adoption process are awareness, interest, evaluation, trial and adoption. Awareness is to communicate the availability of the new product or service. Interest is to communicate benefits of new product or service to gain consumer interest. Evaluation emphasizes the advantages of new product over alternatives currently on the market. Usage refers to how the customer is able to use the internet banking services in any transaction (Bearden et al., 2001). Therefore, adaptation of electronic banking is important not only in terms of reducing costs and improving competitiveness but also in terms of a bank's ability to retain the existing customer base and to attract new customers (Guriting and Ndubisi, 2006). Recently, Hernandez and Mazzon (2007) found that system adaptation is determined by perceived usefulness and perceived ease of use, which are related to attitude and thereby to actual use.

### 2.3 Internet banking Channels and Customer Adaptation

Gao and Owolabi (2008) contend that the currently relevant factors determining the adaptation of internet banking in Nigeria include the level of awareness or attention, the accessibility to computers and the Internet, convenience, privacy, costs, and the availability of knowledge and support concerning internet banking. The introduction of internet banking services is facilitated by

the bank's reputation in terms of size, awareness and trust awareness of Service and its benefits in form of the amount of information a customer has about Internet banking and its benefit may have a critical impact on the adoption of Internet banking (Jaruwachirathanakul and Fink, 2005; Al-Somali et al., 2008). On the other hand, Al-Somali et al. (2008) noted that low awareness of internet banking is a critical factor in causing customers not to adapt internet banking and Katri (2003) conquers that most important factors discouraging the use of internet banking are lack of Internet access and not having a chance to try out Internet banking in a safe environment, thus not being in a position to access account. According to Gan et al. (2006), the previous studies have identified that user input factors are a function of control, enjoyment and intention to use. Control could be described as the amount of effort and involvement required by consumers in electronic banking. Enjoyment is the perceived playfulness and intrinsic value that consumers experience from the utilization of electronic banking and this would also influence the level of satisfaction; as Gan et al. (2006) indicate that when consumers are aware of the availability of electronic banking, they will use adopt, though some may not. Based on the above postulate we state the following hypotheses:

**H<sub>01</sub>:** There is no significant relationship between mobile application and perceive trust of banks in Rivers State.

**H<sub>02</sub>:** There is no significant relationship between mobile application and security & privacy of banks in Rivers State.

**H<sub>03</sub>:** Customer satisfaction does not significant moderate the relationship between internet banking channels and customer adoption of banks in Rivers State.

### 2.4 Empirical Review

Andrew and Malinga (2011) examined the factors that influence consumer adoption of Internet banking service as well as examine the relationship between Internet banking service, customer adoption and customer satisfaction. The major instrument for the data collection was a questionnaire that was designed on a 5-point Likert scale to be able to collect good quantitative data. The study established that there was a significantly positive relationship between internet banking and customer satisfaction which is consistent with the findings of Al-hawari and Ward (2005). The study recommended that more emphasis and efforts be laid on targeting individual clients. In addition, Internet banking service providers ought to look out for indicators of innovative ways of creating awareness about the service through participation in trade organizations, exhibitions as well as adoption of new technologies of Internet banking.

Pallab, Amresh and Munish (2015) in their study considers a five-factor model toward online banking adoption in the context of banking customers in India and validates the proposed model. In addition, the authors consider the impact of validated factors on overall satisfaction of customers. A five-factor online banking adoption model has been tested for reliability and validity by confirmatory factor analysis. For determining contribution of factors toward overall satisfaction level of banking customers structural equation modeling has been adopted. Four explanatory variables have been used to assess the overall satisfaction level of online banking users. A structured questionnaire incorporating variables identified from literature has been used as survey instrument for the study. Final respondent sample was 280 banking customers. Findings revealed that trust, usage constraint, ease of use, accessibility and intention to use as reliable and valid factors determining internet banking adoption among customers in India. Accessibility, usage constraints, intention to use portrayed strong and significant relationship with overall customer satisfaction. Trust and ease of use are relatively weaker and insignificant contributors toward overall customer satisfaction.

Hiba and Faisal (2018) examine how the adoption decision of the internet banking in North Cyprus would be affected based on the following dimensions; the technology features, the personal characteristics, the social environment and the expected risk. A self-administered survey was conducted with 291 participants responded to it. The partial least square approach of the structural equation modeling (PLS-SEM) is employed to investigate the direct effects of the proposed factors on the adoption decision. Additionally, the mediation test is used to examine indirect effects. Findings showed that even though the participants



appreciated the benefits of the online banking as the perceived usefulness factor exerts the greatest direct effect, they would rather use clear and easy-to-use websites, adding to that their assessments of the usefulness of these services are significantly influenced by the surrounding people's views and prior experience. This is demonstrated by the total effects of the perceived ease of use and the subjective norm factors, which are greater than the direct effect of the perceived usefulness factor since both of these factors have significant direct and indirect effects mediated by the perceived usefulness factor. The negative impact of the perceived risk factor is weak compared to the previous factors. While the personal innovativeness factor showed the weakest effect among the proposed factors.

Popoola (2013) investigated the effect of trust in adoption of internet banking: a case study of Nigeria. The author studied 18 deposit money banks in Nigeria. More so he found that that bank customers who are non-users of internet banking lack trust in internet banking and the users of internet banking have partial trust in it. The reason for this lack of trust is because of lack of security, bad reputation of banks, poor technology and lack of assuring policy or guarantee. The finding indicates that customers both users and non-users of internet banking do not have trust in the security system.

Shidrokh, Seyed and Nastaran (2013) examined the effect of trust in adoption of internet banking: a case study of According to the literature, a set of factors can have an effect on trust. All of the important factors have an effect on decreasing or increasing the level of trust in Internet banking adoption. In this paper, the factors of trust were identified based on the previous works with a particular focus on trust and Internet banking adoption. The findings summarized in this paper will be useful not only for the people involved in the implementation, design and management of infrastructure for online services, to but also for practitioners and researchers engaged in the study of trust.

George and Julia (2015) examined the effect of trust in adoption of internet banking: a case study of Zenith Bank Ghana Ltd." The zenith bank of Ghana adopted internet banking because the management wanted customers to have easy access to banking services. This means that internet banking is very vital to enable customers to easily banking services. A Part from those other reasons includes, for profits and to make more effective and efficient in all their transactions. The main problem that customers encountered in relation to internet banking services is up to data information on their accounts as far as banking is concerned. Other problems include inadequate information from the banking institution and high bank charges on the services. The customers of zenith bank of Ghana really want ATM than the other forms of accessing banking services like internet banking. This is because most of the people who transact businesses with the bank are not connected to the internet, and that they have to pay for extra services.

### 3. METHODOLOGY

This study adopted the descriptive research design. Kothari, (2011) noted that the descriptive research design is recommended for studies that understand the characteristics of particular groups or individuals. Descriptive survey research design is the systematic collection of data in standardized form from an identifiable population or representative (Ogbuji, 2013). The research design is effective when seeking to explain the relationship between variables in a study. Basically, the population of this study consists of customers of deposit money banks in Nigeria. However, due to time and resource constraints, its accessible population was limited to customers of these banks in Rivers State. Given the inability of the researcher to ascertain the total number of customer of these banks (of which is expected to run in to millions) this study therefore used an estimate of 400 if Taro Yamen was to use in determining a population size in millions. Hence, this research administered copies of the questionnaire to 400 respondents.

More so, this research mainly used two sources of data (primary and secondary). While the secondary data were sourced by reviewing related and relevant literature from journal articles, internet publications, industry/institutional reports, etc; the primary source was obtained by using structured copies of questionnaire. The instrument for primary data collection were made up of sections A to C. Section A elicited responses on the demographics of respondents; section B focused on responses on the independent variable while section C was centered on the dependent variable. Also, a 5-point Likert measurement scale ranging from Strongly Agree (SA, 5-points), Agree (A, 4-points), Not Sure (NS, 3-points), Disagree (D, 2-poits), and Strongly Disagree (SD 1-point)t were used in weighting responses obtained from respondents.

The authenticity of a research depends on how valid and reliable the measures are in determining what they intend to measure (Asiegbu, 2012). On this note, our main consideration on face and content validity of which the instrument for data collection was subjected to review by experts in the field of marketing. On the other hand, Cronbach Alpha test was used to determine the reliability of the instruments. Literature in this respect have demonstrated an agreed alpha of 70% (0.7) or above as reliable (Okefor, 2012).

Lastly, this research used both descriptive and inferential methods of data analysis. Considering the former; chats, tables, percentages, etc, were deployed especially in analyzing various demographic profiles of respondents. The latter saw the adoption of Regression Analysis in testing the proposed hypotheses as formulated earlier in the research. While partial Correlation Coefficient was used to test the moderating variable. It is crucial to mention that all data analyses were assisted by Statistical Package for Social Sciences (SPSS) version 23.0.



## 4. RESULTS AND DISCUSSION

### 4.1 Data Presentation

**Table 4.1 Questionnaire Distribution Results**

Questionnaire	Frequency	Percentage %
Distributed	400	100
Retrieved	365	91
Not retrieved	35	9
Retrieved usable	341	93
Retrieved not usable	24	6.6

**Source: Survey data, 2023.**

Table 4.1 illustrated questionnaire distribution and retrieval process. As a result of certain observed blank or omitted entries as well as incomplete copies of questionnaire, some copies were deemed not useable and so were not included in the study. Out of a total of 400 copies distributed, only 365 representing a response

rate of 91% were retrieved and 35 which represent 9% were not retrieved. Out of the 365 retrieved only 341 which represent 93.4% were usable, and 24 which represent 6.6% were not usable.

**Table 4.2: Reliability Results**

Variables Entered	Cronbach Alpha Scores
Use of Mobile Application	0.803
Perceived Trust	0.865
Security & Privacy	0.811
Customer Satisfaction	0.846

**Source: Researcher's Field Survey, 2023.**

Table 4.2 showed output of reliability test statistics obtained. As can be noticed above, all Cronbach's Alpha score meet the 70% standard for acceptance. Therefore, the research instrument was reliable.

### 4.2 Testing of hypotheses

As specified earlier, hypotheses were tested using the Regression Analysis.

#### Test of Hypothesis One & Two

**Ho<sub>1</sub>:** There is no significant relationship between mobile application and perceive trust of banks in Rivers State.

**Ho<sub>2</sub>:** There is no significant relationship between mobile application and security & privacy of banks in Rivers State.

**Table 4.3: Regression Analysis showing the relationship between mobile app, perceived trust, and security & privacy.**  
**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968 <sup>a</sup>	.936	.933	18.53901
2	.984 <sup>a</sup>	.968	.966	13.12365

a. Predictors: (Constant); mobile app.

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1.	(Constant)	-4.020	6.076		-.662	.517	-16.786	8.745
	Perceive Trust	1.059	.065	.968	16.257	.000	.922	1.196
2	(Constant)	-5.049	4.301		-1.174	.256	-14.085	3.988
	Security & Privacy	1.074	.046	.984	23.292	.000	.977	1.171

a. Dependent Variable: Mobile App

$$CC = -4.020 + 1.059(PT)$$

$$CC = -5.049 + 1.074(S\&P)$$



ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	90830.692	1	90830.692	264.277	.000 <sup>b</sup>
	Residual	6186.508	340	343.695		
	Total	97017.200	341			
2	Regression	93435.056	1	93435.056	542.501	.000 <sup>b</sup>
	Residual	3100.144	340	172.230		
	Total	96535.200	341			
a. Dependent Variable: Use of Mobile App						
b. Predictors: (Constant): Perceived trust, Security & Privacy						

Regression line

$Y = a + bX$

$CS = -4.020 + 1.059(PT)$

$CC = -5.049 + 1.074(S\&P)$

Where:

$R_1, R_2 = 0.968, 0.984$

$R^2_1, R^2_2 = 0.936, 0.968$ .

$F_1, 340 = 264.277$

$F_2, 340 = 542.501$

$p\text{-value} = 0.000$

### Decision

The result of the simple regression of the above variables indicated  $R = 0.968$  and  $R_2 = 0.984$ ; with  $R^2_1 = 0.936$  and  $R^2_2 = 0.968$ ; which is equal to 93.6% and 96.8% respectively; and these are the explanatory power of the model used for the study. It means that 93.6% and 96.8% variation can be explained by factors within the model used for the study and the remaining 6.4% and 3.2% can only be explained by other external quantitative and qualitative factors of the model used for the study. The f-ratio ( $F_1: 340 = 264.277$  and  $F_2: 340 = 542.501$ ) showed significant effects in existence and this revealed the appropriateness of the model used for the study. The t-ratio showed significant of perceive trust and security & privacy to the present status of the use of mobile app.

The beta value is the strength or the extent of contributions to the present position of mobile app, ATM, and privacy & Security respectively, made a beta contribution of 1.059 and 1.074 values. This result has revealed that mobile app, ATM made significant contribution to internet banking channels. Also, the  $p\text{-value} < 0.05$ , we therefore reject the null hypothesis ( $H_{01}, H_{02}$ ) that there is no significant relationship between customer adaptation and internet banking channels.

### Test of hypothesis Three

**H<sub>03</sub>:** Customer satisfaction does not significant moderate the relationship between internet banking channels and customer adaptation of banks in Rivers State.

**Table 4.20: Correlation Analysis of Customer Satisfaction on Customer Adaptation and Internet Banking Channels**

Correlations				
			Customer Adaptation	Internet Banking Channels
Spearman's rho	Customer Adaptation	Correlation Coefficient	1.000	.755**
		Sig. (2-tailed)	.	.000
		N	341	341
	Internet Banking Channels	Correlation Coefficient	.755**	1.000
		Sig. (2-tailed)	.000	.
		N	342	341
** Correlation is significant at the 0.01 level (2-tailed).				

Source: Field Survey Data, 2023, SPSS Output





**Decision:** Since P value (0.000) is less than the alpha value (0.01%) which is level of significance, the null hypothesis is rejected while the alternative hypothesis is accepted.

#### Coefficient of Determination

$$r^2 = (0.755)^2$$

$$r^2 = 0.570025 \times 100$$

$$r^2 = 57.0\%$$

The coefficient of determination ( $r^2$ ) is 75.9%, meaning that, customer satisfaction significantly influence the relationship between internet banking channels and customer adaptation of banks in Rivers State.

### 5. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

It is no longer news as to the strategic importance and advancement of ICT in today's online-driven world. Internet banking channels is on the forefront of this advancement, upon which strategic windows are there for innovative banks to key into this trend. Based on the findings, the issues of perceived trust, security and privacy are important determinants in the adaptation of internet banking channels. Specifically, perceived trust was found to be a significant factor in using bank mobile apps in carrying out transactions. Also, the challenges of security and privacy in the internet space have had a huge on the use of mobile apps for various banking transactions. Again, will not hesitate to the use banking apps if they are satisfied with online banking services. This means that their personal information is highly secured and transaction carried out online have not been disappointing.

Based on the above several valuable implications for bank managers and authorities have emerged. In general, it suggests that bank managers wanting their customer service experience and patronage should pay more attention to new channels of presenting innovative online services like making banking mobile apps to be more user-friendly and interactive. The findings of this study show that if bank managers keep their internet banking services up-to-date and continue to develop them, they can better and more easily attract and retain customers and increase their patronage. They should ensure that the issue of security and customer privacy is taken seriously, because this is one of the strategic ways of building customer trust in online transactions.

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# ISOLATED AND COMBINED IMPACT OF WEIGHT AND LADDER TRAINING ON SELECTED MUSCULAR STRENGTH ENDURANCE AND BREATH HOLDING TIME AMONG INTER COLLEGIATE FEMALE KABADDI PLAYERS

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## ABSTRACT

*The purpose of this study was to find out the Isolated training group Combined impact of weight training group and ladder training group selected on muscular strength endurance and Breath Holding Time among inter collegiate female Kabaddi players. Sixty (60) female students from Dr.Sivanthi aditanar college of Engineering, Tiruchendur, Govindammal Aditanar College for women, Tiruchendur, Wavoo Wajeeha women's college of arts and science, veerapandipattanam were participant selected. The age of the participant was ranged from 18 to 25 years. The selected fitness variables Muscular strength endurance were assessed by using sit up test and the physiological variable Breath holding time were assessed by using nostril clip scoring seconds. The selected students were divided in to four groups namely Isolated training group Combined impact of weight training group and ladder training group and control group. Isolated training group Combined impact of weight training group and ladder training group underwent specific drills/exercise according to their training design which is instructed by the researcher whereas Control group underwent zero training. The obtained data were statistically analysed by ANCOVA was used to find out the significant difference among the group. An alpha level of 0.05 was used for all tests. The results indicate that there is significant difference between Control group, and three training groups Isolated training group Combined impact of weight training group and ladder training group Among the three training groups, Combined impact of weight training group shows better results compared to Isolated Training group and ladder training group.*

**KEYWORDS:** *Isolated training group Combined impact of weight training group and ladder training group Muscular strength Endurance and Breath Holding Time and Kabaddi.*

## INTRODUCTION

Keep singing and never give up. Our Tamils live and breathe Kabaddi. Our troops' temple is the Kabaddi field. The Kabaddi Field serves as a monument to our soldiers. The Kabaddi Field serves as a monument to our soldiers. The players who live by the adage that "Kabaddi is the lifeblood of our Kabaddi body and life" deserve this review article, which we have created for them. One of the old-fashioned games, Kabaddi, teaches us the rules, playgrounds, and strategies. Our daily lives will benefit from this discipline in addition to the game. Learn about physical prowess, mental stability, virtue and self-control, and a state of mind from the Guru or Coach. Do you believe we weren't chosen for the Indian, district, and national teams in Kabaddi? a research project on women from Tamil Nadu vying for positions on the Indian national team or in the government. We must learn about health and well-being from the Guru in order to develop our physical stamina, mental discipline, and state of mind, as well as to receive timely and appropriate training.

Players in the game of Kabaddi must react and move very swiftly because it is played so quickly. When you play the game, you won't have much time to evaluate the scenario, and since you aren't allowed to breathe, you'll need to move quickly. With practice, your physical and mental abilities will improve,

even outside of the game. You'll develop quick reflexes, the ability to rapidly weigh the pros and cons of a situation, and the capacity to render swift decisions. Kabaddi is a simple and affordable sport to pick up on top of all these health advantages. Unlike other games that need both equipment and space, such as cricket, football, tennis, squash, badminton, or table tennis, Kabaddi does not. A few friends, a green space, and a small amount of free time a few times a week are all you need.

## METHODOLOGY

The purpose of this study was to find out the Isolated training group Combined impact of weight training group and ladder training group selected on muscular strength endurance and Breath Holding Time among inter collegiate female Kabaddi players. Sixty (60) female students from Dr.Sivanthi aditanar college of Engineering, Tiruchendur, Govindammal Aditanar College for women, Tiruchendur, Wavoo Wajeeha women's college of arts and science, veerapandipattanam were participant selected. The age of the participant was ranged from 18 to 25 years. The selected fitness variables Muscular strength endurance were assessed by using sit up test and the physiological variable Breath holding time were assessed by using nostril clip scoring seconds. The selected students were divided in to four groups namely Isolated training group



Combined impact of weight training group and ladder training group and control group. Isolated training group Combined impact of weight training group and ladder training group underwent specific drills/exercise according to their training design which is instructed by the researcher whereas Control group underwent zero training. The obtained data were statistically analysed by ANCOVA was used to find out the significant difference among the group. An alpha level of 0.05 was used for all tests.

## EXPERIMENTAL DESIGN AND STATISTICAL TECHNIQUE

Pre- and post-testing this study used an experimental design, and a control group was included.

To determine the difference in statistical significance, an ANCOVA was performed to statistically analyze the given data. The threshold for statistical significance was set at the 0.05 level of confidence.

**TABLE I**  
**COMPUTATION OF ANALYSIS OF CO-VARIANCE ON MUSCULAR STRENGTH ENDURANCE**

Pre test Mean				Post test Mean				Adjusted post test means				Sources of Variance	Sum of square	Df	Mean squares	F ratio
ITG	CIWTG	LTG	CG	ITG	CIWTG	LTG	CG	ITG	CIWTG	LTG	CG	Between	182.87	3	60.96	35.39
11.4 ±0.73	11.66±1.05	13.2 ±13.02	14.46 ±1.18	12.66 ±1.23	17 ±1.73	12.33 ±1.29	12 .73±1.27	16.87	14.27	16.92	12.75	Within	94.73	55	1.72	

**ITG** – Isolated Training Group, **CIWTG** – Combined Impact of Weight Training Group, **LTG**-ladder Training Group and **CG** – Control Group

\*significant at 0.05 level of confidence (The table value required for significance at 0.05 level with df 3 and 55 is 3.24)

Table I shows the pre test mean of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are 11.04, 11.66, 13.2 and 14.4 respectively and post mean of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are 12.66, 17, 12.33, and 12.7 respectively. The adjusted post test means of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are 16.87, 14.27, 16.92 and 12.75 respectively. The obtained f-ratio of 35.39\* which is higher than the table value 3.24 with df 3

and 55 required for significance. The result of the study indicates that there are significant mean differences on self-confidence ability among the adjusted post test means of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are at 0.05 level of significance. Hence it is clear that the of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are significantly the Muscular strength endurance of the Participants. Among this Three training groups Isolated Training group seems to be the best.

## SCHEFFE'S POST HOC TEST ON MUSCULAR STRENGTH AND ENDURANCE

Isolated Training Group	Combined Impact of weight Training	Ladder Training	Control Group	Mean Difference	Confidence interval
16.87	14.27			2.6*	1.21
16.87		16.92		0.05*	
16.87			12.75	4.12*	
	14.27	16.92		2.65*	
		16.92	12.75	4.17*	
	14.27		12.75	1.52*	

\*significant at .05 level

Table II shows that the adjusted post test mean differences in Muscular Strength Endurance between Isolated Training group and combined impact of weight training Group is 2.6 and Isolated Training group and Ladder training group is 0.05, Isolated Training Group and Control Group is 4.12 combined impact of weight training Group between ladder training group

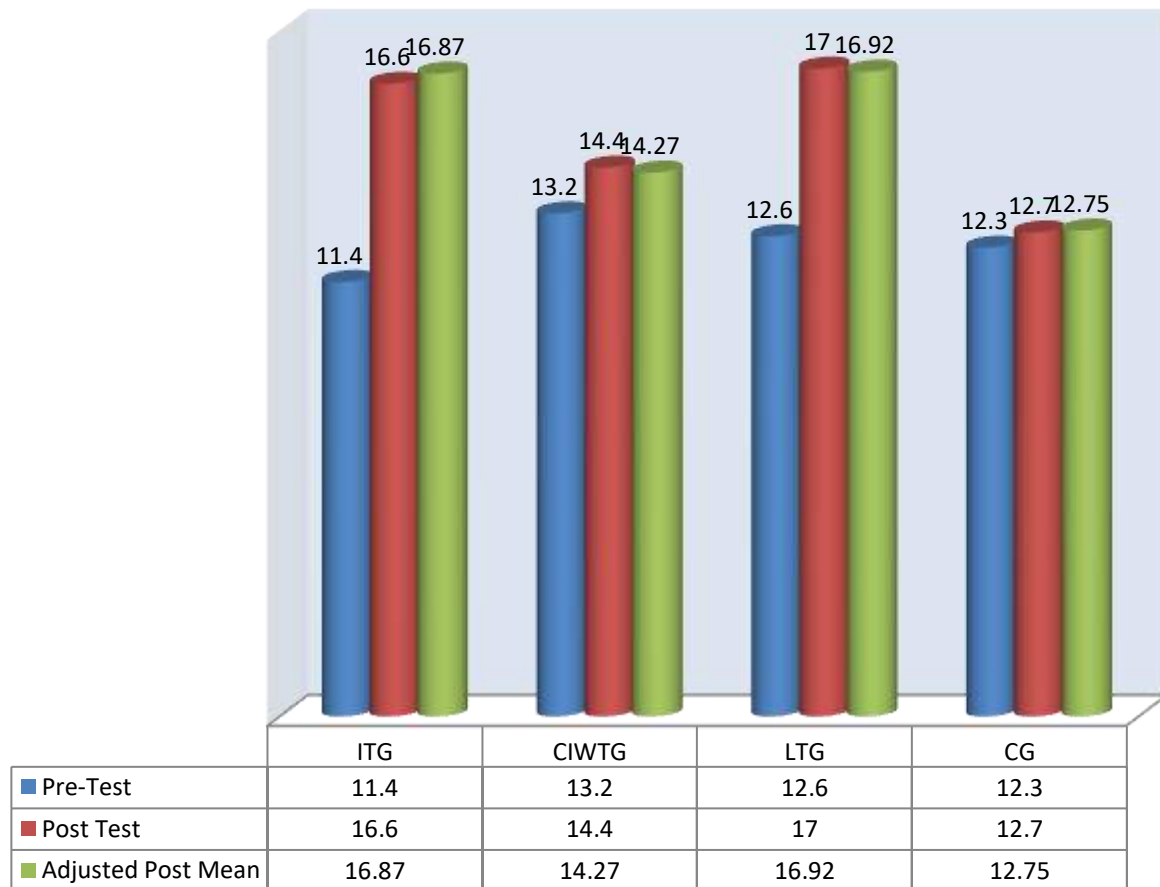
is 2.65 ladder training group between control group 4.17 combined impact of weight between control group 1.52 which are greater than the confidence interval value of which is 1.21 statistically significant at 0.05 level of confidence.





## MUSCULAR STRENGTH ENDURANCE

■ Pre-Test ■ Post Test ■ Adjusted Post Mean



**TABLE VI**  
**COMPUTATION OF ANALYSIS OF CO-VARIANCE ONBREATH HOLDING TIME**

Pre test Mean				Post test Mean				Adjusted post test means				Sources of Variance	Sum of square	Df	Mean squares	F ratio
ITG	CIWTG	LTG	CG	ITG	CIWTG	LTG	CG	ITG	CIWTG	LTG	CG	Between	1406	3	468.67	52.12
34.06 ± 2.65	49.2± 2.98	34.6 6± 3.06	44.66 ±2.4 1	37.4 ±2.3 8	42.6± 4.03	34.3 3±3.03	35. 8± 2.2 4	49. 35	44.73	42.26	36.91	Within	494.54	55	8.99	

**ITG** – Isolated Training Group, **CIWTG** – Combined Impact of Weight Training Group, **LTG**-ladder Training Group and **CG** – Control Group

\*significant at 0.05 level of confidence (The table value required for significance at 0.05 level with df 3 and 55 is 3.24)

Table II shows the pre test mean of Isolated Training Group, Combined Impact of Weight Training Group, Ladder Training group and Control Group are 34.06, 49.02, 34.66 and 44.6 respectively and post mean of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder

Training group and Control Group are 37.4, 42.6, 34.33, and 35.8 respectively. The adjusted post test means of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are 49.35, 44.73, 42.26 and 36.91 respectively. The obtained f-ratio



of 52.12\* which is higher than the table value 3.24 with df 3 and 55 required for significance. The result of the study indicates that there are significant mean differences on self-confidence ability among the adjusted post test means of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are at 0.05 level of significance. Hence it is clear that the

of Isolated Training Group, Combined Impact of Weight Training Training Group, Ladder Training group and Control Group are significantly the Breath holding time of the Participants. Among this Three training groups Isolated Training group seems to be the best.

#### SCHEFFE'S POST HOC TEST ON MUSCULAR STRENGTH AND ENDURANCE

Isolated Training Group	Combined Impact of weight Training	Ladder Training	Control Group	Mean Difference	Confidence interval
49.35	44.73			4.62*	2.78
49.35		42.26		7.09*	
49.35			36.91	12.44*	
	44.73	42.26		2.47*	
		42.26	36.91	5.35*	
	44.73		36.91	7.82*	

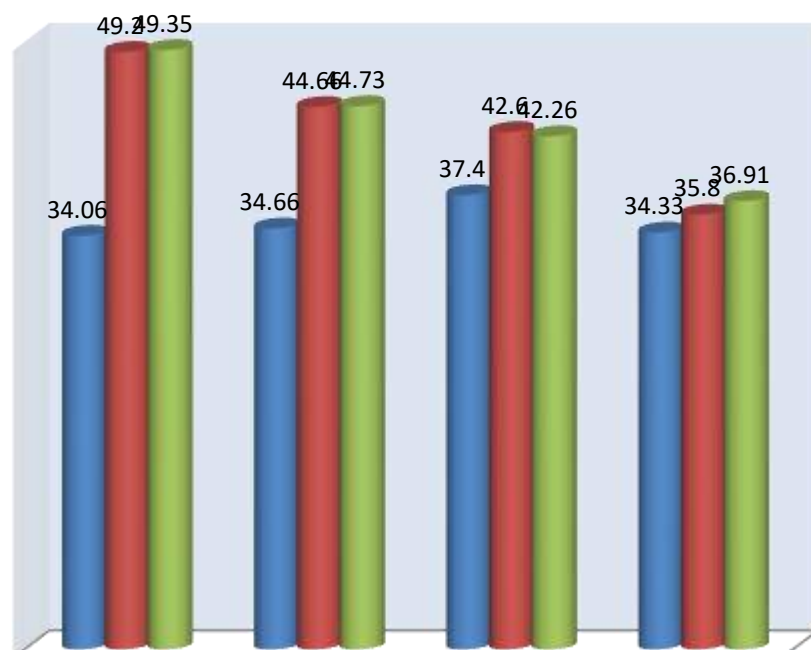
\*significant at .05 level

Table II shows that the adjusted post test mean differences in Muscular Strength Endurance between Isolated Training group and combined impact of weight training Group is 4.62 and Isolated Training group and Ladder training group is 7.09, Isolated Training Group and Control Group is 12.44 combined

impact of weight training Group between ladder training group is 2.47 ladder training group between control group 5.35 combined impact of weight between control group 7.82 which are greater than the confidence interval value of which is statistically significant at 0.05 level of confidence.

### BREATH HOLDING TIME

■ Pre-Test ■ Post Test ■ Adjusted Post Mean



	ITG	CIWTG	LTG	CG
Pre-Test	34.06	34.66	37.4	34.33
Post Test	49.2	44.66	42.6	35.8
Adjusted Post Mean	49.35	44.73	42.26	36.91



## DISCUSSION ON FINDINGS

The results of analysis of co-variance on comparative results revealed that the mean difference existing between Control Group, ladder training Group combined impact of weight training and isolated training group on Muscular strength endurance and Breath holding time.

## CONCLUSION

Based on the results of the study it was conclude that three training group namely Isolated Training group Combined impact of weight training group significance difference between Muscular strength and endurance and Hand touch ability. Among the two training group, The specific high intensity group shown good improvement on Muscular strength endurance and Hand touch ability.

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## INGLIZ TILI YUMORISTIK DISKURSINING LINGVODIDAKTIK JIHATINI O'RGANISH

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### ABSTRACT

*This article presents teaching opportunities in English to students whose educational orientation is English, as well as the basics of educational analysis, linguistic and cognitive analysis, focuses on the discovery of linguodidac potential. It is based on expanding students' worldviews, growing knowledge and ideas about the national-cultural characteristics of the language under study. The article provides examples of humorous texts intended for use in English lessons.*

**KEYWORDS:** *humorous discourse, linguocognitive analysis, foreign communicative competence, discourse analysis.*

**Annotatsiya:** Ushbu maqolada ta'limiy yo'nalishi ingliz tili bo'lgan talabalarga ingliz tilida o'qitish imkoniyatlari, shuningdek, ma'rifiy tahlil, lingvistik va kognitiv tahlil asoslari keltirilgan, linguodidak potentsialni kashf etishga qaratilgan. Talabalarning dunyoqarashlarini kengaytirishga, o'rganilayotgan tilning milliy-madaniy xususiyatlari to'g'risida bilim va g'oyalarni o'stirishga asoslangan. Maqolada ingliz tili darslarida foydalanishga mo'ljallangan yumoristik matnlardan misollar keltirilgan.

**Kalit so'zlar:** yumoristik diskurs, lingvokognitiv tahlil, xorijiy kommunikatsion kompetentsiya, diskurs tahlil.

**Аннотация:** в этой статье представлены возможности обучения английскому языку для студентов, чья образовательная область-английский язык, а также основы образовательного анализа, лингвистического и когнитивного анализа. Он основан на расширении кругозора учащихся, развитии знаний и представлений о национально-культурных особенностях изучаемого языка. В статье приведены примеры юмористических текстов, предназначенных для использования на уроках английского языка.

**Ключевые слова:** юмористический дискурс, лингвокогнитивный анализ, зарубежная коммуникативная компетентность, дискурсивный анализ.

Dunyo bilim vakillari ko'plab asarlari hazilni o'rganishga bag'ishlangan. Yumorni madaniy tadqiqotlar, falsafa, psixologiya, tilshunoslik, estetika (Z.Freyd, M.Minskiy, A.Panina, D.Shmelev) sohalari nuqtai nazardano'rganib kelishgan. Biroq, ingliz tilini o'qitish va chet el kommunikativ kompetensiyasi xali-xanuz yetarli darajada o'rgnilmagan. Ushbu maqolaning asosiy maqsadi ingliz tilini o'rganayotgan talabalarga yumoristik diskursning aktualigini singdirish va bu tushunchani "joke" misolidagi matnlar orgali lingvokulturologiya kabi seminarlarda keng yoritib berish.

Hazil-mutoyiba nutqini lingvistik shaxsning nutqiy va kognitiv faoliyatida atrofda voqelik bilan o'zaro ta'siri jarayoni sifatida tushunish, hazil chet tilini o'qitish jarayonida istiqbolli material bo'lib tuyuladi, chunki ta'limning bir qator lingvodidaktik vazifalarini hal qilishga imkon beradi.

Chet tillarni o'rganishga madaniy-yo'naltirilgan yondashuvga muvofiq, hazil nutqi muhim til va tilshunoslik potentsialiga ega degan xulosaga kelishimiz mumkin. Har qanday matnda va xususan, hazil matnida "diskursiv fikrlash natijasi aks etadi", ya'ni matn ingliz tilidagi hazil aloqasining dinamik jarayonining mahsuli va timsolidir degan xulosaga kelishimiz mumkin. til o'zaro ta'sirining turlaridan biri sifatida. Nutq va matnning yaqin aloqasi, ya'ni. nutqni fikrlash jarayonini aks ettiruvchi optimal tanlangan tuzilma matn hodisasining ko'p qirraliligini va uni turli tomonlardan o'rganish imkoniyatini ko'rsatadi. Ishning yangiligi chet tilini o'qitish jarayonida nutq aloqasi ishtirokchilarining dinamik diskursiv faoliyatini qayd etuvchi "joke" tipidagi matnlar misolida hazil nutqidan foydalanish tajribasini o'rganishdan iborat.





"Yumoristik diskurs madaniy til makoniga chuqur singib ketgan", unda lingvistik-madaniy hamjamiyatda sodir bo'layotgan o'zgarishlar va ushbu matnni keltirib chiqaradigan til haqiqati aks ettirilgan, "alohida aloqa muhitida dunyo rasmini qayta kashf etadi". Umuman olganda hazil va "joke" matnlari, xususan, jamiyatdagi o'zgarishlarga, lingvokulturada yangi jamoat arboblari va personajlarning paydo bo'lishiga tezda javob beradi, ular darhol hazil matnlarida paydo bo'ladi (D. Trump misolida bo'lgani kabi, u darhol siyosiy hazilning yorqin xarakteriga aylandi).

"Megyn Kelly reportedly wants to be the next Oprah. I'm sure becoming black will be way easier for her than learning how to empathize"

"Xabar qilinishicha, Meghan Kelli keyingi Opra bo'lishni orzu qiladi. Ishonchim komilki, unga qora tanli bo'lish odamlarga hamdardlik ko'rsatishni o'rganishdan ko'ra osonroq bo'ladi".

"At a Whitehouse party for past presidents. Michelle Obama caught Barron Trump making faces at Sasha. Michelle walked over to reprimand the child and said, 'Barron, when I was a little girl, I was told if that I made ugly faces, it would freeze and I would stay like that'. Barron looked up and replied, «Well, Ms. Obama, you can't say you weren't warned»"

"Oq uyda sobiq prezidentlar uchun oqshom. Mishel Obama Barron Tramp Sashega ensa qotirganini ko'rdi. Mishel uning oldiga kelib: "Barron, men kichkina qizligimda, menga ensa qotirsam, yuzim abadiy shunday bo'lib qoladi", deb aytishgan edi. Barron unga qaradi va javob berdi: "Xo'sh, Obama xonim, siz ogohlantirilmaganingizdan shikoyat qila olmaysiz".

Yumoristik matnlari o'rganilayotgan tilni qo'llash tajribasini olish, ijtimoiy-madaniy jihatdan belgilangan til birliklarini aniqlash va turli tillarning ijtimoiy-madaniy sohalarining o'xshashligi va farqlarini o'rganish uchun material bo'lib xizmat qilishi mumkin, ya'ni N.Karaulov "pretsedent hodisa" deb atagan. Tadqiqotchi kognitiv (kognitiv va hissiy) nuqtai nazardan dolzarb bo'lgan milliy-madaniy hamjamiyatning barcha vakillariga yaxshi ma'lum bo'lgan hodisalarni, shuningdek, u yoki bu milliy lingvistik-madaniy hamjamiyat vakillarining nutqida doimiy ravishda yangilanib turadigan hodisalarni pretsedent deb tasnifladi. Barcha ma'ruzachilar pretsedent hodisa mavjudligini bilishadi va barcha uchun majburiy bo'lgan milliy-deterministik ma'no va assotsiatsiyalarning invariantiga ega, bu esa ona tilida so'zlashuvchilar uchun qo'shimcha tushuntirish va izohlashni talab qilmaydi.

"April is always a difficult month for Americans. Even if your ship comes in, the IRS is right there to help you unload it".

"Aprel har doim amerikaliklar uchun qiyin oy. Agar sizning kemangiz ko'rfazga kirgan bo'lsa ham, sizga yordam berish uchun soliq vakillari darhol yuk tashishda paydo bo'ladi".

Taklif etilayotgan vazifalar ona tilida so'zlashuvchilarning barcha ma'nolari va uyushmalarini etarli darajada tushunishga qaratilgan bo'lib, bu talabalarning madaniy vakolatlarini oshiradi. "Joke" hazil matnlarini o'qish va tahlil qilish so'z boyligini kengaytirishga, chet tilida nutq faoliyatini amalga oshirishga imkon beradigan leksik va grammatik bilim va ko'nikmalarni egallashga yordam beradi.

Shuni esda tutish kerakki, kulgili matnlarning asosiy vazifasi o'quvchini kuldirish, tabassum qilishdir. Kulgili effekt yaratish usullarini o'rganish nuqtai nazaridan matnlar bilan ishlash maqsadga muvofiqdir, chunki bu tilning barcha darajalariga ta'sir qiladi: fonologik, leksik-grammatik va kontseptual. Bunday ishdagi vazifa matnning yaxlitligini, uyg'unligini saqlaydigan va kulgili effekt yaratadigan leksik va grammatik birliklarni aniqlash bo'lishi mumkin, bu esa talabalarning til kompetentsiyasini shakllantirishga yordam beradi. Ko'p sonli "joke" matnlari omonim so'zlar va iboralar, metaforalar, ingliz tilidagi so'zlarning noaniqligi, parallel grammatik tuzilmalardan foydalanish, grammatik tuzilmalar va klişe iboralarni g'ayrioddiy to'ldirishga asoslangan so'zlar o'yiniga asoslangan. Talabalar uchun vazifa so'zlar va ma'nolarni o'ynashga imkon beradigan til materialini (leksik, grammatik, fonetik va boshqalar) topish bo'ladi.

"My wife and I had a very quiet evening, she had laryngitis!"

"Xotinim bilan men juda sokin oqshom o'tkazdik, uning laringiti bor edi!"

"How's your pain in the neck? – He's playing golf"

"Sizning yarangiz qanday? "Golf o'ynayapti."

Shuningdek, Z. Freyd komiksning aqliy jarayonlar bilan nozik aloqasi haqida yozgan [17, 308-bet]. Qiziqish-hayajon, zavq-quvonch, hayrat kabi his-tuyg'ular "hazil" matnini tahlil qilish jarayoni bilan bevosita bog'liq bo'ladi, bu qo'rquv va uyatchanlik kabi boshqa asosiy his-tuyg'ularning namoyon bo'lishini kamaytirishi mumkin. Shu bilan birga,



chet tilini o'qitish amaliyotidan ma'lum bir psixologik to'siq va talabalar orasida noma'lum narsadan qo'rqish, yangisini o'rganishda xato qilish qo'rquvi mavjudligini ta'kidlash kerak. Ijobiy his-tuyg'ular va umumiy taranglikni kamaytiradigan zavqni hisobga olgan holda, talabalar auditoriyasida ishlash uchun kulgili va kulgili matnlarni tanlash maqsadga muvofiq va mos ekanligini isbotladi. Kulgili xarakterdagi matn bilan tanishish jarayonida ijobiy his-tuyg'ular tufayli talabalar umumiy psixologik stressni kamaytiradilar, matn bo'yicha vazifalarni bajaradilar, ular til materiallari bilan o'ynashni yaxshi ko'radilar, bu esa o'rganish natijalariga foydali ta'sir ko'rsatadi.

Shunday qilib, "joke" hazil matnlari ingliz tilini o'qitish va Oliy o'quv yurtlari talabalarida til-madaniy kompetentsiyani shakllantirish amaliyoti uchun katta lingvodidaktik salohiyatga ega. Bu "insonni ko'p madaniyatli dunyoda yashashga tayyorlash jarayonida tillar va madaniyatlarni birgalikda o'rganish" tendentsiyasi bilan bog'liq va talabalar "umumlashtirilgan madaniy tajriba" bilan tanishish imkoniyatiga ega va "o'zini tilda ob'ektivlashtiradigan" mentalitet bilan. Ingliz tilini o'qitish amaliyotida kulgili matnlardan foydalanish tilni o'rganishni lingvokognitiv tahlil, diskursiv tahlil, qiziqarli va g'ayrioddiy materiallar bo'yicha o'qitish bilan birlashtirishga imkon beradi, talabalarni tilshunoslik haqiqatlari, o'rganilayotgan mamlakatda nutq va ijtimoiy xulq-atvor xususiyatlari bilan tanishtiradi. Bu ularga chet tilidagi bilim, ko'nikma va malakalarning butun majmuasini o'zlashtirish va shu bilan talabalarni madaniyatlararo muloqot va millatlararo muloqotga tayyorlash imkoniyatini beradi.

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## ANTI-VIRAL ACTIVITY OF FLOUROQUINOLONES

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### ABSTRACT

*This article investigates the antiviral characteristics of fluoroquinolones, a group of antibacterial agents, against diverse viral pathogens. Research findings indicate that fluoroquinolones like ciprofloxacin, ofloxacin, and levofloxacin demonstrate effectiveness in managing infections caused by hepatitis C virus (HCV) and BK virus in individuals who have undergone organ transplantation. However, the therapeutic efficacy of these antibiotics may be constrained in patients with advanced liver cirrhosis. Furthermore, fluoroquinolones have exhibited inhibitory effects on viral replication in experimental laboratory settings.*

**KEYWORDS-** *fluoroquinolones, antiviral, HIV-AIDS, SARS-CoV-2, MERS-CoV, Hepatitis, influenza.*

### INTRODUCTION

Fluoroquinolones have exhibited promising antiviral capabilities against a diverse array of viruses; nevertheless, their efficacy is contingent upon the specific viral strain and the patient's clinical condition. To comprehensively comprehend the potential of fluoroquinolones as antiviral agents, further scientific inquiry is imperative.

Regarding their application in HIV-AIDS, fluoroquinolones manifest exceptional antibiotic efficacy alongside advantageous pharmacokinetic properties. Nonetheless, their extensive utilization has engendered the emergence of antimicrobial resistance. Fluoroquinolones exhibit heightened inhibitory activity against bacteria at elevated concentrations, thereby impeding bacterial proliferation.

Fluoroquinolones, such as ciprofloxacin, ofloxacin, and levofloxacin, exhibit antiviral properties against various viruses. Studies have shown that these fluoroquinolones are effective in treating single-stranded RNA HCV (hepatitis C virus). In patients with HCV-induced chronic hepatitis and compensated liver cirrhosis, ofloxacin treatment for one to eight weeks resulted in a decrease in HCV RNA levels. Similarly, ciprofloxacin treatment in patients with chronic HCV showed no significant change in HCV RNA levels. However, it is worth noting that the efficacy of anti-HCV fluoroquinolones may be limited in patients with advanced liver cirrhosis(1).

In transplant patients with active BK virus replication, gatifloxacin treatment led to a reduction in viremia for two months. Additionally, ciprofloxacin treatment in kidney transplant patients with persistent BK infection resulted in the complete clearance or significant reduction of the virus load. Fluoroquinolones have shown inhibitory effects on viral replication in laboratory settings.

Recent clinical studies suggest that fluoroquinolone treatment, specifically with ciprofloxacin, may be beneficial for polyomavirus BK infections in transplant patients. Furthermore, ofloxacin and levofloxacin have demonstrated inhibitory effects on the topoisomerase activity of the vaccinia virus. However, they do not exhibit the same effects on herpes simplex virus and influenza virus.

Quinolones, including levofloxacin, have been found to inhibit rhinovirus (RV) infection by targeting cellular functions necessary for viral replication. Levofloxacin pretreatment reduces the number of acidic endosomes involved in RV RNA entry into the cytoplasm. Moreover, it inhibits the activation of nuclear factor kB proteins, contributing to the overall reduction of RV infection. Levofloxacin achieves this by modulating airway inflammation and reducing ICAM-1 expression levels.

It is important to note that the antiviral efficacy of fluoroquinolones, apart from levofloxacin, has not been extensively studied in the context mentioned above.



Overall, fluoroquinolones have demonstrated promising antiviral activities against various viruses, but their effectiveness may vary depending on the specific viral strain and the patient's condition. Further research is needed to fully understand the potential of fluoroquinolones as antiviral agents.

### Fluoroquinolones in HIV-AIDS

Fluoroquinolones are highly effective antibiotics with many advantageous pharmacokinetic properties. However, their extensive use has led to the development of antimicrobial resistance. Fluoroquinolones exhibit greater inhibitory activity against bacteria at higher concentrations, which helps in inhibiting bacterial growth.

In the human body, when human lymphocyte CEM cell lines are infected with HIV-1, it results in cell death. However, fluoroquinolones protect the infected cells from HIV-1-mediated cytolysis.

Some examples of fluoroquinolones include ciprofloxacin, norfloxacin, and enoxacin.

Infection of human lymphocytes CEM cell lines with HIV-1 (Human Immunodeficiency Virus 1, LAV-1 strain) leads to cell death. The D-isomer of floxacin is approximately 50 times less effective than the I-isomer. Almost none of the rescued cells showed detectable HIV antigens. All surviving cells have lost the expression of the CD4 antigen. The rescued CEM and MT4 cells remain stable and do not require continuous drug expression for survival(2).

Care must be taken when using invitro drugs, including fluoroquinolones. Continuous vigilance is necessary to monitor adverse drug reactions in patients with HIV and AIDS.

Infection of human lymphocyte CEM cell lines with HIV-1 (Human Immunodeficiency Virus type-1, LAV-1 strain) leads to cell death. Ofloxacin, a fluoroquinolone antibiotic, has shown protective effects against HIV-1-mediated cytolysis in infected cells. Other fluoroquinolones such as ciprofloxacin, norfloxacin, and enoxacin also exhibit similar protection against HIV-1-mediated cytolysis. Furthermore, novel arylpiperazinyl fluoroquinolones have been reported(2).

In the study of structure-activity relationships (SAR), it was found that the aryl substituents on the piperazine nitrogen play a crucial role in the anti-HIV-1 activity. Several compounds demonstrated potent anti-HIV activity, with an IC<sub>50</sub> value of 0.06μM in chronically infected cells.

The risk of recurrent nontyphoid Salmonella (NTS) bacteremia and the trends of antimicrobial resistance in NTS among HIV-infected patients receiving highly active antiretroviral therapy (HAART) are currently unknown. In conclusion, the risk of recurrent NTS bacteremia has significantly decreased in the HAART era. However, NTS isolates obtained from HIV-infected patients are increasingly showing resistance to fluoroquinolones. Therapeutic drug monitoring of fluoroquinolones is beneficial in ensuring that maximum C<sub>max</sub>

to MIC ratios are achieved, particularly in patients at risk for malabsorption, such as those infected with HIV.

### Antiviral Activity against SARS-CoV-2 and MERS-CoV

Interferon Therapy in SARS, MERS, and COVID-19 Patients. COVID-19, caused by the novel SARS-CoV-2 virus, has become an epidemic, posing a significant burden on human health. Interferon (IFN) is a natural substance that helps the body's immune system fight against viral infections, particularly those caused by alpha and beta viruses. However, recent clinical trials have shown no benefits of IFN therapy in COVID-19(3).

SARS-CoV-2 (Severe Acute Respiratory Syndrome) is the causative agent of COVID-19 disease. It was first identified as infecting humans in 2019. The virus spreads from person to person through coughing and talking of infected individuals.

MERS-CoV-2 (Middle East Respiratory Syndrome) is an infectious and sometimes fatal respiratory illness. It is often transmitted through close contact with infected patients.

The role of fluoroquinolone drugs in COVID-19:

Fluoroquinolones have demonstrated antiviral activity against various viruses, including vaccinia virus, HSV-1, HSV-2, HCV, and HIV. Recent studies have indicated that fluoroquinolones such as ciprofloxacin and moxifloxacin may inhibit the replication of SARS-CoV-2 by exhibiting a stronger capacity for binding to protease compared to chloroquine and nelfinavir. Additionally, fluoroquinolones have shown multiple immune system modulatory actions, leading to a reduction in inflammatory response. Levofloxacin and moxifloxacin are considered effective therapeutic agents for managing pneumonia(3).

### Fluoroquinolones in hepatitis and influenza

Fluoroquinolones, such as ofloxacin, should be used as first-line treatment for cystic fibrosis. Cyclophosphamide and all other drugs, except for prednisolone, which was increased to 20mg daily, were discontinued. Prolonged hepatitis is rare, and the Committee on Safety of Medicines received 18 reports of liver disorders out of a total of 640 reports of adverse reactions to ofloxacin (personal communication with the Regional Drug and Therapeutic Committee). There have been a few case reports implicating ofloxacin in the induction of hepatitis among quinolones. Hepatitis C is an infection caused by a virus that attacks the liver. Fluoroquinolone antibiotics have antiviral properties against RNA viruses, including HCV. Hepatitis C is a common cause of chronic liver disease. Fluoroquinolones are effective antimicrobial agents in the treatment of conditions associated with liver failure, including portal systemic encephalopathy (PSE). They have also been reported to possess antiviral properties against both DNA and RNA viruses, including HCV(4).

Ciprofloxacin, ofloxacin, levofloxacin, and gatifloxacin have been found to be clinically effective in treating the single-stranded RNA HCV and the non-enveloped, encapsulated DNA polyomavirus BK.





## MECHANISM OF ACTION OF ANTI-VIRAL ACTIVITY OF FLOUROQUINOLONES

Fluoroquinolones, a class of antibiotics, exhibit antiviral effects against specific viruses. While they primarily target bacteria, their antiviral activity operates through various means. Here are several suggested mechanisms through which fluoroquinolones demonstrate their antiviral properties:

1. Inhibition of viral replication enzymes: Fluoroquinolones can impede the activity of viral enzymes responsible for replication. They might hinder viral DNA or RNA polymerases, crucial for viral reproduction. By obstructing these enzymes, fluoroquinolones hinder the virus's ability to multiply and disseminate.
2. Disruption of viral DNA synthesis: Fluoroquinolones disrupt the production of viral DNA. They can hinder the functioning of topoisomerases, enzymes engaged in DNA replication and repair. By interfering with topoisomerases, fluoroquinolones can cause DNA breaks, preventing efficient viral replication.
3. Modulation of host immune response: Fluoroquinolones may exert immunomodulatory effects, influencing the host's immune response to viral infections. They can impact the production and release of various cytokines, essential signaling molecules in immune responses. By regulating cytokine levels, fluoroquinolones potentially modulate the immune system's ability to combat viral infections.
4. Indirect antiviral effects: Fluoroquinolones can indirectly exhibit antiviral effects by targeting bacteria that can worsen viral infections. In certain cases, bacterial infections contribute to the severity or complications of viral infections. By eliminating or controlling bacterial infections, fluoroquinolones indirectly improve the outcome of viral infections.

## CONCLUSION

In conclusion, fluoroquinolones demonstrate significant potential as antiviral agents, exhibiting promising efficacy against a variety of viral pathogens. However, further extensive investigation is necessary to comprehensively grasp their effectiveness and determine their specific effectiveness against diverse viral strains and varying patient conditions. This research should delve into the intricate mechanisms through which fluoroquinolones interact with viral targets and investigate their impact on viral replication and infection. Moreover, studies should encompass a wider range of viral strains and patient cohorts to establish the universality of fluoroquinolones' antiviral properties. By deepening our understanding of the potential advantages and constraints of fluoroquinolones in combating viral infections, we can enhance the advancement of efficacious treatment strategies and optimize patient outcomes.

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# TECHNOLOGY FOR THE DEVELOPMENT OF SPIRITUAL AND SOCIAL COMPETENCES IN ELEMENTARY CLASS TEACHERS

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## ABSTRACT

*In the article, the issue of improving the technologies for developing the spiritual and social competences of future primary school teachers is separately studied. Forms, methods and means of developing spiritual and social competences of future elementary school teachers have been revealed.*

**KEYWORDS:** *teacher, spirituality, competence, social competence, culture, national heritage, religious teaching, society, family, technology.*

## INTRODUCTION

In today's conditions of rapid development of globalization and information and communication technologies, Uzbekistan is strengthening the youth policy and expanding the scope of the work being carried out. We consider preserving and strengthening our independence as the greatest goal. As the President of the Republic of Uzbekistan Sh.M. Mirziyoev said: "If the body of society's life is the economy, then its soul and spirit is spirituality. As we decided to build a new Uzbekistan, we rely on two strong pillars. The first is a strong economy based on market principles. The second is a strong spirituality based on the rich heritage of our ancestors and national values.

In order to find a practical solution to the spiritual problems of primary school teachers, the need to introduce modern educational standards, scientific justification of family relations and find solutions to problems in the higher education system has become stronger. Based on ethno-pedagogical and psychological experiences, improvement of social competencies based on innovative approaches is a current topic being studied by a number of developed countries. Systematic works are being carried out. In developed countries, it is important to carry out scientific research on the formation of the educational process aimed at the development of spiritual and social competences, socialization, needs and opportunities of primary school teachers.

Just as pedagogical technologies are necessary in the field of education, it is so important to organize the educational process on a technological basis in the formation and development of spiritual culture. Updating the content of education based on the requirements of the times is one of the important tasks facing the science of pedagogy. In this regard, educational technology is of great importance. In addition, special attention is paid to the competence of the most important factors that shape and enrich students' independent thinking, creativity, spirituality, worldview through educational technology. The peculiarity of pedagogical

technologies to the educational process is an innovative approach.

A number of tasks have been defined in the qualification requirements for the professional activities of future pedagogues, as well as in their spiritual and educational activities. In particular, to be able to plan spiritual and educational work, master the methodology of its organization, inculcate the idea of national independence in the minds of students; to know the methods and technologies of creating immunity against ideological and informational attacks in students; carrying out explanatory work on the role and impact of information and communication technologies in the processes taking place in the context of globalization; conducting individual conversations on issues of spiritual and moral education in neighborhoods; it is said that when conducting national customs and ceremonies, one should have the ability to reveal high human qualities such as universal values, kindness, tolerance, patriotism, loyalty, and this is the teacher's social competence.

In particular, paying attention to the problem of social competence development in future pedagogues as a pedagogical problem improves the competent approach in the educational process in higher educational institutions. This requires clarifying the essence of social competence through the concepts of "competence" and "competence".

## LITERATURE REVIEW

In 1996, the "Core Competencies for Europe" symposium held by the Council of Europe in Bern identified the following 5 important competencies of modern graduates.

These are: political and social competences (taking responsibility, participating in decision-making, being able to resolve conflicts without violence); competencies of living in a multi-ethnic society (accepting differences without passion, respecting others, interacting with representatives of other cultures); able to communicate orally and in writing in one or more languages; competencies of living in an information society (knowledge of new technologies, ability to use them,



information distributed through mass media, critical attitude to advertisements);

The ability of independent self-education in the context of lifelong learning.

Modern professional education focuses on the formation of a new value system in future specialists. At its center, according to G.P. Shedrovskii, is "an individual based on free communication, able to change the way of life and forms of communication based on communication, and having the principle of social responsibility."

In dictionaries, the concept of "competence" comes in several meanings. In particular, those who have a certain competence, i.e., who can perform the functions related to the law, to the problems and situations that arise in the activity of an organization or person: *competentia* (lat.); means a qualified official who can answer a certain set of questions. In the dictionary "Pedagogicheskiy slovar-spravochnik" published by E.A. Seytkhalilov, B.Kh. Rakhimov, I.U. Madjidov, the term "competence" is defined as "the possession of knowledge, awareness in a certain field", and the word "competence" is defined as "knowing the answers to certain questions well" person", or "circle of people who have the right to do something", is interpreted as.

When it comes to the ratio of "competence" and "knowledge", scientists N.A. Muslimov, M.H.Usmonboeva, D.M.Sayfurov and A.B. Toraev, who researched the foundations of pedagogical competence and creativity, believe that competence arises as a result of learning (practice), and competence arises in activity. who put forward a harmonious view that it is manifested in the use of theoretical knowledge, high-level professional competence, skill and talent.

In our country, scientific and methodical research aimed at improving the professional activity and competencies of pedagogues-teachers is being carried out. For example, MB Bekmurodov, a pedagogue of the Republic of Uzbekistan, stated that competence is defined as the ability of a specialist to mobilize his knowledge, skills and generalized methods of actions. Basic competencies ensure the universality of the pedagogue-specialist and therefore cannot be deeply specialized. A specialist demonstrates his competencies only in his work, in a specific situation. Undemonstrated competencies, on the other hand, indicate that they exist as a potential opportunity.

Researchers I.A.Zimnyaya distinguished between the categories of "competence" and "competence" in terms of content. That is, competence is a set of procedural and valuable substantive knowledge about a certain subject, and competence is a case category that characterizes the "application of knowledge - the implementation of competence", that is, the ability of an individual to operate in a certain professional situation. I.A.Zimnyaya emphasizes that such competencies arise from the characteristics of the social sphere and the interdependence of people as a person, a subject of activity.

In the book "General and Professional Pedagogy" by V.D.Simonenko, a special place is allocated to social competences, and it is defined as "harmonization of intercultural and intersectoral knowledge, skills and

qualifications of a specialist in production activities in various professional communities"[9].

According to research scientist N. Muslimov, competence is expressed by the student's acquisition of knowledge, skills and abilities necessary for the implementation of personal and socially significant professional activities and their ability to apply them in professional activities. In this place, the essence of the concept of "competence" is fully revealed, it is manifested in the following two forms: competence as a set of personal qualities of students and basic requirements of the professional field.

The analysis of the above definitions shows that, along with skills and abilities (activity components), social competence includes cognitive components (understanding, expression, analysis, etc.), as well as personality qualities.

## DISCUSSION AND RESULT

The analysis of the conceptual views of the competence-based approach in the field of education shows that in social pedagogy "the ability to "consciously" and realize their social-pedagogical potential in interaction with other people, strengthening the family, family relations and raising children" counts".

In this regard, we consider N. Yu. Rajinov's opinion that the main indicator of social competence is assertiveness, i.e. self-confidence (distrust) of a person. In psychological literature, the concept of "competence" is interpreted in connection with the characteristics of behavior, the dominant form of personal activity, and the current level of knowledge about life activities. At the same time, the psychological understanding of the nature of competence is mainly focused on the defined personal quality - quality.

First, social competence is a complex socio-pedagogical phenomenon formed in a complex of social, psychological and pedagogical sciences. In this case, the social competencies of the future pedagogue are the basis of his successful activity. Because it ensures a sufficient selection of social actions and the effectiveness of performing social roles specific to the individual. Taking into account the social nature of pedagogical activity, social competence is the basis of a teacher's professional competence.

Secondly, the purpose of forming social competences in the teacher is to form his vital position towards the world around us: to the Motherland, people, living and inanimate nature, material and spiritual values - to develop human relations. Social, political, spiritual, educational, economic, aesthetic values and self-development are the essence of social competence development.

Thirdly, in order to effectively develop social competence in pedagogues, it is necessary to study the socio-cultural environment, family, and collective relations of students.

Fourthly, the transformation of this process into an open socio-pedagogical system, the high professional level of professors and the social and moral environment in the higher educational institution are of great importance in the development of social competence.

Fifth, in the development of social competence in future pedagogues, it is necessary to describe the life values of



students, openness, gentleness, tolerance, mutual affection, consequentiality, civic virtues, moral qualities, life goals, national ideals, motivations for choosing a profession, one's own it is necessary to take into account such factors as self-education, level of social adaptation and socialization, social mobility and activity.

Competencies considered necessary for competitive, modern educated and highly moral specialists today include social, communicative, social-informational, cognitive and special competencies. In this, the leading role of social competences is recognized.

Along with the development of social competences of future teachers in pedagogical higher education institutions, scientific researches were conducted by scientists of various fields on the problem of developing the spiritual culture of future teachers, but the issue of improving the technologies of developing the spiritual culture of future teachers is a special issue. not researched.

Educational technology has its own characteristics of setting educational goals. Educational technology is a system based on a number of pedagogical tools, forms, and methods aimed at solving specific educational tasks. There is an adequate educational technology for finding a solution to each task, and as the task changes, so does its technology. In this case, the goals of education are determined by the results expressed in the actions of students, which are clearly visible and grow.

The reason for the implementation of educational goals in educational technology is based on the education of emotions in a person, so it is somewhat difficult to achieve a specific goal. The unique feature of the educational technology is that the educational process is designed and implemented in order to achieve the guaranteed result of educational goals. In this case, the teacher's activity is directed to a specific goal.

Orientation to the goal, diagnostic examination of the educational process, dividing the educational process into parts that have a special effect, improving it, allows to achieve high results by spending less time. It accelerates the process of turning students from passive activities into active subjects. Planning the organization of educational influence on a technological basis requires a high qualification from the pedagogue. After all the prepared materials are ready, the pedagogue mainly performs organizational and consultative tasks.

Educational technology that serves the purpose of developing spiritual culture includes the following:

- development of educational goals;
- turning educational goals into control tasks;
- systematization of educational goals implementation;
- ways to achieve the goal;
- evaluation of the achieved goal.

Formation of the pedagogical process in educational technology and

organization is based on the following principles:

- the principle of holistic approach to education;
- the principle of continuous education;
- the principle of targeting education;

- joint activities of pedagogues and educators.

Each of these components constitutes a system of applying pedagogical situations in a certain direction. The process of education is a continuous process and is formed in the family, neighborhood, school, and university. Focusing on a clearly defined goal in the educational technology, regular interaction with the pupil and the student should form the basis of the educational technology and fully cover the educational process.

Understanding educational technologies and creative approach to it, effective use of organizational forms, means and methods of education and its management depends on the teacher's methodological preparation. This requires the introduction of the technology of the educational process. Because in today's period of development, it is possible to create educational technology and use it in the education of the young generation, to encourage them to creative activities, and achieve high results.

Ensuring the continuity of education and organizing it in the form of a system is one of the main issues in educating young people, who are the future of our country, as well-rounded people.

Also, by paying more attention to extracurricular and extracurricular activities organized in continuous education, the continuity of the educational process is achieved. The task of extracurricular activities is not only to keep young people busy, but it is more complex, that is, to strengthen their knowledge acquired in lessons, to arouse their interest in our national values, and to fill their lives with joy and excitement. The task of the class teacher is responsible and important in the organization of educational work, just like in the course of the lesson. Based on the above, we recommend using the following educational methods based on our experience in education: "Conflict method", "Round table", "Three-stage interview", "Communication training", "Problem solving method", "Pen between the table", "Rolling the gallery", "Academic debate", "Snowstorm", "Swarm of bees", "Critic analysis of the situation" and others.

To work with these technologies, it is necessary to form groups of several people, to create a situation of trust, to eliminate psychological tension that interferes with open discussion. These technologies are aimed at expanding the scope of thinking, avoiding existing limitations, developing thinking, and accelerating educational activities. The purpose of these technologies is to attract students and students more and allow them to learn from each other.

## ADVANTAGES OF SUCH TECHNOLOGIES

1. Allows students to share their ideas and thoughts more.
2. In small groups, students can express opinions that are different from what they can express in large groups.
3. By sharing experiences and thoughts, students expand their worldviews and thoughts and change existing approaches.
4. Moves the focus of attention from the teacher (pedagogue) to the participants.
5. Makes students take more responsibility for education.





When introducing innovations into the educational process, it is necessary to pay attention to the following when creating a motivational component in students:

- explaining the need for educational influence and skills;
- creating a sense of personal responsibility;
- arousing and maintaining the interest of the participants during the process;
- explaining how the acquired experiences can be used in life;
- approval, recognition, encouragement;
- healthy competition;
- to allow communication about how students can achieve success in the future from the learned experiences;
- creating a listening opportunity;

The main goal of today's educational system is to prepare students for independent life, to teach them to think creatively, and to educate them to be high-level thinkers. In general, in the educational system, its programs, content, and standards are improving. Such rapid changes require the creation of a unique technology of education, student education.

Only a skilled teacher with high competence can do such speed. As the main goal of today's innovative projects "Learning-Teaching", "Ustoz-Shogird" is to provide education to the modern highly cultured generation, this can only be done by a skilled pedagogue with intellectual potential, knowledge, skills and qualifications.

But we hear opinions that the introduction of educational technologies is lagging behind. It is necessary that the educational, educational and developmental goals of the lesson should be integrated, one complementing the other. In the process of education, there is a need to gradually assimilate students with national education, that is, the rich cultural heritage, national values, and achievements of the Uzbek people through educational technologies. The teacher must follow the following pedagogical requirements when organizing educational activities:

- suitable for the student's age and mental state;
- serves to strengthen the knowledge acquired in the lesson;
- organization based on specific goals and plans;
- through the event, moral qualities such as community, organization, mutual help should be formed in primary school students.

## CONCLUSION

In conclusion, it should be said that social competence is a newly emerging generalized socially interconnected quality of a person, which is necessary for the successful performance of social roles and effective functioning in society and this society. Accordingly, social competences of a future pedagogue mean necessary and effective qualities during professional pedagogical activity, social pedagogical and social psychological knowledge, skill, skill, and method of activity. The competence approach shows the need to introduce it as a methodological component in determining the content of pedagogical education programs.

The work of future teachers is essentially social, and that is why social competences are at the top during their work. Based on this, it can be said that social competence is created on the basis of professional pedagogical competence and forms a priority component of the student's personal qualities model, which includes individual personal characteristics. The use of modern information and communication technologies in the educational process, increasing the efficiency of modern educational methods, changes the work of teachers-educators, improves their work methods, and leads to educational changes in the pedagogical system. This sets specific tasks in the organization and management of informationalization of spiritual and educational processes. In this process, the purposeful educational activities and their continuous diagnosis will have a positive effect. On the basis of new pedagogical technologies in the continuous education system, it is considered appropriate to start the work of educating young people in the spirit of the idea of national independence. The effectiveness of these, the entire educational process in the continuous education system is aimed at one goal - ideological education of students, education of a well-rounded generation that serves to strengthen independence. This will help determine the level of spiritual maturity of future teachers.

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# BORROWED TERMS IN THE UZBEK TERMINOLOGICAL SYSTEM OF OIL AND GAS ENGINEERING

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## ABSTRACT

*This research paper focuses on the borrowings in the terminology systems of petroleum engineering in the English and Uzbek languages. The article examines the principles of formation and use of technical lexemes in the professional discourse of the oil and gas industry, including active participation of syntax and word-building resources of each language, translation of terms, and unification of achievements of general scientific and professional fields. Besides, we made analysis in the various aspects of borrowing such as the linguistic nature, causes, types and methods, ways of penetration of borrowed words, sources, and chronology of borrowing. The research employs transliteration and qualitative and quantitative analysis to identify the features of borrowed terms by their morphological, lexical, and semantic points of view. The findings illustrate that some terms in the Uzbek language were borrowed from English, Russian, while in English, loaned from other languages as well.*

**KEY WORDS:** technical lexemes in professional discourse of the oil and gas industry, English and Uzbek languages, transliteration, borrowed words.

## 1. INTRODUCTION

In every language, there are an increasing number of loan words which could increase the word range of the dictionary, having borrowed from other languages. Additionally, linguists and local people of different languages, cultures, and traditions could employ loan words in society as well as members or representatives of all spheres of science often deploy them in written and spoken contexts as well. According to the statement of linguists (Samigullina L. Z, Samigullina E. F, Danilova, O. V, Latypova I. A. 2019) scientific and technical progress and improvement of oil and gas production process developing various semantic processes in terminology, complicate them, contribute to the formation of complex terms, borrowing of foreign terminological units. J. Waterman (1976) stated that languages influence each other in the exchange of words because much is made about the contemporary borrowing of English words into other languages, the large-scale of words from Latin, French and other languages have been borrowed into English in the 16th and 17th centuries was significantly high. Some terms have borrowed so much that they have become scarcely recognizable (Waterman 1976, p. 4). In the Uzbek language, lots of technical and semi-technical words were formed from other languages, such as English, especially by transliteration. We researched the issues of the formation of new words from other languages in the terminological system of English and Uzbek petroleum engineering. As a result, statistical analysis illustrated that a lot of technical and semi-technical terms of the Uzbek language were borrowed from English, Russian but in English from other languages as well.

## 2. LITERATURE REVIEW

Any specialization consists of a lot of terminology that characterizes different terms with a variety of meaning and functions in workplaces. Any sphere of study comprises means of transportation, technology, tools and chemical compositions. The terminology system of petroleum engineering includes means of transportation, tools, devices and chemical compositions, and others Terminology can provide a learner with a full realization of the specialty. The terminological system of petroleum engineering comprises a wide range of means of objects naming them in different ways. While comparing terminology of oil and gas industry we could find out that there is a good deal of terms in Uzbek borrowed from English and Russian languages (X. Abdinazarov. 2023).

The terminological system of any language belongs to each other because of borrowing words from one another. Samigullina L. Z, Samigullina E. F, Danilova, O. V, and Latypova I. A. (2019) claimed that the formation and use of lexemes in the professional discourse of the oil and gas industry are based on the following principles: 1) active participation of syntax and word-building resources of each language - reliance on their language means: from single-word root words to affix lexemes, the latter is predominant; 2) translation of terms (loan translation); 3) unification (synthesis of achievements of general scientific and professional - chemistry, physics, mathematics, geology, electrical engineering, hydraulics, mining, etc. Additionally, the borrowing objects are terms, and language units, reflecting the cultural characteristics of a particular ethnic community (culture-specific, connotative vocabulary). The most important



motive for borrowing is the fact that another language can be a source for acquiring values, achievements, or lifestyle. Furthermore, Sebastian (2009) pointed out that borrowing is a common outcome of prolonged language contact in which elements of one language are incorporated into another language; these elements can range from the level of individual sounds to larger morphological or syntactic structures». However, Gulzhan Doszhan (2015) claimed that borrowed words are gradually converted in compliance with their phonetic, morphologic and lexical regularities and brought into line with the system of language as a whole, i.e. they are exposed to the process of adoption, and assimilation. What's more, he stated that scientific-and-technological progress, cultural and educational achievements of one nation as a rule, gradually become the achievements of other nations. When communicating in sharing information, certain linguistic elements, mostly lexical ones, are exchanged inevitably as Lexical changes of various intensities occur in different periods of language development. Samigullina L. Z., Samigullina E. F., Danilova, O. V., Latypova I.(A. 2019) did a research in the system of borrowing words as followings;

1) Interlingual, or external borrowing: the term is borrowed from another national language;

2) Borrowing from the literary language (domestic borrowing): 'well' in English is a narrow and deep pit for taking water from the aquifer and an oil well, that is considered as the formation of lexical-semantic words;

3) Intersystem borrowing from various terminological systems: flow rate – an accounting term used in the oil industry (well flow rate). In this case, terms with the same meaning function in different terminological systems or are homonyms.

Besides, there are more aspects for borrowing;

- linguistic nature of borrowing;
- causes;
- types and methods of borrowing;
- ways of penetration of borrowed words;
- sources and chronology of borrowing;
- phonetic, grammatical, lexical, semantic, stylistic, syntactic, phraseological means used for learning foreign words;
- classification of borrowed words.

### 3. RESEARCH METHODS

In studying terms, especially, a terminological system of English and Uzbek petroleum engineering, we used some methods such as transliteration and did a qualitative and quantitative analysis in finding out the features of borrowed terms from their morphological, lexical, and semantic points of view. We employed corpus-based analysis, having looked through dictionaries, literature, instructions, journals, and newspapers to collect borrowed words within two languages comparatively.

Terms borrowed from English into Uzbek by transliteration and phonetic features;

**Table 1**

№	Terminology (words) of English petroleum engineering	Uzbek	Variations
1	Hydro	Gidro	h-g
2	Methane	Metan	Th-t
3	Propane	Propan	E
4	Butane	Butan	E
5	Ethane	Etan	Th-t
6	Hydroelevator	Gidroelevator	h-g
7	Geophone	Giofon	Ph-f
8	Gravimeter	gravimitr	Meter-mitr
9	Barrel	Barrel	-
10	Viscometer	Vizkozomitr	s-z/c-k
11	Technician	Texnik	Ch-x
12	Seismic	Seysmik	i-y
13	Geologist	Geolog	Gist-og
14	Ethylene	Etilin	Hy
15	Plastic	Plastik	C
16	Asphalt	Asfalt	Ph-f
17	Crane	Kran	c-k
18	Vibrator	Vibrator	-
19	Hydrophones	Gidrofonlar	Hy-gi
20	Electrical signals	Elektr signallar	Ical-tr, s-lar
21	Rotary	Rotorli	y-li
22	Platform	Platforma	-
23	Generator	Ginirator	e-i
24	Bitumen	Bitum	En
25	Naphtha	Nafta	Ph-f, th-t
26	Kerosene	Kirosin	e-i
27	Diesel	Dizel	Ei-i
28	Nylon	Nilon	Y-i





29	Gas	Gaz	s-z
30	Magnetometer	Magnetomitr	Meter-mitr
31	Chromatograph	Xromatografiya	Ch-x, ph-f
32	Corrosive	Korroziya	c-k, s-z
33	Meter	Metr	-
34	Compressor	kompessor	c-k
35	Panel	Panel	-
36	Monometer	Monometr	Meter-mitr
37	Hydroblock	Gidroblok	Hy-gi, ck-k
38	Injector	Injektor	c-k
39	Tanker	Tankir	-
40	Hydrodynamic	Gidrodinamik	Hy-gi, dy-di, c-k
41	Deformation	Deformatsiya	Mation-matsiya
42	Polyethylene	polietilin	y-I, th-t
43	Cation	Kationlar	c-k
44	Coagulator	Koagulator	c-k
45	Propylene	propolin	Py-po
46	Butylene	Butilin	Ty-ti
47	Gas generator	Gazginirator	s-z
48	Lithological	litologik	Th-t
49	Hydroperforator	Gidroperfirator	Hy-gi
50	Tectonic	Tiktonik	Te-ti

What's more, a lot of words were borrowed from Russian language as well by transliteration;

**Table 2**

№	Terminology of Russian petroleum engineering	Uzbek	Variations
1	Нефть	Нефт	ь
2	Нафтовый кислоты	Нафтен кислоталари	овый
3	сейсмический	сейсмик	мический
4	нефелин	нефелин	-
5	Нефелометр	Нефелометр	-
6	Нефрит	Нефрит	-
7	Николь	Николь	-
8	Нефтяной кокс	Нефтли кокс	-
9	Конденсатор	Конденсатор	-
10	Паз ротора	Паз ротора	-
11	Полимер	Полимер	-
12	Газовый ключ	Газли ключ	-
13	Газоконденсат	Газоконденсат	О/и
14	Мазут	Мазут	-
15	Солярка	Солярка	-
16	Бензин	Бензин	-
17	Дизель	Дизел	-
18	Парафин	Парафин	-

The corpus-based analysis illustrated that the borrowing process happened by transliteration between English and Uzbek, and Russian and Uzbek languages. In the past years, according to the linguist (Doniyorov. 1977), the technical language and dictionary of the Uzbek language are enriched from borrowed terms, especially, from Russian. There are an increasing number of technical terminology such as oil and gas ones loaned from English. Additionally, table 1 showed that the terminology of petroleum engineering was borrowed from English into Uzbek mostly by transliteration which means forms and the meaning of the words are the same. Moreover, table 1 indicated that the terms in the English system of the oil and gas industry deployed in the Uzbek terminological system of that field are enormous and even without form changes too.

Table 2 depicted that some terminology (words) were also borrowed from Russian terminological system of oil and gas into Uzbek terminology of oil industry. As a result, the qualitative analysis showed that terms occurring in the English system of petroleum engineering can be employed in the Uzbek system of the oil and gas industry by transliteration. It is a fact that even the meaning of the terms can be used without any changes.

#### 4. CONCLUSION

At present time, there are a lot of languages in the world, that can be used international or in some domains without any changes. In particular, words can be deployed within two



terminological systems; English and Uzbek by transliteration. Even changing the letters of the technical word promote the creation of a new terminological system of other languages. We carried out research focused on corpus-based analysis. The collected data showed that there are a lot of terminologies in the Uzbek system of the oil and gas industry which borrowed from English and are still being deployed in that field of expertise.

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# INTERPLAY OF ORGANIZATIONAL COMMITMENT AND ORGANIZATIONAL CHANGE CAPACITY: THE CASE OF THE NUEVA VIZCAYA STATE UNIVERSITY FACULTY AND STAFF

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This study was focused mainly in the description and analysis of the organizational commitment and organizational change capacity of faculty and staff of the Nueva Vizcaya State University by utilizing both quantitative and qualitative research design.

Questionnaires were adapted in the collection of salient data and results were verified through interview or triangulation method. Using appropriate statistical tools, it also looked into the significant difference in the perceived organizational commitment and organizational change capacity of the respondents when they are grouped according to campus geographical location, and the established significant correlations between the two main research-constructs as perceived by 115 faculty and staff serving as respondents of this study. Review of related studies conducted revealed that there are few researches conducted along the variables in this study among higher education institutions in the country. Using both quantitative and qualitative research design, results of the study revealed that there is a strong organizational commitment and organizational change capacity as perceived by the respondents. Moreover, there is no significant difference in the perceived organizational commitment and organizational change capacity of the respondents when they are grouped according to campus geographical location. The researcher also found out that there is a significant correlation between the perceived organizational commitment and organizational change capacity of the respondents. A training design was developed to enhance or sustain the respondents' manifestation of their organizational commitment and organizational change capacity.

This study looked into the organizational commitment and organizational change capacity of employees of the Nueva Vizcaya State University. Specifically, this study answered the following problems:

1. How do the faculty and staff of the Nueva Vizcaya State University perceived their organizational commitment

along the dimensions of affective, continuance, normative, and alienative?

2. How do the respondents perceived their organizational change capacity along the dimensions of (a) understanding and acceptance of different change approaches (b) enhancing willingness and ability to change, (c) building a change-supportive infrastructure, (d) providing appropriate resources, (e) creating a change-facilitative culture, and (f) ensuring ongoing strategizing.
3. Are there significant differences in the respondents' level of organizational commitment and organizational change capacity when grouped according to campus geographical location?
4. Is there a significant correlation between the perceived organizational commitment and organizational change capacity of the respondents?
5. Based on the significant findings of the study, what intervention program could be developed to enhance or sustain the organizational commitment and the organizational change capacity of the respondents?

The main objective of this research investigation is to look into the organizational commitment and organizational change capacity of the faculty and staff of the Nueva Vizcaya State University. Specifically, this study will also look into the following:

First, it will determine the prevailing commitment of the respondents along the dimensions of affective, continuance, normative, and alienative.

Second, it will look into the organizational change capacity of the employee-respondents along the dimensions of (a) understanding and acceptance of different change approaches (b) enhancing willingness and ability to change, (c) building a change-supportive infrastructure, (d) providing appropriate resources, (e) creating a change-facilitative culture, and (f) ensuring ongoing strategizing.



Third, It will determine if there is a significant difference in the perceived organizational commitment and organizational change capacity of the respondents when they are grouped according to campus geographical location.

Fourth, it will establish the correlation of organizational commitment organizational change capacity as perceived by the respondents.

Finally, based on the salient findings of the study, the researcher will develop an intervention program that will enhance or sustain the organizational commitment, and organizational change capacity of the respondents.

The following are the significant findings of the study:

1. The respondents perceived to have a moderately high organizational commitment as shown by the 2.97 computed overall mean. The dimensions of organizational commitment like affective, continuance, normative, and alienative were all measured as moderately high as shown by 3.16, 2.77, 3.00, and 2.93 computed area means respectively.
2. The respondents have a somewhat high capacity for organizational transformation as shown by the 2.86 computed overall mean. They have a moderately high perception of facilitative culture (2.88), supportive infrastructure (2.84), different changes approach (2.85), ongoing strategizing (2.83), sufficient resources (2.87), and willingness and ability to change (2.91).
3. When respondents are categorized by the location of their school, there are no appreciable differences in their perceptions of organizational commitment. as shown by the computed t-value of 0.09 is lower than the critical t-value of 1.98 for 113 degrees of freedom at 0.05 level of significance. Furthermore, when respondents are categorized according to the location of their campus, there are no discernible differences in their perceptions of their ability to effect organizational change. since the computed t-value of 0.84 is lower than the critical t-value of 1.98 for 113 degrees of freedom at a 0.05 level of significance.
4. There is a strong positive correlation between the perceived organizational commitment and organizational change capacity of the respondents which is considered to be very significant as shown by the computed r-value of 0.627 which is higher than the critical r-value of 0.154 at 0.05 level of significance for 113 degrees of freedom.
5. A training design was prepared by the researcher purposely to enhance the organizational commitment of the respondents, and to strengthen their existing organizational change capacity. The training design was intended for the faculty and staff of the university and it was developed based on the items which were perceived by the respondents as "sometimes" manifested by them in the case of organizational commitment and organizational change capacity which was considered by the researcher as weaknesses needing improvement.

Based on the significant findings of the study, the following conclusions were obtained:

1. The respondents perceived to have a moderately high organizational commitment
2. Their organizational change capacity is moderately high
3. There is no significant difference in the perceived organizational commitment and organizational change capacity of the respondents when they are grouped according to campus geographical location
4. There is a strong positive and significant correlation between the perceived organizational commitment and organizational change capacity of the respondents.
5. A training design was prepared by the researcher purposely to enhance the organizational commitment of the respondents, and to strengthen their existing organizational change capacity.

In the light of the foregoing significant findings and conclusions in this study, the following recommendations are offered:

1. Respondents of the study perceived that they have a very strong organizational commitment, therefore a need to sustain this by institutionalizing seminars and pieces of training is recommended.
2. Strengths and weaknesses identified from the dimensions of organizational change capacity could serve as the basis for developing programs and activities at the campus level for the professional development of faculty and staff aside from attending seminars and training at the national and international level to be funded by the university.
3. Further studies should be conducted among the faculty and staff of other universities in the region using the same instruments to cross-validate the findings of this research work and enhance the veracity of the data gathered.
4. Future researchers in the field of organization development and planning are encouraged to conduct an in-depth investigation and triangulation method along with factors that have a significant effect on the variables considered in this research investigation.
5. The developed intervention program should be funded and integrated as a regular activity of the Nueva Vizcaya State University.

Key words: organization, organizational commitment, organizational change





# LEADERSHIP STYLES OF ENVIRONMENT AND NATURAL RESOURCES OFFICERS IN NUEVA VIZCAYA: ITS CORRELATION WITH PERSONNEL'S JOB SATISFACTION AND PERCEIVED ORGANIZATIONAL SUPPORT

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This study was conducted to determine the leadership styles of Environment and Natural Resources Officers in Nueva Vizcaya and their relationships to the personnel's job satisfaction and perceived organizational support. The study was conducted during the school year 2020 – 2021.

Specifically, it aimed to determine how the employees of the Department of Environment and Natural Resources (DENR) in Nueva Vizcaya perceive the leadership styles of their Environment and Natural Resources Officers along transformational, transactional, laissez-faire, autocratic, democratic, coaching, strategic, charismatic, visionary, cross-cultural, team and facilitative; to determine how the respondents assess their level of job satisfaction according to pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, coworkers, nature of work, and communication.

Also, it aimed to determine how the respondents assess their perceived organizational support; to find out if there is a significant relationship between the leadership styles of Environment and Natural Resources Officers and the respondents' perceived job satisfaction; to find out if there is significant relationship between the leadership styles of Environment and Natural Resources Officers and the perceived organizational support of the respondents.

Furthermore, it aimed to find out if the respondents' perceptions of their job satisfaction relate significantly to their perceived organizational support; and to craft an organization development and planning intervention, based on the significant findings of the study, that could heighten the job satisfaction, perceived organizational support, and leadership styles of DENR in Nueva Vizcaya.

The study sought answers to the following specific questions:

1. How do the respondents of DENR in Nueva Vizcaya perceive the leadership styles of their Environment and Natural Resources Officers along transformational, transactional, laissez-faire, autocratic, democratic,

coaching, strategic, charismatic, visionary, cross-cultural, team and facilitative?

2. What is the respondents' level of job satisfaction according to pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, coworkers, nature of work and communication?
3. What is the respondents' perceived organizational support?
4. Is there a significant relationship between leadership styles of Environment and Natural Resources Officers and the respondents' perceived job satisfaction?
5. Is there a significant relationship between leadership styles of Environment and Natural Resources Officers and the perceived organizational support of the respondents?
6. Do the respondents' perceptions of their job satisfaction relate significantly with their perceived organizational support?
7. Based on the significant findings of the study, what organization development and planning intervention could be evolved to heighten the job satisfaction, perceived organizational support, and leadership styles of DENR in Nueva Vizcaya?

The overall aim of the study was to investigate the correlation of leadership styles of Environment and Natural Resources Officers in Nueva Vizcaya with personnel's job satisfaction and perceived organizational support.

The following sub-objectives were drawn from the overall aim of the study:

1. To identify respondents' perceptions of their leaders' styles;
2. To determine the respondents' level of job satisfaction according to pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, coworkers, nature of work and communication;



3. To identify the respondents' perception of their organizational support;
4. To examine the relationship between the leadership styles of Environment and Natural Resources Officers and the respondents' job satisfaction;
5. To examine relationship between the leadership styles of Environment and Natural Resources Officers and perceived organizational support of the respondents;
6. To examine if the respondents' perceptions of their job satisfaction relate significantly with their perceived organizational support;
7. To identify organization development and planning intervention could be worked out to heighten the job satisfaction and enhance the organizational support of DENR personnel in Nueva Vizcaya.

To achieve the above objectives, the study used the descriptive-correlation type of research method through a structured questionnaire and qualitative approaches to gathering pertinent data required in the study involving 77 respondents. The data were analyzed using descriptive statistics and Pearson  $r$  to determine the relationships between the variables at a 0.05 level of significance.

The results of the study revealed the following:

**Leadership Styles of Environment and Natural Resources Officers.** The most adopted and commonly practiced leadership styles include transformational (3.36 or very good), transactional (3.34 or very good), and coaching (3.44 or very good); while the three (3) leadership styles least adopted by the Environment and Natural Resources Officers of the DENR include Laissez-faire (3.06 or good), Cross-cultural (3.16 or good) and Autocratic (3.27 or very good).

**Job Satisfaction of DENR Personnel.** The level of job satisfaction of the DENR personnel in Nueva Vizcaya, when measured along the nine (9) variables, is described with a mean of 2.02 or qualitatively categorized as low.

**Organizational Support.** The organizational support or the commitment to how much the organization cares for the welfare of the DENR personnel was described with a mean of 1.93 qualitatively described as low.

**Relationship Between Leadership Styles and Job Satisfaction.** After carrying out the correlational procedures, the overall level of job satisfaction of the respondents significantly correlated with the leadership styles of the Environment and Natural Resources Officers with a computed Pearson  $r$  of 0.355 corresponding to a  $p$ -value of 0.017 which is less than the critical  $p$ -value of 0.05, meaning the hypothesis is accepted along with this domain.

**Relationship Between Leadership Styles and Organizational Support.** The leadership styles of the Environment and Natural Resources Officers correlated significantly with the respondents' job satisfaction with a computed Pearson  $r$  of 0.329 with a corresponding  $p$ -value of 0.023 which is less than the critical  $p$ -value of 0.05 which means that the hypothesis along with this research question is accepted.

**Relationship Between Job Satisfaction and Organizational Support.** The computed  $r$ -value of 0.829 in this correlational procedure is very much higher than the critical  $r$ -value of 0.202

for 93 degrees of freedom at a 0.05 level of significance. This led to the rejection of the null hypothesis. Therefore, there is a very significant correlation between job satisfaction and the perceived organizational support of the respondents.

**Developed Organization Development Intervention.** The researcher deemed it right and proper to come up with a Learning and Development Activity Design for implementation to address the needs of the personnel and administrators of the Department of Environment and Natural Resources in the province of Nueva Vizcaya, along with the selected constructs of this study that include job satisfaction, perceived organizational support, and leadership styles.

This activity will help them improve leadership capabilities, and perceived organizational support, as well as job satisfaction of concerned officials by proffering knowledge, understanding, skills, and appreciation of leadership styles in terms of transformational, transactional, and coaching leadership styles; job satisfaction in terms of interpersonal skills, work commitment, and organizational communication; and perceived organizational support in terms of a performance evaluation system, employee mental health and wellness, human resource management and organizational behavior.

Based on the significant findings of the study, the following conclusions were drawn:

1. The most commonly practiced leadership styles by DENR leaders are transformational, transactional, and coaching leadership while the least used are laissez-faire, cross-cultural, and autocratic.
2. The level of job satisfaction of the DENR personnel in Nueva Vizcaya, is qualitatively described as low.
3. The level of organizational support or the commitment to how much the organization cares for the welfare of the DENR personnel is qualitatively described as low.
4. The overall level of job satisfaction of the respondents significantly correlated with the leadership styles of the Environment and Natural Resources Officers.
5. The leadership styles of the Environment and Natural Resources Officers correlated significantly with the respondents' perceived organizational support.
6. There is a significant correlation between job satisfaction and the perceived organizational support of the respondents.
7. A Learning and Development Activity Design was developed to address the needs of the personnel and administrators of the Department of Environment and Natural Resources in the province of Nueva Vizcaya, along with the selected constructs of this study that include job satisfaction, perceived organizational support, and leadership styles.

In light of the significant findings and the conclusions drawn from the study, the followings recommendations are forwarded:

1. Administrators of DENR may use frequently some characteristics that ascribe to transformational, transactional, and coaching leadership styles since these



are the variants that the employees observed to be establishing a remarkable working climate as compared to autocratic, laissez-faire, and cross-cultural leadership styles.

2. To enhance the job satisfaction of their constituents, Environment and Natural Resources Officers have to train their personnel for future responsibilities by giving them a more participative role in identifying strategies to solve emerging problems. They should establish self-worth (intrinsic motivation) in their personnel by acknowledging contributions from each team member as contributory to organizational success. Likewise, ENR Officers should enhance their capability to identify and resolve conflict among members.
3. The Environment and Natural Resources Officers have to enhance the organizational support to the DENR personnel by allowing and encouraging them to take a more active role in decision-making, providing open communication channels in office retinue, enhancing their (ENR Officers) skills on intrinsic motivation to inspire their personnel, consult or secure inputs from them (DENR personnel) on decisions that may affect the roles they do in their jobs.
4. The Environment and Natural Resources Officers may exercise positive motivational styles in their leadership such as giving more participative role, using highly polished communication skills, and acknowledging the contributions of each team member as critical elements of organizational success through the attainment of its vision and goals; while minimizing conflict among members, then the DENR personnel, because these would elicit satisfaction of their employees.
5. The Environment and Natural Resources Officers may provide a more participative role, or use highly polished communication skills or persuasiveness and charm to motivate their personnel, and lessen their restrictive control over all decisions by getting more input from their personnel; then such conditions, to enhance the level of organizational support for their personnel.
6. The Environment and Natural Resources Officers may enhance the level of organizational support provided by the institution to their personnel to increase the job satisfaction of the DENR personnel.
7. The learning and development activity design created through this study may be proposed for implementation to DENR-Nueva Vizcaya in collaboration with the Graduate School of Nueva Vizcaya State University – Bambang Campus as an extension program.
8. Other research works may be carried out to unravel the leadership styles of managers and how they may correlate with levels of job satisfaction, and organizational support as perceived by employees of other government offices. Other constructs for consideration may be charter implementation, quality assurance, and professional development levels, as a basis for policy-making.



# IMPLEMENTATION OF EDUCATIONAL POLICY (NEP2020): CHALLENGES AND OPPORTUNITIES IN HIGHER EDUCATION IN INDIA

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## ABSTRACT

*Education is the foundation of the nation and plays a key role in the growth and development of the population. An effective instrument for a nation's development is education. The Ministry of Human Resource and Development was renamed the Ministry of Education as part of the new education strategy, which brought about a number of changes to the Indian educational system. The suggestions of a panel chaired by Dr. Kasturirangan, a former chairman of the Indian space research organisation (ISRO), served as the basis for the new education policy, which prioritises fairness, quality, affordability, and accountability of education in our country. The purpose of this paper is to analyse the challenges and opportunities that India's National Education Policy 2020 presents for higher education. Researchers, academics, and policy makers will benefit from this paper's insight into the NEP policy.*

**KEYWORDS:** *National Education Policy, Higher Education, Challenges & opportunities.*

## INTRODUCTION

The students from all over the world have always travelled to India for their further study. Since ancient times, the nation has provided a wide range of options, including ancient sciences, the arts, philosophy, and literature. Because of this, it is sometimes referred to as the "land of learning." The Indian educational system has not undergone many modifications throughout time to keep up with the outside world. The ministry of education has suggested the new education policy 2020, which would replace the 34-year-old national policy of education, 1986, in an effort to accelerate the expansion of the Indian educational system.

## THE NEP-2020 ON HIGHER EDUCATION

The National Education Policy-2020 aims to make India into an equal, sustainable, and thriving knowledge society by integrating its tradition, culture, values, and ethos into the educational system. The NEP-2020 was created by taking into account the nation's rich and varied historical past as well as the contributions of numerous academics to various fields as the cornerstone for constructing high quality multidisciplinary liberal education at higher level. More HEIs shall be established and developed in underserved regions to ensure full access, equality, and inclusion. There shall, by 2030, be at least one large multidisciplinary HEI in or near every district. Steps shall be taken towards developing high quality higher education institutions both public and private that have medium of instruction in local/ Indian language. By introducing accountability into each of the existing education policies and governance systems, radical changes are being made with the aim of increasing the gross enrolment ratio (GER). The aim will be to increase the Gross Enrolment Ratio in higher education

including vocational education from 26.3%(2018) to 50% by 2035. While a number of new institutions may be developed to attain these goals, a large part of the capacity creation will be achieved by consolidating, substantially expanding, and also improving existing HEIs.

## OBJECTIVES OF THE STUDY

- To evaluate how the policy's provisions on higher education in India contribute to the country's current educational system.
- To study about the challenges which will affect in the implementation of this policy?
- To Study about the opportunities of this policy's implementation would entail.
- To make recommendations that will help in NEP 2020 to be implemented more effectively.

## CHALLENGES IN IMPLEMENTATION OF NEP 2020 IN HEI

The challenges of higher education institutions will face as they execute National Education Policy 2020 are mention below.

1. The Gross Enrolment Ratio (GER) in 2019–20 (AISHE 2019–20) is 27.1. Around 342.5 lakh students are enrolled in higher education institutions in India, with 50.4% of them being male and 49.6% female. In 2019–20, women had a Gross Enrolment Ratio (GER) of 27.3% compared to men's GER of 26.9%. It indicates that more qualified women than males are enrolling in colleges and universities in India. One of the main objectives of the National Education Policy (NEP) is to increase the GER. Through several changes outlined in the NEP, The Ministry of Human Resource Department hopes to reach a 50% GER by 2035.





2. To implement such significant changes into the system, there is a shortage of finance and infrastructure. The goal of the national education strategy 2020 is to make India a top destination for education by emphasising quality and dynamism. The goal of the strategy is to increase spending in the education sector to 6% of GDP at the earliest opportunity. But the data paints a pretty bleak picture. Increasing the investment in education is something that has been discussed before. Even after on-going discussions about spending patterns, India is still only spending 3.1% of its GDP on the education sector, according to the economic report for 2019–20. Therefore, the first step is to make investing in education a high priority and to direct resources in that direction (Soni).

**3. Infrastructure:** The ICT-enabled infrastructure with high-speed Wi-Fi connectivity is the utmost essential in the current environment. It is necessary to stay up with the rapidly advancing technologies.

**4. Visionary leadership in HEIs is essential:** Higher education department and higher education institutions require visionary leadership now more than ever. Politics should be included in education to the extent that it is necessary for the formulation and execution of successful policies. Smoothly managed concerns include timely Ministry of Education decisions, future investment, distributing funding, permissions, etc.

**5. Lack of resources:** In India, education will cost around 3% of the country's GDP in 2019–20. The anticipated NEP is in the range of 6%.

**6. Faculty capacity building, training, retraining, and un-training: the workshops for faculty capacity building:** Training for HEI faculty is crucial and must be scheduled periodically. Initial training, retraining, and un-training (eliminate obsolete information and train with fresh ideas and perspectives). Industry and academia must work together close the self-employment or employment gap. Lack of development of particular skills classes or extracurricular activities for employability or self-employment. The new education policy goes beyond about the level. All of this is done to prepare pupils for job or self-employment. The student development programmes will be carried out according to necessity.

**7. Faculty hiring and promotions:** The permanent faculty will be hired in accordance with demand. The permanent faculty work to create and advance departments and academic institutions. Long-term, it has a good effect on institutional development.

**8. Attitude of students towards education:** - There is a considerable likelihood that the dropout rate in HEI will raise as a result of the NEP 2020's multiple entry and exits. In this regard, the passing of time will present the ideal circumstance. There will be an increase in student orientation and enthusiasm for life after graduation. The students will contribute to sustainable development by receiving scholarships for worthy students and by developing their research skills and scientific mind set. According to certain research, pupils are experiencing

various emotional and mental issues as a result of the world's rapid pace.

To grow pupils into socially responsible citizens, there must be harmony between their emotions and behaviours. The following treatments are offered to do this: developing students' core competences; allowing them the freedom to voice their opinions; incorporating moral principles; boosting life survival skills; and fostering in them the willingness for self-learning. 2021 (Bhatnagar)

Students can learn the courses they are interested in using the choice-based credit system (CBCS), and credits gained are placed in the Academic Bank of Credit (ABC). The institution's holding and mentoring cell may help students find their way when faced with challenging circumstances.

**9. ICT dependence:** The new policy places a strong emphasis on online and e-learning. Due to their course content and distribution methods, MOOCs, courses on Swayam, NPTEL, Course, etc., are becoming more and more popular. The gap between students and institutions will be greatly reduced by online education.

The virtual world will become more real than the real world with digital and video centric approaches. [Sheth2020]

**10. There are large number of colleges:** 1043 universities, 42343 colleges, and 11779 independent institutions (AISHE Report 2019-20). This number is rising daily and puts further pressure on already-established institutions. The apex bodies for institutions should act as a driving force and source of inspiration for accreditation and certification. It might be done by organising institutions into groups to support one another, by supporting the management, by establishing standards for excellence, by rating colleges and universities according to NIRF and Times, and by other means. It is crucial for the institutions to participate, update their reports in AISHE, and adhere to RUSA regulations. Institutions must work hard to cultivate their goodwill and image.

**11. Internationalisation and foreign universities:** The NEP has given internationalisation of higher education the attention it deserves in order to make India a hub for foreign students. The recruitment of international students to India will be greatly aided by HEIs. Universities will also need to be on guard and preserve a student-welcoming attitude.

## OPPORTUNITIES FOR HEIs IN NEP 2020 IMPLEMENTATION

Through a strong self-regulatory framework, the NEP 2020 lays the path for less regulation and more autonomy for institutions. The focus of the New Education Policy goes beyond degrees. Focusing on life skills and vocational education is key.

**1. Education Hub:** As an international centre for education, India has a lot of potential to draw in foreign students and universities. India's cost of education is lower than that of many other nations. Today, education tourism is a brand-new and growing industry.

**2. Supporting students for advancement:** Institutions and universities work to inspire students to complete their degrees, post-graduate studies, or professional programmes.



**3. Handling lesser number of students:** In order to closely monitor pupils' development, the teacher-to-student ratio should be kept to a minimum. Lessening the teacher-to-student ratio will undoubtedly boost the instructors' effectiveness.

**4. Promoting student engagement in class:** Students will find the NEP flexible and practical for learning because to many entrance and exit points. Through peer learning, experiential learning, and other methods, students will be better equipped in the classroom with KSA knowledge, skills, and attitude.

**5. Hard internship that goes beyond obtaining a certificate of completion:** To ensure that students gain real-world experience, the internship must be carefully adhered to. Strong connections between the university and the businesses providing the internships will also be facilitated.

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### SUGGESTIONS THAT CAN HELP THE NEP:2020 BE IMPLEMENTATION SUCCESSFULLY

1. Adequate awareness should be developed among all the students, parents and also teachers for successful implantation of policies.
2. To make this programme successful, the cooperation between the federal government, the states, and local governments needs to be improved.
3. A successful implementation of the policy will also depend on timely feedback from parents, students, and the business community.
4. More attention should be paid to teacher training and equipping them with the necessary skills. The pupils are in agreement.
5. To make this idea a clear winner for enhancing India's entire educational environment, more funding should be allocated to education.

### CONCLUSION

The attempt to modernise the Indian educational system is a bold one. No matter how appealing something may seem, the actual execution of any policy is crucial. A policy can be greatly successful if it is carried out well, or it can be greatly disastrous if it is not. The review article highlights the problems and difficulties with implementing NEP 2020. The most crucial three pillars—infrastructure, financing, and a carefully thought-out plan strategy—remain unmet in practise. This review study has covered a lot of other issues, many of which are true in their own right. It is crucial to highlight the study of the positives and negatives.

For higher education institutions specifically, the researcher has discussed the potential and problems under the National Education Policy 2020. The researcher's points of view were built from reading and personal experience. The researcher is hopeful, though, that NEP will ultimately show to be beneficial.

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## FREEDOM INDEX: ASSESSING FREEDOM IN INDIA

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### ABSTRACT

*This research paper focuses on analyzing the Freedom Index with a special emphasis on India. The Freedom Index is a comprehensive measure that evaluates the levels of freedom across countries, and studying India's position in this index provides valuable insights into the state of freedom within the country. This paper explores the methodology of the Freedom Index, examines India's rankings over the years, and investigates the factors influencing India's freedom score. Additionally, the paper discusses the implications of the findings and highlights areas where India can improve its commitment to safeguarding individual liberties and promoting a free society.*

### INTRODUCTION

This research paper aims to explore and analyze the Economic Freedom Index with a special focus on India. The Economic Freedom Index is a comprehensive measure that assesses the economic freedom and governance of countries worldwide based on various indicators. It provides insights into the level of economic freedom, property rights, government integrity, tax burden, government spending, and other important factors that influence economic growth and development. Understanding the Economic Freedom Index and its implications for India can shed light on the country's economic policies, regulatory environment, and overall business climate.

### OBJECTIVES

The objectives of this research paper are as follows:

- To provide an overview of the concept of economic freedom and its significance in driving economic growth and prosperity.
- To examine the methodology and components of the Economic Freedom Index and how they contribute to the overall score.
- To analyze the historical trends and performance of India in the Economic Freedom Index over the past decade.
- To identify the strengths and weaknesses of India's economic freedom profile based on the index components.
- To evaluate the impact of economic freedom on various sectors of the Indian economy, including business and labour freedom, monetary policy, and trade openness.

- To identify policy recommendations and potential areas for improvement to enhance India's economic freedom and overall competitiveness.

### FREEDOM INDEX

The Freedom Index is a comprehensive measurement tool used to assess and compare levels of freedom across different countries. It provides a quantitative analysis of various aspects related to political rights, civil liberties, and other indicators of freedom within a society. The index aims to capture the extent to which individuals can exercise their rights and liberties without undue interference or restrictions from the government or other entities. Defining the parameters and components of the Freedom Index involves considering multiple dimensions of freedom. These dimensions often include political freedoms, such as the right to vote, freedom of speech, and freedom of assembly, as well as civil liberties, such as the protection of individual rights, rule of law, and absence of discrimination. Economic freedoms, encompassing factors like property rights, free trade, and regulatory environment, may also be considered in some versions of the index. To construct the Freedom Index, researchers typically gather data from a variety of sources, including government reports, surveys, independent assessments, and expert opinions. This data is then analysed and transformed into numerical scores or rankings for each country, reflecting their respective levels of freedom. The specific indicators and weighting methods employed in the index may vary depending on the organization or institution responsible for its development. The Freedom Index serves as a valuable tool for policymakers, researchers, and advocates to understand and compare the state of freedom in different countries. It helps identify trends, challenges, and areas for improvement, and provides a basis for assessing the



impact of policies and practices on freedom within a society. The index can also be used to stimulate discussions on human rights, governance, and democratic principles, fostering awareness and promoting reforms to enhance freedom and protect individual liberties. While the Freedom Index provides valuable insights, it is important to recognize that measuring freedom is a complex task, and the index may have certain limitations. The selection of indicators, data sources, and weighting methods can introduce subjectivity and potential biases. Cultural, social, and political contexts may also influence the interpretation and application of the index's findings. Therefore, the Freedom Index should be viewed as a tool that contributes to the broader understanding of freedom, but should not be considered as the sole determinant of a country's level of freedom.

### **DIMENSIONS OF FREEDOM**

Dimensions of freedom encompass various aspects of individual and collective liberties. While different frameworks and theories may present slightly varied categorizations, the following dimensions are commonly recognized when discussing freedom:

1. **Political Freedom:** This dimension focuses on the rights and opportunities for political participation and representation. It includes elements such as free and fair elections, the right to vote and be elected, freedom of political expression, and the absence of political repression or coercion.
2. **Civil Liberties:** Civil liberties encompass fundamental rights and freedoms that protect individuals from unwarranted government interference. This dimension includes elements such as freedom of speech, freedom of assembly and association, freedom of religion or belief, freedom of the press, and the right to privacy.
3. **Rule of Law:** The rule of law ensures that laws are applied equally to all individuals and that the legal system operates impartially. This dimension encompasses factors such as an independent judiciary,

effective legal mechanisms to protect rights, access to justice, and the absence of corruption or arbitrary exercise of power.

4. **Economic Freedom:** Economic freedom refers to the ability of individuals and businesses to engage in economic activities with minimal government interference. It includes elements such as the protection of property rights, free trade, low barriers to entrepreneurship, a stable regulatory environment, and limited government intervention in the economy.
5. **Social Freedom:** Social freedom encompasses aspects related to social and cultural rights, including equality, non-discrimination, and social inclusion. It includes elements such as equal access to education, healthcare, and social services, the absence of social barriers or prejudices, and the promotion of diversity and inclusivity.
6. **Freedom from Oppression:** This dimension focuses on freedom from various forms of oppression and discrimination. It includes elements such as freedom from racial, gender, or religious discrimination, freedom from persecution or harassment, and the protection of marginalized or vulnerable groups.
7. **Individual Autonomy:** Individual autonomy refers to the ability of individuals to make choices and decisions about their own lives, free from undue external influence or coercion. This dimension includes elements such as personal autonomy, freedom of thought, conscience, and lifestyle choices.

It is important to note that these dimensions are interrelated and mutually reinforcing. Achieving freedom in one dimension often requires progress in others. Additionally, different societies and cultures may prioritize certain dimensions of freedom based on their unique historical, political, and social contexts.





**Table No. 1: Year wise India's overall score in Freedom Index**

Index Year	Overall Score	Property Rights	Judicial Effectiveness	Government Integrity	Tax Burden	Government Spending	Fiscal Health	Business Freedom	Labor Freedom	Monetary Freedom	Trade Freedom	Investment Freedom	Financial Freedom
2023	52.9	49.7	53	42.2	78.5	73.8	5.8	64.3	58.1	70	59.8	40	40
2022	53.9	49.9	51.5	42.4	79.5	76.2	4	63.9	58.2	70	71	40	40
2021	56.5	59.2	55.9	48.1	78.7	78.5	18	76.7	41.3	72.1	69.4	40	40
2020	56.5	63	64.1	47.2	79.4	77.9	13.1	65.6	41.2	73	73.4	40	40
2019	55.2	57.3	61.6	47.8	79.4	77.3	14.7	57.1	41.8	72.4	72.4	40	40
2018	54.5	55.4	54.3	47.2	79.4	77.7	13.2	56.4	41.8	75.9	72.4	40	40
2017	52.6	55.4	44.4	44.3	77.2	77.4	11	52.8	41.6	75	72.6	40	40
2016	56.2	55		38	77.1	78.1		47.6	47.8	72.8	71	35	40
2015	54.6	55		36	79.4	78.3		43.3	48.7	65.3	64.6	35	40
2014	55.7	50		31.5	79.4	77.8		37.7	74	65.5	65.6	35	40
2013	55.2	50		31	78.3	77.9		37.3	73.6	65.3	63.6	35	40
2012	54.6	50		33	76.1	74.8		35.5	74.2	62.9	64.1	35	40
2011	54.6	50		34	75.4	77.8		36.9	67.2	65.1	64.2	35	40
2010	53.8	50		34	73.4	76.1		36.3	57.7	67.5	67.9	35	40
2009	54.4	50.0		35.0	73.8	77.8		54.4	62.3	69.3	51.0	30.0	40.0
2008	54.1	50.0		33.0	75.7	73.5		50.9	66.5	70.3	51.0	40.0	30.0

Source: <https://indexdotnet.azurewebsites.net/index/explore>

The table no. 1 includes various aspects such as Property Rights, Judicial Effectiveness, Government Integrity, Tax Burden, Government Spending, Fiscal Health, Business Freedom, Labor Freedom, Monetary Freedom, Trade Freedom, Investment Freedom, and Financial Freedom. These components provide insights into different areas of the country's economic and governance policies.

Analyzing the data for India from 2008 to 2023, we can observe the following trends:

1. Overall Score: India's overall score has fluctuated over the years, ranging from 52.6 in 2017 to 56.5 in 2020 and 2021, and then decreasing to 52.9 in 2023.
2. Property Rights: India's score for Property Rights has shown minor fluctuations, with a slight increase from 50.0 in 2008 to 59.2 in 2021, but a decrease to 49.7 in 2023.
3. Judicial Effectiveness: India's score for Judicial Effectiveness has varied between 38.0 in 2016 to 64.1 in 2020. In 2023, it stands at 53.0.
4. Government Integrity: The score for Government Integrity has ranged from 31.0 in 2013 to 55.9 in 2021. However, in 2023, it has declined to 42.2.
5. Tax Burden: India's score for Tax Burden has remained relatively stable, with values around the 73-80 range throughout the years.
6. Government Spending: The score for Government Spending has shown minor fluctuations, with values around the 73-79 range.
7. Fiscal Health: India's score for Fiscal Health has remained fairly stable, with values around 35-50 throughout the years.
8. Business Freedom: India's score for Business Freedom has shown minor fluctuations, ranging from 47.8 in 2016 to 76.7 in 2021. In 2023, it stands at 64.3.

9. Labor Freedom: The score for Labor Freedom has remained relatively stable, ranging from 41.6 to 58.2 throughout the years.

10. Monetary Freedom: India's score for Monetary Freedom has remained fairly stable, with values around the 30-40 range.

11. Trade Freedom: The score for Trade Freedom has varied between 35.0 and 75.0 throughout the years.

12. Investment Freedom: India's score for Investment Freedom has remained constant at 40.0 throughout the years.

13. Financial Freedom: The score for Financial Freedom has remained constant at 40.0 throughout the years.

Overall, the data suggests that India has seen fluctuations in its overall score and various components of the index over the years. While some areas, such as Business Freedom and Property Rights, have shown improvement, areas like Government Integrity and Judicial Effectiveness have experienced declines. The data highlights both strengths and areas where India can focus on implementing reforms to improve its economic and governance policies.

These statistics provide insights into the central tendency (mean), dispersion (standard deviation), and range (minimum and maximum) of each component and the overall score. They help understand the variation and relative performance of each component over the years.

Please note that the fiscal health component shows a relatively high standard deviation, indicating significant variation in that aspect compared to others. Additionally, the financial freedom component remains constant throughout the years, as indicated by a mean and standard deviation of 40.0.



**Table No. 2: Statistical measurement of Freedom Index**

	Mean	Standard Deviation	Minimum	Maximum
<b>Overall Score:</b>	<b>54.8</b>	<b>1.5</b>	<b>52.6 (2017)</b>	<b>56.5 (2020, 2021)</b>
Property Rights	52.5	4.7	49.7 (2007)	63.0 (2020)
Judicial Effectiveness	46.2	10.8	31.0 (2013)	64.1 (2020)
Government Integrity	46.9	7.4	31.5 (2014)	55.9 (2021)
Tax Burden	78.4	1.5	73.4 (2010)	79.5 (2022)
Government Spending	76.9	2.3	73.5 (2008)	78.5 (2023)
Fiscal Health	25.4	17.9	4.0 (2022)	54.4 (2009)
Business Freedom	61.9	9.3	47.8 (2016)	76.7 (2021)
Labour Freedom	52.3	8.9	41.2 (2020)	69.3 (2009)
Monetary Freedom	49.1	9.7	30.0 (2009, 2012)	70.0 (2011)
Trade Freedom	58.2	12.9	30.0 (2009)	75.0 (2017)
Investment Freedom	40	0	40	40
Financial Freedom	40	0	40	40

The table no. 2 Analysing Statistical measurement of Freedom Index We can calculate some basic statistical measures for each component and the overall score. Let's calculate the mean (average), standard deviation, minimum value, maximum value, and any notable trends for each component and the overall score over the years:

**Overall Score:** The overall score has shown slight fluctuations over the years but has remained relatively stable around the mean. **Property Rights:** The property rights component has varied, with a general upward trend until 2021, but a decrease in 2023.

**Judicial Effectiveness:** The judicial effectiveness component has shown significant fluctuations over the years but has generally improved since 2013.

**Government Integrity:** The government integrity component has shown some improvement, but it decreased in 2023.

**Tax Burden:** The tax burden component has remained relatively stable around the mean with minor fluctuations.

**Government Spending:** The government spending component has remained relatively stable around the mean with minor fluctuations.

**Fiscal Health:** The fiscal health component has shown significant fluctuations, with a relatively low score in 2022.

**Business Freedom:** The business freedom component has shown improvement over the years but has decreased in 2023.

**Labour Freedom:** The labour freedom component has shown fluctuations but has remained relatively stable around the mean.

**Monetary Freedom:** The monetary freedom component has shown fluctuations over the years but has remained relatively stable around the mean.

**Trade Freedom:** The trade freedom component has shown fluctuations over the years but has remained relatively stable around the mean.

**Investment Freedom:** The investment freedom component has remained constant throughout the years.

**Financial Freedom:** The financial freedom component has remained constant throughout the years.

Overall, the statistical interpretation highlights certain trends and variations in the different components of the index. It indicates areas of improvement, stability, or decline in the various aspects of economic freedom and governance in India.

## FINDING

- The overall score represents the composite measure of freedom in India. Over the years, the mean score fluctuated around 54.8, indicating a relatively stable overall level of freedom. The scores reached their lowest point in 2017 (52.6) and peaked in 2020 and 2021 (56.5).
- Property rights refer to the legal protection and enforcement of individuals' rights to own and use property. The mean score of 52.5 suggests a moderate level of property rights in India. The highest score was recorded in 2020 (63.0), indicating improvements in this area.
- Judicial effectiveness assesses the fairness and efficiency of the judicial system. With a mean score of 46.2, there is room for improvement in this aspect. The scores have varied significantly, with the lowest recorded in 2013 (31.0) and the highest in 2020 (64.1).



- Government integrity measures the level of corruption and transparency within the government. The mean score of 46.9 suggests a moderate level of government integrity. The scores have fluctuated over the years, with the lowest recorded in 2014 (31.5) and the highest in 2021 (55.9).
- Tax burden assesses the level of taxation imposed on individuals and businesses. With a mean score of 78.4, India has generally experienced a high tax burden. The scores have remained relatively stable, with a minor variation between the minimum (73.4 in 2010) and maximum (79.5 in 2022) values.
- Government spending measures the extent of government expenditures. The mean score of 76.9 indicates a relatively high level of government spending. The scores have remained relatively consistent, with a slight increase from the minimum value of 73.5 in 2008 to the maximum value of 78.5 in 2023.
- Fiscal health evaluates the overall financial condition and sustainability of the government. The mean score of 25.4 indicates a relatively poor fiscal health. The scores have fluctuated significantly, with the lowest recorded in 2022 (4.0) and the highest in 2009 (54.4).
- Business freedom measures the ease of conducting business activities in the country. With a mean score of 61.9, India demonstrates a moderate level of business freedom. The scores have shown some variation, with the lowest recorded in 2016 (47.8) and the highest in 2021 (76.7).
- Labor freedom assesses the flexibility and regulations surrounding the labor market. The mean score of 52.3 indicates a moderate level of labor freedom. The scores have varied, with the lowest recorded in 2020 (41.2) and the highest in 2009 (69.3).
- Monetary freedom evaluates the stability and competitiveness of the currency and monetary policy. With a mean score of 49.1, India has experienced a moderate level of monetary freedom. The scores have fluctuated over the years, with the lowest recorded in 2009 and 2012 (30.0) and the highest in 2011 (70.0).
- Trade freedom measures the openness and restrictions on international trade. India demonstrates a moderate level of trade freedom with a mean score of 58.2. The scores have varied significantly, with the lowest recorded in 2009 (30.0) and the highest in 2017 (75.0).
- Both investment freedom and financial freedom have constant values of 40 throughout the years. This suggests that India's investment and financial sectors have maintained a consistent level of freedom.

and fiscal health have experienced significant variations. Understanding these trends can help policymakers identify areas of improvement and formulate strategies to enhance the overall freedom in India.

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## CONCLUSION

Overall, the Freedom Index scores for India indicates that there have been fluctuations in various categories over the years. While certain areas such as tax burden and government spending have shown relatively stable scores, others like judicial effectiveness



## AQER QERHA (*ANACYCLUS PYRETHRUM* DC.) A NOBEL DRUG OF UNANI MEDICINE – A REVIEW

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### ABSTRACT

In the Himalayas, Jammu and Kashmir, and North India the perennial procumbent herb known as *Aqer Qerha* (*ANACYCLUS PYRETHRUM* DC.) is native to North Africa and the Arab world. It is a potent cure for a number of ailments in the Unani System of Medicine. The plant roots for *muhallil – e – awaram* (anti-inflammatory) and *muqawwi – e-bath* have been recorded (anabolic & aphrodisiac) *Moqawwi* and *moharrik-e-aasab* are tonic and nerve stimulants used for *laqwa* (facial paralysis), *fali* (hemiplegia), *Sara* (epilepsy), tooth loosening, *isterkha-e-luhath* (flaccidity of uvula) and *luknat-e-zuban* (stammering), in both single and compound formulations such as gargles, decoction. The roots include *Pellitorine* (pyrethrin), a colorless crystalline acid-amide with a highly pungent flavour and a sialogogue action. N-isobutyldienedynamide, polysaccharides hydrocarolin, inulin, traces of volatile oil and sesamin are among the additional phytoconstituents identified in the plant.

**KEY WORDS** : *Aqer Qerha*, Aphrodisiac activity, Epilepsy, Medicine, Nootropic activity, Unani System of Medicine.

### INTRODUCTION

The essential Medicinal herb *Aqer Qerha* (*ANACYCLUS PYRETHRUM* DC.) also known as *Akarakarbha* in Sanskrit, it is used in both Unani and Ayurvedic medicine. It is indigenous to North Africa and is grown in Mediterranean and Arabian nations. It is also grown on a small scale in a few Himalayan regions of North India, where it has been grown at 900 m elevations at Katra.







With the start of the rainy season, the little shoots begin to sprout. The root is harvested in the fall and dried ;this is the part referred to as Aqer Qerha, pellitory, or pellitory of Spain. It has a strong flavour, makes one feel hot when chewed, and causes a burning sensation on the tongue. It is a component in several unorthodox formulas used to treat a range of pathological disorders.

#### Scientific Classification :

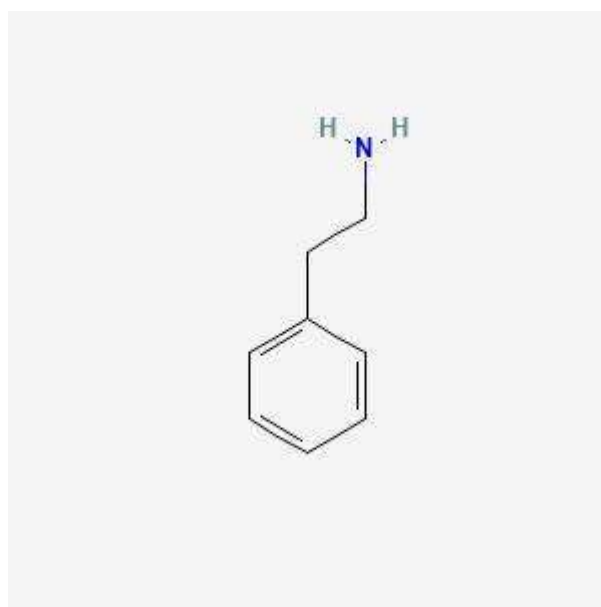
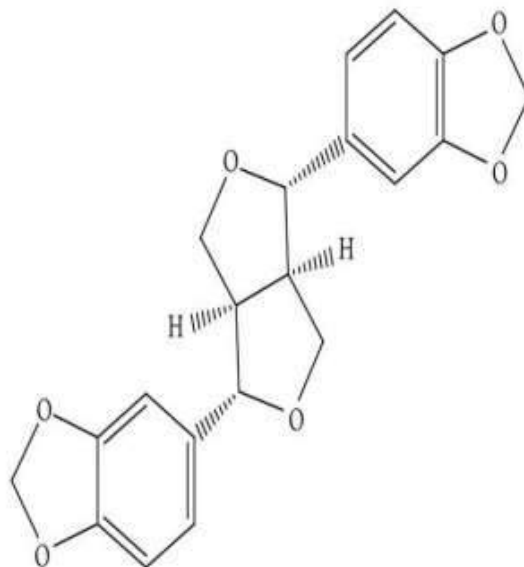
- ❖ **Kingdom** : Plantae
- ❖ **Division** : Spermatophyta
- ❖ **Subdivision** : Angiosperm
- ❖ **Class** : Dicotyledons
- ❖ **Subclass** : Metachlamydae
- ❖ **Order** : Asterales
- ❖ **Family** : Asteraceae
- ❖ **Tribes.** : Anthemideae
- ❖ **Genus.** : Anacyclus
- ❖ **Species.** : Pyrethrum

- **Botanical Name** : Anacyclus Pyrethrum
- **Synonym** : Anthemis Pyrethrum, Anacyclus depressus Mairs, Pyrethrum radix
- **Vernacular Names:**
  1. **Arabic** : Aqer Qerha
  2. **Bengali** : Akarkara
  3. **Berber** : Igendest, Gendass
  4. **English** : Pellitory
  5. **French** : Anacycle, Pyrethre
  6. **Gujrati** : Akarkara, Akarkaro
  7. **Greek** : Forusoon, Forsoon, Qoos
  8. **Hindi** : Akarkara
  9. **Kannada** : Akkalakari, Akkalkara
  10. **Urdu** : Aqer Qerha, Aqerqerha
  11. **Marathi** : Akkirakaram
  12. **Sanskrit** : Agragrahi, Akarakarabha
  13. **Tamil** : Akkirakaram
  14. **Polish** : Bertram
  15. **Persian** : Kakra, Kalu, Kazdam
- **Habit and Habitat** : The root of this perennial procumbent herb is brown, rough, shrivelled on the surface, and closely adheres to the wood. It has alternate, pinnate leaves with linear segments and ray florets that are white on the outside and purplish on the inside. They have a lingering strong smell and a mildly fragrant scent. The plant was grown experimentally from seeds imported from Algeria at elevations of 900 m in Katra (Jammu and Kashmir) and the Himalaya region. The plant is native to North Africa and is found throughout the Mediterranean region. India has traditionally imported the plant's roots for use in traditional medicine.



### Chemical Constituents

The *Anacyclus Pyrethrum* variety contains phytochemicals including tannins, alkaloids, coumarin, flavonoids. Free fatty acids, sterols, and unsaturated amides are all present in the root extract. Pellitorine, Anacyclin, Phenylalanine, Inulin, Polyacetylenic Amides and Seasamin are among examples.



**Phenylethylamine.**

**Sesamin**

### Botanical Description

This is the *Anthemis Pyrethrum* of Willdenow, whose name was modified by De Candolle, who also reclassified the plant due to a variation in the seed architecture. It is a perennial herb with numerous spreading, prostrate or ascending branches that are more or less hairy in the top half and nearly smooth in the lower half. The crown of the plant is formed by a long, tapering, vertical, brown, slightly branched root.

### CULTIVATION, COLLECTION AND PROPAGATION OF AKARKARA

*Anacyclus pyrethrum* var. *depressus*, also known as mat daisy or Mount Atlas daisy, is cultivated as a spring – blooming, low – water ornamental. *Anacyclus depressus* is occasionally considered to be a separate species. It produces single white flowers that resemble daisies and mats of ferny, grey – green leaves. It can flourish in a rock garden or an alpine environment. It received the Award of Garden Merit from the Royal Horticultural Society.



### The preparation of Land

In the months of May and June, the ground must be readied.

- Proper soil treatment, such as better drying and pulverisation of the soil.
- Manure from cow dung should be blended.
- Prepare beds or a simple pan (as per planning of plantation).
- Irrigation systems determine how far apart the beds are.
- Before planting the planting material, the ground should be thoroughly watered.

### Sowing of Akarkara

The sowing of Akarkara starts in the month of August.

### Maintenance

- The necessary element must be provided
- Deficiencies of any kind should be found and treated right away.
- Crop weeds must be removed in order to free it from weeds, which should be done manually by workers.
- A few unique techniques are practised and can be seen via training or regular visits.
- The crucial first three to four months after sowing require special attention.

### Maturing of the Crop

- Flower – Flowering begins two to three months after sowing, and mature flowers are collected.
- Root – In the month of February-March.

### Harvesting of the Crop

- Gently remove mature flower buds once the Akarkara plant has begun to flower, which usually takes two to three months. Fresh flower buds have a crimson tip and a yellowish body. After the plant begins to bloom, many blooms are produced ; harvest them as needed. After that, dry it properly using the right techniques.
- The root should be pulled up and dried when the crop cycle is finished.

### Available Akarkara Content

- Indian Akarkara seeds
- Indian Akarkara Plant
- Indian Akarkara Flowers
- Indian Akarkara Dry Roots
- Irani Akarkara Seeds
- Irani Akarkara Flowers
- Irani Akarkara Dry Roots

### Specification

Characters	Spilanthes acmellasyn. S. paniculata	Spilanthes calva
<b>Plant</b>	Annual erect or ascending stout herbs, 20-50 cm high.	Annual erect or ascending herbs, 15-40 cm high.
<b>Leaves</b>	Opposite, petiolate, broadly ovate, narrowed at base, acute or obtuse at apex.	Opposite, petioled, ovate, acute, subcrenate at margins.
<b>Heads</b>	In axillary and terminal panicles; Involucral bracts 2-seriate; Ray florets few, in conspicuous; Disc florets companulate, Achenes dorsally compressed, black.	Ovoid, usually solitary; Involucral bracts ovate, acute; Ray florets absent; Disc-florets yellow; Achenes dark brown.
<b>Flowering and Fruits</b>	March-April.	November to December.



## EXPENDITURE

Distance (in acre)	Seeds kit in acre	Cost of seeds kit	Fertilizer	Cost of cultivation
2*1 ft	3 kg	7500/-	5000 /-	12,500 /-
Total Expenses: 12,500 /-				

## INCOME & YIELD

Income of month	Total yellow flowers	Company buy-back of yellow flowers	Total	Total Dry roots	Company buy-back of dry roots	Total
In 6th month	200 kg	80 rs. kg	200*80 = 16,000 /-	300 kg	50 rs. kg	300*50 = 15,000 /-
Total income: 16,000 + 15,000 = 31,000/-						

## MONOGRAPH OF AKARKARA

**Drug Description in Shanakht and Mahiyat ( Unani identification) :** Ibn Baitar asserts that it is a plant root. The stems and flowers of the plant are yellow, but according to Hakeem Momim Khan, they are actually pinkish white in colour. All parts of the plant resemble the white flowering chamomile. The root is almost cylindrical, 1-2 inches thick, and 2-4 inches long. On the outside, it is brown, wrinkled, tapering, and occasionally crowned with a tuft of white hairs. It is also easy to break, with a distinctive smell and pungent taste.

Two different types of Aqer Qerha are mentioned in Unani literature ; one of them is referred to as **Ud-el Qarah – Jabli**, by **Dioscorides** and has the Greek name “**Qoriyoon**” or “**foriyoon**” ; the other is a drug that morphologically resembles **Souf (Foeniculum Vulgaris)** and **Soya (Anethum sowa)** plants. This large plant which is around the height of a person and has yellow umbelliferous flowers, also bears fruits. The root is almost one balish in length and one finger wide.

This plant, which is known as *Ud el Qarah Jabli* in Damask and is widely distributed in Sham, shares some traits with the original Aqer Qerha, but it is not the same plant. The plant called Aqer Qerha also known in Berber as Taghendast, Indesit, Gendass, and Igneous, is the source of the wild variation known as *Ud el Qarha maghrabi*.

### Part Used : Roots

**Choice :** The ideal pellitory to use for up to seven years is bitter, irritating to the tongue, thick as a finger, and inwardly white – looking.

**Temperature :** It is hot and dry in the 3<sup>rd</sup> degree. But Ibn Rushd and Damashki considered in Har in 4<sup>th</sup> degree.

**Dosage (Miqdar Khurak) :** The dosage of Medicine prescribed by various Unani doctors is 1 gm and 2.5 – 3.5 gm.

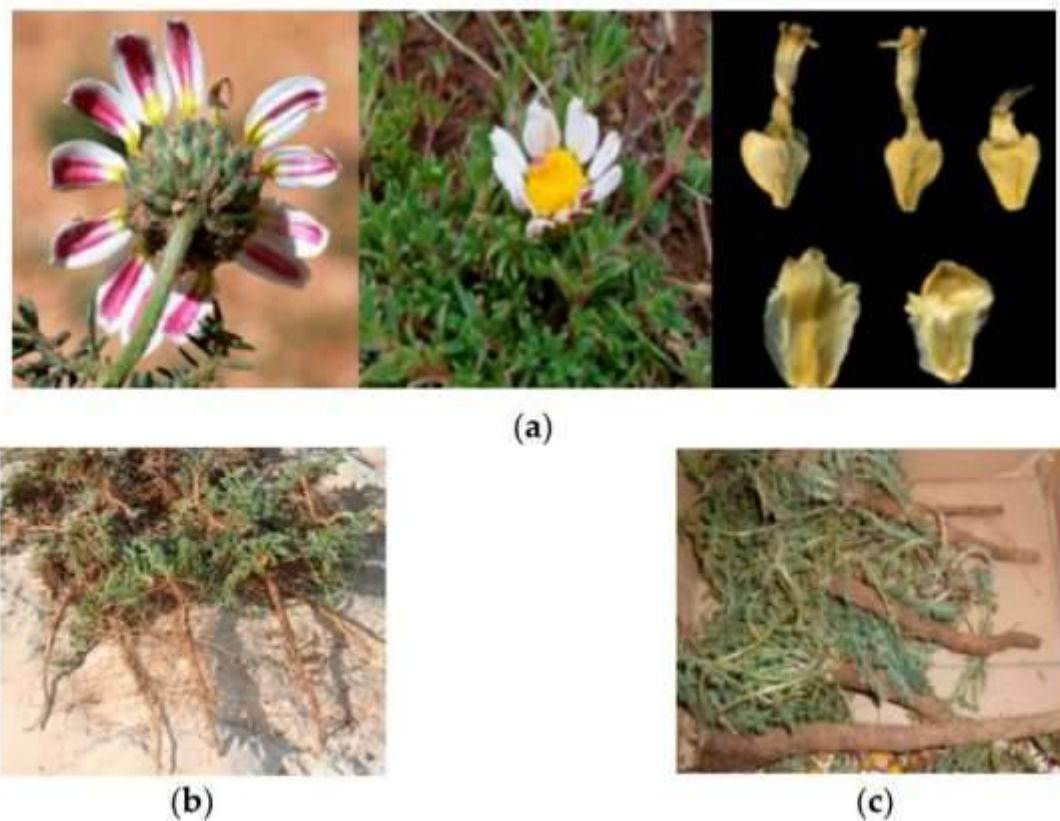
## MORPHOLOGY

A perennial plant that creeps, has many branches, is brown in colour, and tastes unpleasant.

- **Root** – Root length ranges from 7 to 10 cm. It’s interesting to note that the root’s potency is preserved for a period of a seven years.
- **Leaves** – Tiny, like Icapittha leaves.
- **Flowers** – Flowers have a rounded form and bloom in the summer.
- **Petals** – White, pink, yellowish on the upper side.
- **Fruits** – Oval – shaped, Shallow.

The perennial plant *A. Pyrethrum* is a member of the Asteraceae family. It is a plant that grows from the ground to a height of 40 to 60 cm and is distinguished by its numerous small, simple branching stems that bear pubescent, finely cut leaves. White Ray florets on the inside and purple petals make up its yellow – heart flowers. The roots are long, thick, and fibrous, with a brown outside and a white interior. Every fruit, or achene, is bald or has a weak crown [ 4,9,10]. A species blooming period is from May through August.





**Figure 1.** Morphological appearance: Flowers, ray florets and achene of *A. pyrethrum* (a), *A. pyrethrum* var. *depressus* 'Tigendast' roots (b) and *A. Pyrethrum* var. *Pyrethrum* 'Igendas' roots (c).

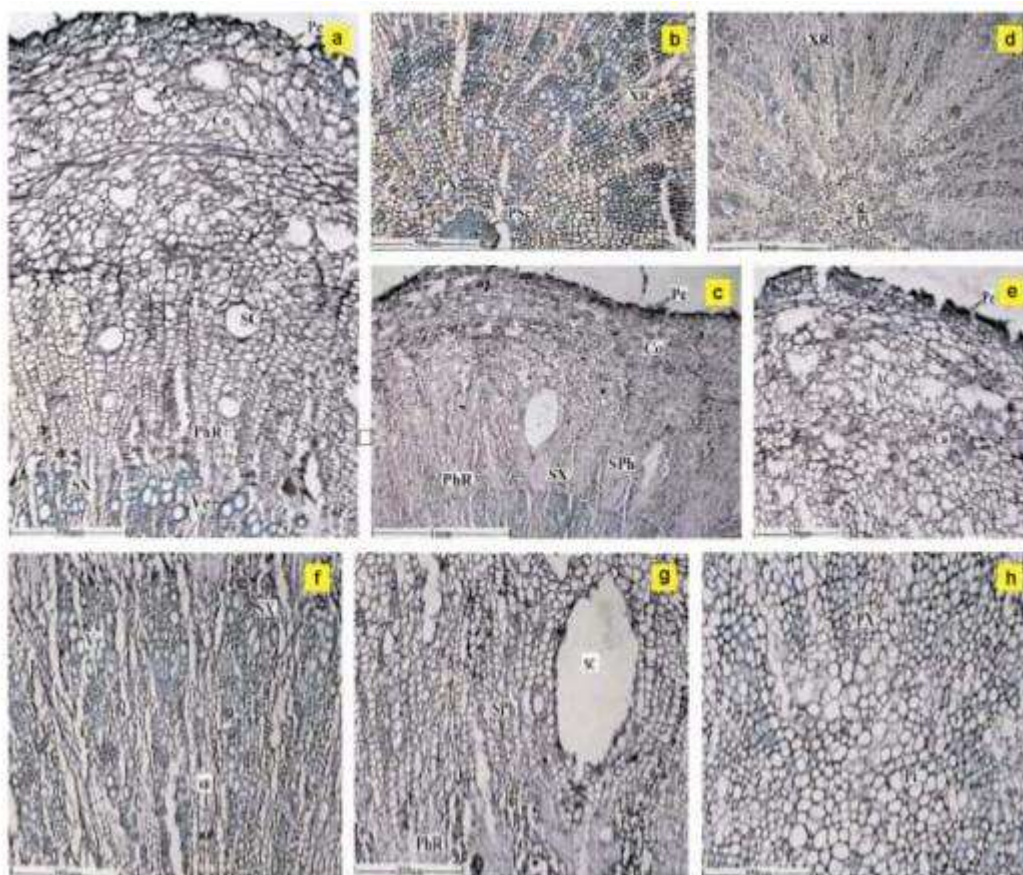
## MICROSCOPY

### *Transverse section of root*

The transverse section, magnified, shows a beautiful radiate structure with many yellow or brown oleoresin glands scattered, several layers of tangentially slatted Cork cells composed of thick sub-sized walls and devoid of any cell contents, and some stone cells are also found in outer bark. Microscopically, the cortical portion of the root is remarkable due to its suberous layer, which is partly made up of sclerenchyma (thick walled cells.) The inner side of the cork cambium produced a few layers of parenchyma cells that make up the secondary cortex, followed by a single layer of endodermis, which is how the periderm develops exogenously. The majority of parenchymatous cells are packed with inulin in the form of spherical granules or irregular masses that range in diameter from 0.01 to 0.1 mm and are unaffected by the presence of iodine. The majority of the stellar region is now occupied by radiating secondary xylem in distinct strands, with a few layers of secondary phloem covering the outside. About 25-30 strands of secondary xylem are visible in older roots. The majority of the vessels are in tangential bands, and the fibres are located in small groups near the vessels. The parenchyma cell of the phloem xylem ray and pith area is filled with crystals of all shapes and sizes.

The root's surface is rough and it is thick. It gradually becomes thinner at the base after being thicker at the top. The thin, less defined superficial periderm with three to four layers of rectangular suberised cells makes up the tapering basal section. A large area of parenchymatous cortex, which is located inside the periderm, contains cells of varying sizes, shapes, and orientations. The cortex slowly changes into a broad secondary phloem. Phloem elements are squeezed and collapsed at the outer region of the phloem, resulting in thin, black tangential streaks. Wide, circular lysigenous secretory channels are widely dispersed throughout the phloem tissue, and the phloem components are intact and arranged in radial files in the inner section. The canals have a diameter of up to 100 metres. The phloem and xylem zones are wider in the thicker top part. Both the lower and higher sections of the root-stalk have identical phloem tissues. Secondary xylem is distinctive and distinctive. These are a number of long, thin-radiating, parenchymatous ray-like segments of xylem that are spaced apart from one another. The xylem radii are constrictive near the cube and gradually enlarge away from it.

## Plate1-

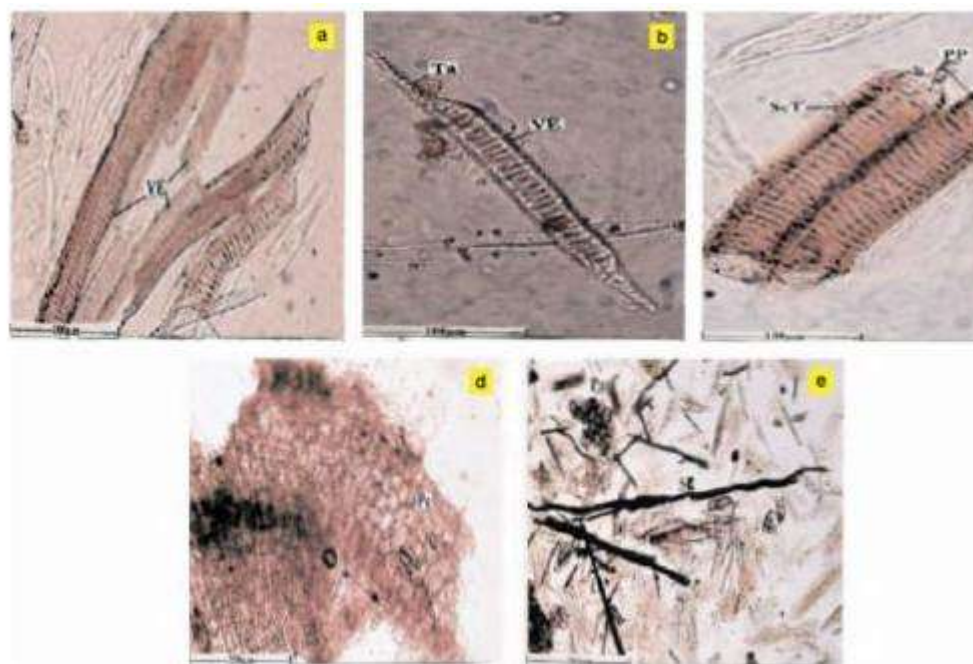


**T. S. of *Anacyclus pyrethrum* root:** **a**-T.S. of root – showing periderm and secondary phloem, **b**-T.S of root–through upper thick part: periderm and secondary phloem, **c**-T.S of root – pith and secondary xylem, **d**-T.S. of root – secondary xylem and central sclerotic pith, **e**-T.S of Periderm and Cortex – Enlarged, **f**-T.S of Secondary Phloem - Enlarged, **g**-T.S of Segments Secondary Xylem – Enlarged, **h**-T.S of Pith and Primary Xylem – Enlarged.

## Powder Microscopy

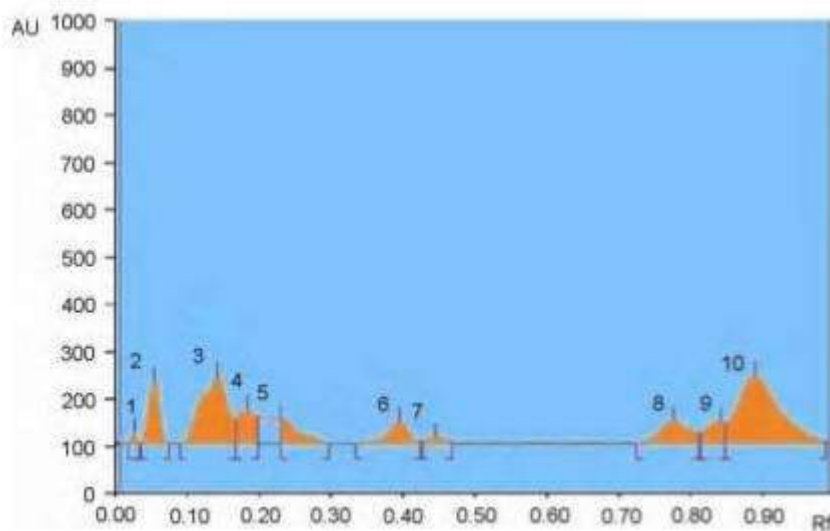
The following components are visible upon microscopic examination of the root material preparations in powder and macerates :

- (i) Vessel elements : Bundles of vessels or single vessel components can both be viewed. Scalariform lateral wall thickenings are present in the vessels. Several vessel components are long, slender, and have pronounced tails. The vessel components are 40 metres broad and 190 metres long. The elements of the tailed vessel are 260 m long and 20 m wide.
- (ii) Secretory canals : The powder contains several long, thin, unbranched, non – separate secretory channels. They are either whole or divided into little units and are heavily pigmented. The canals are five metres thick and several metres long.
- (iii) Periderm tissue : The powder frequently contains large fragments of periderm. The thin layer of parenchyma cells that make up the tissue pieces are arranged in uniform, parallel rows.



**Plate 2-Powder microscopy of *Anacyclus pyrethrum* root:** **a**-Bundle of vessels, **b**-A single tailed vessel element, **c**-Cylindrical tailless vessel element, **d**-Secretory canals – Isolated and scattered in the powder, **e**-Periderm tissue – A fragment.

#### Plate



**3 - HPTLC profile of alcohol extract of *Anacyclus pyrethrum* root.**

#### ANTIBACTERIAL ACTIVITY OF AQER QERHA

The agar well diffusion method was used to assess the antibacterial activity of aqueous extract of *Anacyclus pyrethrum*, *Azadirachta indica* (Neem), *Mentha piperita*, and *Psidium guajava* against the test organism *Staphylococcus aureus*, *Bacillus subtilis* and *Escherichia coli*.

The sensitivity and resistance of the test organism to the developed mouthwash were examined after the extracts were taken in various dilutions and inoculated against test organisms in Nutrient agar. The extracts were diluted because of their efficacy.

#### FORMULATION OF HERBAL MOUTHWASH

The formula listed in the table was used to make the herbal mouthwash. A 1 % w /v solution of salt in sterile water was prepared to create salt solution. The extracted elements are then combined in a certain ratio.





Table 1 : Formulation of Herbal Mouthwash

S. No	Ingredients	Botanical Name	Plant Part	Functions	Percentage
1	Neem	<i>Azadirachta indica</i>	Bark, stem	Antimicrobial	20%
2	Akarkara	<i>Anacyclus pyrethrum</i>	Root	Analgesic & Anti-inflammatory	20%
3	Gauva	<i>Psidium guajava</i>	Leaf	Anti-oxidant	20%
4	Peppermint	<i>Mentha piperita</i>	Leaf	Inhibit biofilm formation, freshen breathe	20%
5	Liquorice	<i>Glycyrrhiza Glabara</i>	Root	Sweetener, demulscent	10%
6	Salt		-	Osmolytic presevative	10%
7	Sodium Benzoate	-	-	Presevative	0.2%

#### Evaluation Parameters of Herbal Mouthwash

- ❖ **Colour and Odour** – Visual examination was used to test physical characteristics including colour and smell.
- ❖ **pH** – A digital pH metre was used to determine the pH of the produced mouthwash. A standard buffer solution was used to calibrate the pH metre. One millilitre of mouthwash was weighed, dissolved in fifty millilitres of distilled water, and its pH was measured.
- ❖ **Test for microbial growth in formulated mouthwash** : By using the streak plate approach, produced mouthwash was inoculated in the agar media plates while a control was made. The plates were put in the incubator, where they would stay for 24 hours at 37 °C. Plants were removed after the incubation time and examined for microbial development by comparing them to the control.
- ❖ **Stability Studies** : Any Pharmaceutical product's Formulation and preparation are lacking without adequate stability assessments of the finished product. This is carried out to assess the prepared product's physical and chemical stability and consequently it's safety. Accelerated stability tests, where the product is subjected to elevated temperature as per the ICH guideline, are a general method for forecasting the stability of any product. For a period of 3 months, a short – term accelerated stability assessment of the product formulations was conducted. The samples were kept between 3 and 5 degrees Celsius, at a relative humidity of 60 % at 250 degrees Celsius, and at 75 % at 400 degrees Celsius. Finally, samples preserved for an expedited research were taken out and examined every month.

#### RESULT

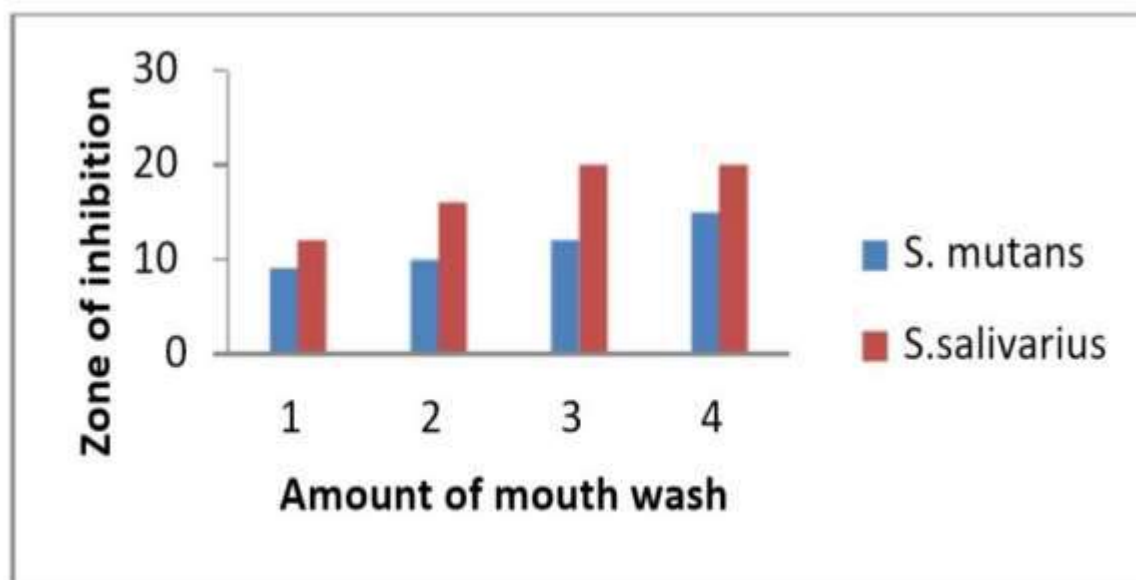
The compositions pH was discovered to be 6.1. This pH range of the formulations is appropriate for oral diseases because the skin has an acidic pH of roughly 5.5. Heavy metals were discovered to be absent from the formulations. In contrast to other products on the market, this mouthwash is made entirely from herbs without the use of any alcohol or other ingredients.

When used in mouthwash along with regular brushing and flossing, Antimicrobial components like Neem, Akarkara, and other vital plant extracts have been shown to reduce plaque and gingivitis. The findings demonstrated the high Antibacterial activity of the herbal mouthwash and the ability of the current product to inhibit bacterial development in the oral cavity. Oral microbial burden and oral illnesses are known to be related.



**Table 2. Results of stability study of herbal mouthwash**

TEMPERATURE	EVALUATION PARAMETERS	OBSERVATION (Months)			
		0	1	2	3
3 – 5°C	Visual Appearance	Light brown	Light brown	Light brown	Light brown
	Phase Separation	Nil	Nil	Nil	Nil
	Homogeneity	Good	Good	Good	Good
Room Temperature (25°C RH=60%)	Visual Appearance	Light brown	Light brown	Light brown	Light brown
	Phase Separation	Nil	Nil	Nil	Nil
	Homogeneity	Good	Good	Good	Good
40°C±2°C RH=75%	Visual Appearance	Light brown	Light brown	Light brown	Light brown
	Phase Separation	Nil	Nil	Nil	Nil
	Homogeneity	Good	Good	Good	Good



**Fig. 1.Result of agar well diffusion antibacterial assay**

#### CLINICAL USES OF AQER QERHA

##### 1) Traditional External Uses Of Aqer Qerha –

- Dantasula (Toothache) : In cases of Dantasula, tooth powder made from the roots of Akarkara and Karpura (Cinnamomum camphora) is employed.
- Akarkara is massaged into hemiplegia and neurological debility while using oil.
- Gargling with an Akarkara root decoction can treat tonsillitis and dental cavities.
- Externally, Akarkara is utilised for absorption and Dara. When Akarkara is applied, the skin becomes red and boils develop.
- Akarkara is applied externally to treat Shool (as it has Analgesic properties).
- Its Nasya is prescribed for colds and persistent rhinitis.
- In the Unani System of Medicine, numerous aphrodisiac formulas are made with Akarkara.



## 2) Traditional Internal Uses Of Ager Qerha

- Apasmara (Epilepsy) : Kwatha (Decoction) of Akarkara and Brahmi (*Bacopa monnieri*) is particularly effective in treating Epilepsy in Apasmara (Epilepsy).
- Internal use of Akarkara is used to treat a variety of Vataja problems.
- A modest dose of Akarkara stimulates hunger in Pittakshaya and indigestion.
- The heart rate goes up.
- Akarkara is effective in treating STDs and inflammatory illness.
- Helpful for voice hoarseness and cough. Similar to the *Acorus calamus*, it is also employed in youngsters.
- It helps in diabetes.
- Akarkara is highly helpful for impotence brought on by nerve weakness, or *avrishyata*.
- Akarkara is a rejuvenator used for *kaphaja* diseases.

## Benefits of Akarkara in Diabetes

- In diabetic animal models, oral administration of the root extract of Akarkara was helpful in lowering elevated blood glucose levels.
- In research on animals, Akarkara might be beneficial for treating diabetes.
- To make it a commonly used anti – diabetes drug, additional human trials awaited.

## Benefits of Akarkara on Central Nervous System (CNS)

- In animal trials, Akarkara root extract significantly reduced depressive symptoms.
- Animal studies using Akarkara also demonstrated its effects as a muscle relaxant.
- By raising the levels of Cholinesterase enzyme in the brain, the extract of Akarkara improved cognitive functions and improved memory.
- Akarkara extract also exhibited anticonvulsant properties.
- In an animal model of seizures, the extract decreased oxidative stress and seizures linked to cognitive impairment. Animal studies have verified Akarkara's CNS effects.
- However, experiments are still needed to confirm the same activity in humans.

## Benefits of Akarkara for Immunity

- In rat models, Akarkara extract exhibited immunostimulatory action.
- Both the humoral and cellular components of immunity significantly improved.
- The findings point to Akarkara's potential utility as an immunomodulator in the Ayurvedic medical system.

## Benefits of Akarkara in Wound Healing

- Rat's improved wound diameter demonstrated the effectiveness of the Akarkara plant extract in Wound Healing.
- The Antibacterial quality of Akarkara may be responsible for its wound – healing abilities.
- The anti – inflammatory properties of Akarkara may potentially contribute to the benefit of wound healing.

## Benefits of Akarkara in Digestion

Akarkara encourages the production of saliva and other digestive enzymes, which helps ensure a healthy digestion. Additionally, it enhances digestion and alleviates indigestion. The remarkable therapeutic plant Akarkara is frequently only recognised as a spice. However the Akarkara has a wide range of applications and health advantages. It is therefore time for us to utilise this herb's full potential for the benefit of our health.

**Work as a Brain Tonic :** Akarkara boots memory and functions as a brain tonic. Due to its neuroprotective and anticonvulsant characteristics, it aids in regulating Epilepsy.

**Enhances Immunity :** This substance boots immunity and reduces inflammation.

**Encourages Saliva Secretion:** The roots are frequently used to alleviate toothache and encourage saliva secretion. Chewing them helps prevent mouth and throat dryness.

**Improves Respiratory Health:** The plant is used to treat chronic catarrh, pyorrhoea, the common cold, headache, persistent colds, tonsillitis, sore throat and congestion.

## RECOMMENDED DOSAGE OF AKARKARA

- Akarkara Capsule - 1-2 capsules of the Akarkara capsules once or twice daily.
- Akarkara Powder - 2-4 pinches of Akarkara powder, once or twice daily.

## HOW TO USE AKARKARA

### 1. Akarkara Capsule

- a. Consume 1 -2 Akarkara capsules.



- b. Consume once or twice daily after meals with plain water.
2. Akarkara Powder
  - a. Take 2-4 pinches of the powdered Akarkara .
  - b. Consume once or twice a day after meals with plain water or honey.

### Adverse Effects Of Aqer Qerha

If the herb is taken in excess, it might cause trembling, excessive salivation, excessive nerve stimulation, and even unconsciousness.

## RECENT RESEARCH ON AQER QERHA

- *Anacyclus pyrethrum*'s impact on healthy and chemically inhibited immune systems was investigated in vivo. Following a twofold increase in extract dosage, immunostimulatory activity doubled. The humoral component of the immunity showed a large improvement, while the cellular components of the immunity showed a highly significant change. The findings thus give credence to the use of *Anacyclus pyrethrum* in the Ayurvedic medical system as an immunomodulator and adaptogen. Chauhan NS, Sharma V, Thakur M, and Dixit VK. The immunomodulatory properties of petroleum, another *Anacyclus pyrethrum* extract. 2010 November ; 48 (11):1247-54 in Pharm Biol.
- *Anacyclus pyrethrum*'s neuropharmacological profile was examined in a study. The CNS activity of the ethanolic extract of Akarakarbha was examined in this study to assess the sedative, muscle – relaxant, Nootropic, and antidepressant properties in rats, according to the study. Darwin, C. R., Sujith, K. and Suba V. (2011). *Anacyclus pyrethrum* ethanolic extract's neuropharmacological profile in albino Wistar rats.
- An investigation of Akarakarbha's antipyretic properties was conducted. First, rats were given 1 mg /kg of intra – peritoneal yeast to produce pyrexia. Then, an intraperitoneal injection of an ethanolic extract of Akarakarbha at a dosage of 1000mg /kg is given. This study found that the usual medication, paracetamol, and the *Anacyclus pyrethrum* extract were quite similar. *Anacyclus pyrethrum*'s acute study was also conducted in this investigation, and its maximum fatal dosage of 2g /kg was discovered. DC, P., and P. Kirtana (2014). *Anacyclus* ethanolic extract antipyretic effect study.
- *Anacyclus pyrethrum* was the subject of a study to assess its aphrodisiac and reproductive properties. For evaluation, an aqueous extract of Akarkara's root was used. The fructose content of seminal vesicles in rats was measured. On albino rats, it was discovered that the fructose level and sperm count were dramatically enhanced after using an aqueous extract of the roots. It was also discovered that albino rat's sexual behaviour had improved. V. Sharma, M. Thakur, N. S. Chauhan, and V. K. Dixit (2009). *Anacyclus pyrethrum* DC was tested for its anabolic, Aphrodisiac and reproductive effects on male rats. Pharmaceutical company Scientia, 77,97 – 110.

## DISCUSSION & CONCLUSION

Aqer Qerha is a well known Medicinal plant that is widely utilised in tropical nations, especially India, to treat neurological diseases. There are various advantageous uses for it, some of which have been experimentally shown, and efforts have been undertaken to identify potential active ingredients and their mechanism of action, opening up new avenues for clinical trials. The current review had compiled all of the information that Unani Attiba had extensively described in their priceless old classical work. The extensive material that is already accessible on Aqer Qerha will support future studies of this plant.

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# IMPACT OF METHOD OF TEACHING ON SELECTED SKILL PERFORMANCE COMPONENTS OF HANDBALL AMONG SCHOOL BOYS

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## ABSTRACT

*The purpose of the study was to find out impact of method of teaching on selected skill performance components of handball among school boys. To achieve the purpose of the study, forty school boys were selected randomly 12 to 14 years of age from thondamuthur boy's higher secondary school at Coimbatore. The selected subjects were divided into two equal groups namely experimental and control groups of 20 subjects each. The training period was limited to twelve weeks and for three days per week. The whole part whole method of teaching was selected as independent variables and dribbling, passing, shooting, throwing and over all playing ability were selected as dependent variables and it was dribbling was measured by Knox speed dribble test, the unit of measurement was (in Seconds), Passing was measured by Zinn handball test, the unit of measurement as (in Seconds), shooting was measured by Zinn handball test, the unit of measurement was in points, throwing was measured by Zinn handball test, the unit of measurement was in points, Overall playing ability was measured by judgement ration, the unit of measurement was in points. respectively. All the subjects were tested two days before and immediately after the experimental period on the selected dependent variables. The obtained data from the experimental group and control group before and after the experimental period were statistically analyzed with dependent 't'-test to find out significant improvements. The level of significance was fixed at 0.05 level confidences for all the cases. Significant improvement was found on dribbling, passing, shooting, throwing and over all playing ability of experimental group due to the whole part whole method of teaching when compared to the control group.*

**KEYWORDS:** dribbling, passing, shooting, throwing and over all playing ability.

## INTRODUCTION

The main aim and object of all education is all – around development of individual's personality. To achieve this aim it is very essential for an educational institution or school to provide different activities to its students. Over the year, the educationists have realized to a great extent that the center of all education is the child or individual. This implies that the teaching – learning process in education has taken a broader meaning and scope. It is now absurd, if not foolish, to think that teaching is only, passing on the experiences from one generation to the other or that it is merely instruction i.e., do's and do not's of behavior (Mike Anderson 2010).

**Whole – Part - Whole Method** in this method a full and clear conception of the whole activity is given at the outset. Then the activity is divided into its meaningful parts and taught. After practising these parts as separate skills they are put in a practice game situation. Thus initial practice is on the individual parts.

Then the parts are combined into the whole activity. This method is highly recommended to teach major games.

**Skill performance** variables are the abilities that enable players to execute the technical aspects of handball effectively. These include passing, shooting, dribbling, and defending. The use of different teaching and coaching methods can help school boys to develop these skills.

One effective method is the use of game-based learning, which involves incorporating game-like situations into training sessions. This helps players to develop their skills in a realistic and practical setting. Another effective method is the use of video analysis, which involves analyzing footage of games and training sessions to identify areas for improvement.

Coaching can also focus on specific skills, such as shooting, by breaking down the technique into smaller parts and practicing each part individually. This can help to improve accuracy and consistency.



## METHODOLOGY

For the purpose of this study, altogether forty school boys were selected randomly 12 to 14 years of age from thondamuthur boy's higher secondary school at Coimbatore. Their age group ranges from 12 to 14 years. They were divided into two groups of 20 each. The Experimental group I would undergo Whole – Part - Whole Method. In this method a full and clear conception of the whole activity is given at the outset. Then the activity is divided into its meaningful parts and taught. After practising these parts as separate skills they are put in a

practice game situation. Thus initial practice is on the individual parts. Then the parts are combined into the whole activity. This method is highly recommended to teach major games.

. The second group Control group did not undergo any training program. Pre – test and post –test would be conducted. Treatment would be given for twelve weeks. It would be find out finally the out impact of method of teaching on selected skill performance components of handball among school boys in scientific methods.

The selected tests were measured by following units for testing:

Criterion Variables	Test Items	Unit Measurements
Dribbling	Knox speed dribble test	In Seconds
Passing	Zinn handball test	In Seconds
Shooting	Zinn handball test	In Points
Throwing	Bergemann test	In Points
over all playing ability	Judges Rating Scale	In Points

## TRAINING PROGRAMME

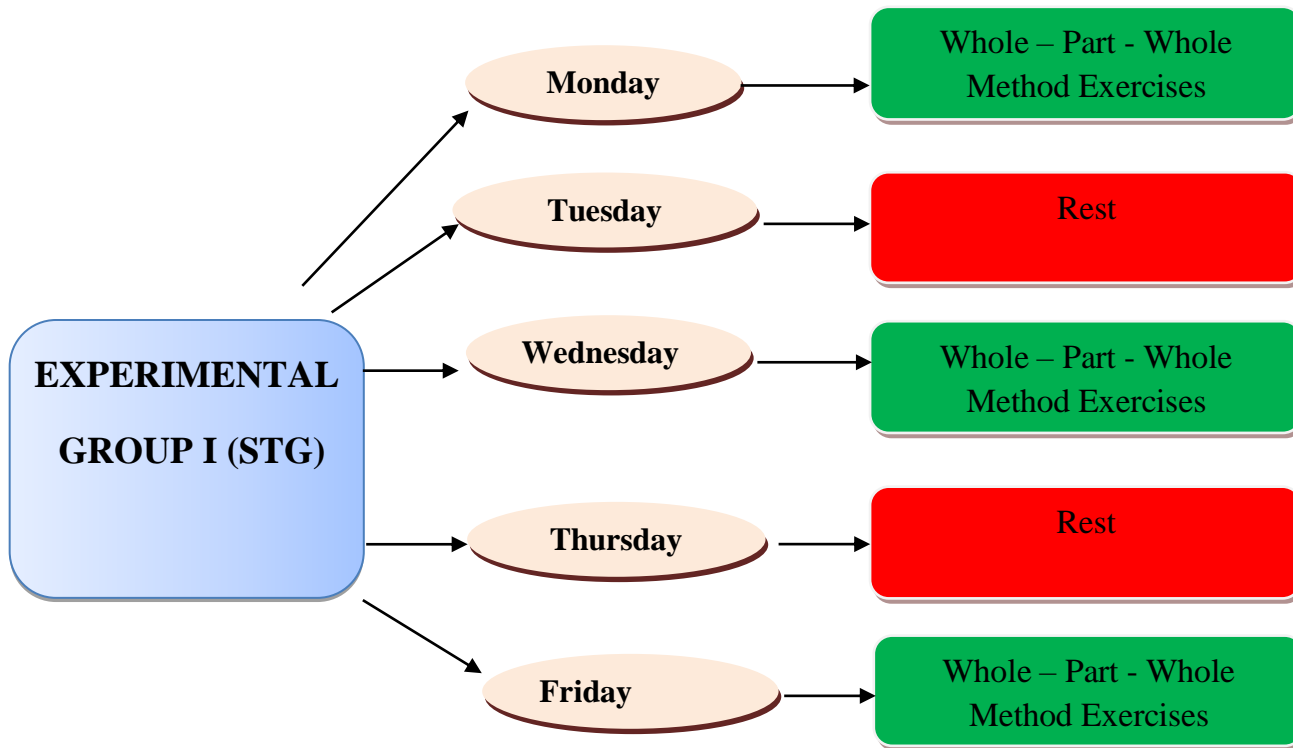
The following schedule of training was given for the Whole – Part - Whole Method group.

Group	Design of the Training
Experimental Group I	Whole – Part - Whole Method
Control Group II	Did not do any Specific Training
Training Duration	90 Minutes
Training Session	3 Days a week
Total Length of Training	Twelve weeks



**CHART-1**  
**EXPERIMENTAL TREATMENT ADOPTED FOR EXPERIMENTAL GROUP-I**

**WHOLE – PART - WHOLE METHOD EXERCISES GROUP (WPWMEG)**





**TABLE- I**  
**PROGRESSION OF LOAD FOR EXPERIMENTAL GROUP-I (STG)**

Weeks	Swissball Training (Monday,Wednesday,Friday)	Duration(10+25+40- +15= 60 min)	Load
<b>I</b> <b>to</b> <b>IV</b>	<b>Warm -up</b> 1000M Walking / Jogging  Over head pass Writs pass Jump pass Behind the back pass Behind the head pass <b>Warm- down</b>	<b>5 minutes</b>  10 minutes  <b>40 minutes</b>  <b>5 minutes</b>	       4 to 8rep x 2 sets
<b>V</b> <b>to VIII</b>	<b>Warm- up</b> 2000 M Walking /Jogging  Dribbling full court Dribble routine Dribble train Dribble relay Dribble chase down <b>Warming down</b>	<b>5 minutes</b>  10 minutes  <b>40 minutes</b>  <b>5 minutes</b>	       8 to12rep x 3 sets
<b>IX</b> <b>to</b> <b>XII</b>	<b>Warm- up</b>  3000 M Walking /Jogging  Set shoot Jump shoot 2 foot jump shoot Wing shoot Positional shoot <b>Warming down</b>	<b>5 minutes</b>  10 minutes  <b>40 minutes</b>  <b>5 minutes</b>	       12 to15 rep x 4 sets

## EXPERIMENTAL DESIGN

The experimental group was given swissball training exercises after taking an initial test. After the initial test selected exercises were given for twelve weeks in three days. The time of practice was from 6.00AM to 7.30 AM. The control groups were not participating in any of the special training programme. However they were allowed to participate in their regular education classes in the school as per their curriculum.

## STATISTICAL TECHNIQUE

The dated were statistically evaluated with dependent t-test to discovery obtainable significant development. The level of significance was secure at 0.05 level of confidence for all the cases.

## RESULTS AND DISCUSSIONS

The impact of independent variables on each criterion variables was considered by dependent't' – test on the data achieved for dribbling, passing, shooting, throwing and over all playing ability. The pretest and post- test means of experimental group and control group have been analyzed and existing in Table II & III.





**TABLE – II**  
**MEAN AND DEPENDANT ‘t’ – RATIO FOR THE PRE AND POST TESTS ON SPEED, STRENGTH, FLEXIBILITY, AGILITY AND BALANCE OF EXPERIMENTAL GROUPS**

S.No	Variables	Pre-test Mean±SD	Post-test Mean±SD	Diff	SE	‘t’ –ratio
1.	Dribbling	20.30 ± 1.38	25.35 ± 1.39	0.29	0.61	57.31*
2.	Passing	27.65 ± 1.81	31.75 ± 1.71	0.40	0.13	59.57*
3.	Shooting	26.90 ± 1.77	30.50 ± 1.84	0.41	0.24	28.78*
4.	Throwing	6.25 ± 0.78	7.95 ± 0.68	0.17	.05	13.30*
5.	Over all playing ability	5.65 ± 0.48	8.55 ± 0.51	0.11	0.22	42.13*

\*Significance at 0.05 level of confidence (2.09).

**TABLE – III**  
**MEAN AND DEPENDANT ‘t’ – RATIO FOR THE PRE AND POST TESTS ON SPEED, STRENGTH, FLEXIBILITY, AGILITY AND BALANCE OF CONTROL GROUP**

S.No	Variables	Pretest Mean±SD	Post test Mean±SD	Diff	SE	‘t’–ratio
1.	Dribbling	20.25 ± 1.37	20.35 ± 1.38	0.31	0.61	1.45
2.	Passing	27.50 ± 1.73	27.75 ± 1.71	0.38	0.13	0.40
3.	Shooting	26.90 ± 1.74	27.00 ± 1.89	.17	.18	.809
4.	Throwing	6.05 ± 0.82	6.15 ± 0.74	0.30	0.27	1.45
5.	Over all playing ability	5.55 ± 0.51	5.70 ± 0.47	0.10	0.25	1.83

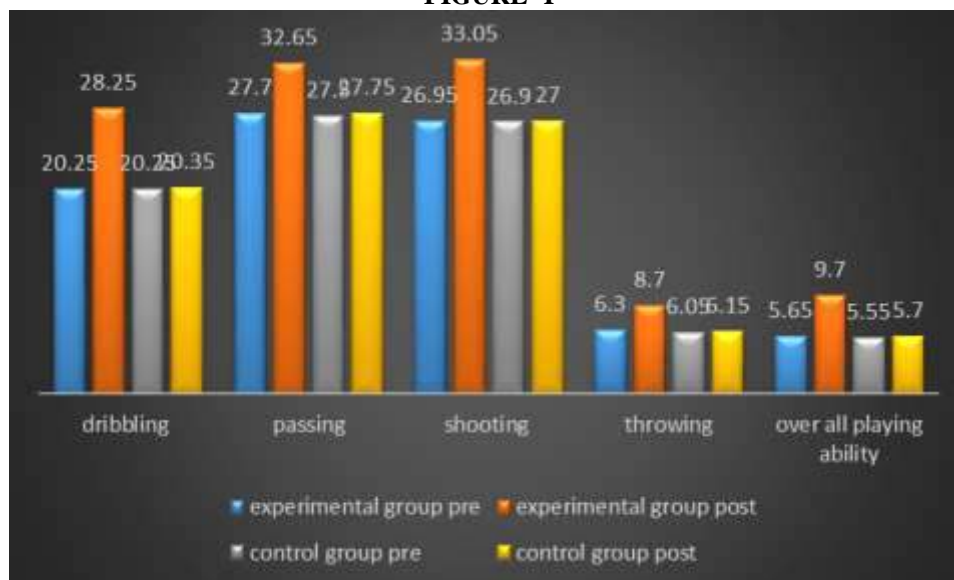
\*Significance at 0.05 level of confidence(2.09).

The table II and III, shows that, the obtained ‘t’–ratio between the pre and post-test means of experimental group were 57.31, 59.71, 28.78, 13.30 and 42.13 and control group were 1.45, 0.40, 0.809, 1.45 and 1.83 respectively. The table values required for significant difference with df 24 at 0.05 level of confidence. Since the obtained ‘t’ – ratio value of experimental and control group on dribbling, passing, shooting, throwing and

over all playing ability were greater than the table value 2.09, it was concluded that the Whole – Part - Whole Method group had significantly improved dribbling, passing, shooting, throwing and over all playing ability of experimental group.

The pre and post- test mean value of experimental and control group on dribbling, passing, shooting, throwing and over all playing ability were graphically represented in the figure 1.

**FIGURE -I**





## DISCUSSION ON FINDINGS

The finding of the study reveals that the Whole – Part - Whole Method group because significant improvement in their physical fitness components. In the view of control group there was no significant improvement in their skill performance components. The findings of the study had close relationship with the results of the previous study conducted by Moradi, J., Movahedi, A., & Salehi, H. (2014). Specificity of learning a sport skill to the visual condition of acquisition.

## CONCLUSIONS

Improvement on dribbling, passing, shooting, throwing and over all playing ability was found significantly on experimental group due to the impact of Whole – Part - Whole Method group on physical fitness when compared to the control group.

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# THE ROLE OF ENTREPRENEURSHIP IN TEACHER EDUCATION AND GOAL 1 ACHIEVEMENT

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## ABSTRACT

*Education has been regarded as the vehicle for entrepreneurship skills and scientific development. It had undoubtedly broadened horizons, brought about creative minds, skills and talents which are the hallmark of scientific development and innovations. The paper focussed on concept of entrepreneurship education, teacher education, national development, teacher education and entrepreneurship for national development and role of government in entrepreneurship development. The paper concludes that, entrepreneurship education has the advantage of equipping individuals with skills necessary to be self-reliant and successful enterprisers and should be made part and parcel of teacher education at all level. Recommendations were also made which include: government should make entrepreneurship education part of teacher education at the various levels of education, more scholarly articles on entrepreneurship education for teachers should be made and related associations or bodies should organize workshops, seminars and talks on entrepreneurship education for their members.*

**KEY WORD:** *Entrepreneurship, teacher, education, national, development.*

## INTRODUCTION

Recent economic activities has shown that, it is very important for governments to provide the necessary infrastructures and policies that are required for skill acquisition among her citizenry. This is because without appropriate policy and technological skill, entrepreneurial spirit which drives economic development through job creation will be elusive. Education has been regarded as the vehicle for entrepreneurship skills and scientific development. It had undoubtedly broadened horizons, brought about creative minds, skills and talents which are the hallmark of scientific development and innovations. Bosah (2008) noted that, a country may be said to be developed or developing positively if her citizen's standard of living is high, the health of individuals is sound, there is adequate provision of infrastructure, the government is stable, income equitably distributed, and the skills, capabilities and knowledge of human beings are optimally developed and maximally utilized.

In large parts of Africa, the formal economy is weak and millions of young school leavers on the continent fail to find formal employment in an environment where jobs are scarce. For many of them, post primary education for various reasons is not an option. Their only alternative is to make a living in the informal sector. Without relevant qualifications for self-employment, the outcome is generally meagre. In this difficult situation, there is a growing awareness that a traditional academic education is inadequate to equip young people with the knowledge and skills they would need to improve their chances of a decent life. In order

to meet this challenge, an increasing number of countries are introducing Entrepreneurship Education (EE). However, Obasi, Okogbe and Ike (2011) observed that, the essential role that education plays in the development of student's mindset, and in particular the central role that teachers play in this process requires nothing less than a change in the approach to education, emphasizing active learning and the provision of new experiences for students outside of the classroom.

Consequently, we have come to understand through hardship and suffering the importance of self-employment and self-reliance. However, instead of graduates and individuals chasing wind in the name of white collar jobs in the big cities, they resorted to self-employed commercial undertakings in order to keep surviving in a depressed and battered economy. In view of the objectives of Nigerian education (FRN, 2013), individuals are expected to be equipped with necessary and desired skills that will make them independent and self-reliant. However, that is why the curriculum, content, objective and philosophy of teacher education must be geared towards the social changes with emerging demands that affect both the individuals and the nation.

## Concept of Entrepreneurship Education

Mamman (2009) saw entrepreneurship as an organizational and management approach that enables a person respond to change and solves problems in whatever situation they may find themselves. Similarly, Entrepreneurship is the art with which the resources of production, Land, Labour and



reproducible capital can be combined in a manner that could achieve the profit aim of small scale enterprises. Entrepreneurship education is designed for the learner to become an entrepreneur. Susan (2013) noted that, an entrepreneur is a person who starts new business venture. Such ventures can be based on totally new ideas, and new ways of doing things or attempting what no one else has done before. An entrepreneur has the talent of seeing opportunities and ability to develop those opportunities into profit making business. Lundstrom and Stevenson (2005) described entrepreneurship as a dynamic process of vision change and creation. This implies that entrepreneurship requires application of energy and passion towards the creation and implementation of new ideas and creative solutions. Entrepreneurship skills are business skills which individuals acquire to enable them function effectively in the turbulent business environment (Ademiluyi, 2007).

According to Uko (2010), entrepreneurship skills are the abilities to manipulate input resources efficiently with a particular enterprise to achieve production goals. Baba (2013) described entrepreneurship education as a specialized training given to the students or trainees to acquire skills, ideas, managerial abilities and capabilities for self-employment than being employed for pay. It includes creativity, innovation, risk-taking, as well as the ability to plan, manage projects in order to achieve the objectives and to master one's own life. Omosewo, Akanmu and Asebiomo (2013) posited that, the need for introducing entrepreneurship education in Nigeria's educational system can easily be attributed to the scary unemployment statistics of the nation. The high unemployment rate in Nigeria is the result of academic institutions turning out graduates mostly regarded as unemployable by employers of labour because they lack technical/vocational and entrepreneurial skills. To that extent, entrepreneurship education is an approach to stimulate students to be curious and creative. Stimulating their entrepreneurial abilities and making them confident about education as a specialized training given to the students to acquire skills, idea, managerial abilities and capabilities for self-employment than being employed for pay.

Salleh and Gibbs (2009) conceptualized an entrepreneur as someone who exhibits a distinctive set of enterprising attributes. According to Salleh and Gibbs, these attributes embrace a number of skills, personality traits, acquire experiences and attitude. The enterprising attributes therefore, include creativity, initiative taking, analytical ability, high autonomy and achievement motivation. Entrepreneurship education is designed to provide students with the knowledge, skills and motivation to start up businesses. Ojeifo (2013) noted that, entrepreneurship education is designed to offer functional education for the youth that will enable them to be self employed and self-oriented. It also provides the graduates with adequate training that will enable them to be creative and innovative in identifying novel business opportunities. However, Ojeifo observed that, entrepreneurship education also serve as a catalyst for economic growth and development, reduce high rate of poverty, rural-urban migration and offer tertiary institution graduates with adequate training in

risk management, to make certain bearing feasible. In other words, entrepreneurship education provides the means on how to design, develop, organize and manage a business venture along with any of the risks involved in the process.

### **Teacher Education**

Teacher education seeks for the best way to produce good teachers. It is this quest that lead to formulation of many principles, laws and theories in teaching and learning. Acquisition of skills and competencies which distinguish a professional educator from other occupational groups is imperative for effective teaching and learning at all levels of learning. A good teacher must therefore have the knowledge of the learner, the learner's needs and aspiration and that of the society, creativity, school climate and motivation. Okafor (2008) defined teacher education as that form of education which is properly planned and systematically tailored and applied for the cultivation of those who teach or will teach particularly but not exclusively in primary and post primary levels of teaching. In its extended dimension, it encompasses also the preparation of administrators, supervisors and guidance counsellors within the same frame of reference. In this case, the academic curriculum is designed solely to train teachers so that they can impart academic knowledge to provide manpower for other services.

Enyi (2004) believed that teacher education should be basically related to every phase of development in education in Nigeria. He however said that no adequate training can take place without competent teachers to handle the programmes. However, because of economic hardship in Nigeria which leads to unemployment, most teachers could neither be absorbed in the teaching profession nor in any other sector. Some of them who manage to fix themselves somewhere are either wrongly deployed or underutilized or under paid. And no nation is said to be growing if the skills, knowledge and capabilities of its citizens are not properly utilized (Eze, 2005). Thus, there is need to expose the individuals during the training to certain entrepreneurial skills that will make them stand on their own after the training without depending on the government.

### **National Development**

Development in common parlance may mean Growth or Change' or planned Growth. Several developmental programmes, project and policies initiated in the country are directed towards higher income and living standards through industrialization and modernization, expansion of social services and cultural activities, full exploitation of mineral and natural resources (Bosah, 2008). In an attempt to present an approach to national development based upon the simple idea that human resources is the ultimate basis of wealth of nations, Harbison (2007) claimed that, the goals of development are the maximum possible utilization of human beings in productive activities, and the fullest possible development of the skills, knowledge and capabilities of the labour force. He argued that if these goals are pursued, then others such as economic growth, higher levels of living and more equitable distribution of income would be the likely





consequences. Put in another way, Harbison is of the view that if the skills knowledge or capabilities of human beings in any given society are optimally developed and maximally utilized, there will be economic growth, higher levels of living and more equitable distribution of income.

### **Teacher Education and Entrepreneurship for National Development**

The role of teacher education is better explained in Okafor (2008) where he stated that, education is an indispensable factor in the solution of modern equations. But in the new world order, there can be no effective educational system without teacher education. Good and purposeful teacher and instructional programming can no longer be left to chance. Teacher education is the soul of every modern education system, and a nation without good teacher education is in a moribund state (Susan, 2013). The growth of such a nation will be stunted, if not distorted and it is more applicable to developing nations. The role of teacher education in development cannot be over-emphasised. This is the reason why the Ashby Commission was moved in laying special emphasis on it when it said since a teaching staff of proper quality is the first step in any effort to train skilled manpower, this task demands first priority. The essential embodiment in this commission's ideal has been since re-echoed indirectly by the National Policy on Education (NPE) when after acknowledging the vital role of education in nation building, it stated the now famous dictum that no education system can rise above the quality of its teacher, (Lassa, 2006).

In the same vein, Nwatu (2006) maintained that, the making of civil engineer, or a medical doctor, or an accountant, or an architect, or a petroleum engineer or an aircraft technician, or a food technologist, or indeed any other professional in the areas of Science and technology begins with the lessons in elementary science and technology. Therefore, it is the teacher that lays the foundation of technological development in any country. Both the quality and the pace of technological advancement of a nation depend on the quality and efficiency of the teachers. If a nation is to effectively develop a culture of science and technology, one of the best ways to do so is through the schools, starting with the teachers. It is self-evident that teachers' knowledge and attitudes have a way of diffusing and filtering through to pupils/students.

Entrepreneur is a businessman who assumes the risks of bringing together the means of production including capital, labour and materials and receives his reward in profit from the market value of his product. The aim of entrepreneurship education is to provide individuals with necessary skills and knowledge that will make them self-reliant. Presently, our formal education system is general and teacher education in particular seem to be continuously turning out people who are ill-prepared to help in the development of the country because they are either wrongly developed or underutilized. Still thousands are jobless. Teacher education programme in Nigeria will continue to be quantitatively impressive but qualitatively deficient until it starts to produce or aid producing individuals who are adequately

equipped to stand on their own without much dependence on the government.

Thus Nigeria ends up in producing graduates whose major contribution to the development of the economy is receiving their salaries. What I am saying is that our teacher education system is not what is needed especially now that Nigeria economy is in shamble. What is needed therefore is the type that makes individuals self-employed and reliant. One of the ways of achieving these noble objectives of teacher education is by inculcating entrepreneurship education in the curriculum at by education in Nigeria. This is because teachers are the brains behind any meaningful development of any nation.

Lassa (2006) enumerated some of the strategies for encouraging entrepreneurship education in Teacher education in Nigeria.

They include:

- *Building achievement motivation in teaching/learning situations* Entrepreneurship education should seek to motivate students to seek for success in new ventures through one's effort and skill and not just by chance.
- *Quality performance of models* Teaching of certain courses should not be divorced from history. References should be made to the experiences and exploits of successful entrepreneurs who started from the slum waded through poverty and penury, employing their wit and resourcefulness to create, manage, and control resources that ultimately brought them into fame.
- *Career Education* Career education should seek to orient young Nigerians toward creative and honourable means of livelihood at all levels education.
- *Courses in Management efficiency* Entrepreneurs have been classified into two: Opportunities and craftsman. Both are needed in Nigeria for rapid socio-economic and industrial development.

### **The Role of Government in Entrepreneurship Development**

In the complex economic environment in which most individuals operate, not only is the role of government in entrepreneurship self evident, there is also a considerable room for government to facilitate entrepreneurship in a non-interventionist way. A smooth-running market economy is the best way to encourage entrepreneurship rather than direct support (Chai, 2006). However, the role of government can be to provide business-friendly infrastructure by providing a framework of enforceable competition law that discourage monopolies and unfair competition as well as by intellectual property rights that protect a firm's valuable, but often intangible, knowledge assets. Many governments view the entrepreneur as the solution to weak economic performance and job creation. Anette, (2011) note that, what remains a challenge is a better understanding of the factors that determine entrepreneurship and the environment that motivates and supports the growth of entrepreneurs. However, knowledge of the primary catalyst for entrepreneurship is



essential for understanding the microeconomic foundations that will lead to growth in emerging economies. These primary catalysts for entrepreneurship according to Anette, (2011) include:

1. **Creating an enabling environment for innovation and entrepreneurship:** The very nature of innovation means that entrepreneurs will either take advantage of existing gaps or forge into new territories. Either way, creating an enabling environment that lowers the barriers to market entry will certainly spur entrepreneurship. To achieve this objective, entrepreneurship should be integrated into the country's economic development efforts by: Making entrepreneurship part of the explicit mission of the country's economic development efforts; Creating support mechanisms for entrepreneurs through the establishment of economic development programs that target entrepreneurs; Using entrepreneurial, capital, and research networks to deliver services for entrepreneurs. By integrating entrepreneurship into the country's development efforts, government lends credibility and draws attention to the role of entrepreneurs allowing them to gather the momentum required to enable them actively participate in the transformation of the economy.
2. **Offering incentives that foster entrepreneurship:** Numerous examples indicate that access to reliable and steady sources of funding is essential to entrepreneurial growth and sustainability. By establishing a framework that encourages the funding of new ventures, government can help ensure that solutions that work will sustain and grow their impact. To achieve this objective, government needs not only to invest in diverse sources of risk capital to fund entrepreneurs, but also to provide the fiscal incentives for investors to provide funding by: Developing a rich base of early-stage capital options to fund entrepreneurs; Supporting and incentivizing angel investors; Ensuring that risk capital is available to the wider society to broaden and enhance entrepreneurial capacity.
3. **Taking successful approaches to scale:** Expanding the reach of a proven solution is often critical if the solution is to become truly transformative. Having observed the difficulties while recognizing and supporting the funding to scale of successful initiatives; government can play a crucial role in expanding the reach of solutions that works by ensuring that knowledge is produced with clear standards and with easily accessible data. Building a repository and disseminating information on what works and what does not and building entrepreneurial readiness through offering entrepreneurship education in the curriculum.

## CONCLUSION

Nigeria is a country with numerous problems and two of such problems are bad economy and unemployment. Economic depression is a serious impediment to national development. Entrepreneurship is one of the answers to this problem. Entrepreneurship education has the advantage of equipping individuals with skills necessary to be self-reliant and successful enterprisers. Entrepreneurship education should be made part and parcel of teacher education at all level especially primary and secondary school levels where the foundation of technological, scientific, cultural, political, economic for effective enhancement of entrepreneurship in teacher education.

## RECOMMENDATIONS

1. Government should make entrepreneurship education part of teacher education at the various levels of education.
2. A call for scholarly articles on entrepreneurship education for teachers should be made.
3. Related associations or bodies should organize workshops, seminars and talks on entrepreneurship education for their members.
4. Investment in research should be encouraged because through it knowledge expands and innovations emerge.

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# FROM DEADLINES TO TIMELINES: THE MEANINGFUL TRANSITION ON THE ACADEMIC LANDSCAPE

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## ABSTRACT

*Teachers the world over are constantly faced with the challenge of late submissions when it comes to students turning in their assignments. Analysis of the issue reveals that if the problem is traced to its grassroots, Academic Procrastination heads the list of causative factors. To surmount this hurdle, teachers have no viable option but to impose strict deadlines to ensure that students submit their course work without undue delay. The present study attempted to investigate and compare the popularity of 3 deadline schedules, namely Evenly Spaced Schedule, End Regimen and Self-imposed Schedule among Middle and High School students. The sample comprised of 373 students of a private aided English-medium State Board School in Mumbai. Results revealed that the vast majority of students in both school sections preferred the Self-imposed Schedule, followed by the End Regimen and the Evenly Spaced Schedule. An analysis of the possible bearing that the choice of deadline schedule could have on the quality of projects submitted by students, indicated that those opting for the Self-imposed and End Regimens produced work which was far more outstanding than those who opted for the Evenly Spaced Schedule. Results also implied that the Self-imposed regimen was most popular among students even when studied in relation to their level of procrastination. The study highlights the need for educators to help learners develop the skill of creating their own constructive timelines which would guide them to achieve academic targets in good time, instead of imposing deadlines which serve as a kill-joy and student stressor. INDEX TERMS- Academic Procrastination, Deadline, Evenly Spaced Schedule, Self-Imposed Schedule, End Regimen, Middle School, High School*

## 1. INTRODUCTION

In a world where everything is just one click away humans have become more laid-back. The situation becomes more intense when it comes to the world of learners and their tryst with education. They seek one-stop solutions for the completion of school assignments and tasks.

Procrastination has been referred to as the psychopathology of everyday life (Silver and Sabini, 1981). Procrastination is defined as delaying performance and tasks until a person becomes stressed as a result of running out of time. Academic procrastination is described as a postponement in commencing or completing an activity, such as an academic assignment, that an individual plans to complete but does not find motivating (Sepehrian, 2012). Procrastination has been emphasized as a major obstruction to academic success in most research (Hen and Goroshit, 2012). Cao (2012) claims that procrastination and motivation are intimately linked as students who lack the motivation fail to focus on and complete their assignments on time. Motivation is a strong indicator of encouraging oneself to do something (Amirullah and Boediono, 2004). Aremu et al. (2011) proposes that low energy, low motivation, and lack of confidence are all strong pointers of why students procrastinate. A study by Handoko (2012) revealed that students with higher motivation have the capability to accomplish targets in the set time frame and hence desist from Academic Procrastination. Pychyl and Flett (2012), described procrastination as a failure

of self-control. Students grapple with self-regulation as it demands a thorough understanding of how to successfully manage and instruct oneself (Zimmerman, 2002). It has been proposed that procrastination like other harmful habits is also driven by a lack of self-regulation. It is interesting to note that many intelligent individuals who procrastinate become successful. To succeed in the learning process, students must understand how to put self-regulation into practice making it a habit. Cognitive, metacognitive, motivational, and behavioral techniques are all included under the umbrella term of 'self-regulation'. Students who procrastinate usually perform poorly in any activity, as deferring activities pile up into loads of unfinished work and missed deadlines. This leads to a malicious cycle in which procrastinators receive lower grades than non-procrastinators. Nordby et al. (2017) assigned academic tasks to students and analysed the delays in their task submission. Results indicated that delays could be in the process of embarking on the activity, working at it, or even completing it. It is seen that academic procrastination could arise due to low motivation, lack of self-esteem, fear of failure, difficulty in understanding the topic, low energy levels, and poor organizational skills (Gunn, 2020). Shatz, 2018 opines that procrastination is also linked to psychological issues. Students may be discouraged by variables such as anxiety, fear of failure, and tiredness. When these psychological elements begin to overpower a student's self-control and motivation, they are unable to regulate their actions.





The concept of 'deadlines' evolved on the educational landscape in the hope that it would remedy 'academic procrastination', the most common syndrome affecting a vast majority of the student population. However, as the very word 'deadline' suggests, these cut-offs and target dates started to spell disaster for students, looming over them large and low like death sentences/penalties. Studies also indicate that people may procrastinate due to deadlines. Shorter time limits for completing a task are believed to lead to the production of more complicated goals, according to a study by Peters et al. (1984) based on Parkinson's Law, whereas longer time constraints are thought to contribute to the formation of easier tasks. Izmailov et al. (2016) recognized two possibilities of how Parkinson's Law could affect task completion. The first being, when people have extra time to do a task, they typically use it to "perfect" or "improve" other tasks, and as a result, the work starts to take up all available time. The second possibility is that people are discouraged from finishing work early, because doing so implies that the deadline was excessively long and that the job might have been completed much faster. Often, students lack the capacity to take the task seriously and fail to prioritize the hierarchy of which task should be done first. A study conducted at Stanford University indicated that the more time a student has to complete the task, the less the accomplishment (Pencavel, 2015). However, forcing oneself into adhering to strict deadlines is not the answer to this challenge, because it will result in other deviant behaviors. A review of earlier research thus indicates the need for educators to unearth an effective and flexible time management plan to help learners conquer the challenge of procrastination and identify a deadline schedule that works best in ensuring the completion of tasks by striking a healthy balance between punctuality and perfection.

The present study attempted to delve into students' preferences for different regimens of task completion in a bid to consider their views as important stakeholders in the process of education. The research endeavored to identify and compare the most popular deadline schedule among the student fraternity of Middle and High School. It also analyzed the choice of deadline in relation to the quality of work turned in by students and their level of procrastination. More importantly, the study proposed constructive remedial strategies that teachers can employ to help students evolve constructive and meaningful timelines to inculcate the healthy habit of resourceful time management, efficient multitasking and self-regulation.

## 2. OBJECTIVES

The objectives were as follows:

- ✓ To assess Middle/High school students' preferences for 3 selected Deadline Schedules.
- ✓ To identify the most popular of the 3 selected Deadline Schedules among Middle/High school students in the completion of school tasks and assignments.
- ✓ To compare the most popular of the 3 selected Deadline Schedules among Middle and High school students in the completion of school tasks and assignments.

- ✓ To assess the trend if any on comparing the Deadline Schedule opted for and the quality of tasks/assignments submitted by the Total number of Students.
- ✓ To assess the trend if any on comparing the Deadline Schedule opted for and the Level of Procrastination in the Total number of Students.

## 3. RESEARCH METHODOLOGY

The research design employed was descriptive and included a survey. It sought to analyse the level of procrastination and preference for 3 selected Deadline Schedules in Middle and High School students. It tried to explore any emerging trends in the choice of Deadline Schedule and its probable effect on the quality of assignments turned in as well as the level of procrastination.

The Students' Procrastination Perception Scale used for the study was a 3 point Likert scale comprising of 30 items related to 3 categories of factors responsible for Academic Procrastination, namely, Personal Factors, Social Factors and Life Style Factors. Based on the total scores obtained on the scale, students were categorized into High procrastinators, Medium procrastinators, Low procrastinators and Non-procrastinators. They were then allocated a task by the teacher which comprised of three assignments carrying 5 marks each. They were allowed to choose ANY ONE of the following three deadline schedules in keeping with the final date for completion of all 3 assignments.

1. **Evenly spaced regimen:** The students had to submit one assignment each week on a fixed day of that week.
  2. **Self-imposed regimen:** The students had to choose their own schedule during the 3 weeks for submission of the 3 assignments, such that they submitted all assignments before/by the deadline date.
  3. **End regimen:** The students had to submit all three assignments at the end of the 3 weeks on a fixed date.
- In the last phase of the study, each assignment was assessed out of 5 marks and scored. The possible relationship between the type of deadline schedule chosen by students and the quality of assignments turned in by them was assessed. The assignments were graded as Outstanding, Very Good and Satisfactory and assigned scores of 3, 2 and 1 respectively. Those who did not turn in their assignments were given a score of zero.

## 4. SAMPLING DESIGN

The sample comprised of 373 students of the secondary section (standards V to IX) of a private -aided English-medium school in Mumbai, affiliated to the S.S.C Board of Education, selected by the convenience sampling technique.

## 5. STATISTICAL DESIGN

**Descriptive analysis** included the summary of the Percentage of Middle/High School students opting for the 3 different Deadline Schedules and the comparative summary of the Deadline Schedules opted for in relation to their Level of Procrastination and Quality of assignments turned in.



## 6. GEOGRAPHICAL AREA

The study was conducted in a Private-aided English Medium school (affiliated to the State Board of Education) situated in Bandra, one of the suburbs in North Mumbai.

## 7. RESULTS

Table 1 shows the percentage-wise comparative summary of student preferences for the 3 deadline schedules in Middle and High school students.

**TABLE 1**  
**Percentage-Wise Comparative Summary of Student Preferences for the 3 Deadline Schedules**

Deadline Schedule	No. of students		% of Students		Total Number of Students	Total Percentage of Students
	Middle School	High School	Middle School	High School		
Evenly-spaced Schedule	44	32	22.33	18.18	76	20.37
End Regimen	68	56	34.51	31.81	124	33.24
Self-imposed Schedule	85	88	43.14	50	173	46.38

From Table 1 it can be concluded that the percentage of students opting for the Self-imposed deadline schedule was the highest, followed by those preferring the End Regimen, with the lowest percentage favoring the Evenly-spaced schedule in both Middle School and High School sections. A closer look at the data further reveals that the Evenly-spaced schedule and the End-regimen were more popular among the Middle school students, while the Self-imposed schedule ranked higher among the High school section. This clearly indicates the possibility of High school students preferring to set and follow

their own time targets when it comes to submission of assignments. The Middle Schoolers being younger on the contrary, are more likely to accept and adhere to external deadlines set by teachers, be it in terms of submitting smaller portions of the main task at fixed intervals or by a given end date.

Table 2 shows a percentage-wise comparative summary of the choice of Deadline Schedule in relation to the Quality of Assignments in the Total Number of Students.

**TABLE 2**  
**Percentage-Wise Comparative Summary of the Choice of Deadline Schedule in Relation to the Quality of Assignments**

Quality of Assignment Deadline Schedule	Evenly-Spaced Schedule	Self-Imposed Schedule	End Regimen
Outstanding	7.23	13.13	5.36
Very Good	4.83	16.35	7.24
Satisfactory	2.68	4.02	4.29
Not Turned In	3.22	13.94	17.69

As revealed by the data in Table 2, the percentage of 'Very good' and 'Outstanding' assignments i.e. 16.35% and 13.13% respectively, in terms of work quality of students opting for the Self-imposed Deadline Schedule was distinctly higher as compared to the quality of work turned in by those going by the other 2 regimens. This could probably be attributed to the fact that students were more comfortable working at their own pace in keeping with their understanding and potential, hence leaving them less pressured. However, it is also important to take note of the fact that 13.94% of students choosing the Self-imposed schedule did not turn in their assignments indicating that there could turn out to be a lack of self-control in such a regimen. Another figure that deserves attention is 17.69% of students opting for the End

regimen did not turn in their assignments at all. This provides clear evidence that students in this category often get into the habit of putting things off for the last moment and finally cannot keep to deadlines at all, thus getting caught in the web of procrastination. The lowest percentage of assignments 'Not turned In' came from those opting for the Evenly-spaced Schedule, thereby asserting the role of this regimen in ensuring that students stay on track and turn in work regularly at set intervals, leaving them no option to pile up or alternatively not submit their assignments at the end.

Table 3 shows a percentage-wise comparative summary of the choice of Deadline Schedule in relation to the Level of



Procrastination in the Total Number of Students.

**TABLE 3=**  
**Percentage-Wise Comparative Summary of the Choice of Deadline Schedule**  
**in Relation to the Level of Procrastination**

Level of Procrastination Deadline Schedule	Evenly-Spaced Schedule	Self-Imposed Schedule	End Regimen
High Procrastinators	0	0.53	0.53
Medium Procrastinators	6.70	18.77	10.46
Low Procrastinators	9.65	36.19	17.43
Non Procrastinators	0	0	0.27

The findings in Table 3 indicate that the Self-Imposed schedule was most popular among the Low followed by the Medium Procrastinators with 36.19% and 18.77% of students opting for it. This supports the fact that students with low procrastination tendencies would have better self-control and self-regulation in completing their school work. Similarly, it can also be observed from the table that students low on procrastination or with a medium level of procrastination i.e. 17.43% and 10.46% also opt for the End Regimen to some extent, again substantiating evidence that they do not lose focus of the task in question and do turn in their assignments by the final cut-off date. A very small or negligible fraction i.e. 9.65% of low procrastinators, 6.70% medium procrastinators and none of the high procrastinators opted for the Evenly-Spaced schedule, implying that students who procrastinate detest following external deadlines or periodic submissions imposed by external authorities such as teachers or significant others.

**Interpretation:** Thus, from Tables 1, 2 and 3 it can be concluded that the Self-Imposed Deadline Schedule was the most popular among Middle and High School students, followed by the End Regimen and lastly the Evenly-Spaced Schedule, thus indicating that the student fraternity of today is self-driven and sets work targets in keeping with their personal ability, capacity and potential, irrespective of restrictions prescribed by teachers. It was interesting to note that the Quality of Assignments too was highest in students opting for the Self-Imposed Schedule. Last but not the least, this schedule was the preferred option by both low and medium procrastinators.

Students opting for the Self-imposed schedule would probably have had a high self-control to stay focused on and committed to the completion and submission of the task in question. Previous studies too show that self-control and grit are two of the most important variables that explain success in different aspects of people's daily life (Duckworth and Gross, 2014). Self-control is known to encourage delayed gratification and directly influences thoughts, emotions and impulses. On the other hand, grit heightens the achievement of goals through perseverance. It thus follows that the development of a high level of regulation from a young age will produce a long-term effect, since it develops resistance to distracting desires and

instead diverts behavior towards the achievement of goals (Hofmann et al., 2012). The age group of the sample too could have influenced the choice of deadline schedule. Studies have shown that during adolescence, students develop the capacity of establishing plans or preparing events that are more distant in time, in contrast to children, whose capacity is more limited to close events (Barkley, 1997). Many studies also show that women have more grit than men and this could further substantiate why the Self-imposed Schedule was most popular and productive among the sample which comprised 373 female students from Middle and High School at the pre-adolescent / adolescent stage.

## 8. SUGGESTIONS

The following recommendations can be put forth based on the findings of the present study:

1. Healthy study habits must be developed in children at an early age by parents, teachers and care-givers.
2. Students must be trained in setting up their own study timetables according to their pace and potential to strike a balance between punctuality and perfection in turning in school work.
3. Tasks should be broken into smaller achievable portions to be submitted at comfortable intervals so as to create less stress and anxiety in students' minds.
4. Teachers must avoid giving very far-fetched submission dates, as it often results in students losing focus of the task in question encouraging them to procrastinate.
5. Submissions announced at too short a notice must be avoided as they impact work quality as well as mental health of students.
6. Regular monitoring and checks by teachers are needed once tasks have been assigned, to ensure that students have understood what it involves and are working at it consistently.
7. Providing initiatives, rewards and reinforcement for early/on-time task completion could serve as extrinsic motivation in the early years and contribute to developing punctuality in learners. Intrinsic motivation must be cultivated in later childhood so that students learn to be responsible for their own learning.
8. Teach children to stay focused on a task by training



them to plan their school work strategically, set self-imposed deadlines, set goals to complete tasks within specific focused boxes of time commonly referred to as timeboxing, resorting to the Pomodoro technique using focused work sessions with frequent short breaks and using task management tools such as managing priorities and tracking tasks from beginning to end.

9. Teachers must support students' study strategies when designing deadlines and avoid situations where multiple deadlines are clubbed together.
10. The existing hype of deadlines needs to be removed by replacing the term with 'timelines' in academic vocabulary, so as to eradicate the phobia and anxiety that accompanies assignment submission for students.

## 9. CONCLUSION

Over the years procrastination has evolved from a habit to a way of life among the student population. It not only affects their academic performance but also interferes with their mental health by contributing to their stress and anxiety through a piling up of tasks and assignments which they cannot complete successfully. The old adage 'Time and tide wait for no man' certainly holds true with respect to Procrastination. Punctuality and promptness are essential habits to be engrained in students' character by teaching them the art of time management. This would require that parents, teachers and care-givers help a child to cultivate healthy study habits from a young age. Once they develop a sense of responsibility and accountability in their own learning process, they would learn self-control and self-regulation, setting their own time targets for completion of tasks and assignments. There is a pressing need to do away with the term 'deadlines' which though intended to ensure students turning in their school work on time, have come to be analogous to 'death penalties' for them. It is time to replace the concept with the term 'timelines' which would motivate students and teach them the value of time and the art of time-management. The challenge of academic procrastination can be overcome if students found the task submission cut-off dates more realistic in keeping with their interest, pace and capacity. Students are the main stakeholders in the teaching-learning process and their learning preferences cannot go unnoticed. It is thus important for teachers to permit students to set their own targets for academic work completion, provided they adhere to the curriculum time frame and produce assignments that bear the mark of quality. It's time educators the world over shifted their gaze from 'Quantity' to 'Quality' on the educational landscape in terms of the work output of students. This transformation would only be possible if deadlines evolved into timelines giving education the much needed facelift for a paradigm shift in learning.

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# PREDICTION-INFORMATIONAL PROPERTIES OF NATURAL COMPONENTS AND COMPLEXES OF THE ARID ZONE OF UZBEKISTAN

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## ABSTRACT

*The large-scale increase in ecological and socio-economic consequences of the interaction between society and nature requires the development of a forecast of changes, identifying the main characteristics and nature of geosystems. It is a very difficult task to reliably forecast the structural and dynamic state of landscapes located in the zone of intensive management, because the role of the anthropogenic factor in the change of the natural environment is increasing now that scientific and technical progress has made great progress.*

**KEY WORDS:** ecology, geosystem, ecosystem, monitoring, arid zones, irrigated lands, geographic forecast.

## INTRODUCTION

The increase on a large scale of ecological and socio-economic consequences of the interaction between society and nature dictates the development of a forecast of changes in geosystems with the identification of their main properties and nature. A reliable forecast of the structural and dynamic state of landscapes located in the zone of intensive management is a very difficult task, because at the present time, when scientific and technological progress has made great progress, the anthropogenic factor becomes an incentive for the transformation of the natural environment. Therefore, landscapes are changing in time and space more quickly than expected. The same is due to the development on a large scale of various negative natural phenomena that have not been observed before. All this leads to a more cautious approach to the issue of forecasting changes in landscapes, especially in ecologically stressed or disaster-prone regions.

Considering this circumstance, we decided that before moving on to predicting the natural environment, it is first necessary to conduct a deep and comprehensive analysis of the forecasting factors, without which it is impossible to develop at least short-term general forecasts, especially long-term ones.

In 2017, employees of the Laboratory of Geoecology of the Institute of Seismology of the Academy of Sciences of the Republic of Uzbekistan conducted research on the development of basic concepts for predicting arid geosystems in Uzbekistan. Continuing work on the development of scientific principles and methods for predicting arid geosystems in 2021, research was carried out in the field of prediction-informational properties of natural components and complexes, assessing the degree of their disturbance under the influence of

economic activity and determining the trend of landscape change in the desert zone of Uzbekistan, and also raised issues stability of geosystems and their predictive properties.

In solving the above problems, in addition to theoretical developments in the works of the country's leading geographers-forecasters, we also relied on the method of logical thinking based on the materials of many years (since 1963) of observations of the dynamics of the natural environment of the arid zone of Uzbekistan.

## MAIN PART

It is important to take into account the prediction-informational properties of natural components and geosystems, along with other factors, when predicting changes in landscapes under the influence of human economic activity. The experience of predicting a possible change in the natural environment of a number of regions of Uzbekistan under the influence of external factors shows that landscapes contain huge information of a predictive nature, reliable and correct consideration of which in forecasting has a great effect on the conditionality of the predictive development. Yu.G.Simonov [5], T.V.Zvonkov [1], V.S.Preobrajenskii [4] and others repeatedly drew attention to this. Developing the idea of these authors about the use of the prediction-informational properties of geosystems in substantiating the forecasting of changes in the natural environment, we, on the basis of a deep landscape analysis of the arid zone of Uzbekistan, tried to identify a number of prediction-informational properties of natural complexes, which we consider appropriate to use in physical and geographical forecasting.



Before proceeding to the substantiation of the predictive and informative properties of arid landscapes, it is necessary to analyze the natural components that make up the structure of geosystems. On the other hand, a systematic analysis of the informative properties of natural components makes it easier to identify the general properties of geosystems.

Geological structure (geostructure, neotectonics, modern movements of the earth's crust, lithological composition of sediments) - determines the general direction and nature of landscape changes, the speed or intensity of natural, natural-anthropogenic processes and phenomena. A certain regularity is observed in the geological structure of the territory of Uzbekistan: the orogenic area, which occupies the foothill-mountainous part of the republic, is characterized by natural drainage with active glacial, gravitational (slope), karst, erosion processes and salt leaching, and for the platform area, which occupies the plain-altered desert, insufficient drainage with dispersion and wedging out of groundwater, the predominance continental salt accumulations in the aeration zone and eolian processes on a large scale.

In the geological structure of a particular territory, the composition and nature of the rocks are of primary importance; in the mountains of the Western Tien Shan, Hissar, Turkistan and Zarafshan ranges, metamorphic, intrusive, effusive, sedimentary rocks of varying degrees of strength and hardness are widespread, they are mostly rocky and semi-rocky rocks, scree-landslide processes are developed, as products of mechanical (physical) weathering, while erosional processes occur relatively slowly. On the slopes of the mountains, especially in the low and middle mountains, loess, loess-like loams, affected by erosion and landslide processes, are widespread as a result of the irrational use of vegetation cover and water resources. The foothill proluvial plains of the Mirzacho'l, Fergana, Chirchik-Ahangaran, Kashkadarya, Surkhandarya, and Zarafshan valleys consist of loess-like soil of various thicknesses and coarse broken deposits covered with loess, prone to erosion processes and subsidence. In general, the lithological composition of Quaternary deposits varies from mountains to the peripheral part of deltas, inclusive, which accordingly changes both the speed of groundwater movement and the amount of salts in soils. This also determines the need for the construction of a certain type of drainage.

In the desert zone, the nature of the lithic composition determines the development of one or another type of natural process. On the dried bottom of the Aral Sea, formations of eolian landforms are associated with bottom sandy soils, and mainly salt accumulations dominate in loamy-clayey deposits.

Relief (genetic type, shape, dynamics and dissection of the relief, relief-forming processes) - in the prognostic aspect, together with the geological structure, determines the categories of landscape stability, the boundaries of geosystems, the dynamism of natural processes and phenomena, the nature of the structure of natural complexes and the possibility of using landscape resources in one or another branches of the national economy.

The shape of the relief, along with other natural conditions (drainage, soil composition), determines the difference in the groundwater regime and soil process (salt regime) during the development of irrigation, in particular, convex, are the area of water erosion and deflation; concave -

the area of accumulation of halo geochemical runoff of substances; flat, sloping or slightly sloping - the area of formation of eolian accumulative forms - transit and migration of halo geochemical flows, elevated areas of irrigated lands are salt accumulators.

The dynamics of relief formation is one of the main factors that must be taken into account when predicting changes in geosystems. Each relief form is prone to certain types or groups of relief-forming processes, therefore, a reliable determination of this relief feature is very necessary to predict the development of certain processes or phenomena.

In the sandy desert, inter-ridge or inter-dune basins with steep slopes are in an active stage of development, while the absence of cliffs indicates the attenuation of deflation. Hence it is clear that it is necessary to take into account the peculiarities of the state of the dynamics of relief-forming processes.

The dissection of the relief often determines the direction of salinization-desalinization processes. Large slopes - up to 0.01 (in the regional plan) - usually create salt removal zones, medium ones - up to 0.001 - form salt transit zones. Small slopes - 0.0001 and less - characteristic of low land areas (low river terraces, deltas, peripheral sections of alluvial fans, etc.), create vertical forms of moisture-salt exchange and contribute to the accumulation of salts in soils, soils and groundwater. Local slopes create heterogeneity in salinity in a given zone. So, in the zone of salt transit, areas of salinization or removal of salts can be observed, the same can be said about other zones. These are the so-called forms of mesorelief. The microrelief can create salinity spotting and wick salinization, fresh soils along depressions, etc. [2].

One of the morphometric indicators of the relief is the depth of the dissection of the territory, which determines the heterogeneity of agricultural production of the venous properties of the earth and land reclamation measures (construction of hydraulic structures, etc.), however, on the other hand, this feature of the relief is necessary for the early determination of the risk of waterlogging, salinization and erosion soils as a result of irrigation.

Climatic conditions (air and soil temperature, wind, precipitation, etc.) - determine at a certain level and intensity, and the scale of eolian, halogeochemical, erosion processes. In the flat part of Uzbekistan, where an arid climate prevails, predictively, under conditions of close occurrence of the groundwater level, salt accumulation in the aeration zone (formation and development of halophyte natural complexes), intensification of deflationary-accumulative processes (formation and development of aeolian natural complexes), intensification erosion and mudflow processes (contributing to the development of erosion-landslide and mudflow landscapes), etc.

Wind is the leading factor in the dissection of the relief surface, especially in planned massifs with sandy-loamy soils, siltation of irrigation canals and reclamation systems laid among sandy deserts, sanding of irrigated lands and cultivated pastures. Wind increases transpiration and physical evaporation and thereby dries out the topsoil and increases the frequency of crop watering.

Hydrogeological conditions - determine the direction of the soil-reclamation state of lands and the pasture-



reclamation feature of ecosystems. These include: the depth of groundwater, their mineralization, chemical composition and speed of movement. Since in the predominant part of the desert and semi-desert zones of Uzbekistan, due to insufficient drainage of the territory during irrigation, groundwater lies close to the surface, they participate in the soil-forming process, giving hydro morphism to geosystems.

The depth of groundwater determines the reclamation irrigation regime: in intensively drained areas of deltas, terraces and hilly plains, where there is a steady downward flow of moisture, groundwater does not affect the water-salt regime of soils, the latter develop according to an automorphic type, and the crop is grown due to suspended moisture, lands due to increased underground outflow of groundwater usually do not saline, on weakly and untrained parts of deltas, alluvial fans, terraces, etc., where vertical water exchange dominates, groundwater is a direct source of salt accumulation in the root layer. Soils develop in a hydromorphic manner, and accumulated salts are regularly removed by drainage and flushing. At the same time, if the outflow of salts by drainage water is greater than the inflow, then a negative salt balance is observed, otherwise a positive one will develop. The whole essence of saline soil reclamation is aimed specifically at achieving a permanent negative water-salt balance of the irrigation array.

The mineralization of groundwater often determines the degree of soil salinity: the more mineralized groundwater, the more salinized soils. Observations have established that the slower the horizontal outflow of moisture, the more intense the salt accumulation in the soils, the proportion of chloride and sodium ions predominates in the composition of salts. This phenomenon is especially strong in drainless delta plains, large depressions of alluvial terraces, flat plains, large depressions of alluvial terraces, flat plains of the dried bottom of the Aral Sea.

*Surface water.* In the arid conditions of Uzbekistan, taking into account the hydrological features of landscapes is of paramount importance, because the formation of intrazonal and hydromorphic (subaqueous and super aqueous) natural complexes is associated with the impact of water bodies, where the influence of surface waters on the mode of functioning and development of landscapes is observed, as a result of which their productivity is relatively high (hydromorphic, fresh, several times richer than automorphic ones).

In the flat part of the republic, as a result of the discharge of drainage and waste waters from oases into drainless desert basins, artificial lakes of various sizes and volumes are currently being formed (the number of lakes, according to 1999 data, exceeds 100). Around these water bodies (Arnasay, Aydarsay, Dengizkul, Sarykamys, Karateren, etc.) at a certain distance from the shore, hydromorphic and semi-hydromorphic natural complexes are formed. At the same time, typical (hydrohalophytic) geosystems are formed in the place of dried-up similar lakes. It is necessary to pay attention to this when predicting changes in hydromorphic and subaqueous complexes in the drying trend.

Surface water is a source of salts accumulated in the soil during irrigation, and the degree of mineralization of water determines the salinity of irrigated lands. This phenomenon has been particularly pronounced in recent years in connection with the discharge of drainage and other categories of water into the

Amudarya and Syrdarya basins, in which the water salinity is steadily increasing from year to year. In this regard, at present, the irrigated lands of the lower reaches of the Amudarya and Syrdarya, Mirzacho'l, Bukhara and Karshi oases are washed longer with large leaching rates due to the progressive salinization of irrigated lands.

Surface watercourses (Amu Darya, Kashkadarya, Sherabaddarya, etc.) transport a huge amount of sediment to irrigated lands (up to 20 ... 50 m<sup>3</sup>/ha), and intensive silting is observed in canal beds and at the bottom of reservoirs as a result of their accumulation.

*Soil cover* - determines the possibility of using land in irrigated and rainfed agriculture, their salt regime, natural fertility, irrigation rates, susceptibility to deflation and water erosion, etc.; along with other factors determine the nature of the ameliorative state of the land. The type of soils often corresponds to territories drained to varying degrees: in particular, gray soil (typical), due to development under eluvial conditions, are predominantly located within the naturally drained parts of foothill slopes; takyrs and solonchaks (active and residual) usually develop on undrained plains of subaqueous deltas and alluvial terraces, etc. Thus, based on the type of soil, it is possible to give a preliminary assessment of the future state of the lands of a particular landscape as a result of their development.

The mechanical composition is the main factor in the hydrophysical characteristics of soils. The "lighter" the soil (the larger the soil particles), the lower its water-holding capacity, but the greater the conductivity value at full saturation, i.e. filtration coefficient [6]. The mechanical composition of soils determines the height of the rise in the groundwater level, the depth of wetting of the root layer, the rate and height of moisture evaporation. It has been established that the heavy mechanical composition of soils contributes to the rapid rise of ground moisture in the aeration zone (in clays up to 600 mm in height), deep drying of the soil profile, but slow water filtration. In this regard, in the loamy-clay soils of deltas in the first years of development, the rate of rise in the groundwater level ranges from 1 to 2, sometimes 3 m per year. In the zone of the Karakum Canal on the deltaic plains, the average rate of groundwater level rise was 1.1–1.2 m/year [6].

The water-salt regime of soils is the main factor determining the reclamation state of lands. Based on the presence of a certain amount of salts in the aeration zone and finding out the trends in the development of salinization or desalinization, it is possible to predict the ameliorative state of the lands of a particular geosystem. At the same time, the type, physical and chemical properties of soils serve as basic materials in substantiating the genesis and further development of the reclamation state of the irrigated massif. It has been established that the soils of the arid zone of Central Asia at various depths contain readily soluble salts, which were formed as a result of the hyper genesis of Quaternary cover deposits in other natural geochemical conditions. Salts, being the main source of secondary salinization, are redistributed in the root layer when groundwater rises. Under the conditions of practically drainless deltaic plains, the participation of residual salts in the formation of the salt regime of irrigated soils is especially intense. In this regard, the ameliorative state of the delta lands is deteriorating, because of the positive salt balance,



they are difficult to meliorate. In addition, due to their location at the end of the river flow, salts contained in irrigation waters aggravate salt accumulation in soils.

In the head part of the deltas of the foothill plains, where the underground outflow is normally provided, there is a stable horizontal water exchange. Here, the reclamation state of the lands is due to water-erosion and suffusion-karst processes. The eluvial regime of soil development contributes to the automorphic reclamation regime of irrigation.

*Vegetation* - based on the analysis of the state of phytocenoses, it is possible to identify a significant amount of information about the possibility of changing them in the future. Long-term observations of the state of vegetation in deserts and oases indicate that the vegetation cover exposed to human influence is in a different life stage. The sandy desert pastures, which are under intensive grazing, are being transformed at a rapid pace. This phenomenon occurs with particular force near the wells, where from 1,000 to 5,000 sheep are fed per day. Coming to the watering place, the sheep trample the surface of the sand. It is in a loose position and is buffeted by the wind to form bare shifting dunes and dune chains, changing the typical topography of immobile sands.

Under the influence of grazing, not only the nature and forms of relief change, but also the vegetation cover. In place of grassy-ephemeral pastures, shrub-ephemeral pastures are formed, i.e. as a result of the disappearance of a number of plant species (wormwood, some ephemera, etc.), juzgun, singren, as well as weeds such as adraspan, selenium, astragalus, Richter's saltwort, etc., appear. Thus, judging by the dynamics of the transformation of the vegetation of the sandy desert, it is possible to predict the emerging vegetation cover.

It has been established that each type of vegetation contains a certain state of the groundwater regime, the water-salt regime of soils, as well as the stage of development or evolution of one or another type of soil cover. Based on the analysis of the informative properties of vegetation, it is possible to make a certain forecast about the future composition of biocenoses.

*The Yulgun* (salt cedar, tamarix) association, as a typical tugai vegetation, develops in conditions of close groundwater level with mineralization from 3 to 10-15, partly up to 20 g-l and more. However, it can also grow at a depth of groundwater below 5 m. The wide distribution of salt cedar indicates the evolution of bog, bog-meadow and floodplain-alluvial soils into meadow-takyr soils, and typical solonchaks into residual or takyr soils. In the Amudarya delta, as a result of desertification, the former hydromorphic soils passed into the semi-hydromorphic and automorphic stages of development. An indicator of this regional change in the soil cover is the scale of development of the salt cedar, which occupied a dominant place as far back as the late 1970s. On the dry part of the seabed, after the transition of typical solonchaks on the periphery of the bedrock coast to residual, these plants became widespread.

Thus, as a result of the evolution of soils against the background of a change in the groundwater regime, the transformation of biocenoses will occur. Reliable and timely indication of these phenomena provides comprehensive information for predicting the future state of phytocenoses.

Prediction-informational properties of natural complexes are determined based on the analysis of the

properties of natural components that make up their structure. In this paper, the identification of these properties of desert landscapes is substantiated by the example of the subaerial deltaic geosystems of Uzbekistan, as the dominant physical and geographical complexes, studied to a sufficient extent in terms of landscape genesis and structural and dynamic state.

Conjugate (interconnected) analysis of the landscape-forming components of dry deltas allows us to consider them as a single integral geosystem in which lithogenic, biogenic, hydrogenic and other components are closely interconnected and interdependent. Deltas, as integral physical and geographical complexes, are typical objects of landscape research, in which the general structure, internal composition (texture), the trend of change and the nature of the exploitation of natural resources and other features are clarified. A comprehensive analysis of geosystems of deltas is necessary to solve other scientific and applied issues related to the use of natural resources.

Deltas are differentiated by internal differences into a number of naturally isolated complexes that differ from each other in the properties of landscape-forming components. The main criterion for identifying geosystems here is the delimitation of the territory with the same lithological-geomorphological structure, which is the leading indicator of the division of the geosystem into smaller physical and geographical units. Under delta conditions, changes in other components in space depend on lithogenic ones. Therefore, the more accurately the natural boundary of geological-geomorphological structures is determined, the greater the conditionality of the detected contours.

Based on the analysis of the lithological-geomorphological structure of the piedmont deltas, three parts or three geosystems can be distinguished in them, which differ sharply from each other. This is the apical part - a sloping plain, composed of coarse clastic deposits overlain by thin fine earth, then there is a middle strip - a gentle plain, composed of a sandy-loamy-clayey stratum with separate tongues, thin layers of pebbles wedged into it, the latter is a flat plain, consisting of clayey-loamy-sandy deposits with interlayers and lenses of sand. These three parts of the foothill deltas correspond to three areas or zones of the hydrogeological process: the absorption zone (groundwater recharge area), the discharge zone (wedging out area), the dispersion zone (immersion area).

The soil cover also gradually changes from the top part of the delta to the periphery inclusive: eluvial soils are common in the head part (zone of development of water erosion), in the middle - hydromorphic (zone of development of saz, meadow, and other soils), in the peripheral - semi-hydromorphic or hydromorphic (zone development of saline soils).

The soil cover also gradually changes from the top part of the delta to the periphery inclusive: eluvial soils are common in the head part (zone of development of water erosion), in the middle - hydromorphic (zone of development of saz, meadow, and other soils), in the peripheral - semi-hydromorphic or hydromorphic (zone development of saline soils). In connection with the development of all the foothill deltas, natural vegetation has not been preserved in them, so it is difficult to identify the pattern of changes in ecosystems in their individual parts.

Thus, all three parts of the deltas, differing sharply from each other, form independent geosystems in space with all





individual landscape features. However, these geosystems are so interconnected that they cannot be separated from each other. The top part of the delta, as an area of erosion, absorption of water masses, accumulation of the coarsest or largest substances transported from the entire basin, serves as their accumulator and guides the migration of liquid and solid substances throughout the delta geosystem.

The middle part of the delta, as an area of storage of liquid substances, serves as their evaporator and accumulator of easily and sparingly soluble salts in the aeration zone, part of the underground sub-pressure water flow wedges out to the surface in the form of springs (saz zone).

The peripheral part of the delta is the area of dissipation of the groundwater flow and its consumption for total evaporation, filtration and accumulation of salts in the root-inhabited soil layer, sedimentation along the stream channels is also observed here.

On the basis of the regularities in the distribution of geosystems in the foothill deltas, it is possible to identify their specific zoning, confined to naturally isolated parts. The upper part is characterized by sloping loamy-pebble intensively drained plains with spreading irrigated light and typical gray soils; middle - gently sloping pebble-loamy-clay very weakly (intensely artificially) drained plains with saline meadow, meadow-saz soils in combination with differently saline irrigated meadow soils; peripheral - flat loamy-sandy-clayey non-drained (intensive artificially drained) plains with variously saline irrigated meadow soils.

This zoning of geosystems is typical for those deltas that have a perfect structure. Those deltas, in which the peripheral part is cut by the river valley (deltas of Sangardak, Tupalang, Kasansay, Namangan, etc.), have a slightly different geosystem, groundwater is deeply submerged in them and there are no soil salinization processes.

Deltas located in the flat part of Central Asia have similar properties, but, as mentioned above, due to the wide distribution of fine earth deposits of great thickness, often underlain by clayey, sandstone and conglomerate up to Quaternary deposits, as well as a slight slope of the relief surface, the areas of the zones identified above vary considerably. The most widespread geosystems occupy the middle and peripheral parts of deltas, while the top part of most deltas is typical only for a small area, which is due to the nature of the accumulation of coarse clastic deposits during their hyper genesis and remoteness from mountain ranges for a considerable distance.

In lowland deltas, due to the presence of thick fine-earth deposits and the lack of groundwater, wedging out of groundwater is not observed, they only approach the surface up to 5-10 m, sometimes even less. Therefore, soils in most cases under natural conditions have an eluvial character. These include the subaerial deltas of the Obruchev steppe, the Northern Afghan rivers, the ancient Zarafshan, Kashkadarya deltas, etc. Under irrigation conditions, all dry flatland deltas acquired the properties of hydro morphism with mineralized groundwater.

In coastal deltas, the zoning of geosystems, in contrast to foothill deltas, is directed mainly from the channel to the periphery. This is due to the location of the main channels of rivers or channels with thick riverbanks in topographically

commanding areas of the territory, which are formed as a result of regular accumulation of sediments in the channel. The bed of the Amudarya from Nukus to the seashore is located in the fault zone, where the earth's crust is uplifted. In coastal deltas, as well as foothill and flat ones, the branching of the channel into numerous branches or channels begins from their top part, therefore, the migration of liquid substances by underground flows also occurs from the head part towards the discharge area.

Inter-channel depressions - accumulators and evaporators of underground and surface runoff, are accumulators of solid runoff and salts. A strip of powerful riverbanks and inter-channel depressions usually includes either scattered sands or lakes in a complex of quarrels. In the Aral delta, the extreme peripheral strips are occupied by lakes and quarrels (Sudoche Lake, Karaumbet Sor, etc.), which serve as areas or centers of unloading the underground flow of the delta, moreover, their level is much lower (by about 10-12 m) compared to with the surrounding plain.

## CONCLUSION

Based on the identified main physical-geographical features, it is possible to determine the zonality of the geosystems of coastal deltas. The main artery of the coastal delta is confined to their middle zone, bordered by powerful riverbeds, in which, due to the dominance of channel sediments and the dissection of the relief (0-8 m and more), groundwater is slightly saline, predominantly hydro carbonate-calcium and hydro carbonate-sulfate composition. In this regard, due to the presence of a secured underground outflow, the soils do not contain a large amount of salts. The riverbanks are characterized by: dissected sandy loamy-sandy elevated areas of alluvial-deltaic plains along the main branches of the rivers with tugai forests on meadow-takyr tugai and alluvial meadow soils.

Inter-channel depressions, which differ due to the lack of flow of the territory, the presence of lake and marsh complexes overgrown with reeds and brooms, are typical of the following: inter-channel loamy-clay depressions with reed and reed beds on alluvial bog, meadow-bog soils; inter-channel depressions with typical swamps and lakes, sometimes overgrown with reeds.

Lake basins, often confined to the periphery of coastal deltas, are characterized by the following complexes: drainless basins with lakes, bordered by a swampy strip overgrown with tee and cattail; drainless loamy-clay depressions with quarrels, devoid of vegetation.

Thus, the coastal deltas are characterized by the following geosystems, starting from the main channel: near-channel swells, inter-channel depressions, and lacustrine (sor) drainless basins. These geosystems mainly correspond to the facies zones identified by V.I. Popov et al. [3] in the Amudarya delta.

Revealing the zonality of geosystems in deltas is facilitated by the differential use of melioration on irrigated lands, increasing the efficiency of agro technical, agro-ameliorative, hydro technical, organizational and economic measures.

A comprehensive analysis of the structural-dynamic state of subaerial deltaic landscapes has shown that they contain a significant amount of predictive information that should be



used in predicting their changes in connection with an increase in the scale of the use of natural potentials. At the same time, it is necessary to pay attention to the differentiated natural complexes of subaerial deltas of various species, which often have regional features.

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# STEVENS–JOHNSON SYNDROME AND TOXIC EPIDERMAL NECROLYSIS: PANORAMIC REVIEW

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## SUMMARY

**Introduction:** Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are infrequent diseases represented by disseminated epidermal necrosis and skin sloughing. They have a representative mortality and morbidity, their early diagnosis and treatment is necessary to provide good results in affected individuals.

**Objective:** to detail the current information related to Stevens-Johnson syndrome and toxic epidermal necrolysis, description, clinical presentation, pathophysiology, diagnosis, differential and treatment.

**Methodology:** a total of 52 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 44 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar, CrossRef, and Cochrane; the terms used to search for information in Spanish, Portuguese, and English were: Stevens-Johnson, toxic epidermal necrolysis, and immunologic burn.

**Results:** Almost all affected individuals present mucosal involvement, with two or more mucosal surfaces involved in up to approximately 80% of the cases. Oral involvement is more frequent, accompanied by mucositis and ulceration in almost all cases. Ocular involvement is also frequent in 60-100% of patients with SJS/TEN, and can present as conjunctival hyperemia and sometimes even complete epidermal detachment of the ocular surface. Gynecologic involvement also varies according to severity, however it is seen in approximately 77% of affected individuals. The precise incidence of genitourinary involvement in individuals affected in the acute phase of SJS/NET is not known. Drugs are the factors most frequently associated with SJS and NET, however, infection, especially *Mycoplasma pneumonia*, has been implicated. In approximately 15-30% of cases, no causative agent can be identified.

**Conclusions:** SJS-NET are devastating and potentially fatal mucocutaneous diseases. Prior to skin alteration, there is a prodromal phase of symptoms, such as general malaise, fever, pharyngeal pain and cough. Later the skin and mucous membranes are affected, traditionally appearing as erythematous



macules or atypical target lesions on the trunk that progress to confluent areas of erythema with dark centers, sheets of denuded epidermis and flaccid blisters presenting positive Nikolsky's sign. According to the improvement in early care and the improvement of supportive care the mortality in SJS and NET will continue to decrease. The most important act in the acute phase is immediate withdrawal of the culprit drug when there are signs of SJS-NET, the signs are blisters or erosions that distinguish these can reduce mortality. General supportive care is the mainstay of treatment.

**KEY WORDS:** toxic epidermal necrolysis, Stevens-Johnson, skin, immunologic.

## INTRODUCTION

Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are rare diseases represented by disseminated epidermal necrosis and skin sloughing. They have a representative mortality and morbidity, their early diagnosis and treatment is necessary to provide good results in affected individuals. At the moment it is thought that these 2 entities present similar pathophysiology and are divided according to the body surface area (BSA) involved(1,2).

The clinical presentation of these diseases outside of the skin, eyes and oral mucosa is not clearly determined, therefore, sometimes they are not clinically raised. According to the development of supportive care, mortality from SJS and NET is decreasing; moreover, chronic complications in the altered organ systems are becoming more and more common, so the investigation of early symptoms and signs of SJS-NET is essential for proper care. These skin disorders, also called immunological burns, can be fatal, with a mortality rate of approximately 35%. The responsible drugs are identified in approximately 85% of SJS-TEN cases(3).

## METHODOLOGY

A total of 52 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 44 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed, CrossRef and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: Stevens-Johnson, toxic epidermal necrolysis, immunologic burn.

The choice of bibliography exposes elements related to Stevens-Johnson syndrome and toxic epidermal necrolysis, description, clinical presentation, pathophysiology, diagnosis, differential and treatment.

## DEVELOPMENT

### Description.

SJS/NET is described as a generalized vesiculopustular rash plus epidermal detachment and necrosis, with involvement of mucous membranes, mostly that of the eyes, mouth and skin. The degree of total body surface area (TBSA) affected shows where on the SJS/NET spectrum an individual is affected.

SJS: <10 % TBSA.

SJS-TEN overlap: 10-30 % TBSA.

TEN: >30% TBSA.

Both entities, SJS and NET, are now often referred to together as a single entity Epidermal Necrolysis (EN). SJS and NET usually occur as an idiosyncratic reaction to systemic drugs, among which antibiotics, nonsteroidal anti-inflammatory drugs and antiepileptic drugs are frequently associated. In 15% of the cases, it is not possible to distinguish the drug cause that initiated the disease. These 2 entities are often also due to viral infections, vaccines and other non-drug provocateurs. The ALDEN algorithm or algorithm of drug causality for EN, simplifies to know the responsible drug in cases of SJS and NET, this ALDEN algorithm gives a final score according to six criteria to find if it is "very probable", "probable", "possible", "unlikely" and "very unlikely" that a drug has generated a SJS-TEN. These criteria also allow to rule out drugs that are unlikely to be placed as the origin of SJS-NET(3,4).

**Table 1. ALDEN algorithm criteria and scoring for drug causality.**

Criteria	Possible score
Time lag between initial drug intake to onset of reaction (index day)	-3 to +3
Presence of drug in the body on index day	0 to -3
Prechallenge/rechallenge outcome with the suspect drug	-2 to +4
Outcome of rechallenge	0 to -2
Drug notoriety for causing SJS/TEN	-1 to +3
Other possible etiologic alternatives	-1, if applicable

The total ALDEN is based on the six criteria listed. A total score of  $\geq 6$  is categorized as very probable, 4-5 as probable, 2-3 as possible, 0-1 as unlikely, and  $<0$  as very unlikely. Specifics of the scoring system for each criterion is not described here but can be found in Sassolas and colleagues.

ALDEN, algorithm of drug causality for epidermal necrolysis; SJS/TEN, Stevens-Johnson syndrome/toxic epidermal necrolysis.

**Source:**Shanbhag SS, Chodosh J, Fathy C, Gorman J, Mitchell C, Saeed HN. Multidisciplinary care in Stevens-Johnson syndrome(3).



### **Clinical Presentatio.**

Prior to skin alteration there is a prodromal phase of symptoms, such as general malaise, fever, pharyngeal pain and cough. Later the skin and mucous membranes are affected, traditionally appearing as erythematous macules or atypical target lesions on the trunk that progress to confluent areas of erythema with dark centers, sheets of denuded epidermis and flaccid blisters presenting positive Nikolsky's sign. Almost all affected individuals present mucosal involvement, with two or more mucosal surfaces involved in up to approximately 80% of the cases. Oral involvement is more frequent, accompanied by mucositis and ulceration in almost all cases. Ocular alteration is also frequent in 60-100% of patients with SJS/TEN, and may present as conjunctival hyperemia and sometimes even develop a complete epidermal detachment of the ocular surface. Early

consultation with an ophthalmologic specialist is essential to prevent long-term ocular sequelae, which occur in 20-79% of SJS/TEN survivors and include keratinization of the eyelid margins, dry eye, ocular surface xerosis, loss of corneal epithelial stem cell function and opacification. Gynecologic involvement also varies according to severity, but is seen in approximately 77% of affected individuals. The precise incidence of genitourinary involvement in individuals affected in the acute phase of SJS/TEN is not known; however, some studies report that approximately 71% of children with SJS/TEN had genitourinary involvement in the acute phase, with penile erosions being the most common, as well as meatal involvement, which in the acute phase generated dysuria and hematuria. Other complications such as otorhinolaryngological, digestive, pulmonary, psychiatric and nutritional can also occur (1,3,5-10).

**Figure 1. Toxic epidermal necrolysis due to carbamazepine**



**Source:** Frantz R, Huang S, Are A, Motaparthi K. Stevens–Johnson Syndrome and Toxic Epidermal Necrolysis(1).

### **Pathophysiology**

Drugs are the factors most frequently related to SJS and NET, however, infection, especially *Mycoplasma pneumoniae*, has been implicated. In approximately 15-30% of cases, no causative agent can be identified. The specific pathophysiology is still not 100% clear, however the triggering factors of the diseases have been well observed. They are thought to be T-cell mediated type IV hypersensitivity reactions.

There are currently some hypotheses as to how drugs produce an immune response to give rise to SJS-NET:

- Haptene/pro-haptene: small molecule drugs will covalently bind to serum proteins, creating a complex recognized by some HLA molecules and presented to T cells to produce an immune response.
- Pharmacological interaction (pi): chemically inert drugs, which cannot covalently bind to serum proteins, bind directly to HLA molecules, resulting in T-cell activation.

- Altered peptide: the drugs bind inside the HLA binding pockets in a way that changes the presentation of self proteins to T cells so that they are no longer recognized as self, generating an immune response.

The end result is activation of T cells in reaction to a drug or infection and downstream epidermal necrosis.

Early hypotheses presented that keratinocyte death was through interactions of soluble Fas ligand (sFasL) with the Fas receptor on the surface of keratinocytes; later it was shown that granulysin was the most notable mediator of apoptosis and the levels of these in the fluid of the blisters correlated with the severity of the disease, granulysin is the major driver of epidermal necrosis, however it does not work alone. Studies show increased serum levels of 28 different cytokines and chemokines in patients with SJS-TEN, among which granulysin and IL-15 were directly related to disease significance. In other studies evaluating the role of programmed necrosis, they found that they contribute to



keratinocyte degeneration, generating remarkable diagnostic implications. The understanding of the pathogenesis is still not well elucidated. Drug-induced SJS-NET may be generated by dysregulation of cell-mediated immunity, cytotoxic T lymphocytes (CTL) and natural killer (NK) cells(1,7,11-14).

#### **Differential Diagnosis.**

Prior to the diagnosis of SJS/NET, a broad differential diagnosis should be made in order to avoid misdiagnosis. It is important to differentiate from other vesiculopustular and desquamative dermatoses, such as linear IgA bullous dermatosis, pemphigus vulgaris, erythema multiforme major (EMM) and staphylococcal scalded skin syndrome (SSSS). It is of importance to recognize that, previously erythema multiforme major and SJS-NET were divided as components of the same range of diseases, due to the almost identical clinical and histopathological presentation, they were later shown to be different diseases. Therefore, the diagnosis has to be made under clinical standards(1,5,6,15-18).

#### **Diagnosis.**

##### **Potential Biomarkers.**

Rapid diagnosis of SJS/TEN is paramount to suppress the offending agent, initiate complementary and supportive therapies and improve the final outcome. However, the clinical manifestations can be almost identical to that of the different blistering disorders and diagnosis can sometimes be difficult. The diagnosis of these disorders are time sensitive, frozen sections can be used to select early. SJS-NET can be differentiated from SSSS by the amount of epidermal detachment, being subcorneal in SSSS and occurring at the dermoepidermal junction in SJS-NET. In the histopathology of SJS-NET there is generalized keratinocytic necrosis which is representative of the entity. Differentiating between SJS-NET and MME is complicated due to the similar histopathology. In both entities in early stages a vacuolar or lichenoid interface with scattered necrotic keratinocytes is observed. Depending on the course of the disease, subepidermal excision with increased epidermal necrosis is differentiated. A thicker lymphocytic infiltrate suggests MME, while the increase of eosinophils and confluent epidermal necrosis suggest SJS-NET, however, these distinctions are not reliable and require a clinicopathological link(1,19,20).

Multiple clinical trials have shown results of possible diagnostic markers of the disease, such as elevated granulysin level even before skin detachment and mucosal involvement, granulysin correlates in these studies with disease significance in SJS-NET. Despite this, the same findings found in these pathologies were also present in other cytotoxic T-lymphocyte (CTL)-mediated blistering disorders, such as blistering drug-fixed eruption (BFDE) and MME. High serum granulysin levels were also observed in drug-reactive individuals with eosinophilia and systemic symptoms (DRESS). Concluding that although granulysin is increased in serum and blister fluid, it is not a

specific finding for SJS-NET, and is therefore of limited use for timely diagnosis at the moment(1,12,21,22).

The nonspecific cytokine CCL-27 probably plays an important role in the pathogenesis of SJS-NET, collaborating in the passage of T cells into the skin at sites of inflammation. Studies show its elevation in the skin and serum especially in the acute phase of SJS-NET, however, this implies that CC also identified elevated levels of CCL27 in exanthem produced by non-blistering drugs, so its use is also limited(1,23,24).

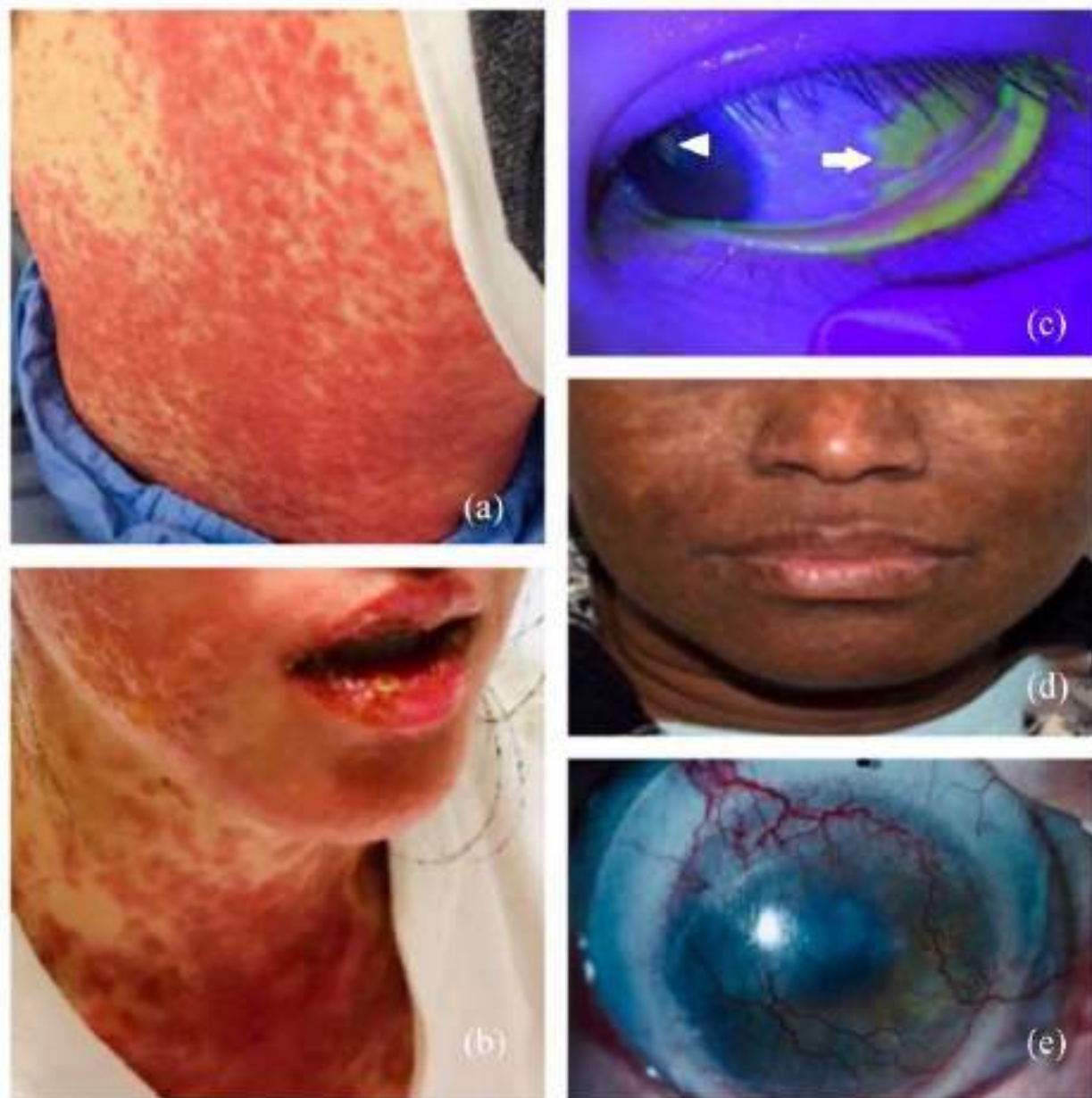
Serum galectin-7 also correlated with disease severity in patients with SJS-NET and significantly higher levels in the acute phase and decreased levels in the late phase of the disease. Galectin-7 could therefore be a potential mediator of SJS-NET and a useful biomarker for diagnosis(1,25).

Necroptosis differs from apoptosis in that cell death is the consequence of external triggers that modify membrane permeability and generate cell lysis without the collaboration of caspases. Several current studies have demonstrated RIP3 receptor-interacting kinase-3 as an important mediator, confirming that necroptotic keratinocytes release RIP3 in the serum of affected individuals, its levels being directly related to the level of necroptosis and the significance of the disease. RIP3 levels in the serum of individuals with MME with SJS-NET are markedly higher than individuals with MME, so this biomarker can be used to distinguish between these pathologies(1,26,27).

Studies demonstrated a similar reaction to SJS-NET in Mycoplasma pneumoniae infection, the so-called Mycoplasma pneumoniae-induced mucositis (MIRM). Some patients had significant mucosal involvement with minor skin involvement and better prognosis when compared to SJS-NET. This was classified apart from SJS-NET and MME. Many other studies implicate different infections as generators of MIRM-like reactions, such as adenovirus, influenza B and Chlamydia pneumoniae(1,28).

Subsequently, a new classification for blistering disorders in pediatric patients was proposed. Where SJS, SJS/TEN and TEN are lumped together into a single disorder named drug-induced epidermal necrolysis (DEN). Cases of infection, severe mucosal involvement and relatively minor cutaneous involvement were considered separately and called reactive infectious mucocutaneous eruption (RIME). Erythema multiforme (EM) was placed as a distinct disease from DEN and RIME. This classification is useful because of the different treatment of DEN and RIME; in RIME, identification and treatment of the underlying infection is needed, followed by supportive care and possible antimicrobial and immunosuppressive therapies, in DEN, identification and removal of the causative drug is needed followed by supportive care and probable immunosuppressive therapy. More clinical studies are needed to better establish management strategies for DEN and RIME(1,29,30).

Figure 2. SJS/TEN, síndrome de Stevens-Johnson/necrólisis epidérmica tóxica.



Source: Shanbhag SS, Chodosh J, Fathy C, Goverman J, Mitchell C, Saeed HN. Multidisciplinary care in Stevens-Johnson syndrome(3).

#### Non-Pharmacological Treatment.

Supportive care is the cornerstone of treatment in individuals affected with SJS/NET, this includes immediate withdrawal of the offending drug being the most important, in addition to infection control, fluids, electrolytes and wound care. Prompt withdrawal of the suspect drug at the onset of blistering or erosions reduces mortality(1,3,31).

Adequate fluid, electrolyte and nutritional management is of vital importance as it reflects the needs of burn patients due to insensible losses. Fluid needs are about 30% less in individuals with SJS-NET compared to individuals with burns. A warm

environment between 30 to 32 °C should be maintained because of the loss of thermoregulatory function of the skin. Fluids should be monitored to maintain a diuresis of 0.5 to 1 ml/kg/h. Enteral feeding should be started early and nasogastric tube feeding should be used if necessary(1,32,33).

Prophylactic antibiotics do not improve outcomes, however, proper wound care and sterile management are imperative to reduce the rate of infection. Surgical debridement is controversial. Anti-shear therapy is an option to surgical debridement and decreases hospital costs and pain, so more studies and better evidence are needed to fully understand the role of this therapy(1,34-36).





### Pharmacological Treatment

At the moment there is no standard of care when it comes to pharmacological treatment. It is thought that immunosuppressive therapies will improve treatment, and there are already cases with beneficial results with various combined treatment options such as corticosteroids, IVIG, cyclosporine and TNF-alpha inhibitors(1,11,37,38).

It is complex to differentiate whether disease remission was due to treatment or was the natural course of the disease. The role of corticosteroids as sole therapy is still debated, as well as the performance of IVIg(1,24,39).

Cyclosporine has shown positive results in several studies to this point. In several studies and meta-analyses it was shown that the only therapy that showed statistically significant improvements in outcomes was the combination of IVIG and corticosteroids and it is also reported that cyclosporine shows promising results (with or without IVIG), IVIG and plasmapheresis and etanercept, however more studies are needed(1,40-42).

Another study showed that patients who received plasmapheresis had a lower disease severity score over the course of the disease(1,43).

TNF-alpha inhibitors are also of interest due to their immunosuppressive effects. Due to the absence of consensus on the most effective drug therapy in SJS and NET, issues such as monetary value may be kept in mind when discussing the course of treatment(1,44).

### CONCLUSIONS

SJS-NET are devastating and potentially fatal mucocutaneous diseases. Prior to skin involvement, there is a prodromal phase of symptoms, such as malaise, fever, pharyngeal pain and cough. Later the skin and mucous membranes are affected, traditionally appearing as erythematous macules or atypical target lesions on the trunk that progress to confluent areas of erythema with dark centers, sheets of denuded epidermis and flaccid blisters presenting positive Nikolsky's sign. According to the improvement in early care and the improvement of supportive care the mortality in SJS and NET will continue to decrease. The most important act in the acute phase is the immediate withdrawal of the culprit drug when there are signs of SJS-NET, the signs are blisters or erosions that distinguish these can reduce mortality. Drugs are the factors most frequently related to SJS and NET, however, infection, especially *Mycoplasma pneumoniae*, has been implicated. In approximately 15-30% of cases, no causative agent can be identified. General supportive care is the mainstay of treatment.

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# THE THEME OF LONELINESS IN THE SELECTED POEMS OF ROBERT FROST

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## ABSTRACT

*Robert Frost is a well-known American poet. His poetry created a very distinguished place among the readers across the world. Frost focusses on the realities in life and his approach towards life seems to be practical and rational. The present research paper focusses on the element of loneliness that is vividly present in some selected poems of Frost. The personal life of the poet had made a great impact on his overall thinking resulting into its reflection in his poems. The selected poems especially focus on the theme of loneliness that the poet had suffered due to the periodic loss of his kith and keens.*

Robert Frost has a very influential and significant contribution to the American literature. Though he is counted as one of the most popular poets in the world, his personal life was very painful and sad. He had lived a life of sufferings. Constant bodily ailments like consumption in the family resulting in the death of his father, the insanity of his daughter Marjorie and his sister Jeanie, the suicide of his only son Carol, the suffering of Carol's wife from consumption, the death of his daughter in childbirth, his difficulties with Elinor who died in 1938 leaving Frost to lead a lonely life for 25 years have left a lasting mark on the poetry of Frost. He has depicted not only outward events and conditions but the essential spirit of twentieth century isolation and loneliness. Throughout his poetry, the themes of loneliness and isolation emerge as a necessary part of his world. As a poet of isolation and communion, Frost thought that experiencing isolation and loneliness was a part of the human condition. "For him, the fear of loneliness and isolation is counter-balanced through man's persistent and metaphorical demonstration of difficulties overcome and through his attempts at reconciling himself with his physical surroundings, and the cosmos as a whole" (Mersch).

*An Old Man's Winter Night* is an excellent poem by Frost on the theme of loneliness. The main characters in all these poems are of the same age group. In Frost's poem, we notice the old man's lack of awareness. He has attained that stage when he finds himself incapable of making proper use of his senses.

The poem was begun in Derry during the winter 1906-1907, perhaps inspired, says Thompson, "by a famous local character named Charles Lambert who lived for years as a hermit" (Thompson P. 540). The picture of the old man depicted by Frost arouses pity for him and the pathos is caused when we learn that he is standing alone in a "creating room". He is neither able to see out of the windows nor able to remember the purpose of his stay in the room. Though "All out-of-doors looked darkly in at him" he cannot see beyond the frosted glass panes because of the lighted lamp in his hand. The light

represents consciousness which is fading out in a weak, lonely, and purposeless old age. The light inside the room goes out as he falls asleep and the light that remains is the concealed one of the wood stores and the pale moonlight outside. The old man seems to be the personification of the living death. His loss of life is his loss of awareness and what it involved is made clear by the poet at the end of the poem:

One aged man-one man-can't keep a house,  
 A farm, a countryside, or if he can,  
 It's thus he does it of a winter night.

The old man fails to 'keep' his house and his farm because he is too old to do so. What the writer means when he says that the old man fails to keep 'a countryside' becomes clear when we read the preceding lines where he tells us that he has consigned to the moon the job of taking care of "his snow upon the roof, His icicles along the wall to keep". The most vital symbol in the poem is that of the moon. The moon has been generally associated by poets with love, mutability, dreams, magic, and art, which are the qualities of imagination. The old man has consigned to the moon the duty of keeping "a house, A farm, a countryside" showing that he has lost imagination and that the moon symbolizes imagination. Though this power may die for an individual yet it does not die in itself. The portrayal of the old man is natural, inevitable, and right. We do not know if the old man was as industrious in his youth as Michael but the old age and the feeling of loneliness had killed his desire to work....'tis believed by all that many and many a day he thither went, And never lifted up a single stone."

In another poem dealing with the theme of loneliness, the central character, though he does not appear in the poem directly, is an old man. The poem is *The Death of the Hired Man*. What isolates men and women in the Frostian world is their lack of communication. The isolation sharpens the feeling of alienation between man and man, even between husband and wife. We have already noticed the different ways in which the



husband and the wife in the 'West-Running Brook' think. The problem studied in the poem is that of one man's concern for the sorrows and misfortunes of another. There are three characters in the poem- Mary, Warren and Silas- but, as the investigator has already pointed out, the central character, Silas, does not appear in the poem. The death of Silas is the centre of action. Mary, a woman as she is, is more emotional than Warren, her husband, who is more tied to practical considerations. As the poem opens, we find Mary, waiting for Warren, anxious enough to convey the news that "Silas is back". Silas is shiftless, unreliable and selfish yet also engaging and sometimes lovable. Mary and Warren feel no moral obligation towards him. Warren sees no reason why he should take back the man who again and again has hired himself to work on their farm only to leave them, for his betterment at the time of harvest, when his services were badly needed. Warren thinks that Silas had better go to his own brother instead of coming back to Warren and Mary.

Mary continually persuades Warren to be more kind to Silas though he is nothing to them "any more, than was the hound that came a stranger to us, out of the woods, worn out upon the trail". Silas feels that he must come to Warren and Mary or there is nowhere. Warren says, "Have is the place where, when you have to go there, they have to take you in". Silas has come to, what he thinks, his 'home' and expects that Mary and Warren must take him in because they are good human beings and cannot refuse another human being in need. On the basis of his actions, Silas does not deserve consideration. Thus, Mary and Warren, without asking for it, have had to accept and help solve the problems of others. The end of the poem leaves a lasting impression on us where we learn that Silas is no longer alive, and that it is his death-state that has occasioned the exchange of opinions between Mary and Warren. 'The self-respect of Silas has been the essence of his life and he comes back to Mary and Warren, in place of going to his brother, to preserve his self-respect. William G. O'Donnell had rightly remarked:

In Frost's poetry the radical isolation of the individual has always been taken as a basic experience, something that everyone must face in one form or another ... 'North of Boston', the turning point in Frost's career broke the general pattern established in 'A Boy's Will' by making the tragic discovery of isolation. Throughout each poem in that great collection, Frost insistently projected the theme of man's alienation from his fellow man. (O' Donnell p. 277)

In *Home & Trial*, we find the drama lying in the conflict of two minds- a man's and a woman's mind. Though Frost insisted repeatedly that the inspiration for the poem was the crucial situation of his wife's sister and her husband, Nathaniel and Leona Harvey, who became estranged after the death of their own first-born child in Epping, New Hampshire, in 1895, the possibility is always there that the writing of it could not have been separated from the grief shared by him and his wife following the death of their first-born child, Elliott, in 1900. This conviction strengthens further when we learn that Frost

never read it in his hundreds of public and private readings because it was 'too sad' for him to read aloud and when we notice the similarity in the expression of Elinor's grief, following the loss of Elliott, "The world's evil", with that of the wife in the poem who says, "But the world's evil". The poem may have been inspired by these occasions but it is Frost's broader experience that reveals in the poem how a pair of married lovers may be pulled apart by the shared hurt consciousness that a man and his wife suffer. As the poem begins, we find the young wife looking at the little graveyard where her first-born infant is buried. She refuses to accept the love of her husband who has been indifferent to the death of their child. When he refers to his child's mound, she cries, "Don't, don't, don't, don't" thus restraining him from referring to it again and when he asks "Can't a man speak of his own child he's lost?" She says that he can't because he doesn't know how to speak:

"You can't because you don't know how to speak,  
 If you had any feelings, you that dug  
 With your own hand-how could you? His little  
 grave;  
 I saw you from that very window there,  
 Making the gravel leap and leap in air,  
 Leap up! like that, like that, and land so lightly  
 And roll back down the mound beside the hole..."

She fails to understand how he could have hurried the child himself. She is horrified to think that after burying the child, he came into the kitchen with his boots muddy from the earth of the grave and left his spade in the kitchen entry and talked of everyday matters- "Three foggy mornings and one rainy day/ Will rot the best birch fence a man can build". It was not the proper time for such talk but he talked as if he didn't care for the death of the child. She finds suffocation in the house and thinks that she must go somewhere out of that house to relax herself. Her husband is of the view that though she still suffers from excessive grief yet the crisis is now past. He is not in a mood to allow her to be lost in grief and go somewhere out of his house:

"Where do you mean to go, First tell me that  
 I'll follow and bring you back by force. I will..."

And we can anticipate the husband bringing his wife back to life. The husband seems to be realistic in the acceptance of his child's death, perhaps realizing...

That no life lives for ever  
 That dead men rise up never;  
 That even the weariest river  
 Winds somewhere safe to sea." (Swinburne p. 747)

Dealing with the realities in the human life, in this way, Frost tries to touch the heart of the readers. His sadness, loneliness and a glimpse of pessimism could easily be traced from his poems. With the help of the poems under study, the same attempt has been honestly made here.



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# CONCEPTUAL STUDY OF ROLE OF YOGA IN MANAGEMENT OF ANORECTAL DISEASES

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## ABSTRACT

*The word Yoga means union. It means union of mind with body. Yoga is way of life for human beings since thousands of years, seemingly beginning with the people of the Indus valley region. Sages of India were deeply committed to yogic practices (self-study). As there was increasing influence of Buddhism and interaction with neighbouring cultures, such as the Chinese and Tibetans. Aspects of spiritual practice, philosophical belief and medicinal understanding were being shared and Yoga was one of the aspects, which invariably led to cultures influencing one another. Yoga had origin in India and is considered to be one of the key branches of Ayurvedic medicine.*

## INTRODUCTION

Definition of yoga, it is the nirodhaḥ (inhibition) of the vṛtti (modifications) of the chitta (mind). There are eight angas of Yoga, yama (abstinences), niyama (observances), asana (yoga postures), pranayama (breath control), pratyahara (withdrawal of the senses), dharana (concentration), dhyana (meditation) and samadhi (absorption). Ayurvedic philosophy has careful assessment of the individual through many aspects. Ayurveda includes mental, spiritual and physical practices, diet, food herbalism, massage and cleansing practices for treatment of diseases. Some approaches to yoga therapy are based around postures, attempting to understand the benefits and effects of each in turn. Various beneficial effects are there of yogic postures, it is necessary to understand the high-level effects of these postures. Acharya Sushruta has explained- Chaturvidha Sadhanopaya - 1. Bhaishajya - Medical Management 2. Kshara - Caustic therapy<sup>1</sup>. Yoga therapy is a very powerful modality and can have positive effects on an individual on many levels- physical, mental, emotional, spiritual and energetic.

## AIM AND OBJECTIVE

To study effect of yoga in the management of Anorectal diseases- Haemorrhoids, Fissure and Fistula.

## MATERIALS AND METHOD

Various ayurvedic texts, published review articles, research papers, and from the internet have been reviewed for this article.

## YOGA AS A THERAPY

In yoga therapy various yogic postures, breathing exercises, meditation, and guided imagery to improve mental and physical health. The holistic focus of yoga therapy encourages the integration of mind, body, and spirit. In Modern times yoga has gained significance as it covers a broad range of therapeutic modalities, incorporating elements from both physical therapy and Psychotherapy. Scientific evidence has begun to emphasize

efficacy of Yoga. It is used not only to treat existing mental and physical health issues, but can also be useful self care strategy for (Swasthyarakshan) prevention and maintenance.

Anorectal diseases and metabolic diseases can be control by maintaining proper digestive activity<sup>3</sup>.

Potential benefits from yoga therapy include stress reduction, psychological well-being, improved diet, and efficient functioning of bodily systems. The findings not only indicated that yoga therapy effectively reduced subjects' anxiety, but improvement across several dimensions of physical and mental health including physicality, relaxation, and mindfulness.

The following components are present in Yoga therapy:

- **Breathing Exercises (Pranayama):** Pranayama is a series of breathing exercises ranging from energizing breaths to balancing breaths.
- **Physical Postures (Asana):** Various asanas that help in improving strength of muscles, tendons and ligaments of different body parts.
- **Meditation:** Relaxation and mindfulness are the focus of meditation when it is combined with yoga asanas.

## TYPES OF YOGA

These are types of Karma yoga, Bhakti Yoga, Jnana yoga, Hatha Yoga.

The word karma means service. Karma yoga is type of yoga in which there is devotion to selfless work. One should not expect reward while one works. It means that one has to devote time, effort, energy to task that person is doing. A Karma yogi keeps aside while service purifies the heart and realises oneness with all beings by acting selflessly. Karma Yoga can be practiced anywhere, anytime where there is a desire to serve. It depends on the attitude, not the action

The word Hatha means "force." Hatha yoga restores the balance of the body by using force. Hatha yoga consists of many physical postures and positions that help to balance the body



and mind. Hatha yoga keeps destress, stay physically fit and make us look younger. In addition, Hatha yoga purifies and heals our system. Sustained practice of Hatha yoga leads to toned muscles and weight loss.

### Jnana yoga

Jnana yoga is the form of yoga in which intellectual knowledge and practical wisdom is increased. Jnana yoga is attaining self-realisation through meditative awareness. One experiences Jnana knowledge and develops intuitive understanding. It is separation of ego from the true Self. Jnana yoga may not be physically challenging, but it is one of the most challenging forms of yoga to practice, as it requires a conscious mind.

### Bhakti Yoga

The word Bhakti comes from root Sanskrit word Bhaj which means to serve. In yoga is path of love and devotion. Through cultivating love and devotion one learns to live in harmony. It is union through divine devotion and worship. Bhakti yoga can be practised through devotional chanting, mantra repetition, or the direction of unconditional love to all of creation.

Yoga is an effective tool for management of anorectal disorders. As explained above the role of yoga in human existence. The practice of yoga leads to cure of many diseases including anorectal disorder.

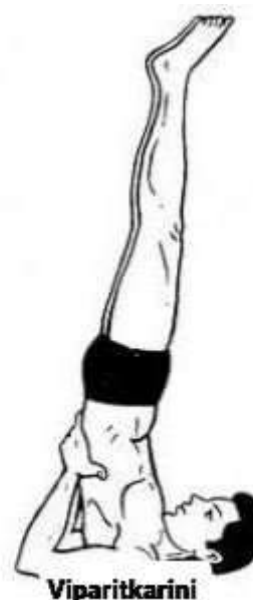
In haemorrhoids constipation is one of the important clinical feature, yoga (Kapalbharti) helps to relieve constipation by improving digestion and peristalsis movement of bowel. In haemorrhoids there is weakness of pelvic muscles which led to prolapse of haemorrhoids, thus it is necessary to strengthened the pelvic muscle by specific yoga asanas (Malasana).

In reccurrant fistula in ano (Bhagandara) there is impure blood in circulation, thus yoga helps to purify the blood. Recurrant fistula in ano is found in immunocompromised patients, thus regular practice of yoga helps to improve immunity and prevent recurrence.

In chronic fissure in ano patients there is reduced blood supply to anal region, thus some yoga asnas will help to improve blood circulation to anal region can help to heal chronic fissure. Here are few Yoga asanas or posture that can help to prevent and cure anorectal disorders.

### DISCUSSION

**Viparita karini or Legs up the wall** - The legs up the wall pose can contribute to improving the blood circulation to the anus and thus assist in reducing the symptoms of haemorrhoids. It will also help to reduce the stress caused due to excessive straining during bowel movements. It would be helpful in patient of chronic fissure in ano.<sup>3</sup>



**Malasana or Garland pose** - This Pose is useful in relieving constipation which is one of the most common causes of piles. The Malasana stretches spine, hips and buttocks and also contracts the abdomen balancing the functioning of the entire digestive tract.



**Balasana or Child's pose** - Balasana helps for increasing circulation towards the anus and also help relieve constipation. Regular use of Balasana improves digestion.



**Balaasna**

Pavanmuktasana- In this pose apply gentle and firm pressure on the stomach. Pavanmuktasana can help release flatus and faecal matter thus help in ease discomfort in the lower abdomen. Pavanmuktasana also help to release muscle tension in the anal region. <sup>4</sup>



**Pavanmuktasana**

**Ardha matsyendrasana or sitting half spinal twist** - In ardha matsyendrasana there is twisting of the body this provides the boost to your digestive system. As the abdominal discomfort decreases, the weakness disappears. One should try to stay in the twisting pose for at least five breaths and then repeat on the other side.



**Ardha matsyendrasna**

**Ardha Kati Chakrasana (Half Moon Pose)**- In Half Moon Pose semicircle is formed at the waist by lateral bending. This improves flexibility and digestive power. Hence is helpful to remove any digestive difficulties which are reasons for causing piles.



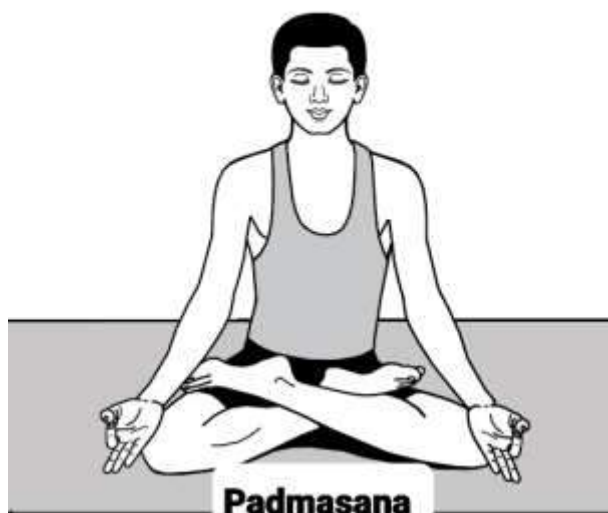
**Ardha kati chakrasana**

**Vajrasana (Thunderbolt pose or Diamond pose)** - Vajrasana means sitting posture with kneeling down position. It is the best asana for awakening kundalini. <sup>29</sup> This asana gives stability to body. The knees gain strength very hard becomes firm and strong. This pose is good for meditation for patients suffering from severe low back problems and sciatica which are most common in Arshas.



**Vajrasana**

**Padmasana (Lotus Pose)**- In this Asana, the blood flows more towards pelvic region, coccygeal and sacral region, so that all nerves will gets toned up. Enhanced blood circulation in lumbar and abdominal region, helps in healing piles.



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## Pranayama (Breathing exercises)

In haemorrhoids constipation is one of the important clinical features, yoga (Kapalbharti) helps to relieve constipation by improving digestion and peristalsis movement of bowel.

## DISCUSSION

Yoga has positive impacts on the parts of the mind and body susceptible to addiction. Yoga boosts the GABA neurotransmitter (gamma-aminobutyric acid), which is important because GABA levels are statistically low in people who experience substance abuse, anxiety, and depression.

Yoga therapy is also used to address many physical health issues, because of its concentration on mind and body integration. Acharyas have also mentioned Vishtambha(constipation)as the prodromal symptom of Guda Vikaras like Arsha. Thus, necessary to relieve constipation the root cause of anorectal diseases. It has been effectively used to treat anorectal disorders, back pain, heart conditions, chronic fatigue, asthma, multiple sclerosis, hypertension, and side effects of chemotherapy.

## CONCLUSION

Thus, Yoga plays a effective role in the management of primary Haemorrhoids. Yoga incorporates poses (also called asanas), breathing exercises (pranayama) and meditation. These practices can help slow down heart rate, lower blood pressure, decrease the production of the stress hormone cortisol and release good chemicals in the brain, such as serotonin. Thus, the Yogic postures can help to strengthen the anorectal musculature.





# CORRELATES OF MATHEMATICS PERFORMANCE OF GRADE 9 LEARNERS IN SECONDARY SCHOOLS DIVISION OF EASTERN SAMAR AMIDST PANDEMIC

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## ABSTRACT

*The existence of the COVID-19 pandemic brought extraordinary challenges in the division of Eastern Samar, many factors affiliating in terms of academic performance, especially in mathematics subjects, learners, homes, and schools. The results showed that most of the respondents were academic achievers on their previous grade levels, wherein their parents were high school graduates, high-income earners, longer distance from their residence to the school of four kilometers and above, and most teachers monitor learners' progress only once per week. Hence, available learning materials at home and school are android cellphones, books, and references that serve as a reading guide and access to learning towards a modular approach in teaching. However, the respondents' attitudes toward mathematics and math anxiety were average levels. Moreover, the data revealed that grade 9 learners performed not satisfactorily in mathematics performance. Using inferential statistics specifically Pearson  $r$ , Point-biserial  $r$ , and Spearman rho correlational analysis it was found that the parameters of learners and home factors had a significant impact, while school factors had no significant impact on mathematics performance. Based on these findings, the researcher recommends that parents be actively engaged in supporting, providing, and sustaining adequate learning materials in new normal education. Schools must improve learning materials, and facilities, and always monitor learning outcomes provided with necessary interventions for academically challenging learners.*

**KEYWORDS:** covid-19 pandemic, correlation, grade 9 learners, mathematics performance, mathematics attitudes, and anxiety

## I. INTRODUCTION

The existence of the COVID-19 pandemic brought extraordinary challenges to the learners, parents, teachers, and schools in the division of Eastern Samar. Thus, all these challenges it's affiliated with so many problems for our students in terms of academic performance, especially in mathematics subjects. However, the National Council of Teachers of Mathematics (2001) made this statement: "One of the curious aspects of our society is that it is socially acceptable to take pride in not being good in Mathematics (p.35-36)." In addition, the program for international student assessment (2018), a student assessment of 15-year-old learners across 79 countries done by the Organization for Economic Cooperation and Development (OECD), the Philippines ranked last among 79 countries in Reading Comprehension and also ends up in the low 70s in Mathematics and Science. Six different things could affect the learning of students: brain processing, academic self-confidence and senses, physical needs, environment, social needs, and emotional attitudes (Dwyer, C. A. et al. 2007). The home factor has a greater impact on the performance of students learning. The socioeconomic status condition of the family continues to be a powerful predictor of the academic success of the students. This shows that the family has an important role in achieving higher academic performance for students. However, families of public-school students have a greater impact on the availability of material resources and it believes that parents can both supplement and complement school efforts. The family background of the students is inferential in learning, even in the subject of mathematics, which may appear to be learned exclusively in school (Rivera, 2011). Another factor that could affect the performance of students' availability of instructional and reading materials in school. The DepEd said that, for the school year 2012 – 2013, it achieved a national average classroom-to-student ratio of 1:40 for elementary and 1:50 for high school. However, DepEd records also show that, for the same school year, the classroom-to-student ratio was 1:75 for elementary and 1:74 for high school in Metro Manila. (2) Lack of books and other reading materials. According to Pangilinan (2015) the rapid increase in student ratio, some schools have a 3:1 student-book ratio; the ideal number is 1:1 which is impossible. Learners from far-flung barangays are within walking distance with so many hours to attend their classes every day and there is a problem in providing equity of access to quality education, particularly for those who live in rural areas in society. However, the same scenario has been foreseen to grade 9 learners in secondary schools' division of Eastern Samar that would affect performance amidst the pandemic.



With these aforementioned reasons and factors that could affect the mathematics performance of learners, the researcher was motivated to correlate the level of mathematics performance with different factors such as learners', home, and school among grade 9 learners in the Secondary Schools' Division of Eastern Samar amidst pandemic in the School Year 2021-2022.

## II. CONCEPTUAL FRAMEWORK

The study correlates mathematics performance among grade 9 learners of ten secondary school divisions in the northern part of Eastern Samar during the first quarter of the School Year 2021-2022.

Above-mentioned-predictive variables were hypothesized influentially the criterion variables, which is the mathematics performance among grade 9 learners in secondary schools' division of Eastern Samar from the framework, and implications will be drawn.

Figure 1, schematic diagram of this study. The first box showed the predictive variables grouped into Learners' Factors includes; Grade 8 General Weighted Average in Mathematics, Learners' attitude towards Mathematics, and Learners' Mathematics Anxiety. Home Factor includes; Parents' educational attainment, Parents' occupation, and Available learning materials at home. School Factor includes; Available learning materials at school, Distance of residence to the school, and Monitoring learners' progress. All these three groups of variables were correlated to the criterion variable in the second box, which is the Mathematics Performance of Grade 9 learners in Secondary Schools, Division of Eastern Samar amidst the pandemic.

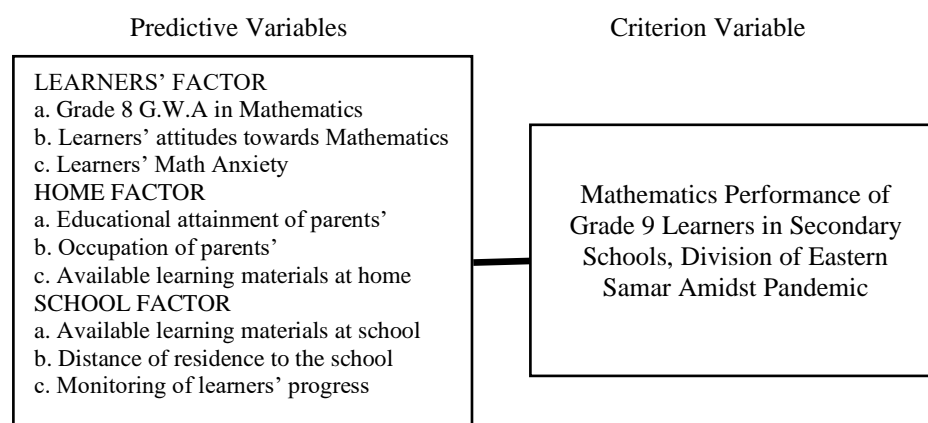


Figure1. The schematic diagram showing of the relationship of variables used in the study

## III. OBJECTIVES

An investigation was undertaken to determine the correlates of mathematics performance of grade 9 learners of the ten secondary schools in the northern part of the school's division of Eastern Samar during the first quarter of the School Year 2021-2022.

Specifically, this study was directed toward the attainment of the following research questions.

1. What is the grade 9 learner-respondents perceived status in terms of; 1.1 Learners' Factor, 1.1.1 Grade 8 G.W.A in Mathematics, 1.1.2 Learners' attitudes towards Mathematics, 1.1.3 Learners' Math Anxiety? 1.2 Home Factor, 1.2.1 Educational attainment of parents' Occupation of parents', 1.2.3 Available learning materials at home? 1.3 School Factor, 1.3.1 Available learning materials in school, 1.3.2 Distance of residence to the school, 1.3.3 Monitoring of learners' progress?
2. What is the level of mathematics performance of grade 9 learners among secondary schools' division of Eastern Samar in terms of achievement tests?
3. Is there a significant relationship between the mathematics performance of grade 9 learners in secondary schools' division of Eastern Samar, and the following factors; 3.1. Learners' Factor, 3.2. Home Factor, 3.3. School Factor.

## IV. METHODOLOGY AND RESEARCH DESIGN

The researcher used the correlational method. This type of research is designed to determine the extent to which different variables are related to each other in the population of interest. Descriptive research involves the description, recording, analysis, and interpretation of the present nature, composition, or process of phenomena concerning problems in educational results, preferences, practices, and procedures (Calderon and Gonzales, 2006). This study utilized descriptive research it described the data of different factors such as learners' factor, home factor, and school factor. Furthermore, a correlational study aims to find out the direction and extent of the relationship between different determinants of the population under study (Calderon and Gonzales, 2006). Hence, this investigation is to determine the relationship between learner factors, home factors, and school factors of Grade 9 learners, and their level of mathematics performance of Grade 9 learners among Secondary Schools, in the Division of Eastern Samar amidst the pandemic.



### Locale of the Study

This study was conducted on ten (10) secondary schools division in the northern part of Eastern Samar for the first quarter of the school year 2021-2022.

These secondary schools are Artech National High School (ANHS), Can-avid National High School (CNHS), Dolores National High School (DNHS), Dapdap National Technical Vocational High School (DNTVHS), Nicasio Alvarez Memorial High School (NAMHS), Hilabaan National High School (HNHS), Hinolaso National High School (HNHS), Maslog National High School (MNHS), Samar National Pilot Opportunity School of Agriculture (SNPOSA) and Oras National High School (ONHS). Moreover, all of these secondary schools are located in the northern portion of Eastern Samar.

### Respondents of the Study

The respondents of this study are three hundred (300) grade 9 learners who are officially enrolled in the different secondary schools, division of Eastern Samar as of September 2021 one week after enrolment started of the School Year 2021-2022.

### Sampling Procedure

In the selection of sampling procedure, the researcher used Slovin's formula and simple random sampling by using the lottery technique or fishbowl technique in the selection of participants among grade 9 learners who are officially enrolled in the different Secondary Schools, Division of Eastern Samar for School Year 2021-2022.

### Research Instruments

The researcher utilized the existing questionnaire with four main parts. The first part is the learners' factor in terms of the general weighted average in mathematics obtained from the report card of the last school year attended. To measure a student's attitude toward mathematics, the researcher adapted from the study of Rivera's (2011) Aiken and Dreger Mathematics Attitude Scale. To measure students' mathematics anxiety the researcher adapted-instrument from the study of Dela Rosa (2014). The second part is a home factor checklist questionnaire on home factors that will describe accordingly to gather data on the home variables. The learners-respondents were asked to supply information on the education of their father and mother, the occupation of their father and mother, and the reading materials that are available at their home. The third part is the school factor a checklist questionnaire on the school factors will describe accordingly to gather data. The learner-respondents to supply information on available learning materials at school, the distance of residence to the school, and monitor students' progress. The last part is to measure the level of Mathematics performance, the researcher used the first quarter summative test consisting of 30 items multiple choices based on the contents of DepEd order no. 21, series of 2019. The scores obtained by the learners' served as mathematics performance levels.

### Data Gathering Procedure

The researcher started gathering data by writing letters asking permission from the Schools Division Superintendent of Eastern Samar to allow him to administer the survey questionnaire to the respondents. The researcher secured permission from the IATF Chairman to follow the guidelines of strictly following the minimum health protocols. And then, the researcher personally asks permission from the Principal/School Head of the ten (10) secondary schools in the division of Eastern Samar to identify a sample and eventually distribute three hundred (300) pieces of research survey questionnaires to the identified respondents on September 27, 2021, to October 18, 2021. Moreover, the researcher asked assistance from a class adviser in that particular school to distribute research survey questionnaires by inserting them into their learner's plastic envelopes.

However, the Department of Education in Secondary Schools Division of Eastern Samar is using a modular approach as a mode of learning in new normal education, the data collection will spend three (3) weeks upon the distribution and retrieval of research instruments. The researcher retrieved the research instruments during the scheduled retrieval of modules in the respective schools and retrieved the research instruments with a 100% response rate.

### Data analysis

The data were tabulated, organized, analyzed, and interpreted using descriptive tools such as frequency count, percentage, and rank to determine the mathematics performance of grade 9 learners in secondary schools' division of Eastern Samar amidst the pandemic. Furthermore, the correlational statistical tools, namely, Spearman's Rank Correlation, Pearson Product Moment of Correlation, and Point-Biserial Rank Correlation were used to establish relationships and significant differences variables at 0.05 alpha level.

### Ethical considerations

This study followed the appropriate research ethics guidelines. The researcher asked permission from the adopted research instrument used in this study. After the action was taken and approved, a consent form from learner-respondents was provided. The researcher started gathering data by writing letters asking permission from the Schools Division Superintendent of Schools Division of Eastern Samar to allow him to administer the survey questionnaire to the respondents. And then, secured permission from the IATF Chairman to follow the guidelines of strictly following the minimum health protocols. The



researcher personally asked permission from the Principal/School Head of ten (10) secondary schools in the Division of Eastern Samar to identify a sample and eventually distribute 300 pieces of research survey questionnaires to the identified respondents. Moreover, the researcher asked for assistance from a class adviser in every school to distribute research survey questionnaires inside learners' plastic envelopes.

However, the Department of Education in secondary schools Division of Eastern Samar is using the modular approach as a mode of learning in new normal education. The researcher retrieved the research survey questionnaire during the scheduled retrieval of modules in the respective school. Thus, the learner-respondents were assured that data will be kept confidential and cannot be used in any legal actions against them.

## V. RESULTS AND DISCUSSION

### Learners' Factors in the Secondary Schools Division of Eastern Samar: Grade 8 G.W.A. in Mathematics

Table 1 shows the previous grade levels' mathematics performance of grade 9 learners amidst the pandemic. Out of three hundred (300) learner-respondents participated, there are one hundred sixty-one, or 53.7% whose previous grade is 90 – 100 an outstanding level of performance in mathematics, while one hundred thirty-nine, or 46.30% who got 85 – 89 on their previous grade in mathematics with very satisfactory performance. However, the respondents' level of mathematics performance in the previous school year are outstanding performance and mostly garnered an academic excellence award with honors. Furthermore, this finding implies that the grade 9 learner-respondents are academic achievers since the overall performance rating was covered such as quizzes, projects, performance tasks, and written outputs in their previous grade level attended.

**Table 1. Respondents' previous grades level mathematics performance**

Grading Scale*	Level of Performance	Frequency (N=300)	Percent
90-100	Outstanding	161	53.7
85-89	Very satisfactory	139	46.30

\*Based on DepEd Order No. 8, series of 2015

### Learners' attitudes towards mathematics

Table 2 shows the attitudes towards the mathematics of grade 9 learners amidst pandemic. Out of three hundred (300) learner-respondents who participated, there are 152 or 50.7 average levels of attitudes towards mathematics with the attitude range of 2.33 – 3.66. While there are 148 or 49.3% low level of attitude with 1.00-2.33 attitude range. However, there are no learner-respondents who got high in the level of attitude in mathematics. The said result was also within the study of Michael (2015), findings came out that the students' high attitude can cause poor performance in mathematics. Developing a low attitude towards mathematics can pave a way for an increase in their performance. The findings imply that the grade 9 learner-respondents of the northern part of secondary schools' division of Eastern Samar have an average level of attitudes towards mathematics. About the findings, the study of Suan (2014) revealed that learners' attitude towards mathematics is one of the factors that could affect mathematics achievement. In addition, Attwood (2006) identified the causes of low performance and high performance in mathematics including attitude toward the subject.

**Table 2. Respondents' attitude towards mathematics**

Attitude range	Level of attitude	Frequency (N=300)	Percent
1.00-2.33	High		
2.34-3.66	Average	152	50.7
1.00-2.33	Low	148	49.3

### Learners' Math Anxiety

Table 3 shows the mathematics anxiety of grade 9 learner-respondents of secondary schools' division of Eastern Samar amidst the pandemic. Data revealed the vast number of grade 9 learner-respondents (N=300) as the perceived level of math anxiety, there are 300, or 100% of the respondents an average level of anxiety under the range of 25-52. Similar to *Lailiyah, et. al. (2020) finding* shows the level of all aspects of students' anxieties in mathematics learning was at a moderate level. Findings imply that all of the grade 9 learner-respondents in the northern part of the secondary schools' division of Eastern Samar are resilient, easily cope up with the new normal education, and have neither a highly positive nor negative outlook towards themselves.





**Table 3. Respondents' anxiety level in mathematics**

Anxiety range	Level of anxiety	Frequency (N=300)	Percent
53-75	High	300	100
25-52	Average		
1-24	Low		

#### Home Factor in the Secondary Schools Division of Eastern Samar: Educational Attainment of Parents

The data revealed that the vast number of grade 9 learner-respondents (N=300), most of the parent's educational attainment are high school graduates with one hundred sixteen (116) or 38.7% of the fathers, while there are one hundred nine (109) or 36.3% college graduate who had reached of the mothers. The finding implies that the mothers had higher educational attainment compared to the fathers. Hence, parents' educational attainment can be the motivation of their children to perform better in school because parents can serve as role models to their children.

**Table 4. Parents' educational attainment status**

Levels of educational attainment	Father		Mother	
	Frequency (N = 300)	Percent	Frequency (N = 300)	Percent
Elementary level	33	11.0	16	5.3
Elementary Graduate				
High School level	34	11.3	13	4.3
High School Graduate	116	38.7	36	12.0
College level	39	13.0	109	36.3
College Graduate	72	24.0	34	11.3
Post Graduate and Higher	6	2.0	79	26.3

#### Occupation of Parents

Table 5 shows the occupation of parents of grade 9 learner-respondents of secondary schools' division of Eastern Samar amidst pandemic. Data revealed on the vast number of learner-respondents (N=300) with fathers most occupation is highest-earning occupations with two hundred nine ten (219) or 73%. However, mothers' occupations are high earning occupations with two hundred twenty-three (223) or 74.3%. Which generally, the level of parents' occupation of grade 9 learner-respondents are high-income earning occupations. The findings imply that the occupational parents emphasizing the financial income also influence the performance and completion in schooling. Families with high-income earners invest more in the education of their children. Hence, families whose low-income earner is likely preventing a child from attending a school that causes poor performance. However, according to David and Albert (2012), poverty hinders children from attending school since they do not have money to buy school supplies and pay for transportation. Despite free education for all, the high cost of education or financial concern (17.9%) remains one of the top reasons why students drop out of school (Lumili, 2009).

**Table 5. Parents' occupational status**

Levels of occupations	Fathers		Mothers	
	Frequency (N = 300)	Percent	Frequency (N = 300)	Percent
High earning occupations	219	73.0	223	74.3
Low earning occupations	81	27.0	77	25.7

#### Available learning materials at home

Table 6 shows the findings on available learning materials at home. Data revealed that the majority of the learner-respondents (N=300) within first in ranked is an android cellphone with the frequency of 255. Generally, the most frequently learning materials available is an android cellphone. Similar to this Limb and Fullarton (2001) found out that more family learning resources and those who have unlimited resources tend to have higher achievements levels in mathematics. In addition to the findings, Valk (2010), presented the use of mobile phones helped to improve educational outcomes in two specific ways: 1) in improving access to education, and 2) in promoting new learning. Analysis of the projects indicates that while there is important evidence of mobile phones facilitating increased access, much less evidence exists as to how mobiles promote new learning. In contrast, the negative point of view the findings of Chukwuere (2018) it was found that using smartphones distracts students from their studies in certain aspects. The results also showed the impact of using smartphones on students' academic capabilities and progression. Findings imply that availability of learning materials at home is easily



provided access from a cellphone, books, and television. However, learners' must be encouraged to read and write learning materials at home, while giving them a learning space for every learner to motivate, focus, and be determined to study their lesson.

**Table 6. Availability status of learning materials at home**

<b>Learning materials at home</b>	<b>Frequency* (N=300)</b>	<b>Rank</b>
Books and References	228	2
Encyclopedia	34	8
Tabloids	3	18
Novels/Novelette	26	9
Bible	120	5
Comics	18	14
Thesaurus	19	13
LCD Projector	1	19
Atlas	7	16
Newspapers	24	11
Magazines	36	7
Dictionaries	175	4
Bulletin Board/Display	4	17
Journals	26	9
Children Encyclopedia	20	12
Television	195	3
Computer/Laptop	74	6
Android Cellphone	255	1
Booklets/pamphlet	17	15

\* = multiple responses

#### **School Factor in the Secondary Schools Division of Eastern Samar: Available learning materials at school**

Table 7 shows the findings on available learning materials at school. Data revealed that the majority of the grade 9 learner-respondents (N=300) within first ranked is books and references with the frequency of 259. Generally, the most available learning materials available at school are books and references. Similar to the results of the study of Quimbo (2010) suggested that mathematics achievements can be improved by effectively delivering school materials that can affect the learning outcomes of the learners. Findings imply that the availability of learning materials at school is more on the traditional way of learning materials used such as books and references, dictionaries, display boards, etc. However, some schools enhance and integrate information communication technology (ICT) to their learners by using computers/laptops, LCD projectors, television as part of the new normal education.



**Table 7. Availability status of learning materials at school**

Learning materials at school	Frequency* (N=300)	Rank
Books and References	259	1
Encyclopedia	106	5
Tabloids	18	19
Novels/Novelette	20	18
Bible	29	16
Comics	25	17
Thesaurus	32	14
LCD Projector	95	6
Atlas	30	15
Newspapers	36	13
Magazines	44	11
Dictionaries	190	2
Bulletin Board/Display	163	4
Journals	70	8
Children Encyclopedia	39	12
Television	60	10
Computer/Laptop	181	3
Android Cellphone	76	7
Booklets/pamphlet	61	9

\* = multiple responses

#### Distance of residence to the school

Table 8 shows the distance of residence to the school of grade 9 learner-respondent of secondary schools' division of Eastern Samar. Data revealed that most of the respondents (N=300) are long distances to the schools with the frequency and percentage of 110 or 36.7% of 4 kilometers and above. While the lowest is 15 or 5% from 3 kilometers to 3.99 kilometers. Similar to the result of Oneye and Onyango (2020), based on the findings school stakeholders perceived the long-distance travelled by students reduces teacher-students contact time, leads to stomach ulcers, headaches, and related issues which reduce school attendance and completion rates. Therefore, hinder effective teaching and learning resulted into low academic performance. Findings imply that the grade 9 learner respondents came from upstream barangays otherwise the location of the school is far from their house and it would be possible to lead to dropouts, poor performance, and not continuing education.

**Table 8. Distance of residence to the school of the respondents**

Distance of residence to the school	Frequency N=300	Percent
4 km. above	110	36.7
3 km. to 3.99 km.	15	5.0
2 km. to 2.99 km.	21	7.0
1 km. to 1.99 km.	47	15.7
below 0.99 km.	107	35.7

#### Monitoring Learners Progress

Table 9 shows the monitoring learners progress of grade 9 learners of secondary schools' division of Eastern Samar. Data revealed surprisingly that most of the respondents (N=300) monitor their learning progress are only once per week with the frequency and percentage of 158 or 52.7%. However, the lowest is 14 or 4.7% never monitor in a week. A great impact to the learners in times of pandemic to monitor their knowledge and give them feedback of their outputs. Findings imply there is not enough monitoring of learners' performance and it would lead to poor performance of learners. An important implication to illustrate the role of teachers in addressing the academic needs of learners in the new normal education.



**Table 9. Monitoring learners progress of the respondents**

Monitor learners progress	Frequency N=300	Percent
monitor 4 times per week	77	25.7
monitor 3 times per week	20	6.7
monitor 2 times per week	31	10.3
monitor only 1 per week	158	52.7
never monitor in a week	14	4.7

**Level of mathematics performance of grade 9 learner-respondents for the first quarter of School Year 2021-2022**

The first quarter performance test results of three hundred (N=300) participating grade 9 learner-respondents of secondary schools' division of Eastern Samar were categorized by the level of performance based on the contents of DepEd Order no. 21, series of 2019, as shown in Table 11. Data shows that the highest percentage score belongs to 35 – 65 Unsatisfactory performance of 156 or 52% learner-respondents. However, the lowest percentage score belongs to 86 – 95 Very Satisfactory performance with 3 or 1% learner-respondents. It also affects the confinement of students during the pandemic has a significant positive effect on their performance (Gonzales, 2020). However, the result is limited only in describing the overall performance of grade 9 learners in the first quarter achievement amidst pandemic, and it found out that most of the grade 9 learners need to provide special attention in terms of academic performance especially in mathematics subject by learning continuity plan using different modalities in teaching such as online class, instructional videos, home visitation, modular print, open communication to the parents/guardians for them to bridge the gap between learners and teachers in times of pandemic.

**Table 10. Respondents performance in mathematics during the first quarter of the school year 2021-2022**

Performance interval	Level of performance	Frequency (N =300)	Percent
96 – 100	Outstanding		
86 – 95	Very Satisfactory	3	1.0
66 – 85	Satisfactory	16	5.3
35 – 65	Unsatisfactory	156	52.0
0 – 34	Poor	125	41.7

\*Based on DepEd Order No. 21, series of 2019

**Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of learner's factors**

Table 11 shows the relationship via Pearson r on grade 9 learner-respondents mathematics performance and parameters of learners' factors. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak -.00 to .05, Negligible -.01 to .19, Weak -.20 to .29, Moderate -.30 to .39, Strong -.40 to .69, Very Strong -.70 to 1.0. Findings show that math anxiety ( $r = -.173, p = .018$ ) and attitude towards mathematics ( $r = .138, p = .001$ ) constitute negligible and significant effect on the level of mathematics performance of grade 9 learners. However, the parameter of previous grade levels with ( $r = .727$  and  $p = .001$ ) very strong significant relationship between the mathematics performance of grade 9 learner-respondents. Despite the modular printed approach in teaching utilized of learner-respondents, there are contingency plans on blended learning approaches such as online class, video instruction, radio-based instruction to improve learners' level of mathematics performance as well as the achievement test.



**Table 11. Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of learner's factors.**

Parameters of learner factors	<i>Mathematics performance</i>		Decision
	Result	Interpretation	
Previous grade level's mathematics performance attitude towards mathematics	$r = .727$ $p = .001$	Very strong Significant	Reject $H_0$
The anxiety level in mathematics previous grade level's mathematics performance	$r = -.173$ $p = .018$	Negligible Significant	Reject $H_0$
Attitude towards mathematics	$r = .138$ $p = .001$	Negligible Significant	Reject $H_0$

**Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of home factors.**

Table 12 presents the test on the relationship via Spearman rho and Point-biserial r correlational analysis between the respondents' mathematics performance and parameters of home factors. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible - .01 to .19, Weak - .20 to .29, Moderate - .30 to .39, Strong - .40 to .69, Very Strong - .70 to 1.0. Findings show that parents' occupation result is negligible and interpreted as significant in the relationship between mathematics performance with father's occupation ( $r_{pb} = .190$ ,  $p = .001$ ) and mother's occupation ( $r_{pb} = -.173$ ,  $p = .003$ ). However, parents' educational attainment result is very weak and interpreted as not significant relationship between the level of mathematics performance with father's educational attainment ( $\rho = -.099$ ,  $p = .086$ ) and mother's educational attainment ( $\rho = -.057$ ,  $p = .328$ ), while the available learning materials at home ( $r_{pb} = -.001$ ,  $p = .984$ ) the result is very weak and interpreted as not significant relationship between the level of mathematics performance. Generally, the findings imply that parents' educational attainment and available learning materials at home had no significant relationship to grade 9 learners on mathematics performance.

**Table 12. Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of home factors.**

Parameters of home factors	<i>Mathematics performance</i>		Decision
	Result	Interpretation	
Father's educational attainment	$\rho = -.099$ $p = .086$	Very weak Not significant	Fails to reject $H_0$
Mother's educational attainment	$\rho = -.057$ $p = .328$	Very weak Not significant	Fails to reject $H_0$
Father's occupation	$r_{pb} = .190$ $p = .001$	Negligible Significant	Reject $H_0$
Mother's occupation	$r_{pb} = -.173$ $p = .003$	Negligible Significant	Reject $H_0$
Availability status of learning materials at home	$r_{pb} = -.001$ $p = .984$	Very weak Not significant	Fails to reject $H_0$

**Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of school factors.**

Table 13 presents the test on the relationship via Spearman rho and Point-biserial r correlational analysis between the respondents' mathematics performance and parameters of home factors. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible - .01 to .19, Weak - .20 to .29, Moderate - .30 to .39, Strong - .40 to .69, Very Strong - .70 to 1.0. Findings show that the available learning materials at school ( $r_{pb} = .072$ ,  $p = .216$ ) are very weak and not significant (fails to reject  $H_0$ ). While, monitoring learners' progress ( $\rho = -.096$ ,  $p = .098$ ) is negligible and not significant (fails to reject  $H_0$ ). Moreover, a distance of residence to the school ( $\rho = .184$ ,  $p = .001$ ) is negligible and significant (reject  $H_0$ ).

**Table 13. Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of school factors.**

Parameters of school factors	Mathematics performance		Decision
	Result	Interpretation	
Availability status of learning materials at school	$r_{pb} = .072$ $p = .216$	Very weak Not significant	Fails to reject $H_0$
Distance of residence to the school of the respondents	$\rho = .184$ $p = .001$	Negligible Significant	Reject $H_0$
Monitoring learners progress of the respondents	$\rho = -.096$ $p = .098$	Negligible Not significant	Fails to reject $H_0$

**Test of a significant relationship between grade 9 learner-respondents' mathematics performance and identified factors affecting it.**

Table 14 shows the relationship between grade 9 learner-respondents' mathematics performance and factors affecting mathematics performance. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible - .01 to .19, Weak - .20 to .29, Moderate - .30 to .39, Strong - .40 to .69, Very Strong - .70 to 1.0. Findings show that home and school factors constitute negligible negative and positive effects on the level of mathematics performance of grade 9 learners ( $\rho$  of  $-.129$  and  $.047$ , respectively), even though modular printed approaches in teaching are utilized by school and learners do not fully understand and new to everyone. Hence, there were contingency plans provided by the school such as a blended learning approach (Online, Video, Radio Instruction) for learners to improve the level of mathematics performance as well as the achievement test. While learners' factors resulted as a positive impact on the learners yet interpreted as a strong correlation it means learning begins into oneself capacity to handle improvement of their performance. The learners' and home factors establish a significant relationship to grade 9 learners on mathematics performance, while school factors resulted as the not significant relationship of mathematics performance. Learners must have a good attitude towards mathematics and minimize the level of anxiety through reading educational books and providing learning activities. Home for learning opportunities in which parents and other members of the family are actively engaged to support the learner's education. While, the school must improve learning materials, facilities, and always monitor learning outcomes to provide necessary intervention for those academically challenging learners.

**Table 14. Test of a significant relationship between grade 9 learner-respondents' mathematics performance and identified factors affecting it.**

Predictive Variables	Criterion Variable	$\rho$	Interpretation	p-value	Decision	Interpretation
Learners' Factor		.515	Strong	.000	Reject $H_0$	Significant
Home Factor	Mathematics performance	-.129	Negligible	.026	Reject $H_0$	Significant
School Factor		.047	Negligible	.610	Fails to reject $H_0$	Not Significant

$$\alpha = 0.05, df = 2$$

**VI. CONCLUSION AND RECOMMENDATIONS**

Based on the findings of the study the following conclusions are drawn.

1. Most of the grade 9 learners in secondary schools' division of Eastern Samar are academic achievers in their previous grade levels, while parents are high school graduates, high-income earners, longer distance from their residence to the school with four kilometers and above, and most of the teachers monitor learners progress only once per week. However, android cellphone, books, and references are the most available learning materials at home and school. The learner-respondents have an average level of attitude toward mathematics and an average level of anxiety about mathematics.
2. Most of the Grade 9 learners in the secondary schools' division of Eastern Samar performed an unsatisfactory level of performance in mathematics.
3. There is no significant relationship between grade 9 learner-respondents' mathematics performance and parameters of



school factors. Parents are actively engaged to support learners' education and school must improve learning materials, and facilities. Always monitor learning outcomes provided with necessary intervention for those academically challenged learners.

From salient findings and conclusions, the following recommendation is advanced.

1. The grade 9 learners must provide adequate learning materials at home to sustain their education. Parents should be financially stable and educated to support their children as far as education is concerned.
2. It must be recommended the school in the community must be provided with learning materials available at school which are closer to where learners live to avoid long distances travelled by learners in times of pandemic. The teacher should strive to keep monitoring learners' progress and give necessary interventions such as home visitation, blended learning, and learning activity sheets that can increase the performance of mathematics.
3. Future researchers must undergo making their survey questionnaires without the adaptation of other researchers.

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# COLLEGE OF COMPUTER STUDIES ALUMNI WOMEN'S PERCEPTIONS OF WORKING IN THE ICT INDUSTRY

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## ABSTRACT

*The information and communication technology sector are taking on an increasingly significant impact on the global economy. Women are in high demand for highly qualified workers to meet the growing demand of this expanding sector.*

*The context for this paper is the ongoing under-representation of women from the College of Computer Studies in the ICT industry, as well as the industry's complexities in retaining women, especially at senior levels. Data on the demographic composition of women from College of Computer Studies alumni in the ICT industry are presented. Furthermore, the author focuses on their domestic management and caring responsibilities, as well as the changes in their professional methods that were brought about as a direct consequence of these responsibilities. Given recent government and business discussions over 'work-life balance' and 'flexible working' in the ICT sector, which are partially in response to the need for a more diversified ICT workforce, these facts are highly relevant. In addition to discussing the career histories of female ICT workers, the author investigates their perspectives of compensation and benefits, working conditions, the talents they possess, and the recognition they may or may not receive in their current positions. They provide evidence of a 'long-hours' and 'presenteeism' culture in the ICT business, as well as gendered informal networks inside the industry. Additionally, they analyze the perspectives of female ICT workers about the industry's current and potential future image. The findings emphasize the continuous masculinization of ICT employment, as well as some of the obstacles women encounter while working in statistically and symbolically male-dominated environments.*

**KEYWORDS:** *Women in ICT, Women ICT Careers, Perceptions, ICT Workforce*

## INTRODUCTION

This study aims to reassess and broaden the existing understanding of the gap between society perceptions of careers in ICT (Information, Communication, and Technology) and the real-world experiences of women working in this field. A significant number of students, particularly females, do not consider ICT as a feasible professional option. Prevailing beliefs suggest that a career in information technology lacks excitement and lacks opportunities for interpersonal engagement (Cockburn 1991; Jewell & Maltby 2001; Margolis & Fisher 2002; MMV 2004). Also, in the perspectives of secondary school female students, the survey results demonstrated that, on average, female students had good impressions of ICT; nevertheless, this interest did not convert into consideration of ICT as a career choice. This shows that there is a huge population of female students who might be interested in ICT studies and jobs if they were encouraged and given more knowledge about the opportunities that ICT provides. The findings of statistical modeling revealed that, in addition to factors such as computer interest and family background, exposure to various software tools and services, particularly in the early years of secondary school, played a significant role in shaping female students' interest in an ICT career (Miliszewska & Sztendur 2010).

Nonetheless, studies (Trauth 2002; Beekhuyzen, Nielsen, & Von Hellens 2003) have shown that many women

who work in ICT say that their jobs are interesting, challenging, and fun. Apart from this, a high portion of the Palestinian women who responded felt that learning the fundamental skills of ICT gave them some measure of empowerment and confidence and thought that ICT was useful in enhancing their standard of living (Rabayah 2010). The comprehensive and balanced participation of women in ICT-based economic and educational activities encourages their contributions in business and at home, as well as their empowerment. When utilized efficiently, ICT can enhance women's opportunities to exchange information, gain access to online education, and engage in e-commerce activities, thereby improving their quality of life (Matangi, Kashora, Mhlanga, & Kachere 2013).

A more recent study (Courtney, Lankshear, Anderson, & Timms 2009) revealed that the unfavorable stereotype associated with ICT professions in Australian society is "corrigible," which means that it can be improved. Nevertheless, as the end of the first decade of the twenty-first century approaches, the field of information and communication technology (ICT) continues to lack appeal and attractiveness among women (Lang 2007). The proportion of women with equal representation in the field of ICT is either unchanged or declining (MMV 2008), implying that the stereotype of an uninteresting and non-human interface work perhaps is not changing at all. Moreover, women are more likely to be in roles requiring less well-paid "soft" skills, which



has been linked to gender occupational segregation in the tech industry. As these skills are assumed to be female, this can lead to women being pushed into or trapped in these roles (Graham 2016). Similarly, data on the completion of the Victorian Secondary School Certificate of Education show that students, regardless of gender, are increasingly opting out of IT modules in their final years of school. In 2001, a total of 16,229 units were completed, with female students accounting for 42% of the total. The number of students that graduated in 2009 was 5199, with just 19% of those students were female (VCAA, 2010). Moreover, despite being regular leisure users of ICT tools, few females are currently entering the ICT field, which represents a loss of talent for the industry and a loss of opportunity for women (Gras-Velazquez, Joyce & Debry 2009). Conversely, a very significant finding is that women who have better access to ICT resources appear to be more inclined to look for training. This is demonstrated by the fact that a similar proportion of women—73% overall—had formed particular thoughts about what they may benefit from taking a course in computers that would improve their ICT abilities (Rabayah 2008).

There is compelling evidence to suggest that more women are needed at all areas of the ICT profession. It has been proposed that there is a need for a greater number of women "out of self-interest" (Klawe, Whitney & Simard 2009 p.68). Design and development teams that are diverse generally provide "enhanced abilities to perform tasks, greater creativity, and better decisions and outcomes" for all members of the team (Klawe, et al. 2009 p.68). Women believed their wages were comparable to those of their male co-workers because they saw their gendered roles as being extremely significant and essential to ICT. To attract and keep women in an industry where a skills shortage is anticipated in the coming years, it will be helpful to have a better handle on how they feel about their ICT profession (Crump, Logan & McIlroy 2007). In addition, the existing literature highlights various instances of design and system failures, with a significant portion being attributed to the absence of diversity within development teams (Margolis & Fisher, 2002). Women are more likely than men to lack basic literacy and computer skills, making them less likely to take advantage of the opportunities provided by ICTs. Women account for nearly two-thirds of the world's illiterate population, with one in every two women in developing countries being illiterate (Vodanovich, Urquhart, & Shakir 2010). Furthermore, it has been recognized that the lack of women in this profession represents a non-measurable disadvantage. Therefore, they are unaware of the potential outcomes and opportunities they are missing (Lang et al., 2010; NCWIT, 2007). Similarly, the business justification for encouraging diversity within sectors and on boards to avoid "groupthink" is as relevant in the ICT industry as it is in any other profession. According to recent research, "the mere presence of socially distinct newcomers, and the social concerns that their presence elicits in long-term residents, motivates behavior that can transform emotional discomfort into cognitive benefits" (Phillips, Liljenquist, & Neale, 2009, p. 1).

The range of professions contained within this sector appears as a critical issue when seeking to explain the

difference between beliefs and realities in ICT careers. The word ICT itself is defined as having "a lack of clarity of definition" (Webb & Young, 2005, p. 148), and defining which occupations belong under the ambit of ICT is also difficult (DCITA, 2006). The rapid speed of technological innovation complicates precise conception of the computing business (Beekhuyzen, Nielsen, & Von Hellens, 2003; Valenduc et al., 2004), making it a nontrivial semantics exercise (Spencer, 2003). Computer science, information systems, systems engineering, and other terms are frequently used, with ICT and IT now being the "buzz" phrases. Each of these terminologies has a specific meaning that is difficult to define precisely.

ICT encompasses a broad range of employment roles that include both technical and non-technical aspects. While secondary students may have a clear understanding of the responsibilities of a nurse, teacher, or architect, the same level of clarity is often lacking when it comes to the ICT field. Consequently, in the presence of such uncertainty, many individuals' defaults to a simplified definition of ICT as "something related to computers." This assumption leads them to believe that ICT is predominantly technical, likely involving programming, and consequently perceived as a solitary endeavor.

Taking these aspects into account, the research questions we attempted to answer included: What factors have drawn women who are currently employed in the ICT industry? And what insights can we derive from their experiences to enhance the societal perception of ICT as a viable career choice? By obtaining answers to these questions, we anticipate gaining valuable knowledge that can aid in tackling misconceptions and stereotypes linked to the profession.

## OBJECTIVES OF THE STUDY

The purpose of this study is to assess women ICT professionals' perception in working College of Computer Studies Alumni in ICT Industry on the reasons why they chose the ICT industry as a career path, characteristics that may be associated with ICT as a career for women, and masculine and feminine behaviors in the workplace and the ICT Industry.

## METHODOLOGY

A descriptive quantitative study was carried out with 82 women alumni of the College of Computer Studies who were working in ICT fields. In order to obtain thorough descriptions, the interviews and brainstorming session were directed by a list of essential questions compiled from the literature, including earlier studies by Nielsen et al. 2003 & Trauth 2002. Participants were encouraged to comment about their thoughts, experiences, and job relationships without following a predetermined script throughout the interview. Throughout 2022, surveys were performed via Facebook Messenger as well as in person. The survey asked the women to explain their marital status, age, course, greatest educational level, and whether they were the family's sole earner. They were asked what led them to a profession in ICT and to weigh in on the benefits and drawbacks of working in this field. If they had not already been asked, the women were asked if the gender gap in their industry affected their professional lives.



Of the 82 women surveyed, 10 were married and 72 are single. Their courses were varied including Bachelor of Science in Information Technology and Bachelor of Science in Computer Science. The interviewees came from the College of Computer Studies Alumni who are working in ICT Industry.

## RESULTS AND DISCUSSION

The figure presented in the survey results focusing on the criteria such as reasons why they chose the ICT industry as their career path, the qualities that may be attributed to ICT as a career for women, and masculine and feminine behaviours in the workplace and the ICT Industry. The latter figure represents the open-ended question responses that characterize women ICT Professionals' perception in working in ICT Industry.

**Table 1.1 Results on reasons why they chose ICT industry as their career path**

	In terms of Image (Criteria)	MEAN	SD	Adjectival Rating
B1	ICT has a good image in the community	4.44	0.52	Strongly Agree
B2	ICT provides job security	4.46	0.53	Strongly Agree
B3	ICT is considered to be of "high status"	4.37	0.58	Strongly Agree
B4	ICT is associated with high salaries	4.37	0.58	Strongly Agree
B5	ICT provides opportunities from promotions or career advancement	4.48	0.50	Strongly Agree
	<b>Total</b>	<b>4.42</b>	<b>0.54</b>	<b>Strongly Agree</b>

Table 1.1 shows that the mean response of 82 CCS alumni women regarding reason why they chose ICT industry as their career path in terms of image, it shows that the item B5: which pertains to the statement. *"ICT provides opportunities from promotions or career advancement"* garnered the highest mean of 4.48 and a standard deviation of 0.50 which interpreted

as strongly agree and preceded by the 2nd highest mean of 4.46 B2: *"ICT provides job security"* which can be interpreted also as strongly agree. The overall mean of this table garnered a 4.42 and an overall standard deviation of 0.54 which interpreted as strongly agree.

**Table 1.2 Results on reasons why they chose ICT industry as their career path**

	In terms of Job Satisfaction (Criteria)	MEAN	SD	Adjectival Rating
B6	ICT provides interesting work	4.56	0.50	Strongly Agree
B7	ICT provides challenging work	4.45	0.50	Strongly Agree
B8	ICT encourages creativity	4.48	0.50	Strongly Agree
B9	ICT provides work satisfaction	4.49	0.50	Strongly Agree
B10	ICT provides opportunities for promotions or career advancement	4.55	0.50	Strongly Agree
	<b>Total</b>	<b>4.51</b>	<b>0.50</b>	<b>Strongly Agree</b>

Table 1.2 shows that the mean responses of 82 CCS alumni women regarding reason why they chose ICT industry as their career path in terms of job satisfaction, it shows that the item B6: which pertains to the statement. *"ICT provides interesting works"* garnered the highest mean of 4.56 and a standard deviation of 0.50 which interpreted as strongly agree

and preceded by the 2<sup>nd</sup> highest mean of 4.55 B10: *"ICT provides opportunities for promotions or career advancement"* which interpreted as strongly agree. The overall mean of this table garnered a 4.51 and an overall standard deviation of 0.50 which interpreted as strongly agree.

**Table 1.3 Results on reasons why they chose ICT industry as their career path**

	In terms of Social Usefulness (Criteria)	MEAN	SD	Adjectival Rating
B11	ICT provides a social useful job	4.55	0.50	Strongly Agree
B12	ICT provides a responsible job	4.46	0.50	Strongly Agree
B13	ICT provides opportunities to work with others	4.56	0.50	Strongly Agree
	<b>Total</b>	<b>4.52</b>	<b>0.50</b>	<b>Strongly Agree</b>

Table 1.3 shows that the mean responses of 82 CCS alumni women regarding reason why they chose ICT industry as their career path in terms of social usefulness, it shows that the item B13: which pertains to the statement. *"ICT provides opportunities to work with others"* garnered the highest mean of 4.56 and a standard deviation of 0.50 which interpreted as

strongly agree and preceded by the 2<sup>nd</sup> highest mean of 4.73 B11: *"ICT provides a social useful job"* which interpreted as strongly agree. The overall mean of this table garnered a 4.52 and an overall standard deviation of 0.50 which interpreted as strongly agree.



**Table 1.4 Results on reasons why they chose ICT industry as their career path**

In terms of Flexibility (Criteria)		MEAN	SD	Adjectival Rating
<b>B14</b>	ICT provides self-employment opportunities	4.51	0.55	Strongly Agree
<b>B15</b>	ICT provides flexible working hours	4.10	0.76	Strongly Agree
<b>B16</b>	ICT provides travel opportunities	4.44	0.52	Strongly Agree
<b>B17</b>	ICT provides the ability to work from home	4.50	0.50	Strongly Agree
<b>B18</b>	ICT encourages independent work	4.49	0.50	Strongly Agree
<b>Total</b>		<b>4.41</b>	<b>0.57</b>	<b>Strongly Agree</b>

Table 1.4 shows that the mean responses of 82 CCS alumni women regarding reason why they chose ICT industry as their career path in terms of flexibility, it shows that the item B14: which pertains to the statement. *"ICT provides self-employment opportunities"* garnered the highest mean of 4.51 and a standard deviation of 0.55 which interpreted as strongly

agree and preceded by the 2<sup>nd</sup> highest mean of 4.50 B17: *"ICT provides the ability to work from home"* which interpreted as strongly agree. The overall mean of this table garnered a 4.41 and an overall standard deviation of 0.57 which interpreted as strongly agree.

**Table 2.1 Results regarding the qualities that may be attributed to ICT as a career for women**

In terms of Reward (Criteria)		MEAN	SD	Adjectival Rating
<b>C1</b>	People respect me	4.48	0.55	Strongly Agree
<b>C2</b>	The pay is good	4.27	0.65	Strongly Agree
<b>C3</b>	ICT provides opportunities to meet lots of people	4.52	0.50	Strongly Agree
<b>Total</b>		<b>4.42</b>	<b>0.57</b>	<b>Strongly Agree</b>

Table 2.1 shows that the mean responses of 82 CCS alumni women regarding the qualities that may be attributed to ICT as a career for women in terms of reward, it shows that the item C3: which pertains to the statement. *"ICT provides opportunities to meet lots of people"* garnered the highest mean

of 4.52 and a standard deviation of 0.50 which interpreted as strongly agree and preceded by the 2<sup>nd</sup> highest mean of 4.48 C1: *"People respect me"* which interpreted as strongly agree. The overall mean of this table garnered a 4.42 and an overall standard deviation of 0.57 which interpreted as strongly agree.

**Table 2.2 Results regarding the qualities that may be attributed to ICT as a career for women**

In terms of Opportunities (Criteria)		MEAN	SD	Adjectival Rating
<b>C4</b>	There are lots of job opportunities in ICT	4.60	0.49	Strongly Agree
<b>C5</b>	There is a wide variety of ICT careers to choose from	4.51	0.50	Strongly Agree
<b>C6</b>	Specializing in ICT open doors to career in many types of industries or businesses	4.54	0.50	Strongly Agree
<b>Total</b>		<b>4.55</b>	<b>0.50</b>	<b>Strongly Agree</b>

Table 2.2 shows that the mean responses 82 CCS alumni women regarding the qualities that may be attributed to ICT as a career for women in terms of opportunities, it shows that the item C4: which pertains to the statement. *"There are lots of job opportunities in ICT"* garnered the highest mean of 4.60 and a standard deviation of 0.49 which interpreted as

strongly agree and preceded by the 2<sup>nd</sup> highest mean of 4.54 C6: *"Specializing in ICT open doors to career in many types of industries or businesses"* which interpreted as strongly agree. The overall mean of this table garnered a 4.55 and an overall standard deviation of 0.50 which interpreted as strongly agree.

**Table 2.3 Results regarding the qualities that may be attributed to ICT as a career for women**

In terms of Helping the Society (Criteria)		MEAN	SD	Adjectival Rating
<b>C7</b>	ICT provides opportunities to help others	4.61	0.49	Strongly Agree
<b>C8</b>	Women customers are relieved to deal with a women regard to ICT problems	4.32	0.58	Strongly Agree
<b>C9</b>	ICT stimulates imagination and creativity	4.52	0.50	Strongly Agree
<b>C10</b>	ICT is flexible and it is possible to work from home	4.55	0.52	Strongly Agree
<b>Total</b>		<b>4.50</b>	<b>0.52</b>	<b>Strongly Agree</b>

Table 2.3 shows that the mean responses of 82 CCS alumni women regarding the qualities that may be attributed to ICT as a career for women in terms of helping the society, it shows that the item C7: which pertains to the statement. *"ICT provides opportunities to help others"* garnered the highest

mean of 4.61 and a standard deviation of 0.49 which interpreted as strongly agree and preceded by the 2<sup>nd</sup> highest mean of 4.55 C10: *"ICT is flexible and it is possible to work from home"* which interpreted as strongly agree. The overall mean of this





table garnered a 4.50 and an overall standard deviation of 0.52 which interpreted as strongly agree.

**Table 2.4 Results regarding the qualities that may be attributed to ICT as a career for women**

	In terms of Stereotypes (Criteria)	MEAN	SD	Adjectival Rating
<b>C11</b>	An ICT career means sitting in front of a computer all day	1.34	0.67	Strongly Disagree
<b>C12</b>	An ICT career is boring	1.28	0.45	Strongly Disagree
<b>C13</b>	Only computer “geeks” or “nerds” work in ICT	1.22	0.42	Strongly Disagree
	<b>Total</b>	<b>1.29</b>	<b>0.51</b>	<b>Strongly Disagree</b>

Table 2.4 shows that the mean responses of 82 CCS alumni women regarding the qualities that may be attributed to ICT as a career for women in terms of stereotypes, it shows that the item C11: which pertains to the statement. “*An ICT career means sitting in front of a computer all day*” garnered the highest mean of 1.34 and a standard deviation of 0.67 which

interpreted as strongly disagree and preceded by the 2<sup>nd</sup> highest mean of 1.28 C12: “*An ICT career is boring*” which interpreted as strongly disagree. The overall mean of this table garnered a 1.29 and an overall standard deviation of 0.51 which interpreted as strongly disagree.

**Table 3.1 Results regarding to masculine and feminine behaviours in the workplace and the ICT Industry**

	In terms of Equality (Criteria)	MEAN	SD	Adjectival Rating
<b>D1</b>	In my workplace, I feel I receive the same recognition for my work as my male colleagues	4.65	0.51	Strongly Agree
<b>D2</b>	The ICT industry has a female-friendly image	4.39	0.54	Strongly Agree
<b>D3</b>	In my workplace, I feel that I have as much chance of promotion as my male colleagues	4.50	0.61	Strongly Agree
<b>D4</b>	In my workplace, I feel confident of my technical abilities	4.48	0.53	Strongly Agree
<b>D5</b>	I would encourage young women/girls to enter the ICT industry	4.57	0.50	Strongly Agree
	<b>Total</b>	<b>4.52</b>	<b>0.54</b>	<b>Strongly Agree</b>

Table 3.1 shows that the mean responses of 82 CCS alumni women regarding to masculine and feminine behaviours in the workplace and the ICT Industry in terms of equality, it shows that the item D1: which pertains to the statement. “*In my workplace, I feel confident of my technical abilities*” garnered the highest mean of 4.65 and a standard deviation of 0.51 which

interpreted as strongly agree and preceded by the 2<sup>nd</sup> highest mean of 4.57 D5: “*I would encourage young women/girls to enter the ICT industry*” which interpreted as strongly agree. The overall mean of this table garnered a 4.52 and an overall standard deviation of 0.54 which interpreted as strongly agree.

**Table 3.2 Results to masculine and feminine behaviours in the workplace and the ICT Industry**

	In terms of Management Approachability (Criteria)	MEAN	SD	Adjectival Rating
<b>D6</b>	In my workplace, I feel or felt able to rise my concerns about how I have been treated	4.13	0.77	Agree
<b>D7</b>	In my workplace, I feel or felt able to rise my concerns about the treatment of other employees	4.11	0.80	Agree
	<b>Total</b>	<b>4.12</b>	<b>0.76</b>	<b>Agree</b>

Table 3.2 shows that the mean response of 82 CCS alumni women regarding to masculine and feminine behaviours in the workplace and the ICT Industry in terms of management approachability, it shows that the item D6: which pertains to the statement. “*In my workplace, I feel or felt able to rise my concerns about how I have been treated*” garnered the highest mean of 4.13 and a standard deviation of 0.77 which interpreted as agree and preceded by the 2<sup>nd</sup> highest mean of 4.11 D7: “*In my workplace, I feel or felt able to rise my concerns about the treatment of other employees*” which interpreted as agree. The overall mean of this table garnered a 4.12 and an overall standard deviation of 0.76 which interpreted as agree.

As a corollary, the tables above reveal a constant favorable survey results that alumni women are currently adequate in their workplace in the ICT industry. It also implies that women working in the ICT industry contribute distinct insights that may help drive innovation and creativity, and that a better representation can be beneficial in terms of creating a more inclusive and welcoming industry culture, as well as reducing unconscious prejudices that can adversely impact women.



## CONCLUSION

One takeaway from the research, which is consistent with prior findings, is that a job in ICT is "challenging, exciting, rewarding, and compelling" (Courtney et al. 2009, p.60). The dichotomy that exists between what school students and other members of society perceive of an ICT career involves and the actual work experience of women in ICT is maintained. According to the women that were interviewed, a career in ICT contradicts the limited conceptions of secondary school students mentioned in the introduction.

However, the researcher discovered that there was insufficient data to support earlier claims that women in ICT were subjected to different standards. It was found that only one of the participants mentioned the struggle to gain technical credibility, which suggests that the workplace was changing. The findings from the interviews have prompted some further inquiries. Have the women interviewed accepted and adapted to a male-dominated ICT industry, or has the workplace evolved as a result of the varying definitions of what an ICT career is? The researcher unequivocally discovered a more favorable environment in terms of diversity, acceptance, and inclusion; nevertheless, before any further conclusions can be drawn, more comprehensive research including a bigger number of participants is need to be carried out.

Students are generally uninformed of the realities of ICT job chances. Several of the CCS alumni women contacted for this study stressed this lack of understanding, and it pervades their "journeys" to ICT employment. Rather than making a deliberate decision to pursue a career in information technology, the majority of women mentioned a series of events and work opportunities that presented themselves, as well as taking advantage of a series of "chance" offers or a fortuitous incident that led to their current position. Several respondents said that they were uninformed of the existence of such positions at the time, and that specific job titles arose later. As a result, the difficulties of defining a constantly changing and evolving territory are highlighted. Ignorance and a general lack of awareness of the variety of ICT careers appear to be a hindrance to achieving greater gender equality in the area. Some respondents claimed that they are still unable to convey their concerns to senior management, and if this situation continues, some issues may go unreported or lead to misunderstandings. Since technology has permeated modern life, there is a strong sense of contradiction, as it remains difficult to identify and appropriately describe its professional identity to younger generations considering future career pathways.

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# TEACHING AND LEARNING RESOURCES DURING THE COVID-19 PANDEMIC IN PUBLIC PRIMARY SCHOOLS IN ADAMAWA STATE, NIGERIA

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## ABSTRACT

*The main objective of the study on whose this paper based was to examine the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria. The research made use of survey research design. This study employed multistage sampling techniques which include stratified random sampling, simple random sampling, and also purposive sampling. The study used stratified random sampling, and purposive sampling method to select 16, 16 head teachers, one hundred and sixty (160) pupils, thirty-two (32) teachers. Questionnaire was used as an instrument for collecting quantitative data while qualitative data was collected using Focus Group Discussion. Data obtained from questionnaire was quantitatively analysed using mean score method of data analysis. The study which investigates the availability, utilization and challenges of using ICT resources during the COVID-19 Pandemic in primary schools in Adamawa State, Nigeria revealed that although ICT resources are not always available in Primary schools in Adamawa State, the few that are often available are not usually utilized. The study also confirmed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply, and difficulty in understanding the objectives of the online courses are the challenge posed by the e-learning in Nigerian education system. Based on the findings of this study, the following recommendations were made; E-learning should be given the utmost attention and properly implemented to help attain the growth we seek for in our education system during and after COVID-19 pandemic and Schools should be provided with necessary ICT facilities that encourage positive use of ICT.*

**KEYWORDS:** Availability, Utilization Challenges ICT Resources, Covid-19 Pandemic and Public Primary Schools

## INTRODUCTION

One of the Millennium Development Goals (MDGs) for 2015 was to attain universal basic education. It was emphasized that developing countries, particularly those in Africa, have made significant headway in bridging the school enrolment gap with that of developed countries like Europe (Blomeke, 2017). Notably, through the Sustainable Development Goals, the focus has been shifted from attainment of not just school attendance but also excellent education. In the year 2020, Sub-Saharan Africa made the most gain in primary enrolment among emerging regions, increasing from 52 to 78 percent for 30 years. However, considerable gaps remain in the achievement of SDG 4, which seeks to offer high-quality, inclusive education to all children by 2030. Children from poor homes are more likely to drop out of school than their more affluent counterparts.

When the Covid-19 disease was reported in Wuhan China in 2019 and began spreading rapidly, across the globe, its negative impact on education was felt in numerous way. As of April 28th, 2020, Africa had recorded 33,389 incidents (UNESCO, 2020a) of Covid-19. In South Africa, within the same year, there were 4,793 infected cases, 90 fatalities, and 1,473 recoveries (Schröder et al, 2020). Officials from the African

Union's Centre for Disease Control (CDC) described the corona virus outbreak as an existential threat to the continent. The situation in the education industry was never any better, with more than 1,268,164,088 pupils (72 percent) leaving their learning institutions in over 177 countries by April 2020 (Marivate & Combrink, 2020). These schools closures, along with hash tags like "lockdown," "social distancing," and "stay at home," necessitated new and creative ways of thinking like the utilization of Information and Communication Technology (ICT) in teaching and learning to reach students who had been lock up in their homes hence could not easily access learning institutions.

Of worth noting is that the extent to which ICT was available and utilized during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria had not been established. In attempt to fill the above gap a study was designed with one of its objectives seeking to examine the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria. This objective is the main focus of this paper, whose data has been obtained from a small part of a wider doctoral thesis on Covid-19 pandemic management protocols and classroom



teaching and learning in public primary schools in Adamawa State, Nigeria.

Teaching and learning has gone beyond the teacher standing in front of a group of pupils and disseminating information to them without the students' adequate participation (Ajadi, Salawu, & Adeoye, 2008). With the aid of ICT, teachers can take students beyond traditional limits, ensure their adequate participation in teaching and learning process and create vital environments to experiment and explore. This new development is a strong indication that the era of teachers without ICT skills are gone. Any classroom teachers with adequate and professional skills in ICT utilization will definitely have their students perform better in classroom learning.

Information and Communication Technologies refers to technology that provides access to information through telecommunications such as the internet and Wi-Fi connection, social media, cell phones, E-learning Software and CDs and DVDs. The various ICT facilities used in the teaching learning process in schools to include; radio, television, computers, overhead projectors, optical fibres, fax machines, CD-Rom, Internet, electronic notice board, slides, digital multimedia, video/VCD machine and so on (Babajide, & Bolaji, 2003 & Ofodu, 2007).

When students and teachers have the right technological gadgets that can be interconnected through means such as internet, learning is easily taken online without necessarily making use of the traditional physical classroom. For instance, a teacher can record a video of them discussing a certain topic and share it with students who may be expected to watch it at their convenience and respond to specific questions. The students will then share their responses with the teacher through online means (Mandela & Mwangi, 2023). Both synchronous and asynchronous tools of teaching and learning can be embedded in a common controlled online environment, known as a learning management system (LMS), accessible to both teachers and students participating in a common course. However, LMS although gaining popularity in higher education, is still rarely used in primary schools in Africa.

Numerous authors, publishers and well-wishers have been providing teaching and learning materials and resources that could be used to support learning for free in the online space. Accordingly, the use of ICT to promote online teaching and learning was found to be a good substitute to the physical classroom that could no longer be accessed at all levels of education during Covid-19 pandemic outbreak.

Various studies have shown the multifaceted problems militating against the effective use of ICT in the teaching learning process in schools even before the Covid-19 Pandemic outbreak. These include: irregular power supply (Yusuf, 2005; & Ofodu, 2007); inadequate computer literate teachers (Oyebanji, 2003 & Dabesaki, 2005) inadequate funds (Ofodu, 2007) and reluctance to change, among others. Gadzama (2019) did a study on the successful integration of ICT in teaching and

learning among public secondary schools in Nigeria, which revealed that non availability of software and hardware infrastructure was a major factor challenging the utilization and integration of computer and ICT in the schools. It became necessary to establish how this challenge was being navigated given that the use of technology was almost inevitable in teaching and learning in the context of Covid-19 outbreak. Ndibalema (2014) further reported that many teachers in secondary schools do not have sufficient knowledge and skills on the use of ICT in teaching and learning. Therefore, this study sought to establish the availability of ICT facilities and their utilization in teaching and learning in primary schools in Adamawa State, Nigeria during the Covid-19 pandemic.

## RESEARCH OBJECTIVES

One of the main objectives of this paper on which this study is based was to examine the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria. In line with this objectives, this paper is designed to address the following objectives:

- i. Assess the availability of ICT resources in learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria.
- ii. Examine the utilization of ICT resources during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria.
- iii. Identify the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic in public primary schools in Adamawa State, Nigeria.

## RESEARCH QUESTIONS

In line with the objectives above, this paper seek to answer these questions:-

- i. To what extent were ICT resources available for teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?
- ii. To what extent were ICT resources utilized for teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?
- iii. What were the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic in public primary schools in Adamawa State, Nigeria?

## METHODOLOGY

This research made use of survey research design to gain a greater understanding of the availability of ICT and its utilization in teaching and learning in primary schools in Adamawa State, Nigeria, in the context of the Covid-19 pandemic. Adamawa State was created out of Gongola State in 1991 with Yola as its capital. The state is located at 9.3265° N and 12.3984° E, has a land area of 36,917 km<sup>2</sup>, and borders Borno and Gombe States to the north and west, respectively. It is bordered by the national border with Cameroon (Tukur, 2015).





Adamawa State was chosen for this study because it was among the states that experienced high rates of COVID 19 pandemic with cases of 1,157 in 2021 when compared to other states like: Borno which recorded 81, Yobe 19, Taraba 25, Gombe 30 and Bauchi 70 cases of infections within the same year. Primary schools were chosen because of the vulnerability and high level of exposure of small children who attend such schools in the society. The primary schools are also more likely to lack resources and awareness towards adhering COVID-19 Pandemic prevention protocol as compared to secondary schools and institutions of higher learning (FMOE, 2020).

The target population for this study comprised of all the public primary school pupils (309,434), head teachers and teachers (37800) in Adamawa State, numbering 347, 234. The study used stratified random sampling to select four (4) schools from each of the five educational zones in Adamawa State, to form a total of 16 schools. To begin with, schools were grouped into three strata in each of the four zones that included mixed-sex schools, boys-only schools, and girls-only schools.

The study used stratified random sampling to select the four (4) schools from each of the five educational zones in Adamawa State, to form a total of 16 schools for the study. To begin with, schools were grouped into three strata in each of the four zones that included mixed-sex schools, boys-only schools, and girls-only schools. In each strata, the names of every single school was written on a piece of paper, folded and placed in a bowl. The bowl was shaken and a school randomly picked to be included in the sample.

The study also made use of a purposive sampling method to select head teachers, pupils and teachers. Purposive sampling was used in line with the research purpose of studying Covid-19 pandemic management protocol in the area of teaching and learning primary school. The researcher purposively selected 16 head teachers from the 1890 total population of head teachers in Adamawa State. The stratified sampling technique enabled the researcher to ensure that a group of the target population was fairly included in the sample of the study. Additionally, the method ensured that a more accurate sample was obtained from the target population. Two (2) teachers from each school were selected for interview thus making a total of (32) teachers in all.

Twenty-one (21) Local Education Authorities (LEAs) were grouped into educational zones. Each educational zone was regarded as a stratum, and all the schools were grouped into five

(5) strata. In selecting the study sample, the researcher used the stratified random sampling method to select four (4) schools from each stratum, hence a total of sixteen (16) schools studied. The researcher used sixteen (16) schools for the study, (16) head teachers, one hundred and sixty (160) pupils, thirty-two (32) subject teachers.

Questionnaire was used as an instrument for collecting quantitative data. The researcher organized questionnaires into categories of 4 sections, whereby section A contained the general information about respondents, such as age, gender, teaching experience, and level of education. In sections B, C and D the researcher used 19 closed ended items to gather information on the availability, utilization and challenges of using ICT resources during the COVID-19 pandemic in public primary schools in Adamawa State, Nigeria.

For purposes of ascertaining the validity of the research tools used in the study, triangulation of research tools was applied. This means that more than one data collection method used through interviews, FGD, observation, while questions were checked for validity by experts in research.

The reliability of internal consistency of the instrument was determined using the test-re-test method of establishing reliability. According to Akuezilo and Agu (2003), the test-re-test method shows that if the instrument was applied more than once on the same person or group of persons, the similarity of the results will indicate the reliability coefficient of such a test. The internal consistency was determined by using Cronbach's Alpha reliability Coefficient and a coefficient of 0.81 was gotten which shows that the instrument is reliable.

Data obtained from questionnaire was quantitatively analyzed using mean score method of data analysis. The responses from focus group discussions were qualitatively analyzed thematically; narrative and qualitative content analysis was done in line with the research objectives. Through this analysis, it was possible to outline and summarize the data.

## RESULTS AND DISCUSSION

**Research Question One:** To what extent are ICT resources available for teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?

**Table 1: Availability of ICT resources for teaching and learning during the COVID-19 pandemic**

S/N	Item	Mean	Decision
1	Availability of ICT facilities/ devices	2.31	Often available
2	Availability of ICT Centers	2.01	Often available
3	Availability of e-library	1.04	Not available
4	Strong internet access	1.03	Not available
5	Stable electricity supply	1.41	Often available
6	Funds for maintenance	1.34	Often available
Average Mean		1.52	Not available



From the analysis in table one; it is clear that while ICT facilities/ devices and ICT Centers are often available, there was unavailability of e-library, strong internet access, and electricity supply and funds for maintenance for use in teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria.

Some responses from the Focus Group Discussion supported the above finding as illustrated by the sample voices below:

Our schools have ICT facilities and devices like computer systems and projectors (Samaila, Teacher Mixed Sex School, May, 2023).

Our schools have no strong internet and no stable electricity (Abdullahi, Teacher Mixed sex school, May, 2023).

The above assertion is supported with an average calculated mean score of 1.52. The finding agreed with the findings of Babajide and Bolaji, (2003), Bryers, (2006), Bandele, (2006) and Ofodu, (2007) who revealed that radio, television, computers, overhead projectors, optical fibres, fax machines, CD-Rom, Internet, electronic notice board, slides, digital multimedia, video/VCD machine are the facilities and devices for ICT in teaching and learning.

**Research Question Two:** To what extent are ICT resources utilized for online teaching and learning during the COVID-19 pandemic in public primary school in Adamawa State, Nigeria?

**Table 2: Utilization of ICT resources for teaching and learning during the COVID-19 pandemic**

S/N	Item	Mean	Decision
1	Learning Management System	1.61	Not Utilized
2	Google classroom	1.54	Not Utilized
3	Internet and Wi-Fi connection,	1.57	Not Utilized
4	Social media platforms,	1.64	Not Utilized
5	E-learning Software	1.51	Not Utilized
6	Educational CDs and DVDs,	1.72	Not Utilized
<b>Average Mean</b>		<b>1.60</b>	<b>Usually Utilized</b>

From the analysis in table two, it is clear that even though the ICT resources are not always available; the few that are often available are not utilized for online teaching and learning. This is supported with calculated mean score of 1.60.

Similarly, some responses from the interview and Focus Group Discussion supported the above finding as illustrated by the sample voices below:

Utilization of ICT resources is not utilize in teaching and learning during the COVID-19 pandemic (Zubaina, female teacher Mixed Sex School, May, 2023).

Our teachers do not teach us using zoom, online platform, Whats'App, face book during Covid-19

lockdown (Ali, teacher Mixed Sex School, May, 2023).

This finding agreed with the findings of Oluwafemi (2022) and Huber & Helm (2020) that that learning management system (LMS), internet and Wi-Fi connection, social media, cell phones, E-learning Software and CDs and DVDs, are ICT facilities that most countries used during COVID-19 Pandemic but these facilities were not utilized in primary schools in Adamawa State, Nigeria.

**Research Question Three:** What are the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic in public primary schools in Adamawa State, Nigeria?

**Table 3: the challenges in the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic**

S/N	Item	Mean	Decision
1	Poor technical infrastructure	3.20	Agreed
2	Cost of ICT equipment	2.91	Agreed
3	Lack of computer literacy	2.89	Agreed
4	Inappropriate teacher training	3.06	Agreed
5	Cost of accessing the internet	2.92	Agreed
6	Irregular and frequent interrupted power supply	2.77	Agreed
7	Difficulty in understanding the objectives of the online courses	2.67	Agreed
<b>Mean Average</b>		<b>2.92</b>	<b>Agreed</b>

From the analysis in table three above, it is clear that there were various challenges affecting the utilization of ICT resources during teaching and learning in the context of covid-19 Pandemic. Some of these challenges are: poor technical infrastructure cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet,

irregular and frequent interrupted power supply and difficulty in understanding the objectives of the online courses.

Responses from the Focus Group Discussion supported the above finding as illustrated by the sample voices below:

The major challenges affecting utilization of ICT resources in teaching and learning during the



COVID-19 pandemic are: Cost of ICT equipment, Irregular and frequent interrupted power supply and Cost of accessing the internet (Zubairu, male teacher mixed sex school, May, 2023).

Even though our school has ICT centre, most of the computers in the centre are not functioning because of lack of maintenance (Mr. Johnson, Teacher Girls only school).

This assertion is supported with calculated means score of 2.92. The finding agreed with the findings of Ofodu (2007), Kwache (2007), Gadzama (2019) and Ndbalema (2014).

## CONCLUSION AND RECOMMENDATIONS

The study which investigates the availability, utilization and challenges of using ICT resources during the COVID-19 Pandemic in primary schools in Adamawa State, Nigeria revealed that although ICT resources are not always available in Primary schools in Adamawa State, the few that are often available are usually not utilized. The study also confirmed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply, and difficulty in understanding the objectives of the online courses are the challenge posed by the e-learning in Nigerian education system.

Based on the findings of this study, the following recommendations were made;

1. E-learning should be given the utmost attention and properly implemented to help attain the growth we seek for in our education system during and after COVID-19 pandemic.
2. The government should ensure that schools are well equipped with ICT infrastructure that will not only enhance teaching and learning but also support learning when face to face classrooms becomes impossible to conduct as was witnessed during Covid-19 pandemic.
3. There is a need for stakeholders in education to frequently organize in service training for teachers on ICT so that they are ready to integrate it in teaching and learning in all seasons including during the outbreak of Covid-19

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# CORPORATE GOVERNANCE AND CORPORATE DISTRESS; A SURVIVAL ANALYSIS OF LISTED FIRMS IN SRI LANKA

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## ABSTRACT

*This study investigates the association of different corporate governance characteristics and accounting variables with the survival likelihood of distressed firms listed on the Colombo stock exchange between 2019 and 2021 by selecting 100 firms as a sample via the purposive random sampling technique, where 50 firms are financially distressed. The Altman Z-score method was used to identify financially and non-financial distressed firms. Cox Proportional hazard regression was employed to test the determinants of the survival likelihood of distressed firms, and the results show no relationship between corporate characteristics and the survival likelihood of financially distressed firms. At the same time, accounting variables such as ROA, Firm size, and Leverage are significant determinants of the survival likelihood of distressed firms in Sri Lanka.*

**KEYWORDS:** Financial Distress, Survival, Corporate governance characteristics, Accounting variables

## 1. INTRODUCTION

Sri Lanka has a remarkable history of numerous corporate scandals such as Pramukha Savings, Golden Key Credit Card Company, and the bankruptcy of Vanic Incorporation, Lanka Marine Services Ltd., Sri Lanka Insurance Corporation, etc., the collapse of these firms has created unstable nature to their stakeholders (Samaraweera et al., 2021). Moreover, the study reveals that business failures occur due to the unethical act of board members and poor corporate governance systems. Most businesses experience a period of financial trouble for a substantial amount of time prior to filing for insolvency. Therefore, in credit risk management, financial distress is a helpful indicator of predicting bankruptcy and the accuracy of financial trouble. It can give investors and creditors an early warning of the firm's possibility of losses (Zhou, 2022).

The current study addresses the corporate governance environment's role in companies' ability to recover from bankruptcy and eventually survive. Most of the previous studies only considered the financial ratios, and macroeconomic variables on survival (Tinoco, 2013). Notably, this study follows the survival analysis techniques by considering various corporate governance attributes on the survival likelihood of distressed firms. Thus, Survival analysis is mainly used in the science and engineering field but it can also be applied in the financial accounting discipline, especially in financial distress (Laitinen, 2005).

The current study extends the literature by examining the extent to which corporate governance characteristics differentiate

financially distressed firms that subsequently fail from those that recover. According to Yurtoglu (2022), two primary channels of board characteristics can most significantly affect the predictability of bankruptcy. First, the financial information of the company can reveal the current financial condition of the company. Effective boards can always confirm the accuracy of the financial data and information to their interested parties to disclose the true condition of the firm. Second, the boards can enhance the efficiency of management's response to distress by properly exercising their major roles.

The study operationalizes the corporate governance environment by testing whether corporate characteristics are associated with the ultimate survival of financially distressed firms.

### 1.1 Research problem

In recent years the importance of corporate governance has been awakened due to the collapse of many high-profile companies in Sri Lanka. Predicting the firms' failure probability or survival is a more significant issue among the stakeholders. (Astebro, 2012). Rather than going for bankruptcy a firm can follow a survival measurement technique to identify the reason or determining factor to overcome the distress. The empirical question is whether the board's efficiency, functions, and financial variables confirm future survival.

### 1.2 Research Objective

To find out which corporate governance attribute (Board Size, Board Independence, Board Meetings, Board Expertise, Audit Size, Audit Independence, Audit Meetings, Audit Expertise, Firm





size, Age, return on assets (ROA, Leverage, Dividend Yield) influence on leading to firm failure or the survival.

### 1.3 Research Question

1. Which corporate governance characteristics differentiate the corporate failure or survival of the companies?

The rest of the paper is structured as follows: To lay the groundwork for choosing the independent variables, the second part gives a literature review. The empirical data and statistical techniques are covered in the third portion of the paper. The empirical findings are presented in the fourth part. The study is concluded in the last part, which also makes some recommendations for future research.

## 2. LITERATURE REVIEW

Previous studies (Mili, 2023, Gerged, 2022, Mariano, 2021) found that corporate governance elements are connected with financial distress. However, they failed to assess whether the elements are connected with the systematically different financial outcomes for the distressed firm. (Khatib, 2022) extend the literature by providing evidence that the financial performance of the company can be predicted by corporate characteristics. Hence, the previous studies prove that elements of corporate governance have a considerable impact on financially distressed firms.

According to (Laitinen, 2005) the study confirms that the increasing trend of equity ratio, cash flow, and quick ratio is the most important indicator of financial variables on financial instability. It has been demonstrated that the stratum elements of business size, industry, and age have an impact on the financial distress process. The finding of the study is contrary to the concerns expressed by (Abdel Khalik 1993).

(Lipton and Lorsch, 1992) argue that eight or nine members of the board are more effective when the board exceeds this size, it becomes difficult for all the board members to express their ideas and opinions in the limited time available at board meetings, so usually, if the board has eight members so that would be effective. Standard board composition measures include the independent non-executive director's ratio (Rashid, 2011).

Board expertise mentions the board members' experience and expertise in the social environment, reporting, and decision-making as per that the directors could offer their valuable insights based on their experience being on the board of the company (Dahya et al. 1996) as measured by the qualification and experience of the board of directors as per that the directors have met the minimum qualification of MBA or more than that.

The company's board of directors usually holds a board meeting at certain times to discuss the company's policies and strategies. This meeting is essential to develop the policies and strategies, as Hoque et al. (2009) reported, meeting helps make some crucial decisions for the company.

several audit community members on the board of an audit committee, so at least three non-executive directors whom at least two should be independent (Rahman et al., 2019). This audit committee's independence is crucial because the auditors get support from the audit committee for any circumstance (Al Farooque et al. 2019). Audit committee expertise explains that the audit committee board should be with some audit and finance experts because this will help the company achieve the company's goal and objective (Alqatamin et al. 2018, Qeshtaa et al. 2020), typically, CA members, CIMA, and ACCA members should be included in to the committee. The audit committee meeting is crucial for the companies and board manager operating committees. Hence, this committee oversees the financial reports and disclosure, and this regular meeting will help reduce the agency problem and some other vital issues shorted out (Garas et al. 2018, Qeshtaa et al. 2020). through this meeting, the committee takes part of the all-important decisions.

### 2.2 Theoretical background

Agency theory, steward theory, resource dependence theory, credit risk theory, packing order theory, and stakeholder theory are mostly focusing on corporate governance and organizational behavior, and financial distress (Merton 1974). These theories highlighted that the board composition and diversity of board have a significant part in the company's success as well as failure (Yurtoglu, 2022). Several factors may contribute to interrupting the board function (Tirole, 2010).

### 2.3 Hypothesis

The study examines the association between corporate governance characteristics and financial characteristics with the time of survival likelihood of financially distressed firms.

**H1- There is no association between corporate governance characteristics and financial characteristics with the time of survival likelihood of financially distressed firms.**

## 3. METHODOLOGY AND SAMPLING DESIGN

There are numerous other techniques that have been applied to the prediction of business failure. The current study will follow the Cox Proportional Hazards Model as suggested by (Shumway, 2001). Studies indicated that applying the Cox model to a large set of data would be valuable research and comparing it to other models (Gepp, 2008).

Samarakoon and Hasan (2003) evidenced that the Altman Z-Score method is an appropriate distress-predicting tool for Sri Lankan companies but up to the search there are no studies available regarding survival analysis for distress firms in Sri Lanka.

The current study compares the differences between logit analysis and survival analysis in assessing the financial risk of Sri Lankan Listed companies. hence, the study reveals the use of the survival curve and the financial hazard rate.



### 3.1 Sample selection

As of 31<sup>st</sup> January 2022, 280 firms are listed in Colombo Stock Exchange under 19 categories. After excluding the banking finance and insurance sector, the present study will consider the data from 2019 to 2021 in three fiscal years. The data will be collected from the published annual reports of the companies. Based on the availability of the data 100 companies from different sectors have been selected to carry out the study on which about 50 percent of the companies experienced financial distress. Which is confirmed by Altman Z- score model.

### 3.2. Variables

#### 3.2.1 Dependent Variable

The Financial Distress of the firm will be identified by following Altman predictive tool. If the firm distressed =1 otherwise 0

#### 3.2.2 Independent Variables

##### 3.2.2.1. Corporate governance variables

1. Board size: The total number of executive and non-executive board members in the board of directors considers the board size.
2. Board Independence: The total independent directors are a percentage of the total number of directors on the board.
3. Board Expertise: In the board the number of members with financial or/and accounting qualifications for firm.
4. Board Independence: The total independent directors are a percentage of the total number of directors on the board.
5. Audit Committee size: A number of members in the audit committee.
6. Audit Committee Independence: A number of independent non- executive directors on the Audit Committee.
7. Audit Committee Expertise Number of members with Finance or/and Accounting qualifications in the audit committee.
8. Audit Committee Meetings: Number of audit committee meetings held during the period.

9. Firm size: Firm Size is measured in terms of total assets for a particular period. The natural logarithm of total assets at the end of the year.
10. Age: Natural logarithm of the number of years a firm has been in operation after incorporation.
11. Return on assets (ROA): The net income earnings for the current period as a percentage of total assets utilized.
12. Sales growth:
13. Leverage: Total liabilities scaled by total assets at the end of the year.
14. Dividend Yield: Sales growth is the amount a company derives from sales compared to a previous period.

### 4. DATA ANALYSIS

This study employs the proportional hazards model developed by Cox (1972). The study estimated the following Cox Proportional Hazard regression to study going concern assessments.

Financial distress=  $b_1$  log of total assets+  $b_2$  log of years+  $b_3$  total assets/ total sales+  $b_4$  sales growth +  $b_5$  leverage + $b_6$  dividend yield+ $b_7$  board size +  $b_8$  board independence+ $b_9$  board expertise +  $b_{10}$  board meeting +  $b_{11}$  audit committee size+  $b_{12}$  audit committee independence+  $b_{13}$  audit committee expertise +  $b_{14}$  audit committee meetings + e

SPSS statistical software was used to analyze the data. There are standard statistics carried out to check the significance of the model.

hazard ratio above 1 indicates a covariate that is positively associated with the event probability, and thus negatively associated with the length of survival.

In summary,

- HR = 1: No effect
- HR < 1: Reduction in the hazard
- HR > 1: Increase in Hazard

## 5. RESULTS

Table: 01 Descriptive Statistics

	Variable	Low	High	Mean	Std. Dev.
A	Corporate governance Variables				
01	Board Size	4	16	8.5000	2.2658
02	Board Independence	0.1250	0.7500	0.4100	0.1269
03	Board Expertise	0.1250	1	0.6940	0.2136
04	Board Meetings	1	13	5.0433	2.7459
05	Audit Committee size	2	6	3.2633	0.7455
06	Audit Committee independence	0.3333	1	0.7483	0.1901
07	Audit Committee Expertise	0.2000	1	0.5483	0.2300
08	Audit Committee Meetings	1	17	4.5300	1.7279



B	Accounting Variables				
09	Firm size	14.5204	25.9204	22.0137	1.8458
10	Age	4	146	44.1500	30.8475
11	ROA	-0.0482	0.1466	0.0372	0.0574
12	Leverage	0	0.7890	0.2243	0.2727
13	Sales Growth	-0.2980	0.2725	0.0109	0.1672
14	Dividend Yield	0	0.0840	0.0259	0.0295
15	Altman_Z-Score	0.3065	6.2411	2.3772	1.8184

Part A of Table 1 represents the descriptive statistics for the corporate governance variables and accounting variables of the company. Board size represents the number of directors. Board Size ranged from 4 to 16 members with a mean of 8.5. the study measured board independence as the total independent directors are a percentage of the total number of directors on the board. Board independence has a mean of 41%. the measure of Board Expertise considered the proportion of the total board members with accounting relate qualifications it results that the mean 69% of board members having the accounting background. The number of Board meetings results that high with 13 low with 1 and the mean value is 5.

The audit committee size ranged from 2 to 6 members with a mean of 3. Audit independence has a mean value of 74%. the

measure of Audit Expertise considered the proportion of the total audit committee members with audit and accounting relate qualifications it results mean value of 54%. Audit committee meetings ranged between 1-17

Part B of Table 01 illustrates the descriptive analysis for the Accounting variables the mean value of the firm size logarithm of assets is 22. Age of the firm ranges from 4 to 146. ROA results that -4% to 17% and the mean value is 3%. Leverage ratio ranged from 0 to 0.78 and standing with the mean value of 0.22. descriptive result of the sales growth results that -0.0298 to 0.2725 and the mean value is 0.0109. dividend yield reveals that the range from 0 to 0.084 with the mean of 0.0259.

**Table 02 Cox Proportional Hazard Regression**

Determinants	Hazard Ratio	P Value
<b>Corporate Characteristics</b>		
Board Size	-0.058	0.178
Board independence	0.227	0.725
Board Expertise	-0.546	0.176
Board Meetings	0.056	0.059
Audit Committee Size	-0.116	0.345
Audit Committee independence	-0.457	0.298
Audit Committee Expertise	0.544	0.125
Audit Committee Meetings	0.051	0.279
<b>Accounting Variables</b>		
Firm Size	0.103	0.284
Age	-0.015	0.043
Return on Asset	-0.397	0.034
Leverage	0.210	0.020
Sales growth	0.067	0.527
Dividend Yield	-1.469	0.280

According to the results, none of the corporate attributes support the firm to overcome financial distress. Hence, in the case of corporate attributes, no significant impact is found on financial distress.

On the other hand, Accounting variables proved that the financial distress of the company can be associated with accounting indicators. Notably, ROA is significantly associated with a likelihood of survival (Hazard ratio= 0.397, p value= 0.034). this reveals that when a company focuses more attention on the efficient use of its assets could overcome financial distress.

Likewise, the Age of the firm is significantly associated with the likelihood of survival (Hazard ratio= 0.015, p value= 0.043). this indicates that more experience firms could strategically manage to recover from the distress condition. Similarly, leverage has a significant impact on the survival of the firm (Hazard ratio=0.21, p value= 0.02). when a company main a lower leverage would be lower risk to invest in that company.

Other remaining accounting variables such as firm size, growth, and dividend yield are inconclusive determinants of the firm



which are already in distress. The results are contradictory to the finding of (Parker, 2002)

## 6. CONCLUSION

There is literature proving that the inefficiency of corporate governance was the reason for many corporate disasters in Sri Lanka. To answer the research question that the impact of corporate characteristics and financial variables on firm survival. The study followed Cox proportional Hazard regression survival analysis technique using three financial year of data gathered from 100 companies based on purposive random sampling. The study measured the various corporate governance characteristics and financial variables on the survival likelihood of distressed firms.

The results illustrate that corporate governance characteristics cannot influence the likelihood of survival of the distressed firm. But accounting variables such as ROA, Age, and Leverage are the significant determinants of survival. Hence, Firm size, Sales growth, and Dividend Yield are not significant determinants of the survival of the distressed firm. In the future, the study may include macroeconomic variables and other financial ratios, and other corporate governance characteristics for further study.

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# ENHANCING THE PERFORMANCE OF WOMEN KABADDI PLAYERS THROUGH COMBINED WEIGHT AND LADDER TRAINING: (A Short View)

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## ABSTRACT

*This article explores the effectiveness of combined weight and ladder training for women kabaddi players. It delves into the principles, types, techniques, benefits, and impacts of this training approach. By understanding and implementing this comprehensive training method, women kabaddi players can significantly enhance their performance on the field.*

**KEYWORDS:** Women, Kabaddi Players, Weight and Ladder Training.

## INTRODUCTION

Kabaddi a popular contact sport known for its fast-paced action, requires a unique combination of physical attributes such as strength, speed, agility, and coordination. To excel in the sport, women kabaddi players need to continuously develop their physical abilities through effective training methodologies. One such approach that has gained recognition is the combined weight and ladder training. This article aims to explore the effectiveness of this training method for women kabaddi players by delving into its principles, types, techniques, benefits, and impacts. By understanding and implementing this comprehensive training method, women kabaddi players can significantly enhance their performance on the field.

## PRINCIPLES

The principles underlying combined weight and ladder training are rooted in the concept of functional movement patterns and the development of power, agility, and neuromuscular coordination. This training approach aims to replicate the dynamic and unpredictable movements encountered during kabaddi matches. It emphasizes the development of core stability, joint strength, and mobility to enhance the overall performance of players. By incorporating both resistance training and ladder drills, this method optimizes the transfer of strength and power gained from weightlifting exercises to the specific movements required in kabaddi.

## TYPES

Combined weight and ladder training encompass a wide range of exercises that target different muscle groups and movement patterns. The weight training component includes exercises such as weighted lunges, squats, deadlifts, bench press, and overhead presses. These exercises focus on developing muscular strength, power, and explosiveness, which are essential for executing swift raids and tackles in kabaddi.

On the other hand, the ladder drills component consists of various agility exercises performed using a ladder, including lateral movements, high knees, quick footwork, and directional changes. These drills improve foot speed, agility, coordination, and reaction time, enabling players to enhance their movement patterns on the kabaddi court.

## TECHNIQUES

Proper technique is crucial in combined weight and ladder training to maximize the benefits and reduce the risk of injury. In weightlifting exercises, athletes should focus on maintaining correct form and posture, ensuring proper body alignment and controlled movements. They should pay attention to their breathing technique and avoid excessive strain on joints and muscles. For ladder drills, players should aim for quick and precise footwork, maintaining a good rhythm and coordination. They should practice proper arm and leg movement synchronization while executing various ladder patterns. By mastering the techniques, women kabaddi players can enhance their performance and minimize the risk of training-related injuries.

## BENEFITS

Combined weight and ladder training offer several benefits for women kabaddi players. Firstly, it enhances muscular strength and power, allowing players to generate greater force during raids and tackles. The increased strength translates into improved performance and the ability to overpower opponents. Secondly, this training method improves cardiovascular endurance, enabling players to sustain high-intensity performance throughout the match. Enhanced endurance contributes to improved raiding and defensive capabilities, as players can maintain a high level of activity without experiencing fatigue. Additionally, combined weight and ladder training improve agility and coordination, leading to



better movement patterns, quick reactions, and effective evasion on the kabaddi court.

## IMPACTS

Implementing combined weight and ladder training in the training regimen of women kabaddi players can have significant impacts on their overall performance. Firstly, it helps reduce the risk of injury by strengthening the muscles and joints involved in the sport-specific movements. The increased stability and joint integrity acquired through this training approach provide players with a higher level of protection during intense game situations. Secondly, the comprehensive nature of this training method enhances self-confidence among players. As they become physically stronger, faster, and more agile, players gain confidence in their abilities, allowing them to perform at their best without hesitation. This mental aspect can positively impact their decision-making and overall gameplay.

## CONCLUSION

Combined weight and ladder training offer a comprehensive approach to enhance the performance of women kabaddi players. By incorporating resistance training with ladder drills, this training method targets various physical aspects required for success in the game. It improves muscular strength, power, speed, agility, coordination, and endurance, enabling players to perform at their peak during matches. By understanding and implementing this training approach, women kabaddi players can unlock their full potential and elevate their game to new heights. With the right guidance and consistent training, combined weight and ladder training can be a game-changer for women kabaddi players.

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# CORPORATE BEHAVIOUR AND GUNAS OF TRADITIONAL INDIAN KNOWLEDGE SYSTEM

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## ABSTRACT

*The primary objective of this paper is to correlate the three types of corporate behaviour, namely, aggressive, submissive and assertive behaviour with the three gunas of Indian ethos, namely, sattva, rajas and tamas, as both perceptions explain the personality of man.*

**KEY-WORDS:** Behaviour, Aggressive, Submissive, Assertive, Gunas, Sattva, Rajas, Tamas Corporate behaviour may refer to the combination of legal rules, ethical codes and social responsibility that shapes, defines and differentiates a business organization from that of others.

## THE THREE TYPES OF BEHAVIOR

Taking inputs from psychology, the corporate world have identified three primary types of behavior exhibited by individuals, namely, Aggressive behavior, Submissive behavior and Assertive behavior.

Let us now briefly see the characteristic features of the three types of behavior.

**Aggressive Behavior:** Aggressive behavior is the type of behavior wherein one's intent is to stand-up for one's own rights in such a way that the rights of others are willfully violated. According to Anderson & Bushman (2002), aggressive communicators dominate and try to fulfill their desires at the cost of others.

**Submissive Behavior:** Submissive behavior is the type of behavior wherein one's intent is not to stand-up for one's legitimate rights and thereby enabling one's rights to be violated by others. *The Diagnostic and Statistical Manual of Mental Disorders* (2000) defines submissive behavior as a "pervasive pattern of negativistic attitudes and passive resistance to demands for adequate performance in social and occupational situations".

**Assertive Behavior:** Assertive behavior is the type of behavior wherein one's intent is to stand-up for one's own legitimate rights in such a way that the rights of others are not violated. *The Corsini Encyclopedia of Psychology and Behavioral Science* (2002) states that assertive behavior is an honest, direct and appropriate expression of one's feelings, beliefs and opinions.

## Gunas of Traditional Indian Knowledge System

According to Indian ethos, the mind is compound of three substantive forces called *gunas*, namely, *sattva*, *rajas* and *tamas*, which are also the basic constituents for the entire universe. In his *Vivekacudamani* (Verse 111-119), Sri Sankara states that *maya-avidya*, the cause for the emergence of the mind, consists of the three *gunas*. *Tamas* has its veiling power (*Avrti-shakti*) promoting ignorance, laziness and causes man's repeated transmigration. *Rajas* has its projecting power (*Viksepa-shakti*), promoting worldly activities causing bondage. Pure *sattva* (unmixed with *rajas* and *tamas*) promotes cheerfulness, contentment and devotion to the *atman*. The *Bhagavad Gita* (Chapter XIV, Verses 5 & 17) and the *Pancadasi* (II, 14-16) of Sri Vidyananya also defines the three *gunas* according to their effects, namely, *Sattva* represents knowledge and calmness, *Rajas* represents activity and desire, and *Tamas* represents laziness and ignorance.

Every man is a combination of all the three *gunas*, in varying proportions. The predominance of one of the three *gunas* over the other two determines the dominant personality trait of a man's nature. The *Bhagavad Gita* (Chapter III, Verse 33) states that every man acts in accordance with his/her own nature dictated by the combinations of the *gunas*. The three *gunas* constantly act on one another.

## Correlation between the Types of Behavior and the Gunas.

It would be interesting to correlate the three types of behaviour and the three *gunas* as both perceptions explain the personality of man.



The aggressive behavior correlates with the traits of activity and desire, as exhibited by the *Rajo-guna*, and reflects a state of existence where *Rajas* predominates over *Sattva* and *Tamas*.

The submissive behavior correlates with the traits of laziness and ignorance, as exhibited by the *Tamo-guna*, and reflects a state of existence where *Tamas* predominates over *Sattva* and *Rajas*. The assertive behavior correlates with the traits of knowledge and calmness, as exhibited by the *Sattva-guna*, and reflects a state of existence where *Sattva* predominates over *Tamas* and *Rajas*.

### A Tabular Representation

The above correlation between the types of behavior and the *gunas* may also be presented in the form of a table, as under.

Features	Aggressive Behavior	Submissive Behavior	Assertive Behavior
Intent	To stand-up for one's own rights by willfully violating the rights of others	Fails to stand-up for one's own legitimate rights and violated by others	To stand-up for one's own rights without violating the rights of others
Feelings	A sense of false superiority	A sense of false inferiority	A sense of self-esteem and confidence
Characteristics	Activity & desire	Laziness & ignorance	Calmness & knowledge
Predominance of <i>gunas</i>	<i>Rajas</i>	<i>Tamas</i>	<i>Sattva</i>

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# ENVIRONMENTAL VALUES AMONG SECONDARY SCHOOL STUDENTS

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## ABSTRACT

*The time has come for debates and the execution of practises related to environmental issues. Environmental issues are escalating day by day. Through the education system, every nation strives to foster environmental values among pupils. In relation to environmental values and concerns, several environmental subjects and topics have evolved. The purpose of this research is to determine the level of environmental values among Delhi secondary school students and also attempt to find out the any significance difference between male and female students of environmental value. A sample of 60 students was selected from the government schools of Delhi. Environmental value scale was used to collect data. The researcher discovered that secondary school students had average levels of environmental values. Environmental values differ significantly between male and female secondary school students.*

**KEY WORDS:** *Environmental Value, Environment*

## INTRODUCTION

As a result of unethical human-environment interactions, environmental education has emerged as a new field of education aimed at fostering ethical interaction between human beings and the environment. Environmental education fosters attitudes, motivation, and commitment to make informed decisions and take responsible action, as well as the skills and knowledge required to address these environmental challenges. It also increases people's knowledge of the environment and the challenges it faces. Also, it strengthens a person's capacity for critical thought, problem-solving, and decision-making and enables them to assess the numerous facets of environmental concerns in order to make responsible choices. In addition to presenting a variety of environmental issues and threats to the survival of humanity on Earth, environmental studies are also involved in presenting such issues and threats.

It is undeniable that the entire human race is currently confronted with unprecedented global environmental crisis. To ensure the survival of mankind, all environmental issues must be addressed simultaneously. A sustainable environment can only be achieved by instilling environmental values in our youngster.

A set of standards criteria by which people choose and defend their behaviours as well as assess other people (including themselves) and events can be referred to as values. So, values can be seen as a key element of a person's identity, upon which they base a range of distinct attitudes in particular circumstances. Previous research has demonstrated that environmental values have a substantial effect on environmentally friendly behaviour. It has been found that both

anthropocentric and ecocentric beliefs have a positive influence on pro-environmental behaviour, with those who hold anthropocentric values acting in favour of humanity and those who hold ecocentric values working in favour of nature and the biosphere.

## REVIEW OF RELATED LITERATURE

**Rout and Aggarwal (2006)** discovered that students in the science stream had a better environmental attitude than those in the non-science stream. In terms of environmental awareness and attitude, the students from urban backgrounds are much better than those from rural backgrounds. Regarding their environmental awareness and attitude, male and female students have not significantly different perspectives. **Raju (2007)** conducted a study to examine the environmental ethics of senior high school students. According to the study's findings, environmental ethics are high among high school students. However, female students have much better environmental ethics than male students. **Larijani (2010)** conducted a study to know the level of environmental awareness among higher primary teachers. The result shows that the majority of the teachers had an average level of environmental awareness. As compared to their male counterparts, female educators had a significantly higher level of environmental awareness. **Astalin (2010)** conducted a study on Environmental Awareness among high school students and discovered that Science stream students had greater environmental awareness than arts stream students. Male students demonstrated better environmental awareness than female students.



## OBJECTIVE OF THE STUDY

- To identify the environmental value level among secondary school students.
- To study the differences between male and female secondary school students in their environmental values.

## METHODOLOGY

The nature of the current study is descriptive. The data was gathered using the survey method.

### Population

The population of this study was all secondary school students enrolled in Delhi government schools.

### Sample

The sample for this present study was chosen from two Delhi government schools in the south zone. The sample consists of 50 males and 10 females, for a total of 60 secondary school students from a government school in Delhi.

## Data Collection and tools

A self-made Environmental Values Scale was used for data collection. It is a Likert scale consisting of 51 items related to environmental values. Which was prepared to check the existing environmental values among secondary school students. It is prepared on the five-point Likert scale in terms of agreement, from strongly agreeing to strongly disagreeing. Data is collected from 60 secondary school students from a government school in Delhi.

### Reliability of the Scale

The reliability of the scale has been determined through the reliability coefficient (Cronbach's alpha). The reliability coefficient (Cronbach's alpha) was .913. It is highly reliable.

## RESULT AND DISCUSSION

In the preliminary analysis, the score of the Environmental Values was subjected to descriptive statistics. For descriptive statistics, the data from the Environmental Value were used to calculate the mean, median, mode, standard deviation. The important statistical constant of the Environmental Values is given in Table 1

Table 1. Key statistical constant of Environmental Value

Varibale	N	Mean	Median	Mode	Std. Dev.
Environmental Values	60	151.30	150	148	9.70

From Table 1, it is evident that the average value of the variable "environmental values" for all secondary school students is 151.30. The median value of the environmental value variable for secondary school students is shown to be 150 for the total sample. This means that half of the students score above 148 and half score below 148. The most common score in the distribution is 148, which is the mode score for the environmental value of students. The scores of mean, median, and mode are almost equal of the environmental value distribution score. The table 1 also shows that the value of the standard deviation is 9.70, which means the score of the environmental value can deviate by either 9.70 units above or below the mean score.

### Level of environmental value among secondary school students

To find the level of environmental value among secondary school students, the conventional method of ' $\sigma$ ' distance from

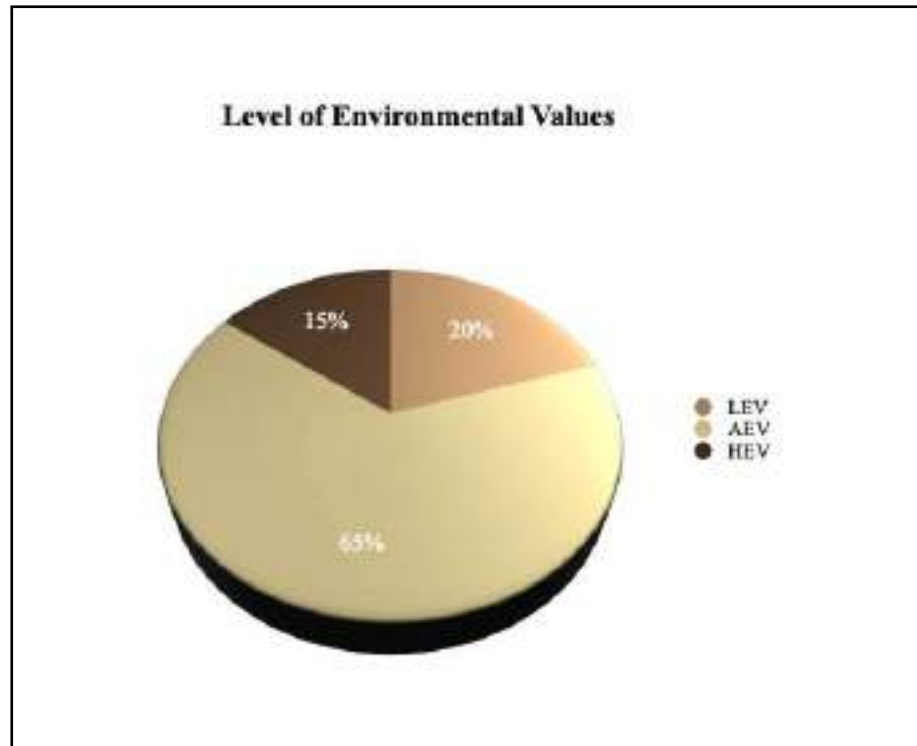
the mean (M) is used. The mean (M) and standard deviation ( $\sigma$ ) of the environmental value score of the secondary school students were calculated separately. Then  $M+1\sigma$  and  $M-1\sigma$  scores were calculated. Then the students who scored above  $M+1\sigma$  were kept in the high level of environmental values group (HEV), and those students who scored below  $M-1\sigma$  were kept in the low level of environmental values group (LEV). The investigator creates a third category for those students whose scores fall between  $M+1\sigma$  and  $M-1\sigma$  which is levelled as the average level of the environmental value (AEV) category. So, the investigator identified three levels of environmental value categories in the present study: low level of environmental values (LEV), average level of environmental values (AEV), and high level of environmental values (HEV). The number and percentage of environmental value levels of secondary school students are given category-wise in Table 2

Table 2. The number and percentage of Environmental Value levels of secondary school students

Variable	Level of Environmental Value	Number of students	Percentage
Environmental Values	High Environmental Values(HEV)	9	15
	Average Environmental Values(AEV)	39	65
	Low Environmental Values(LEV)	12	20
Total		50	100

From table 2 and figure 1, it is evident that more than half (65% of the total students) have average environmental levels for the total sample of the study. Only 15% of the total sample, or nearly one-sixth, have a high level of environmental value,

while 20% of the total sample has a low level of environmental value



**Figure 1. Pie diagram of the level of Environmental Value of secondary school students**

**Table 3. Result of Independent Sample 't' Test of Male and Female students of Environmental Values**

Categories	Mean	Standard Dev.	'T' value	Level of Sig
Female	158	8	2.49	0.05
Male	149.96	9.52		

A t-test (independent sample) was performed to ascertain whether there was a statistically significant difference in environmental values between male and female secondary school students. The result (table 3) demonstrates a statistically significant difference between the two groups' means ( $t = 2.49$ ,  $p < 0.05$ ). Male secondary school students ( $M = 149$ ,  $SD = 9.52$ ) and female secondary school students ( $M = 158$ ,  $SD = 8$ ) differed significantly. This indicates that the mean score for environmental values among male and female secondary school students differs significantly.

## CONCLUSION

Humans and nature are highly interdependent on each other. On the one hand, humans depend on the environment, and on the other, the environment depends on human activities. Today, whether intentionally or not, we engage in such actions that ultimately harm our ecosystem and its natural resources. This paper attempted to identify the level of environmental value among secondary school students and also see whether there was a significant difference on the basis of gender. The result

shows that 65% of the students, or one third of the sample, have average environmental values, which is not very good despite all the effort to teach environmental education. The environmental values of male and female students vary significantly. The study suggests that there is a need for more effective and innovative ways to teach environmental education to students in order to raise awareness and encourage positive actions towards the environment. It is important for individuals to understand the impact of their actions on the environment and take responsibility for preserving it for future generations.

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