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# SOCIO-CULTURAL AND RELIGIOUS ENCOUNTERS ON NORTHEAST MIGRANTS IN CHENNAI: A CASE STUDY

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## ABSTRACT

*The paper entitled "Socio-cultural and Religious Encounters on Northeast Migrants in Chennai: A Case study" is a case study on the socio-cultural and religious encounters of Northeast migrants in Chennai. It investigates how a migrant from the northeastern states of India encounters different religious and socio-cultural aspects.*

*The Northeast Migrants in Chennai, Tamil Nadu, were the subjects of the case study. The studies employed a random sampling study method. After identifying different migrants from various groups like students, employees, and self-employees, the study employed the "method of lottery" to select the samples. The study found significant evidence of socio-cultural and religious interactions between the host population and the northeast migrants.*

**KEY WORDS:** *Socio-cultural, Religious, Migrants, Northeast Migrants, Chennai*

## INTRODUCTION

Northeast Regions of India which was once considered an isolated region from the rest of the country, and marked as disturbed area because of frequent ethnic clashes and violence began to witness more migrations, changes and developments, with the advent of globalization. More people from this region began to go out of their home town for a better job, education, medical care and better living especially in the metro hubs of India, like Delhi, Bangalore, Chennai, Kolkata, Mumbai, Pune and Hyderabad. As a result of migration, people of this region especially the young began to question their identity, culture and religion and faced different issues and challenges in the host cities. Some of these migrants face numerous hardships and even become strangers in their own nation.

## METHOD

The case study was conducted among the Northeast Migrants in Chennai, Tamil Nadu. Chennai with the rest of India witnessed a massive exodus of migrants, especially from the metropolitan cities in India due to the COVID-19 lockdown. The study was done after lifting several restrictions on travel due to Covid-19. In this study, the researcher employed a random sampling study method. In a simple random sampling, an unprejudiced portion of a population is chosen. Here, every person in the population has a precisely equal probability of getting chosen using this sampling strategy (Thomas). It is also known as "the purest and the most straightforward probability sampling strategy. It is also the most popular method for choosing a sample among the population for a wide range of purposes. This method is considered to be the most unbiased representation of population" (Gravetter and Forzano).

## SAMPLE

In this survey research, a case of five migrants from northeast India has been taken for analysis. The method of lottery was employed for the study. This system is the first and most mechanical instance of random sampling (Gravetter and Forzano). In this study, 60 northeast migrants in Chennai were identified and selected 10 students, 30 employees and 20 self-employees. Their names were listed and assigned a sequential number to each population, from 1-10 students, 11-40 employed and 41-60 self-employed in a separate piece of paper. Thereafter, the papers were divided into three groups, then folded and mixed in a box separately. Samples were picked randomly from the box for the study.

## AREA OF STUDY

This study has been done in Chennai city, among the northeast migrants. Respondents are from various fields and backgrounds namely; students, working people and entrepreneurs from different states of Northeast Indian states.

## BRIEF DETAILS OF NORTHEAST MIGRANTS

Northeast India states comprise eight states, namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland, Sikkim and Tripura. The region shares international borders with Bangladesh, Bhutan, China, Myanmar and Nepal. It has diverse religious, cultural, ethnic, linguistic and racial groups (Oinam and Sadokpam). According to the 2011 Census of India, the total population of Northeast India is approximately 45 million, or 45,477,784 to be precise (Singh). The region has less infrastructure and industrial development as compared to other regions in India (Patikar and Deka). It is a complex



and dynamic region that receives continual attention due to its precarious political environment, which is marked by widespread violence and conflicts (Oinam and Sadokpam). In the past few years, a large number of people from this region migrated to different states in India for better job opportunities, medical facilities, education and better life (McDuié-Ra). Chennai is also an important destination, where people from the region immigrated for better medical facilities, education facilities, infrastructure, transportation, job opportunities, and a local friendly environment.

### Case 1

Mr. A, a 30-year-old student hails from the Mizoram state. He hails from the southern part of Mizoram which is lesser developed as compared to the other parts of Mizoram. He is the only boy in the family and practices Christianity. He did his primary and middle school in his village, which is situated in a remote southern part of Mizoram. After schooling in his village, he went to a nearby town, a district headquarters for high school. Soon after he finished high school, he worked in a car wash shop as a cleaner/washer. There, he save a little amount of money and went to Aizawl which is the capital city of Mizoram for higher education. He enrolled himself in a higher-secondary school in Aizawl. While he was studying in a higher-secondary school, he worked in a shop after his class as a part-time job to pay his fees.

Suddenly on some unremarkable day, he took a very important and tough decision in his life. He saw an advertisement in a newspaper in Aizawl regarding a job in one factory in Odisha, formerly known as Orissa at that time. He contacted the company about the job descriptions and decided to go there without informing his parents, because being the only boy in the family he knew that his parents will not want him to go outside of their state, even going outside of his village in other parts of Mizoram itself is not comfortable for his parents. His parents were heartbroken when they came to know that he went outside of their state for a job, which is far from his home state. It's still fresh in his mind about the words he exchanged with his parents when they came to know about his journey to Odisha. One remarkable in the conversations is that his mom told him that he does not need to worry about his life, they will look after him throughout his life. To this, he replied that "yes, I know very well that you love me a lot, but who will love me when you all died? One day we'll all become old and died, I will become so dependent on your love and that love will kill me."

He made many local friends in Chennai, which made him easily adaptable to the local culture. Later on, he also worked as a chef in a local restaurant in Chennai. Most of his life in Chennai was with local friends and could not get enough time to associate with his people, in terms of cultural, religious and social bonding because of his working condition. But he did not lose his religious belief and cultural practices. During his stay in Chennai, he grew his religious belief, even though he could not involve much in his community's religious worship services in Chennai.

### Case 2

Ms. B 28 years of age now working in a company came to Chennai to pursue her higher studies. She cleared Join Entrance Exam and got a seat to study a professional course in Chennai. She practices Christianity and came to Chennai at the age of 17 years and it was her aunty who arranged all the necessary things about coming to Chennai, like choosing the institution and transportation. After graduating from the course, she did her internship in Chennai and continue to work there. Now she has lived in Chennai for about 10 years. During her stay in Chennai, she changed her place four times mainly because of the distance matter to her institution and workplace.

During her student life, she actively joined her community church in Chennai. But when she finished her studies, she changed her place which is quite far from her community worship place, so she could not participate in her community worship regularly. After settling down there for some time she found a northeast fellowship closely by her house. In that fellowship, she found that church leaders give her more importance to her participation in the church. Most of the time she will be asked by the church leaders to engage in several activities in the church. With this rapport relationship with her newfound church and the distance-related issues to her community church, later on, she involved more in her newfound church than the older one until she moved to a new place.

As she has stayed in four different locations in Chennai, she made several local friends from different walks of life. During her college days, she was the only student in the class from her place, so her circle of friends was surrounded by local Tamilians. She found many good friends from the local community, that stood by her during difficult times. One remarkable incident she narrated was that one of her male engineering teachers mistreated her very badly. The subject the male teacher taught was the most difficult, so required a good teacher to guide. This particular teacher taught only in Tamil and she thought that he could not speak English. She was treated like she does not exist in the class and mistreated her all the time. She could not understand the subject and felt very bad. She thought several times to complain to a higher authority, but did not report to higher administration. Because of this issue, she cried literally on four occasions, and all her classmates consult her and taught her about the subject their teacher taught, but that was not enough to understand the subject properly. She was so distressed about the situation she is undergoing and at one occasion, her classmates went and spoke to that teacher to treat her well. After sometimes, she went to the teacher and told him that she does not understand the subject as he is teaching in Tamil language. The teacher replied to her to go and learn from her class leader who is very smart and good at their studies. Then, she told him that her classmate friends are teaching her but could not understand properly. Only at that time, she was surprised to learn that the teacher could speak English very well and much better than many other teachers in the college, but one main problem he was having was about his previous experiences with students from other states. She



came to know that some of her seniors from other states of Tamil Nadu will just walk out of the class and punk his class when he scolded and mistreated them. After speaking with her teacher, the situation becomes better. In the first semester, her local classmate's friends supported her a lot to deal with the subject and scored 65 % in his subject. She said that in the second semester, the teacher saw her struggle and determination to learn at any cost and taught them in English, to which she scored 85% in his subject in the second semester. Her local classmate friends were jewels to her not just in learning together inside the class. Many of her friends wanted to learn more about her culture and love her a lot.

She became close to many local friends from different faiths, like some of her Hindu friends became too close that when they go home, they will cook beef outside of their home from the different cooking vessels and bring it as a surprise to her even though they do not eat beef. Interestingly, her friends would tell a story about her to their parents and even their parents would also start liking her. So, her friend's' parents would send her home-cooked food and things when her friends come back to the hostel. And when her Hindu friends visit the temple, they would bring sweets and a jasmine garland and make her hair like a local girl.

For her, she did not face any mistreatment or discrimination other than that incident with one of her engineering teachers which later became better. Her circle of friends, hostel-cooks, wardens, teachers and local people in college were very supportive and understanding. Apart from the good and supportive friendship she had, she recollected many incidents like their cook will give her extras food to eat when they like it and the warden would allow her to go on outings whenever she asked, whereas local girls would not get permission to go outing regularly. She and one of her friends from Arunachal Pradesh were treated very special in the hostel, as they are from different places and would have to adjust to the climate, local food, culture and language.

She made friends with the local people very easily. Some of the things that made her acceptable to the local people were understanding them. She is of the view that "when other people think and ask you that are from other countries like China or Japan, then consider that they do not have much exposure about India, so make them understand that you are very much a part of India, and they will be very interested to know more about other cultures and people."

There were not many cultural-shocks she could encounter. One significant thing she encounter was the menstrual celebration among Tamil girls. Celebrating the first menstrual cycle, not taking bath on the first day of the menstrual cycle and not visiting the temple during the menstrual period, which they regarded as impure during that period.

She does not find herself as a stranger in Chennai, for her if someone treats you as a stranger then make them understand. Now, she can speak Tamil quite well and can easily connect it with the local people. In one incident, while she was going to one place from an auto, the auto driver did not charge the taxi fare after learning that she could speak Tamil fluently. She is also found of Tamil food like rasam, meals and dosa, so one of her staff in the workplace would

bring rasam when she makes a home. Occasionally, she even cooks Tamil food at her home. Her adaptation to local Tamil culture is not just limited to the Tamil language, friends and food, but also the way she dresses, and participates in local festivals. With regards to religious life, she was very active in her community worship during her college days but could not involved much when she started working, especially due to the time factor. But for her, she does not reduce her religious belief. She made herself committed that she prays and reads scripture regularly.

### Case 3

Mr. C is paramilitary personnel posted in Chennai. He is staying with his family members consisting of four members. He works in a para-military and his wife is a homemaker. They have two children, both of them boys studying in a school, the elder one is in 7th standard and the younger one is in 5th standard. They have been living in Chennai for about five years, but they do not have much contact with their fellow community members from their native state who are staying in Chennai. So, their children have not picked much of their native accent and character. This was also observed during fieldwork when the researcher went with them for an outing in one of the renowned parks in Chennai, there in the park, the children were very comfortable with the children of the host population. On several occasions in the park, they played along with the host children even though they were strangers. They were even ignored several times by other children but they keep playing along with them and try to make friends.

When asked about their stay in Chennai and whether they are looking for a transfer to their native state, the family showed a mixed reaction. The husband said that

"He has applied for transfer but they do not know when their turn will come. They have lived in Chennai for about five years so normally they will get transferred to another place. This time the transfer was delayed due to Covid-19 issues and many of his senior staff from Tamil Nadu state overstayed in Chennai. So, those who have stayed in Chennai for a longer period will get the first transferred."

However, it was noticed that they are less reluctant to leave Chennai. The wife intervened in the talk and said that "they are more concerned about their children's education and life, as their native state does not have good education facilities like Chennai." They fear raising their children in their native state as the environment is not as good as compared to Chennai. They were also concerned about the high tobacco and alcohol intake among the youths in their native state. The wife continues to say that "she is worried if her children pick up those bad habits among the youngsters prevailing in their native state after they went back to their native state," and the husband looked at his wife's eyes and nodded his head.

The wife further states that they are "now familiar with the food items they get in Chennai. We do not or rarely eat those spicy chilly, bamboo shoot and other traditional spices that we get in my native place. When we go to the native place and eat those spicy and traditional food items, during the first





couple of days we faced difficulties adjusting them.” The husband further added that when he reaches his native and eats that spicy traditional food he gets stomach upset for a few days, and slowly began to adapt to it. They said that they have even adapted to the hot climate in Chennai. The wife further said that their children have “pick-up some Tamil language too.” On many occasions, their children have interpreted Tamil for them whenever they failed to communicate with some of the host population who cannot understand any other language than Tamil. To this, she narrated one incident, last time one of their neighbours came to their house and said something to them, but she could not understand properly, then one of her sons came and translated what their neighbor was telling her.

While undergoing the interview, suddenly the sky opened and it started raining. As the rain increased, several cats started entering their house. So, out of curiosity, the researcher asked how many cats do you have? They replied that they have “more than 10 cats,” of which 7 cats and kittens were around at that time of counting. Pointing to some of the cats sitting nearby, the husband said that “they are third generations cats from their house in Chennai. Their grandmother died due to old age. That cat first came to their house on her own and gave birth to kittens and then they keep on keeping the cats.” He also said that “some of the cats are brought to their house later by some local Tamil people in their locality. They have changed their house three times but the cat never run away.” Pointing to one of the cats, the husband narrated that “he took the cat to a veterinary center for an injection, while in the center the cat got scared and run away after seeing several people.” They thought that the cat cannot make it home, because the center is far from their house, but to a surprise, the same cat returned to their house after a week. When asked why you are keeping so many cats in their house, the husband said that “many people from other states think that we kill and eat cats, dogs and so forth and have negative views on us. So, to show to other people how much we love animals, we keep and take care of the injured cats around.” Nowadays when Tamil friends or people in their locality see an injured cat and kitten, they are brought to their house so that they can take care. Interestingly, the husband further added that whenever he goes and buys fish in the locality, the “fish seller gives all the bones, internal fish organs and other remaining for the cats even without asking.”

#### Case 4

Mr D is 35 years of age. He usually dresses simple and works very hard throughout the week and has also started picking up the Tamil language too for day-to-day communication with the host population. He is unmarried and in his early middle age. He has a strong determination to achieve something great in his life. He came to Chennai in search of better opportunities in his life. Now he has been in Chennai for about 15 years. In his first four years, he worked in a Nike store as a Store Manager. Later on, he quit the job and started his own business. Nowadays, he runs a restaurant namely with four employees from the northeast and also sells vegetables and traditional Northeast food.

The restaurant is called “North East Multi Kitchen.” It is located in a commercial hub of Choolaimedu, Chennai where a significant of Northeast migrants are staying there. In Chennai, Tamilnadu, India, Choolaimedu is a major residential and business neighbourhood. Kodambakkam, Vadapalani, M.M.D.A. Colony, Aminjikarai, Mahalingapuram, and Nungambakkam are all its boundaries. The locality has close proximity to Loyola College, Meenakshi Engineering College and Panimalar Polytechnic, where dozens of students from Northeast India also come for studying every year, and a locality is also an ideal place even for the working Northeast migrants as it has good transport system. It is also a business centre that connects two of Chennai's major roads, namely Arcot Road and Nelson Manickam Road and Arumbakkam metro rail station, Nungambakkam railway station and Kodambakkam railway station are all close to this locality.

The restaurant opens at 11:30 am and closes at 10:30 pm. It serves Naga, northeast and Chinese food. It serves both vegetarian and non-vegetarian food. Some of the vegetarian foods in the restaurant include, French fries, gobi 65, mushroom 65, mushroom Manchurian, chilly mushroom, chilly paneer, veg fried rice, veg-soup, veg-chow mein and boiled vegetables. Non-veg food includes pork, smoked pork, beef, smoked beef, mutton, duck, chicken (both broiler and country chicken) and fish. When asked, about the most popular food in the restaurant and the restaurant, the owner replied that “pork is the most popular food item and more than 80% of the customers are local Tamil people in Chennai.” He added that “most of the food items are sold through an online order through Zomato and Swiggy. Many families do not cook pork in their home, but they order the food online or come to a restaurant and have it. Many local customers after eating different food items of Northeast recommend to their friends and family members.” So, while cross-checking his statements, it was found that his statement was accurate. In the online reviews, pork food items like “Pork Fried with Tomato, Chilly, Onion, Pork Fried Rice,” “Pork Thukpa” and “Pork Fried Naga King Chilly” are the top recommended and best seller food items in the restaurant (Zomato). In addition, the restaurant menu has 36 chicken food items, 27 beef food items, 4 fish food items, and 3 duck food items. Whereas, it serves 42 different pork dishes that outnumbered different food items it serves at the restaurant. The restaurant is famous for pork dishes.

He also runs a grocery shop. He gets two deliveries in a week, firstly on Tuesday and secondly on Friday. The grocery food items like green leaves and other fresh vegetables, which are found mostly only in the northeast are sourced specially from Manipur and Nagaland. When asked whether the host population is buying the grocery food items, he orders or brings from the northeast, he replied that

“The restaurant business is targeted mostly to the customers of the host population, whereas the grocery food items are mainly for the northeast migrants living in Chennai. The host population also buys some of the food items like green leaves and bamboo shoot, Naga king chilly, but those people are the ones who were once living in the northeastern



states of India. Because, as we know northeastern Indians eat lots of green leaves, bamboo shoot and spicy food, they might have eaten those stuff while they were once in the northeast and might be missing those food items and memories.”

Apart from the day-to-day activities related to his business, he is also very devoted to his religious beliefs. He is also a leader in his community, so in his house, his community has regular Sunday worship.

### Case 5

Mr E is about 40 years of age and plays an important role in his community church. He regularly goes to community worship service on Sunday and is actively involved in it. He also runs a restaurant in Chennai. The name of the restaurant is Naga Reju is also another northeast restaurant in Choolaimedu, Chennai. It is also located just opposite the “North East Multi Kitchen” at Nelson Manickam Road Near Choolaimedu Traffic Signal, Chennai. The restaurant is open from 11:30 a.m. until 10:30 p.m. The owner of the restaurant and his brother while studying in Chennai started the restaurant in 2007 to showcase Naga cuisine in south India and provide a taste of home especially to the Naga migrants who are studying and working in Chennai. The name ‘NAGA REJU’ was christened by the owner’s father, which means “an assembly point for the Nagas.” Started the restaurant with two brothers, and now the owner has employed ten staff to work in the restaurant.

The entrance of the restaurant is narrow, and several people were waiting on this narrow path wearing colorful T-shirts with the logo of Zomato and Swiggy. Inside, the restaurant was bagged with busy staff running here and there and three tables occupied by customers from the host population. The restaurant serves different Naga cuisines like pork, chicken and beef and other Naga traditional food delicacy. It also serves Chinese cuisine items like momo and chow. Some of the popular dishes in the restaurant, according to the customers reviewed on Zomato are bamboo shoot pork, pork meat, spicy beef and noodle. It has lesser food items as compared to its contending northeast restaurant the “North East Multi Kitchen.”

Zomato a technological platform, which was first launched in 2010, links consumers, restaurant partners, and delivery partners to meet their various demands. Customers use the platform to find and book restaurants, read and write reviews, see and upload images, order food delivery, book a table, and pay for meals when eating out (Zomato). So, in the Zomato technological platform, the ratings on the Naga Reju restaurant are quite positive. Interestingly, some northeastern customers rated 1 out of 5 and wrote negative comments about the food items, but many customers from the host population rated 5 out of 5 stars and wrote positive comments in the review section. During the time of the study, 352 customers gave 4.1 stars out of 5 stars about the dining and 4,374 customers gave 4.1 stars out 5 stars about the online delivery of food items, which is quite impressive. In addition, most of the customers who reviewed on Zomato are the from host population (Zomato). In an interview with the head staff of the restaurant who has worked in the same restaurant for about 10

years, said that “most of the customers are from Tamil people and among the northeast migrants, students come more often than the family members... and most of the food items are sold through online order food delivery.”

### OBSERVATION AND CONCLUSION

People from northeast India come to Chennai looking for better opportunities in their life. When they first come to Chennai, they feel like a stranger. But after some time they become like an emissary to their culture and traditions to the host population. They make friends and introduced their culture, customs and traditions to the host population by showing their cultural values and introducing their cultural food items. The migrants are not just adapting to the local food, culture, language and climate but also try to become a good ambassadors for their socio-cultural and religious beliefs too in their locality in Chennai.

The northeast Indian cuisines, the food items and the style the prepared food are similar to each other. Mostly, people in northeast India do not have a culture of eating out. So, in most of the places in the northeast, the restaurants are located mostly on the highways made for travelers and tourists, as compared to where people are densely settled. As the phrase in Nagamese goes “pahar te bhat khai thaka to, gaori ek – doi Kgs holebi keni kena khor te pakai kena kha hi phal,” which translates as “instead of going out for eating in the restaurant, it’s better to buy 1 or 2 kgs of pork, than cook and have it at home.” So, also the negative comments and low rating about the northeastern restaurant on online rating platforms by their state customers might have spoken their hearts.

It is interesting to see how northeast restaurants are surviving in a highly competitive food market like Chennai, where the traditional Indian Tamil food is tagged as very healthy by many researchers (Srinivasan) (Akmal and Vuppu). The northeast migrants may not be that fond of eating outside even while they are living in other states of India, but the host population has started liking the northeast traditional food items found in the restaurants. Many customers from the host population also expressed more positively about the food items on an online platform. The northeastern restaurant owner of “North East Multi Kitchen” and the staff of “Naga Riju” also said that most of the food items in the restaurant are sold to local people in Chennai. While visiting the Naga Reju restaurant the researcher also found that the customers sitting at different dining tables in the restaurant were from the host population. In addition to these, one of the restaurant owners gives an example that “during the Covid-19 crisis most of the Northeast migrants left to their native state, but the local Tamil people supported his restaurant a lot by ordering food online, as restaurant were allowed to run their business even during the Covid-19 lockdown.” He further states that “local customers come some with their family and some with friends for tasting new traditional food items of northeastern India, after eating the food from the restaurant, they refer to others, and in this way, the local people began to start liking the northeastern food items.”

Both the owners of the northeast restaurants, in the beginning, started especially targeting the northeast migrant



students and working professionals. However, with their introduction of traditional northeast food in Chennai, the host population began to attract more and through the northeast delicacy, it draws closer to understanding the northeastern culture by the host population. It is noticed that out of curiosity or to try new food items, the host population tries to taste different cultural food items from the northeastern Indian restaurant and recommends them to others. There are good pieces of evidence of socio-cultural and religious interactions between the host population and the northeast migrants, when northeast migrant interacts and make friends with the host population, they share their food and tell stories about their culture, traditions, and about their places.

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# BIODIVERSITY STATUS ON SPECIFIC CONTEXTUAL SYSTEMS OF THEMATIC CONCEPTS OF WATER FLOW

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## ABSTRACT

*The process by which water falls from the ocean to the atmosphere, from the atmosphere to the surface as precipitation. As a result, it flows down from different high places on the surface and accumulates in ponds, canals, bays and reservoirs. Again, this water flow completes the action of the water cycle by falling into the sea through geomorphology. In addition to biodiversity, the main means of energy transfer are the direction, time and speed of water flow. As the direction of this water flow always flows from the highlands to the lowlands and develops the biosphere, the role of time cannot be underestimated. The favorable and unfavorable conditions of this period regulate the flow of water as well as the development of biodiversity. Again, the flow of water is not always unidirectional and sometimes it is multidirectional. In this case, through this paper, the overall development of biodiversity can be given by drawing various maps related to the first water flow.*

**KEYWORDS:** *Diverse biological environment, personalization of weather, the nature of water flow, bio analytical concepts.*

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## INTRODUCTION

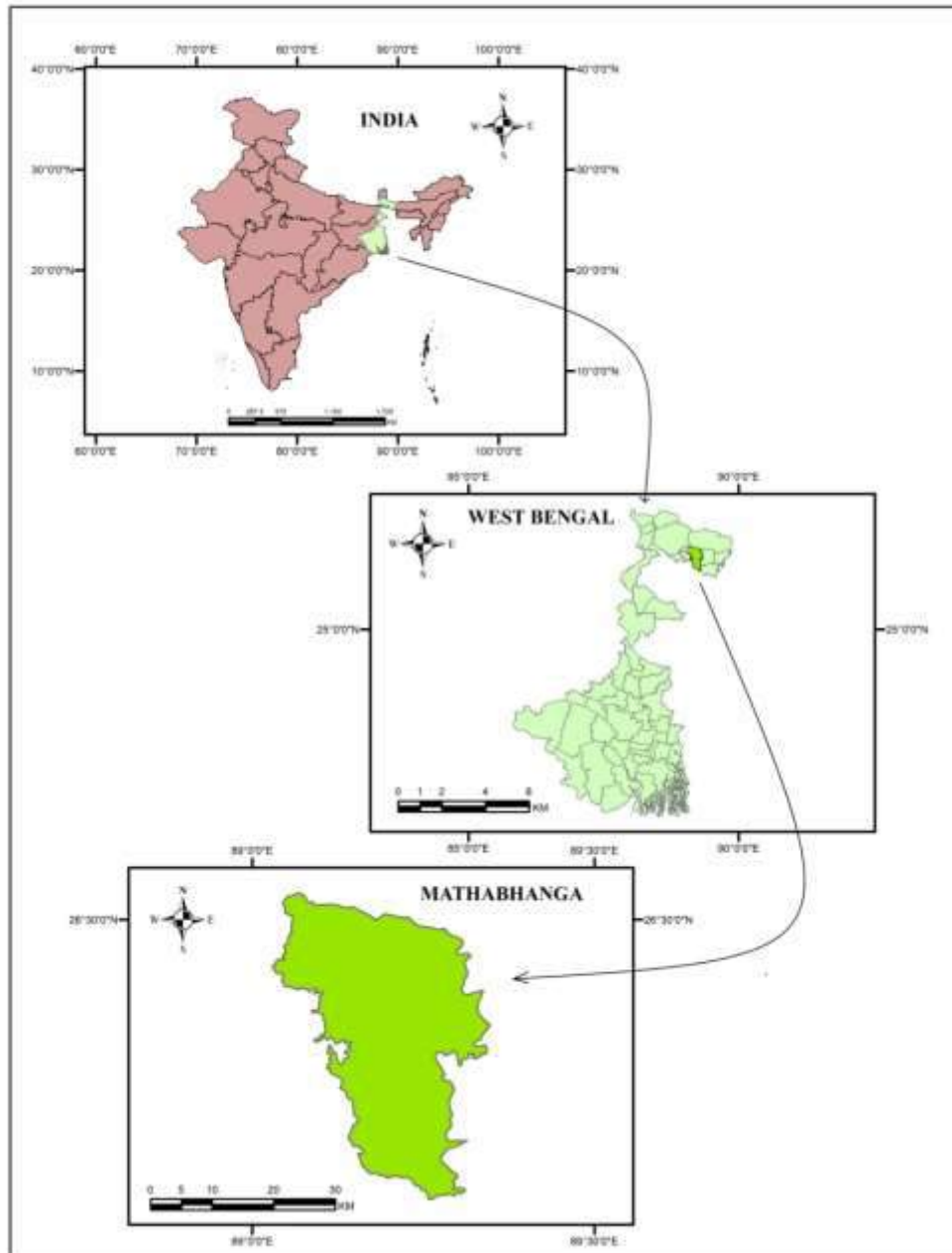
Water flow is a key factor in determining the status of biodiversity through various mechanisms. These water resources not only contribute to the maximum development of human society, but also directly and indirectly affect the living organisms and inanimate elements of the environment. The difference in direction and speed of water flow changes the economic policy of a region. In this case, it can be said that the water flow and water resources of different areas along the river bank are more used. For this, the demand and importance

of fertile riverside landforms is more important in the development of biodiversity than the mountainous barren nature. By using the power of water resources, hydropower production, transportation, communication, agriculture, rural and urban development of any place is always high. For this paper, the demand for fertile landforms is analyzed specifically on the speed and nature of water flow. Through which one can get an idea about the various locations of biodiversity.



## LOCATION MAP OF THE STUDY AREA

SHOWING THE MATHABHANGA AND ADJOINING AREAS OF WEST BENGAL, IN INDIA

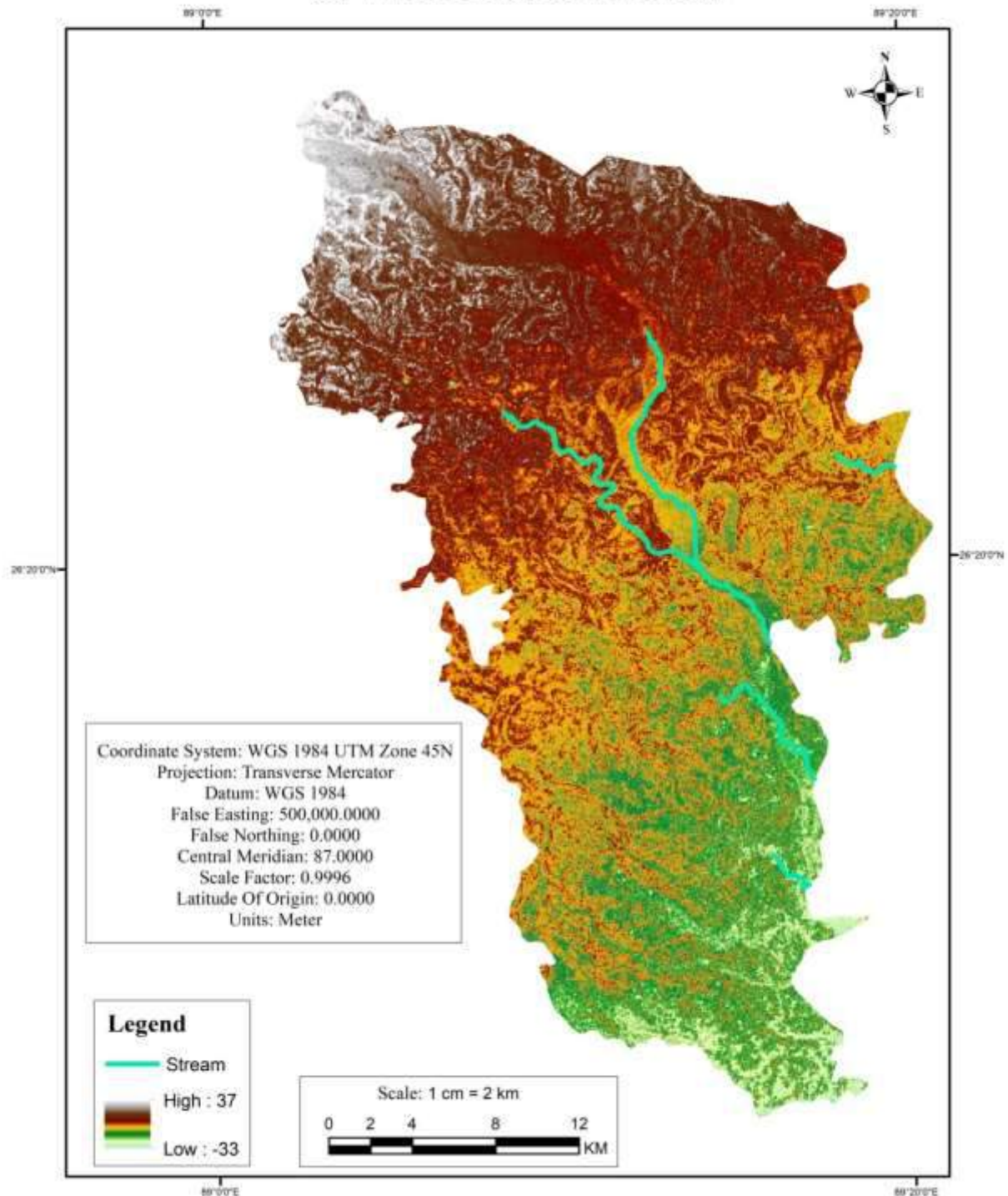


### METHODOLOGY AND STUDY AREA

When rain water, ice melt water or any other water in the earth surface flows on the land by evaporation, evaporation and blocking process and falls into a water body or sea, the trend of biodiversity development is maintained. A map of Mathabhang and adjoining region within Coochbehar district of West Bengal was created through discussions on land-based watersheds for the management of this biodiversity. This gives an idea of the biodiversity of the

watercourses of the Mathabhang and adjoining region. Again the help of GIS Application is taken along with various publications and books of the region. Besides, the coordinate system for map drawing is WGS 1984 UTM Zone. Again Projection system is Transverse Mercator and Datum Value is WGS 1984. The False Easting Value for this map is 500,000 and the Northing Value is 0.0000. Again Unit value for map is Meter and Scale Factor is 0.9996.

## WATERSHED MAP OF MATHABHANGA AND ADJOINING AREAS OF WESTBENGAL, IN INDIA

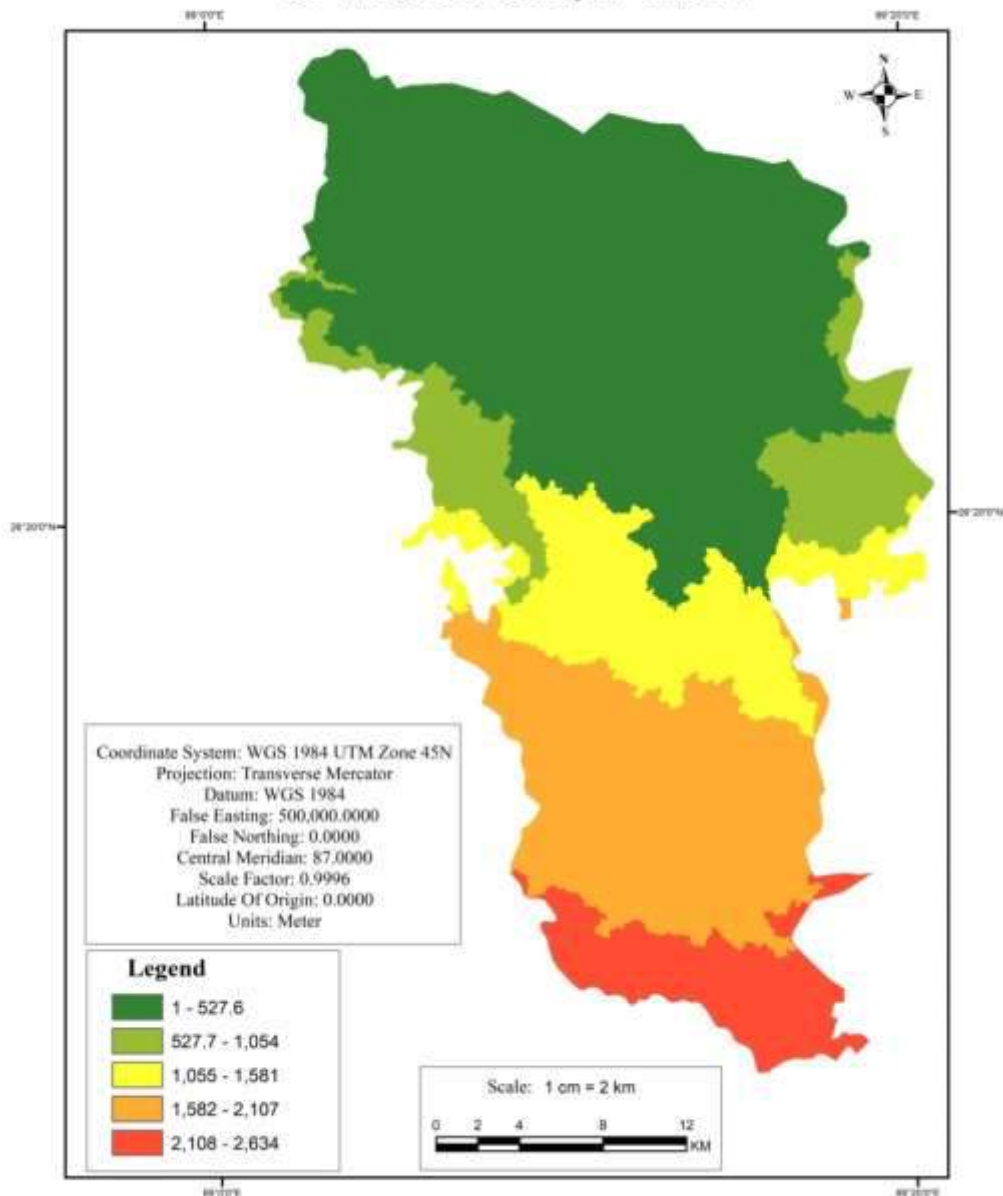


### WATERSHED MAP AND ANALYSIS

In addition to improving the quality of human life, analyzing the dynamic nature of the environment is not only possible through economic development, but natural factors are especially influential for this. As a result, biodiversity is particularly dependent on water flow. This Mathabhangha and adjoining region is marked with different colors for the map.

The highest value of this watershed map is 37 and the lowest value is -33 . The highest watershed value is indicated by white color and the lowest watershed value by light green color. Again, the white color of this highest watershed value can be seen on the north-west and west side of the map. Again this lowest watershed value can be observed in the south-east part.

## BASIN MAP OF MATHABHANGA AND ADJOINING AREAS OF WESTBENGAL, IN INDIA



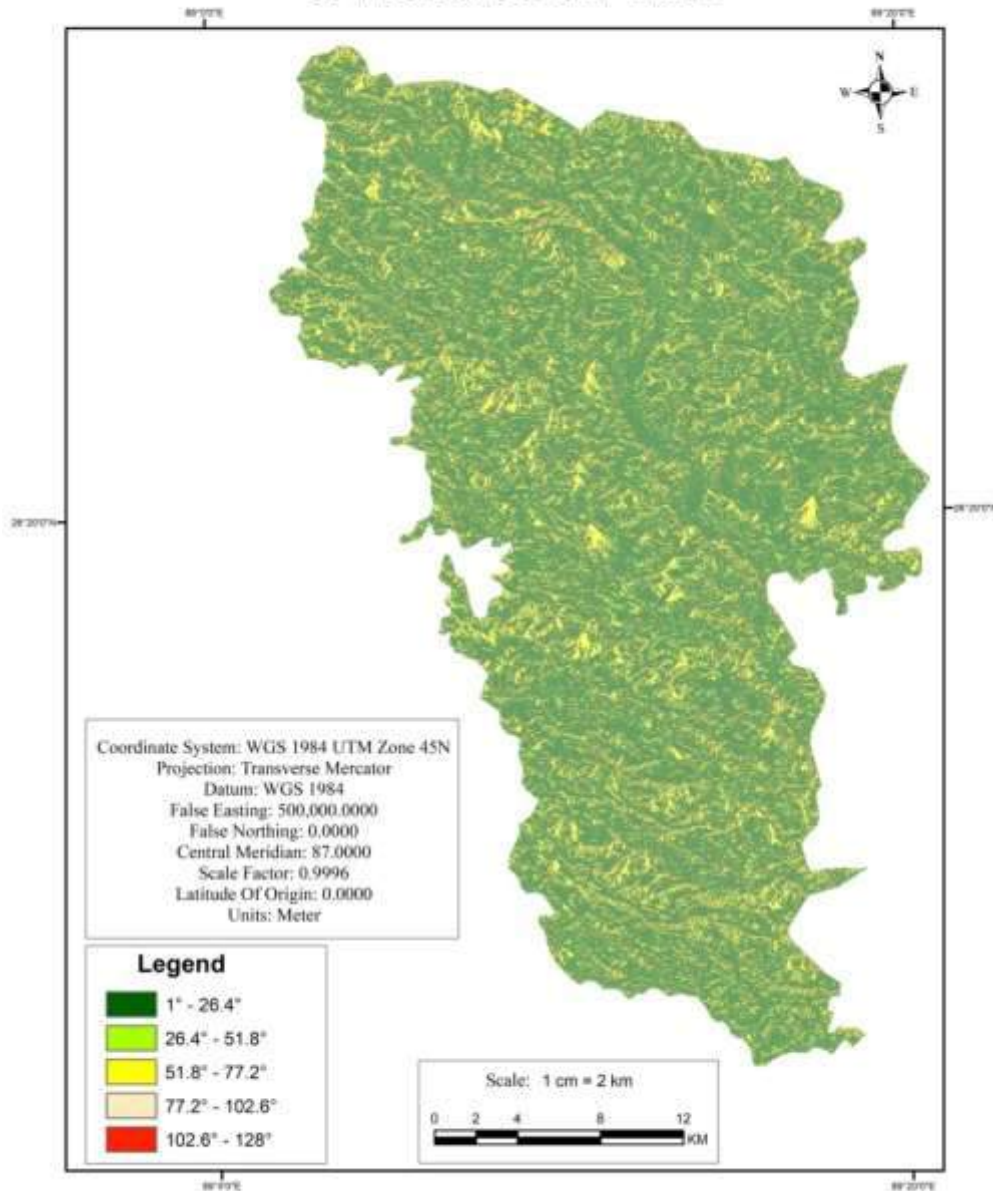
### BASIN MAP AND ANALYSIS

The impact of biodiversity on this basin map depends on the direction and speed of the water flow. Which is always changing over time. The scale for the basin map of this region is 1 cm to 2 km. Again the basin map of the region can be identified by five colors. Here the lowest value (1-527.6) is seen through dark green. Again the basin map of the highest region (2,108-2,634) is marked by dark red. Through the basin map value of this region, it can be understood that the water

flow flows from the highlands to the lowlands, and the difference in the development of the biosphere can be seen. The highlands of this region are from the north-northeast where policies are set for biodiversity, the lowlands to the south do not look the same. Again, it may be possible to understand basin map analysis in human society through the flow of water, agriculture, transportation and other socio-economic development.



### FLOW DIRECTION MAP OF MATHABHANGA AND ADJOINING AREAS OF WESTBENGAL, IN INDIA



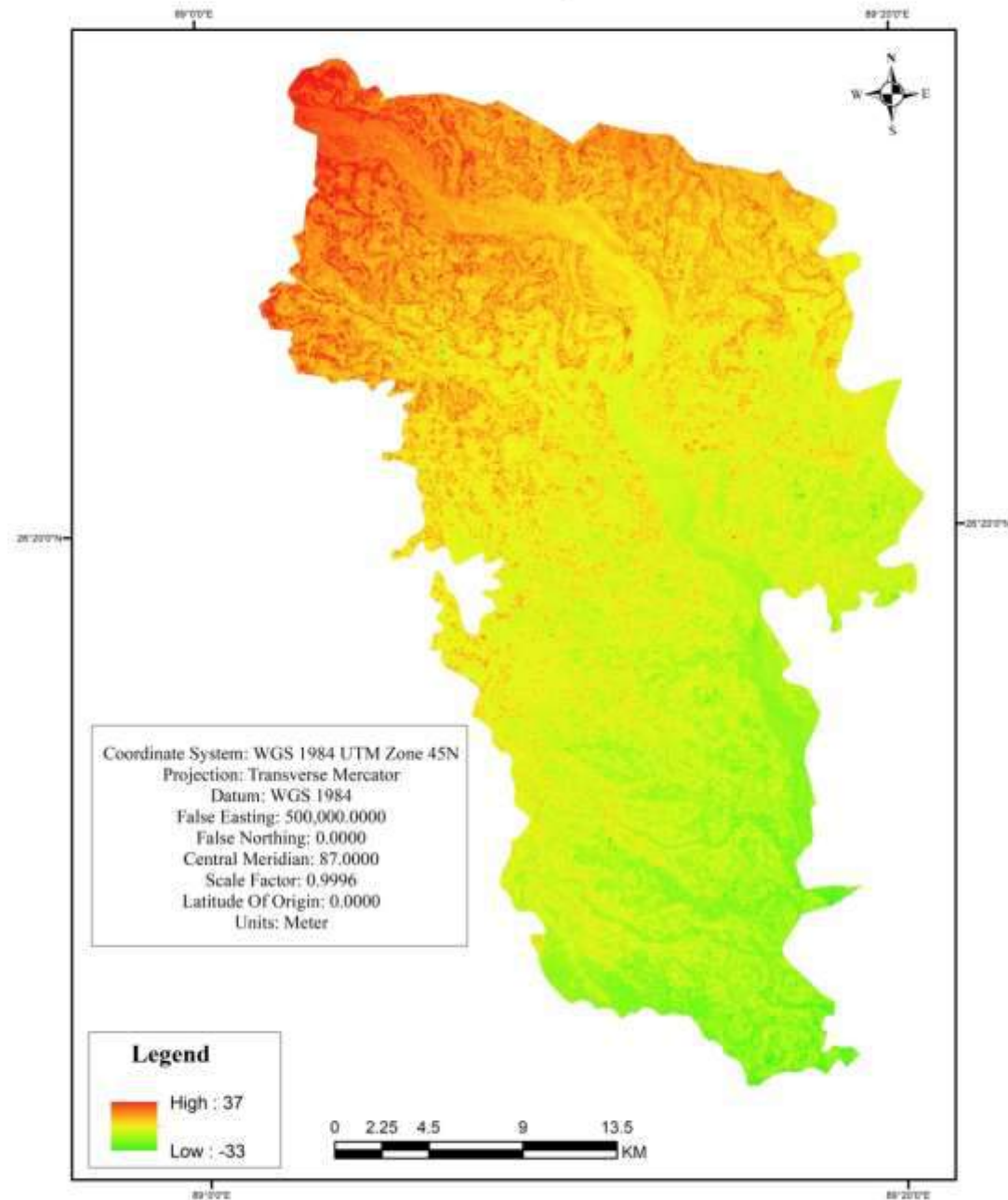
#### FLOW DIRECTION MAP AND ANALYSIS

Again, it may be possible to understand basin map analysis in human society through the flow of water, agriculture, transportation and other socio-economic development. The direction and speed of rainwater flow is dependent on the topographic map. If the landform has a steeper slope, the velocity of water flow increases greatly.

Compared to that, the speed of water flow in the plains is less, which affects the biodiversity. The five colors for the map of this region are dark green (1-26.4), light green (26.4-51.8), yellow (51.8-77.2), light red (77.2-102.6) and red (102.6-128). This dark green is the lowest flow direction value of the map and dark red is the highest flow direction value.



### DIGITAL ELEVATION MODEL MAP OF MATHABHANGA AND ADJOINING AREAS OF WESTBENGAL, IN INDIA



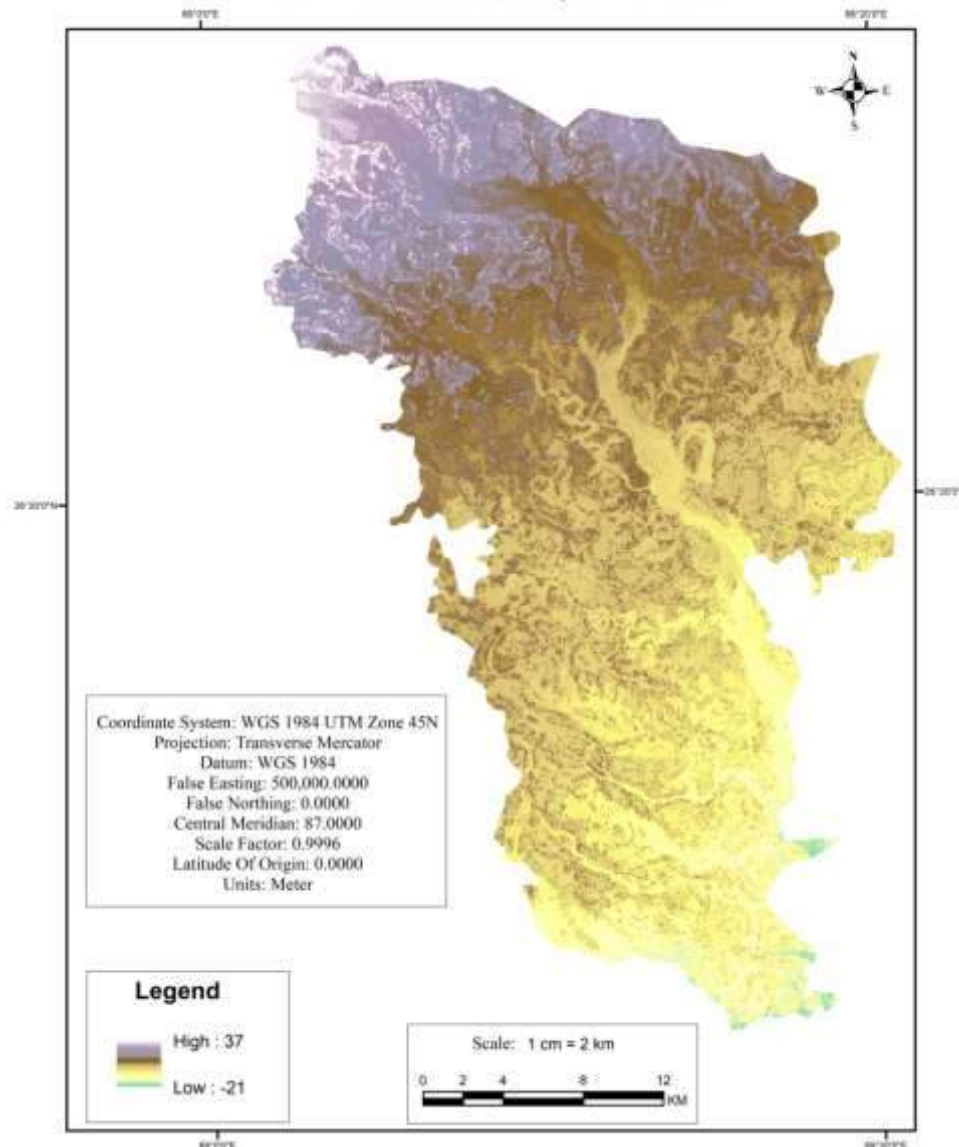
#### DIGITAL ELEVATION MODEL AND ANALYSIS

The variation of this water flow is usually based on the digital elevation model map of the terrain. By which different characteristics of biodiversity can be analyzed accurately. The highest value (37) of this digital elevation model map is represented by dark red color and the lowest value (-33) is represented by dark green. particularly influential for biodiversity on this digital elevation model map of the Mathabhang and adjoining region. The direction of water flow in this region is usually from the north-west side of the

river basin to the south-east side. The highest amount of water in this region is found in the low-lying areas, which are located towards the southeast. It can be said again that the difference in the biodiversity of the landforms on the watercourse is not very noticeable. This map does not show much difference between the highest digital elevation model value and the lowest digital elevation model value. Again, the livelihood depends on the development of the quality of human life on regional differences.



## FILL MAP OF MATHABHANGA AND ADJOINING AREAS OF WESTBENGAL, IN INDIA



### FILL MAP AND ANALYSIS

Biodiversity can be obtained by fill map with water flow. Through this, a complete analysis of the structure and dynamics of the region's landforms as well as the elements of ecological development of organisms can be done. By this fill map the highest value is 37 and the lowest value is (-21). This highest value is located in the north and northwest of the map. Again, the lowest value can be observed in the southeast direction under the map.

### RESULT AND DISCUSSION

The key factors for the development of this region or the development of biodiversity are agriculture and the abundance of natural resources such as forest resources, mineral resources and water resources. If the area has less water flow, the spatial water supply is less, resulting in difficulties for agriculture and living organisms. Again, if the

supply of water flow along the river bank of this region is more, the development of biodiversity is seen here along with agriculture. So it can be said that the structure and nature of the biosphere there is dependent on the flow of water and the extent to which it will spread is controlled by it.

### CONCLUSION

Human biodiversity development activities are largely controlled by the natural environment. So it can be said that the favorable natural environment where the climate, agriculture and transportation facilities are more, biodiversity is complete. Similarly, in hostile natural environment and inaccessible environment, the position of human society and diverse organisms is low.



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# EVALUATION OF SUPEROXIDE DISMUTASE LEVELS IN RODENT VISCERAL ORGANS AND TISSUES AFTER FEEDING A DIET FORTIFIED WITH CHILLI FOR THREE MONTHS

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## ABSTRACT

**Purpose:** It is known that chilli has untoward effects on the living being on taste buds, gastric mucosa, and other organs. It could lead to gastric cancer through severe acid production. However, we could not blame all chillies (hot, bell, red, cayenne, and sweet) as their capsaicin (CAP) and other capsaicinoids vary in different regions and chilli varieties. This study measured the effect of three chillies (Naga King, Bird's Eye, and Guntur) on superoxide dismutase (SOD) levels of visceral and vital organs.

**Design/methodology/approach:** In this study, a diet fortified with chilli powder was used for feeding Sprague Dawley rats which contained standard 20% protein and chilli powder (0.005% of CAP equivalent) over three months to measure superoxide dismutase levels in six vital, visceral organs/tissues (Adipose, Brain, Heart, Lung, Kidneys and Testes).

**Finding:** Heart tissue followed by brain and lung have shown more SOD levels in the CEG group, whereas in the rest of the groups' lung tissue had shown a notable increase in SOD levels. NKC and BEC showed a three-fold increase in SOD levels of the lung, whereas the CEG group had a 1.25-fold increase compared to standard diet normal control (SNC).

**Research limitations/implications:** Active components of the chilli have to be tested separately to reach a reproducible conclusion. Oral dosing of chilli's active component instead of feeding through diet would provide more reliable data.

**Originality/value:** Vital organs like the brain, lungs and kidneys are also affected through chilli consumption; however, its severity and protective role can be understood through oxidative enzymes like SOD.

**KEYWORDS:** Naga King Chilli, Guntur Chilli, Bird's Eye Chilli, Capsaicin, Sprague Dawley rat

Paper type: Original article

## 1. INTRODUCTION

Literature suggests that chilli could lead to dyspepsia and peptic ulcers; however, on the other hand, it is also claimed that consumption of chilli capsaicin (CAP) increases gastric mucosal [1, 2] and dermal blood flow [3] along with an increase in nitric oxide [4, 5] release. Increased gastric acid secretion through chilli ingestion assists in assimilating sugar, fibre, fat, amino acids, and dietary trace metals. Other studies suggest that it could be gastro-protective to prevent haemorrhagic shocks [6] or gastric ulcers [7]. Chilli could also enhance the essential cations of trace elements solubilisation from food matrix using gastric acid secretion and suppressing gastric acid [8].

The risk of gastric cancer in humans is correlated to chilli consumption. However, scientists also look forward to CAP's role in cardiovascular risks/protection [9], obesity [10], neural protection [11], mucosal ailments or production [12], and modulating absorption and metabolism of lipoproteins [13] and other nutrients [14].

Several events causing stress in living beings could cause oxidative stress, free radical formation, mitochondrial dysfunctions, DNA damage, and inflammation. Diet is considered one of the essential factors that contribute to these events. Moreover, dietary patterns, habits, or diet customs have also been correlated to these factors. The perspective toward eating habits could be flawed vs good, superior vs inferior. Although such information is accurate for particular locations or environments, it affects ordinary people when they copy the culture and eating habits resulting in oxidative stress. In a nutshell, oxygen used during anabolic and catabolic reactions leads to the production of free radicals in the form of superoxide anion, H<sub>2</sub>O<sub>2</sub>, OH<sup>-</sup>, and singlet oxygen (1O<sub>2</sub>), which is not a free radical. However, it can trigger free radical formations. These free radicals depend on oxidative stress damage in cells, including several types of liver injuries through lipid and protein peroxidation. Such lipid peroxidation products from different biochemical reactions will be nullified or modified with the help of the antioxidant system either by scavenging free radicals or suppressing the actions of reactive oxygen species. There are different antioxidants widely



distributed through our body in all cells, either in the form of nonenzymatic forms like vitamins (like A, C & E), bilirubin, reduced glutathione, or ceruloplasmin, and enzymatic forms (like superoxide dismutase, glutathione-S-transferase and catalase etc.).

As mentioned and described in our earlier publications [15, 16], CAP and other nutrient analyses from three types of chillies were carried out before initiating an animal study where a chilli-fortified diet was fed for three months, followed by visceral organ harvesting for tissue level antioxidant enzymes quantification. In this article, effect on tissue level of SOD is estimated and compared in fold change with various controls.

## 2. OBJECTIVES

To evaluate the change in vital, visceral organs/tissues SOD levels in a rodent model fed with a chilli fortified powder diet.

## 3. METHODOLOGY

Three types of chillies were used for analysis and diet preparation. The powder diet for the rodent study was prepared using a standard 20% protein diet fortified with capsacin equivalent chilli powder. Study design, sample collection, processing, animal study and the analysis of Superoxide Dismutase (SOD) activity were described in detail in our earlier publication [15].

## 4. RESULTS

**The SOD levels in Adipose (Graph 1):** In the current study, the BEC had elevated SOD levels in adipose tissue (3.13-fold), and it is followed by the Ethanol group (2.16-fold) and the NKC group (1.71) compared to the SNC group. Similarly, the BEC group also had an increase in SOD levels of adipose tissue (3.56-fold), followed by the Ethanol group (2.46-fold) and NKC group (1.95-fold) compared to the CEG group. However, the GC group had a slight decrease (0.75 and 0.85-fold) in SOD levels of adipose tissue than the SNC group and the CEG group, respectively.

The inverse correlation between SOD activity and weight in visceral adiposity has shown adipocyte death, adipose tissue inflammation in mouse model [17, 18], and metabolic stress [19]. Literature also suggested that SOD reduces adipose tissue inflammation [20, 21] by reducing macrophage accumulation and triglyceride metabolism. *In vitro* studies have provided evidence about improvement in bone repair through SOD which helps in differentiation [22] compared to other antioxidant systems. Obesity increases oxidative stress and decreases SOD activity [20, 21]. Interestingly, similar results were obtained in the current study as NKC and BEC had 18% decrease in body weight compared to SNC whereas GC group had just 15% more weight than NKC.

**The SOD levels in the Brain (Graph 2):** *In vitro* studies suggest that dopamine exposure to astrocytes causes the release of SOD mRNA. Interestingly, SOD levels of the brain have increased more than two-fold in two chillies, BEC (3.17-fold), NKC (2.56-fold), and Ethanol group (2.96-fold), whereas no significant variation was observed in the CAP

group (1.39-fold) and GC group (0.94-fold). This results in SOD protein enzyme activity and NF- $\kappa$ B activation [23]. Knock-in and transgenic mice study suggested that overexpression of EC-SOD may have a protective effect in the chronic hypoxia model [24] with a dual role in controlling and regulating ROS signalling [25].

The SOD levels in living mammalian cells will have Zn and Mn as co-factors, whereas intracellular pathogens like protozoa will have Fe as a cofactor; however, bacteria will have Zn and Mn cofactor similar to mammalian cells [26], which affects the quantification of SOD. It was also found that a decrease in SOD level results in the induction of hypertension and peripheral inflammation in the CNS [27].

**The SOD levels in the Heart (Graph 3):** The heart tissue SOD levels were doubled in BEC (2.42-fold), and NKC (2.25-fold) compared to the SNC group, whereas the Ethanol group (1.25-fold) and CEG (1.58-fold) had an almost similar level of increase in SOD. Usually it is said that SOD plays a role of shepherd for heart [28]. Elevated levels of SOD in plasma is also indicator of coronary heart diseases [29]. The SOD overexpression increases NO bioavailability, whereas it reduces infarct intensity in ischemia or reperfusion studies [30]. SOD activity is also used to predict outcomes in non-ischaemic dilated cardiomyopathy patients [31]. The SOD has been correlated with cardiac malfunction, fibrosis [32], and cardiovascular disease [33].

**The SOD levels in Lung (Graph 4):** Lung SOD levels were found elevated in the BEC (3.08-fold) and NKC (3.00-fold), followed by the Ethanol group (2.17-fold), whereas the GC group had slight variations (1.25-fold) compared to the SNC group. Similarly, an increase in SOD values of lung tissue was observed in the BEC (2.31-fold) and NKC (2.25-fold), followed by the Ethanol group (1.63); however, the GC group had minimal variations (0.94-fold) compared to the CEG group. The superoxide dismutase family is downregulated in lung diseases, and many external antioxidant therapies failed, whereas some studies with intravenous SOD showed promising protection against barometric lung impairment [34]. However, SOD mimetics showed promising results [35]. Similarly, upregulation of SOD by chilli diet could be an attractive diet-based therapy. Oxidant/antioxidant balance is pivotal in pulmonary disease, and SOD is one of the essential pillars in preventing airway oxidative stress [36]. However, the proteolytic processing of SOD decreases its affinity for the extracellular matrix [37] during inflammation.

Certain studies also suggest that Sirtuin (SIRT3) increases Mn-SOD activity so that such gene therapy might help prevent lung damage [38], however, the success of gene therapy is subject-oriented, and hidden side effects are unknown. Still, using chilli to activate endogenous SOD is an easy option. The sepsis model of caecal perforation or ligation has shown an increase in the release of endogenous SOD. However, it is not sufficient to rescue where SOD mimetics might help [39]; here, we also believe that activating such endogenous SOD routinely by the bird's eye chilli or Naga king chilli will protect or prevent such sepsis-related mortality, which should be further tested in animal models.



**The SOD levels in Kidneys (Graph 5):** Similar to other organs and tissues, the SOD levels of kidneys elevated in two chillies (NKC - 2.30-fold, BEC - 1.90-fold) and Ethanol group (1.40-fold) compared to the SNC group, whereas the GC group (0.70-fold) and CEG group (0.90-fold) had minimal variations. Experimental results from mice suggest that Extracellular SOD levels are decreased in chronic kidney diseases [40], whereas plays a protective role in ischemia-reperfusion injury of the kidney [41]. Another study in mice suggests that inactivation of the gene related to EC-SOD, elevated hypoxia-induced Epo gene expression almost 100-fold [42], indicating it has a significant role in maintaining kidney health. Many studies have a typical relationship between SOD dysfunction in mitochondria and renal disease [43].

**The SOD levels in the Testes (Graph 6):** Testes have more SOD as an antioxidant system superoxide dismutase than other tissue, and the germ cell line regulates its level [44]. The SOD levels in testes were found high in the BEC group (1.56-fold), NKC (1.38-fold), and Ethanol group (1.38-fold) than in the SNC group, whereas they were low in GC (0.36-fold); however, the CEG control group had no change in testes SOD levels. Other studies on rats fed a high-fat diet with CAP revealed that SOD levels increase in testicular and hepatic tissue, known as oxidant-antioxidant status [45]. However, there was merely no difference between the testes-SOD levels of CEG group and the SNC group in this study. This could be because, in the current study, we fed less CAP, which is 0.005% in the powder diet (Graph 1), compared to the study mentioned above, i.e., 0.015% CAP in the powder diet. Another interesting study reveals that the SOD activity decreases with chronic stress in adult model [46]; however, in our study, SOD was increased in BEC, NKC, and Ethanol groups and decreased in Guntur chilli.

**Organ-wise comparison of SOD (Graph 7 - 11):** Interestingly, it was found that a chronic but small amount of alcohol consumption increases the SOD levels [47]; in this study, we found similar results as our dose (80% average 1mL/250 of rat) was even smaller than the one used in the study as mentioned above (0.05g/kg). SOD levels in GC and CAP groups did not increase much. Ironically GC group had decreased SOD compared to CAP and the normal group in all vital, visceral organs except the lung. It reflects that Guntur chilli could be a stress inducer and need to be used in diet with caution. However, NKC, BEC and Ethanol groups showed a 2-3-fold increase in SOD compared to normal control group (SNC).

## 5.0. SUGGESTIONS

Chilli in the diet is utilised as a spice and added for the tastebud's sake. However, the literature suggests that it has high medicinal and cosmetic applications. Although the data available is not adequate, here in this manuscript, efforts were made to find out which chilli has the potential to be a suitable candidate for therapeutic potential and what proportion it should be consumed. It was also surprising that the CAP-fed group did not do better than NKC and BEC-fed groups. This could be due to either the biphasic nature of CAP or the lower dose in this study than in most other studies. Similarly, the Ethanol group has performed well in all tissues along with BEC and NKC, which could be because its lower dose works as a chronic challenging study to cells. A further detailed study on individual active components of chilli is warranted to reach a suitable conclusion.

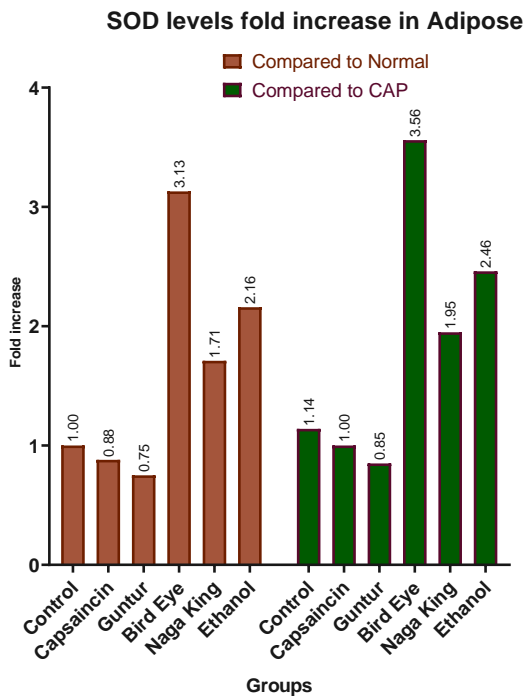
Although, a previous acute study on rats for seven days where an aqueous extract of chillies and ethanol (80%) fed using oral gavage provided mixed results where the ethanol group and CAP group ranked high in stomach tissue-SOD levels, followed by NKC + Ethanol group and CAP + NKC group in comparison with vehicle control and saline control. Similarly, performing a chronic challenge study for three months using a powder diet on all six visceral organs/tissues would provide a piece of valuable information on its protective role in the ethanol consumption population.

The limitation of the existing study is that the SOD in serum was calculated for acute study (published in NIN annual report 2014-15). However, serum SOD levels were not estimated in this study. The blood parameters like differential count and other inflammatory markers have not been studied, which would have been confirmatory for the present observation. Measurement of free radicals using chemiluminescence tagging (imaging) and challenge study could have been helpful to draw therapeutic conclusions. The bone mineral density using DEXA and lean body mass analysis using TOBEC would have provided more evidence to support the results.

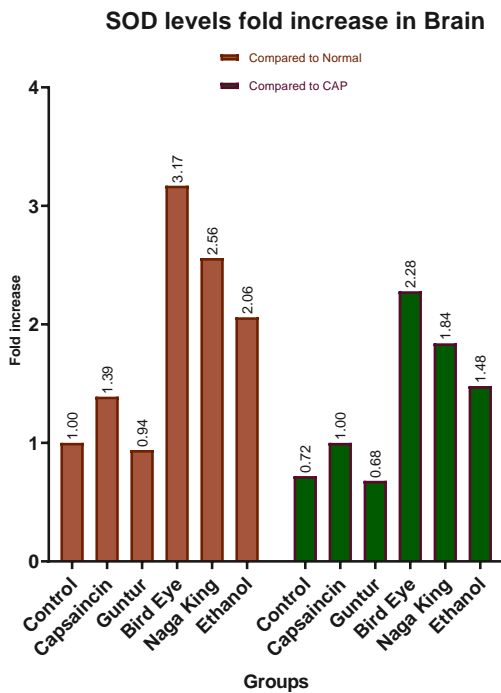
## 6.0. CONCLUSIONS

SOD levels are indicators of stress and the capacity to fight stress. An acute increase in tissue level SOD may indicate stress; however, after chronic study, if the SOD levels are increased at the tissue level, it means it has adequate antioxidants ready for use. It indirectly means it can cope better with the higher stress level due to the availability of more SOD in tissue. Guntur chilli has shown opposite results compared to the CAP control group. In contrast, bird's eye chilli and Naga King chilli have a 2-3-fold increase in SOD compared to the usual or CAP group indicating that other capsaicinoids present in chilli also play a significant role in activating the antioxidant system.

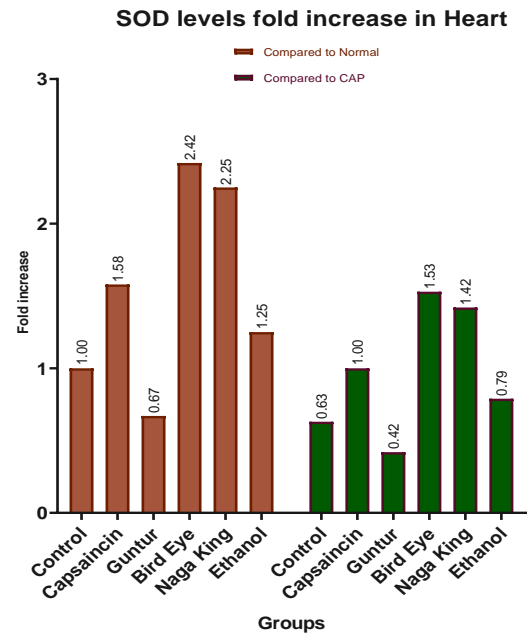
## 7.0. FIGURES, TABLES AND REFERENCES



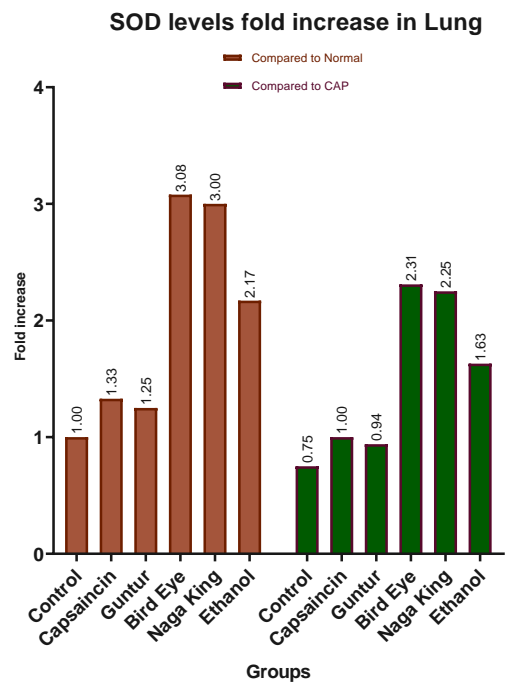
**Figure 1:** Change in SOD levels of Adipose tissue after 90 days of feeding trial (fold increase)



**Figure 2:** Change in SOD levels of Brain tissue after 90 days of feeding trial (fold increase)



**Figure 3:** Change in SOD levels of Heart tissue after 90 days of feeding trial (fold increase)



**Figure 4:** Change in SOD levels of Lung tissue after 90 days of feeding trial (fold increase)

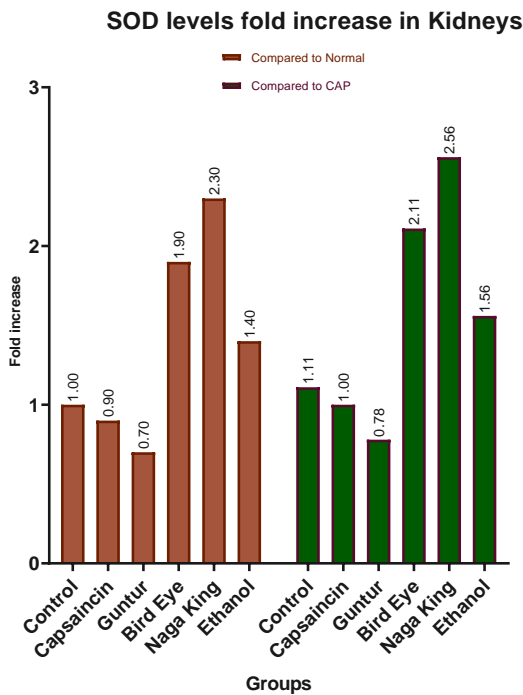


Figure 5: Change in SOD levels of Kidneys tissue after 90 days of feeding trial (fold increase)

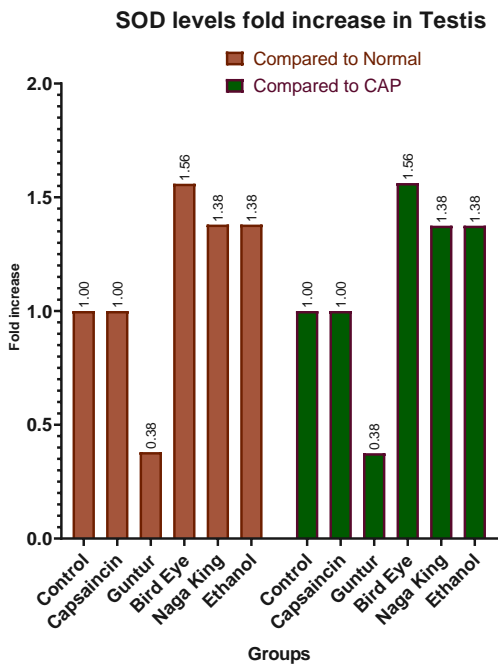


Figure 6: Change in SOD levels of Testes tissue after 90 days of feeding trial (fold increase)

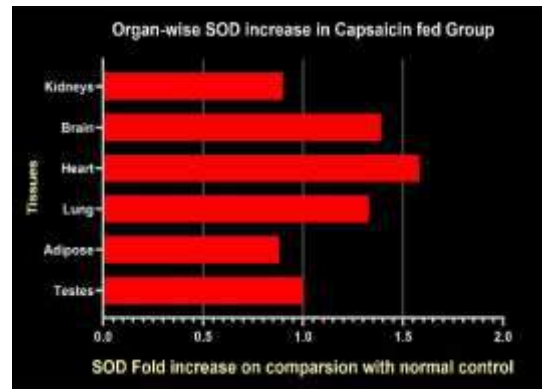


Figure 7: Organ-wise change in SOD levels in various tissues upon feeding of CAP

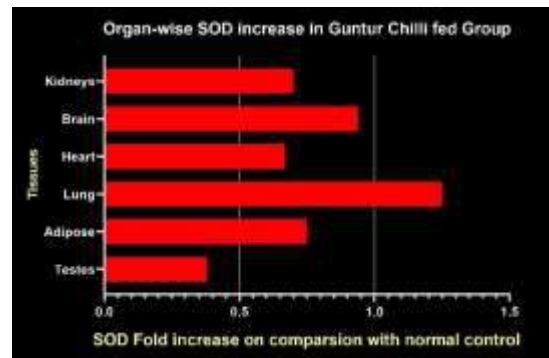


Figure 8: Organ-wise change in SOD levels in various tissues upon feeding of Guntur Chilli

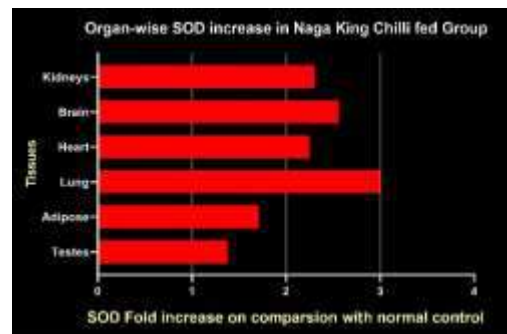


Figure 9: Organ-wise change in SOD levels in various tissues upon feeding of NKC



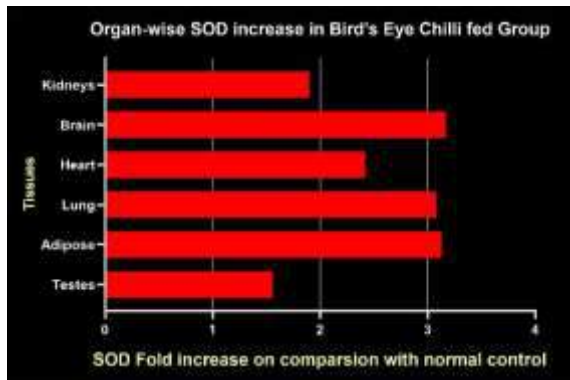


Figure 10: Organ-wise change in SOD levels in various tissues upon feeding of BEC

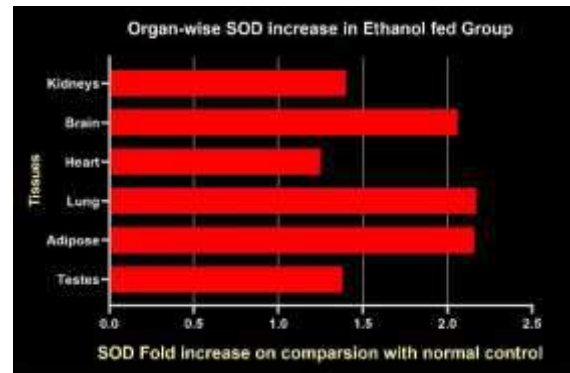


Figure 11: Organ-wise change in SOD levels in various tissues upon feeding of Ethanol (80%)

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# IMPACT OF CUSTOMER SERVICE AND SERVICE QUALITY ON SALES OF TVS BIKES IN DIVINE MOTORS, BENGALURU, KARNATAKA, INDIA

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## ABSTRACT

*Service quality and customer satisfaction have been universally acknowledged as primary determinants of intention to buy. The concepts are essential for businesses to have a sustainable competitive edge and retain consumers. The industry is among the world's fastest-growing. India's vehicle exports are likely to expand in the future. Growing middle class and young people like two-wheelers. As the sector grows, new issues arise, therefore it's important to understand and improve the whole process. As customers' tastes change, it's crucial to understand their needs. . This paper on "Impact of customer service and service quality on sale of TVS bike in Divine Motors in Bengaluru, Karnataka ,India" identifies elements affecting customer service satisfaction. The research examines consumer difficulties at Divine motors showroom to acquire a competitive advantage. A structured questionnaire and simple random sample are used to obtain data. The research covers Bengaluru city. Primary data (Questionnaire) and secondary data are used for the analysis (publications, and journals). It is very important for every business because a satisfied customer is a repeat purchaser and moreover, he/she act as an endorser to the product/service or brand. That is reason behind every company to satisfy their customer and providing all the service to customers based upon the requirements and it includes pre and post sales.*

**KEY WORDS:** *customer service, service quality, brand loyalty, sales service, customer requirements.*

## 1. INTRODUCTION

With this research paper, the author aims to examine several aspects of consumer satisfaction with the company's service and its quality of service. The country's economy would not be what it is without the automotive sector. Spectrum of businesses and organisations that are engaged in the creation, development, and marketing of products and services One of the most profitable industries in the world, design growth marketing selling involves a broad spectrum of companies and organisations. Certain difficulties are being faced by the automobile business in India, such as difficulties in providing quality services. To accomplish purchase fulfilment and build brand trustworthiness in the automobile industry, elements such as customer satisfaction, customer retention, and customer loyalty all play a significant role. In order to better understand the influence of customer service quality on sales of TVS motors, a survey was undertaken among the general public.

## 2. REVIEW OF LITERATURE

1. Chandru Ravi; N.D.N. Swamy (2015) - in their research they state that there are numerous variables on which the purchasing conduct of the clients depends and these elements persuade them to buy a bike. These elements incorporate notice, informal, references from family, companions, possess understanding, highlights, cost, and so forth. The consequences of the overview done was that around 51% of the clients having bikes fall in the age gathering of 20-30 years, while their pay is beneath Rs. 5000. 64% individuals are unmarried what's more, use Bajaj bikes. In the majority of the cases, the inspiration originates from companions (44%) and family (31%). Individuals to look for portion plans and money plots before obtaining a bike.

2. Nikunj Kumar Jain, Alok Kumar Singh, Kapil Kaushik(2020) : the study titled "evaluating service quality in automobile maintenance and repair industry" is based on primary data. The goal of this article is to examine the quality of service in the automotive maintenance and repair business. The influence of service quality, perceived fairness, and convenience on customer service satisfaction is investigated using a conceptual structural model. The study evaluates the mediating influence of customer service satisfaction on the link between service quality and word of mouth (wom), as well as the impact of service satisfaction and brand trust on wom

3. Bo Edwardson (2012): in the paper "service quality improvement", the subject of this paper is service operations quality improvement. Quality assurance, quality management, and quality control are all terms that are used to describe the process of improving quality. Private and governmental service activities, as well as services in industrial firms, are referred to as service



operations. We still know relatively little about quality management in service operations, despite the fact that services account for the majority of GDP and employment in OECD nations. Organizational theories, marketing theories, and other areas' concepts and models are largely founded on manufacturing company research and experience. Quality is no exception, despite the fact that it has gotten significant attention in recent years, particularly from Scandinavian experts.

4. Mikha Shrestha(2020): in the research “service quality and customer satisfaction on two wheelers in Nepal”, all service-oriented businesses must prioritise service quality in order to stay afloat. The modern client is technologically adept and expects superior service. Companies that provide superior services assure client happiness, which leads to customer retention. The purpose of this study is to investigate the relationship between service quality characteristics and customer satisfaction on Nepalese two-wheelers. A descriptive/analytical study approach was used for this objective. A total of 200 Bajaj motorcycle owners were surveyed. The study relied on primary data collected using pre-structured questionnaires. When examining aspects including responsiveness, dependability, assurance, tangibility, and empathy, the correlation matrix revealed a strong and positive association between service quality and customer satisfaction.

5. Sanjupa giri,kumar Thapa(2018): in the paper, “a study of customer satisfaction on after sales service of two wheelers in Kathmandu valley”, the goal of this study is to see if there's a link between customer happiness and different recognised after-sales service features of two-wheeler brands. It also wants to separate the primary after-sales services according to the kano model. This is a quantitative study with a sample size of 280 people, divided into 40 groups based on motorcycle and scooter manufacturers. The sample is chosen on the basis of quota and convenience. Honda, hero, Bajaj, Mahindra, Yamaha, royal Enfield, and more brands are used as examples (TVS, Suzuki and vr). Data analysis methods include kano model analysis, frequency analysis, correlation, anova test, independent sample t-test, and others. The kano model is used as the study's foundation.

## NEED OF THE STUDY

The study will help the company to revise and analyse the service quality and customer service on sales condition and there by adopt the most suitable strategies in order to satisfy the customer and result in improved relationship between the parties involved.

## STATEMENT OF THE PROBLEM

The main focus of the research paper is to determine the customer service and quality of service. TVS is a two-wheeler industry which captured a wide market share with its gear as well as non gear vehicle, over the year TVS motors has grown to be the largest in the group both in term of size and turnover in spite of its excellent position in the market its bike is facing a stiff competition from the other competition.

## OBJECTIVE OF THE STUDY

- To study on impact of customer service and service quality on Divine TVS motors, Bengaluru.
- To analyse the customer relationship with Divine TVS motors
- To unveil after-sale performance with the customers.

## LIMITATION OF THE STUDY

- The scope of the study is limited to the respected company only.
- The study is limited to the showroom premises and customers of divine motors.
- Few respondents hesitate to provide in depth details.
- The Reponses provided by the respondents may not be accurate.

## SCOPE OF STUDY

The region chosen for the purpose of the study is Bengaluru city, which is one among the fastest growing cities in Karnataka. In Bengaluru as there are number of showrooms which runs in TVS two wheelers. TVS is one of the main bike's organizations in India, this study likewise helps to discover number of dealers, sellers, understudies and to distinguish the issues and prospects of TVS. Thus, this study is attempted to know customer's satisfaction and perception level towards the service provided by Divine motors. This study provides few suggestions to the Divine motors. Such that to maintain good relationship with customer and to improve the satisfaction level of the customer.

## HYPOTHESIS

### Hypothesis 1

H0: There is no difference between service incurred and cost paid for the service.

H1: There is difference between service incurred and cost paid for the service.



**Hypothesis 2**

H0: There is no significant relationship between respondent income and cost of vehicle.  
 H1: There is significant relationship between respondent income and cost of vehicle.

**Hypothesis 3**

H0: There is a no significant difference b/w service provided by divine motors and customer relationship.  
 H1: There is a significant difference b/w service provided by divine motors and customer relationship...

**RESEARCH GAP**

Most of the available literature in this area of study is based on buying behaviour of the customers, customer service satisfaction, customer retention and quality management in service operations.

In this study we are trying to determine the customer service and quality of service to customers overall execution of TVS motors and analyse the customer relationship with TVS motors.

**RESEARCH DESIGN**

The type of research is used in this study is descriptive in nature, the purpose of using descriptive research is to characterise a population's characteristics. It gathers information to answer a variety of what, when, and how inquiries about a certain population or group.

**SOURCES OF DATA COLLECTION**

**Primary data**

The primary data is collected through structured questionnaire, the major respondents were customers of Divine Motors and it is attached in the annexure.

**Secondary data**

Secondary data is collected from various publications like books, journals, articles, sources and company records.

**Population**

Research and survey activities had been done for the population that comprises of people who are using two wheelers in Bangalore City.

**SAMPLING UNIT**

A specific value obtained in a sample database is referred to as a "sampling unit." Research is done for the candidates who prefer TVS 2 wheelers and customers of Divine Motors.

**SAMPLING AREA**

Research and survey activities had been done for the TVS vehicle users of Divine motors, Bangalore.

**SAMPLING METHOD**

Random Sampling Method is adopted for the study to select the sample from the population and to get the best result of this study.

**STATISTICAL TOOLS AND TECHNIQUES**

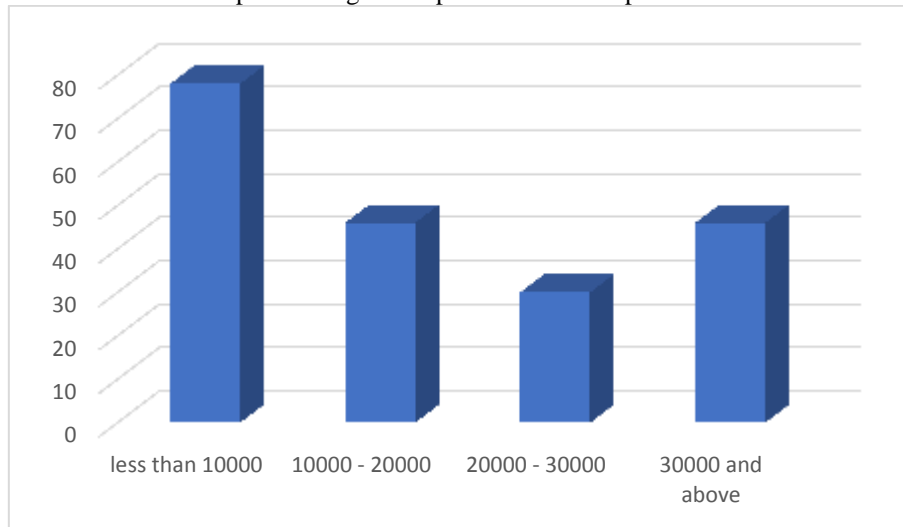
The Collected data is represented in the form of tables, charts and graph and data is analyzed using statistical tool such as ANOVA, Chi-Square Test, Correlation, Weighted Average Test, and Descriptive Statistics using SPSS Software.

**3. DATA ANALYSIS AND INTERPRETATION**

**1. MONTHLY INCOME OF RESPONDENTS?**

Response	No of respondents	Percentage%
Less than 10000	78	39%
10000-20000	46	23%
20000-30000	30	15%
30000 and above	46	23%
Total	200	100%

Graph showing the respondents income per month



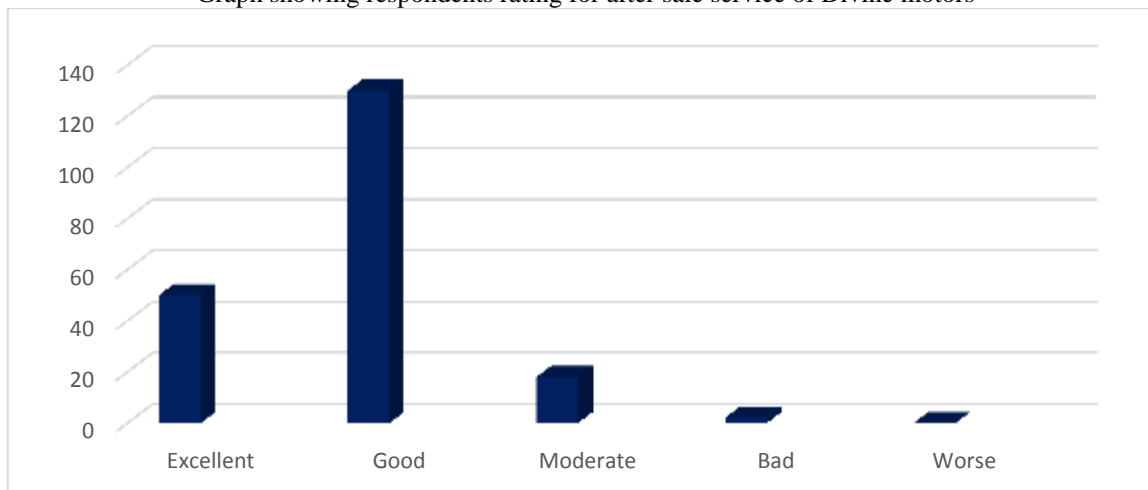
**Interpretation:**

The above graph shows the respondents income per month. As per the results, majority of the respondents have income less than 10000. The maintenance costs for TVs motors are lower than those for other motors, and they provide better mileage. Anyone can afford a TVs two wheelers.

**2. Table showing the respondents rating for after sale service of Divine motors.**

Response	No of respondents	Percentage%
Excellent	50	25%
Good	130	65%
Moderate	18	09%
Bad	02	01%
Worse	00	0%
Total	200	100%

Graph showing respondents rating for after sale service of Divine motors



**Interpretation**

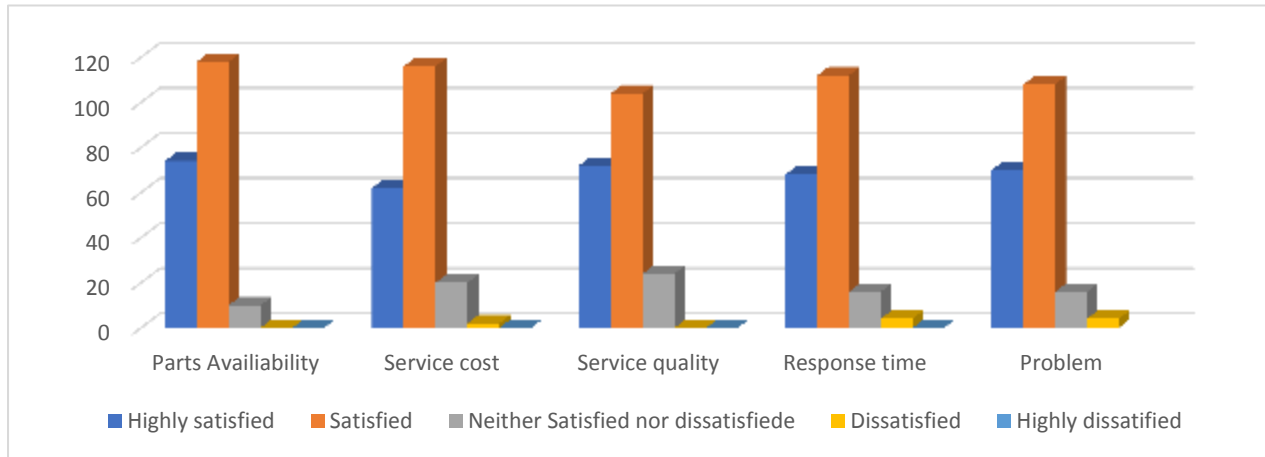
From the above graph it can be interpreted that that the majority of divine motors customer rated that the sales service is good among the other choice.



**3. Table showing the level of satisfaction for the service provided by Divine motors**

Criteria Considered	Highly Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Highly Dissatisfied
Parts Availability	36%	59%	5%	0	0
Service cost	31%	58%	10%	1%	0
Service quality	36%	52%	12%	0	0
Response time	34%	51%	8%	2%	0
Problem resolving	35%	54%	8%	2%	1%

Graph Showing respondents' level of satisfaction for the service provided by the Divine motors

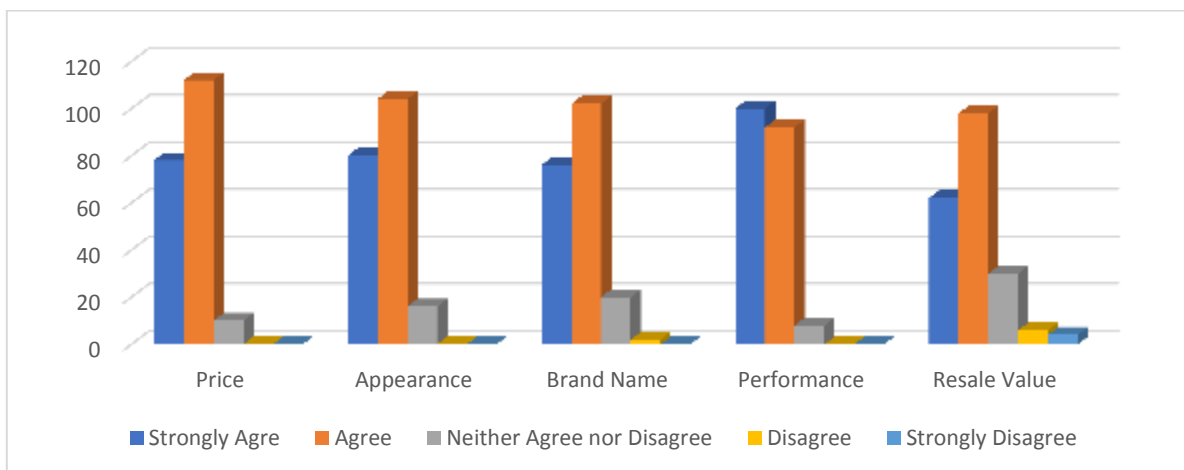


**Interpretation:** from the above graph we can interpret that level of satisfaction of customers are rated satisfied among other choices due to excellent service provided by divine motors

**4. Table showing factors influencing the customers to purchase TVS bikes.**

Criteria Considered	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Price	39%	56%	5%	0	0
Appearance	40%	52%	8%	0	0
Brand name	38%	51%	10%	1%	0
Performance	50%	46%	04%	0	0
Re-sale value	31%	49%	15%	3%	2%

Graph showing factors influencing the customers to purchase TVS bikes



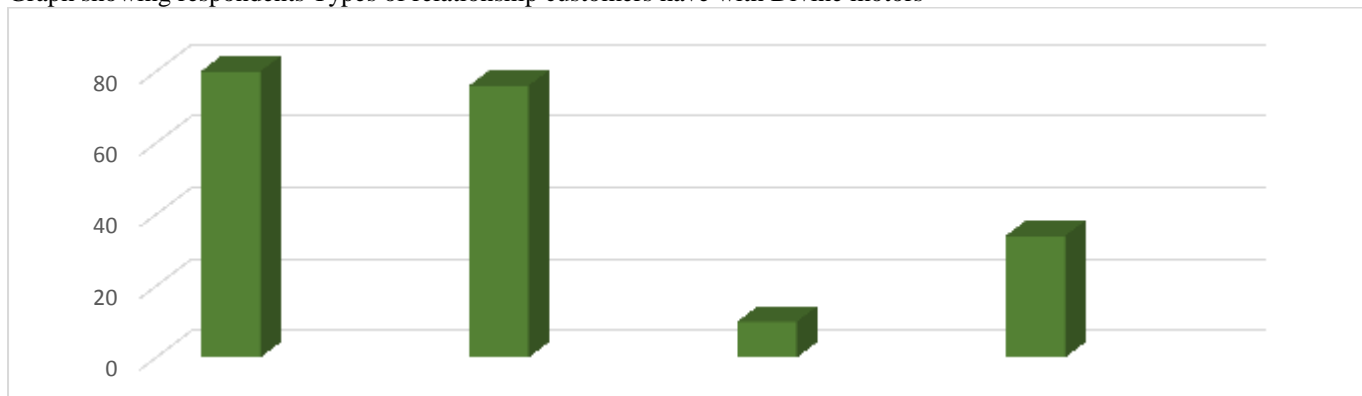
### Interpretation

The above graph shows factors influencing the buying decision of the respondents. As per the results, majority of the respondents will consider price as the main criteria while making buying decision

#### 5. Table showing the Types of relationship customers have with Divine motors

Response	No of respondents	Percentage%
Emotionally attached	80	40%
I am very happy	76	38%
I feel part of the family	10	5%
All the above	34	17%

Graph showing respondents Types of relationship customers have with Divine motors



### Interpretation

Majority of 80 respondents are associated with TVS motors for less than 1 years. By seeing the above graph, we can say that 80 of the respondents are emotionally attached, 76 the respondents are very happy, 10 respondents feel as a part of the family, 34 of the respondents are having the mixed feeling.

## HYPOTHESIS TESTING

### HYPOTHESIS 1

H<sub>0</sub>: There is no difference between service incurred and cost paid for the service.

H<sub>1</sub>: There is a difference between service incurred and cost paid for the service.

The testing method for the above Hypothesis is Chi square.

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.824 <sup>a</sup>	6	.001
Likelihood Ratio	29.250	6	.000
Linear-by-Linear Association	5.073	1	.024
N of Valid Cases	200		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .48.

P value is 0.001.

Level of significance is 0.05.

**INTERPRETATION:** As level of significance is greater than p value, alternative hypothesis H<sub>1</sub> is accepted. Therefore, there is a difference between service incurred and cost paid for the service.

### HYPOTHESIS 2

H<sub>0</sub>: There is a no significant difference b/w service provided by Divine motors and customer relationship.

H<sub>1</sub>: There is a significant difference b/w service provided by Divine motors and customer relationship.

Anova test is performed to test the above Hypothesis.





### ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.159	2	7.580	5.577	.004
Within Groups	267.716	197	1.359		
Total	282.875	199			

P value is 0.04

Level of significance is 0.05

**INTERPRETATION:** From the above table, “calculation at degree of freedom is 5.57 where p value is 0.04. At level of significance of 5% that is 0.05 from the output p value is lesser than 0.05. Therefore, Alternative Hypothesis  $H_1$  is accepted. Hence there is no significance difference between service provided and customer relationship.

### HYPOTHESIS 3

$H_0$ : There is no significant relationship between respondent income and cost of vehicle.

$H_1$ : There is significant relationship between respondent income and cost of vehicle.

Correlation test is used to know the relationship between two variables. Here income is independent variable based on which it depends on cost of the vehicle.

### Correlations

		monthly income	what influenced your decision to purchase tvs bike(price)
monthly income	Pearson Correlation	1	.024
	Sig. (2-tailed)		.738
	N	200	200
what influenced your decision to purchase tvs bike(price)	Pearson Correlation	.024	1
	Sig. (2-tailed)	.738	
	N	200	200

P value is 0.24.

### INTERPRETATION

Pearson Correlation of monthly income and the decision influenced the customers to purchase tvs bike was found to be moderately positive and statistically significant. Hence,  $H_1$  was accepted. This shows that the decision influenced the customers to purchase tvs bikes will be preferred by the customers. It is positively correlated.

### 4. DESCRIPTIVE STATISTICAL TEST

**Descriptive Analysis:** Descriptive analysis is a kind of data analysis that helps in describing, presenting, or summarizing data points in a positive way so that patterns may develop that satisfy all of the conditions of the data.

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	200	1.00	2.00	1.4700	.50035
marital status	200	1.00	2.00	1.7600	.42815
Age	200	1.00	4.00	2.1700	.51226
occupation	200	1.00	4.00	1.9200	.88175
monthly income	200	1.00	4.00	2.2250	1.19226
Valid N (listwise)	200				



<b>Highest mean</b>	<b>Lowest standard deviation</b>
2.2250	.42815

### INTERPRETATION

**Highest mean 2.2250**

Monthly income is highly influencing customer service and service quality.

**Lowest STD deviation 0.42815**

Marital status is slightly influencing the customer behaviour.

### 5. WEIGHTED AVERAGE TEST

Factors	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Total
PRICE	78*5	112*4	10*3	0*2	0*1	868
APPERANCE	80*5	104*4	16*3	0*2	0*1	862
BRAND NAME	76*5	102*4	20*3	2*2	0*1	852
PERFORMANCE	100*5	92*4	8*3	0*2	0*1	892
AVAILABILITY OF AFTER SALES SERVICE	62*5	98*4	30*3	6*2	4*1	808

**Grand Total:** 868+862+852+892+808 = **4282**

- a. Price =  $868/4282 = 0.202$
- b. Appearance =  $862/4282 = 0.201$
- c. Brand name =  $852/4282 = 0.198$
- d. Performance =  $892/4282 = 0.208$
- e. Availability of spare parts =  $808/4282 = 0.188$

**INTERPRETATION:** From the above weighted average test, we can observe that, the highest value is .208 which indicates that performance of vehicle is the main factor which influences customer purchase decision it is said that price of the vehicle can be compromised in terms of performance of the vehicle

### OBSERVATION /FINDINGS

- In the study, the 39% of the respondents earn below 10000 per month, this may be because a greater number of respondents are students and they usually earn less than 10000. 23% of the respondents earn in the range 10000 to 20000 and above 30000, Only 15% respondents earn in the range 20000 to 30000
- It is analysed that 65% of the respondents feel good about after sales services of the Divine motors. Only 1% of the respondents feel that the service is bad. 25% of the respondents are very happy with the after-sale services.
- It is found that around 59% of the respondents are satisfied, only 5 % of the respondents are not satisfied with the parts availability. 58% of the respondents are satisfied with the service cost and one percent of the respondents are dissatisfied with the service cost. 52% of the respondents are satisfied and 12% are not satisfied with the service quality. 51% and 2% of the respondents are satisfied and not satisfied with the responding time. 54% of the respondents are satisfied and 1% of them is highly dissatisfied with the problem resolving.
- 42% respondents feel that the spare parts are highly priced, 26% of them have faced problem with non-availability of spare parts. 25% of them faced delay in service.
- 40% of the respondents are emotionally attached with TVS motors, 38% respondents feels that they are very happy, 5% respondents feel like a family and remaining 17% respondents accept all the above.

### 4. CONCLUSION

From the above survey we can draw a conclusion that service is the major quality in the major aspect of enable in order to improve customer service. Customer service is important part of value chain client which in turn leads to excess revenue. Customer service includes front office and back-office service which has to be carried out through before and after sale service. The survey has been conducted to the people to the extent of Bengaluru city. Student is the major customer who can afford easily as per here budget capacity. Brand, mileage are the major factors/attributes which influence customer. Price can be compromised in terms of service quality provided by the out let. Majority of respondents faced problems with the high-priced spare parts which is of high quality in nature. The above survey test that brand is the main factor which influence consumer perception which exclusively depends on quality and service provided. Service quality completely depends on the employees so, the employees must handle the customer's complaints, queries deliberately and effectively which make sure that consumer feel joy of happiness when they come to know their complaints have been rectified by out lets which in turn leads to satisfaction.



Though various test was conducted between variables it is proved that there is association between service incurred and cost paid. When service is provided accurately according to customer needs and desire, it is said that customers are satisfied to pay the cost which is charged by showroom. Therefore, there is more scope in maintaining good relationship with customers by providing good service in turn they can retain customers.

## 5. SUGESTIONS

- In this survey, the major respondents said that the price of the spare parts and service charges were high in the showroom. Showroom should look after the issue and reduce the price of spare parts and the service charges
- While Divine Motors' showroom has 2 or 3 typical variants only but TVS has a wide variety of automobiles. Therefore, they have to concentrate and offer other different variants of two wheelers in their TVS BRAND to attract more customers.
- Divine motors should concentrate on the vehicle service too because many customers have shifted to local service provider so the divine motors should improve its service quality to gain the customer back to improve the profit margin.
- TVS motors as to improve on its service time and also should look after the availability of spare parts in service centres.

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# EFFECTIVENESS OF REWARD SYSTEM ON THE PERFORMANCE LEVEL OF EMPLOYEES AT ADOBE METAL PRODUCTS, BENGALURU.KARNATAKA, INDIA

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## ABSTRACT

Every organization follow their own style of reward system based on the performance of employee. In order to improve effectiveness in performance of employees every organization must strive hard to motivate them. Reward system has seen essential to an organization in managing employee's performance. Rewards which consists of financial rewards and non-financial rewards which motivates employees to work effectively which in turn leads to success for organization. Motivation is the urge to do work efficiently, so in order to motivate employees organization must maintain effective reward system. This research depicts to measure the effectiveness of a rewards system in an organization on employee performance. So that it is an easy way to know about the expectations of employees they are having about reward system. A descriptive research design is formulated to analyze feedback of employees using structured questionnaire and objectives are achieved with the aid of percentage analysis .

**KEYWORDS:** Promotion, Bonus, Best performer, Commission, Recognition, Performance appraisal.

## 1. INTRODUCTION

This study is a learning program which aims to provide the students a chance to consolidate the theoretical knowledge through practical experience. It is a field experience which provides an opportunity to explore and share their insights. The research project is conducted to help the students to understand the working environment of an organization.

The program allows the students to join an organization to learn the inside working condition, how they work, functions of different departments, authority and responsibility in the Metal Fabrication Industry. The Internship program is designed to help a fortune to the student to maximize understanding on the most work experience there into explore. The connection between academic preparation of the students and the outside in the progress and implementation of the most important filtration jointly furnish project that will aid, a good serve their internship experience will conclude.

## 2. STATEMENT OF THE PROBLEM

The Problem being addressed here is both existing and important to every organization. Employees are the principal resource of the organization and these rewards directly affect them. Motivation is an intangible and independent term but Reward systems are objective and clearly defined, and attempt to relate one particular concept to objective concept. Our Study aims to recognize and understand the Effectiveness of Reward System on Performance Level of employees working in Adobe Metals Company.

## 3. NEED OF THE STUDY

This study is designed to determine the Reward System and its impact on performance level of employees. Utilization of new technology and work design must be supported by particular HRM procedures. The work environment and processes support maximum employee contact and flexibility. Planning modifications to the workspace, equipment, and work processes involves the employees. Employees are aware of the role they play in delivering the end goods or services. The data collected was from employees of different departments.

## 4. OBJECTIVES OF THE STUDY

- To study the nature of Reward System present in Adobe Metals Company.
- To analyze the effect of Reward system on the performance level of employee's.



## 5. SCOPE OF THE STUDY

This study has been limited to employees working in “Adobe Metals Company” Byraveshwara industrial estate, Bangalore only. This study is designed to determine the reward system and its impact on performance level of employees. The data collected was from employees of different departments.

## 6. HYPOTHESIS

1. H0: There is no significant relationship between employee’s ability and higher reward System.  
H1: There is significant relationship between employee’s ability and higher reward system.
2. H0: There is no significant association between training encouraging to work better and employees ready to increase work effort to secure more reward..  
H1: There is significant association between training encouraging to work better and employees ready to increase work effort to secure more reward.
3. H0: There is no significant difference between age and promotion of the employees.

H1: There is significant difference between age and promotion of the employees.

## 7. REVIEW OF LITERATURE

1. **Muhammad Ibrar, Khan (2015)** looked on the impact of incentives presentation conflicts in private schools. To ensure the respondents estimation, surveys should be used. It has been established that there is a beneficial relationship between employee performance and reward. In order to improve work presentation and work fulfilment, the association as a whole implemented a reward system.
2. **Emmanuel Erastus Yamoah (2013)** examine the connection between reward system and teacher’s presentation. The data be analyse in requisites of expressive information and Pearson chi square test be use. The result indicate a important connection between teacher’s loot and work presentation. The revise optional that school managing to initiate supplementary reward program such as free lunch and advantageous loans instruct to amplify the presentation of employees.
3. **Nitu Chomal, Papori Baruah (2014)** assured that Performance linked rewards act as motivators for workforce in attractive the presentation. It may be different in the same association based on the dissimilar category of workforce. The learning tries to create in your mind the accessibility of Performance linked reward and job contentment level of workforce transversely the manager and the priestly staff of bank subdivision. They over and done with that as priestly workforce donate their efforts in completion of managerial goals, their job fulfilment level ought to be well occupied think about of.
4. **Richard S Allen, Marilyn M Helms(2001)** describe as regards the connection between recompense practice and secretarial presentation. Many present reward practice have not be intentional to settle on whether their rewards are associated to managerial performance. The conclusion propose that a miniature group of reward practice is concurrent greater supposed directorial presentation. Recommendation for manager as well as suggestion for additional study are provided.
5. **Robert Chenhall, Langfield-Smith (2003)** examine concerning the degree a developed corporation by presentation dimension and a increase contribution reward scheme to attain the planned goals. Increase contribution is a mechanistic shape of manage system which will be well-matched with all the organisation for a spirited surroundings. They finished that readily available have to be a team base structure to harmonize the earnings contribution & maintain promise to intended modify.

## 8. RESEARCH GAP

Many researchers have conducted their survey in the field of effectiveness of reward system on performance of employee stating that reward system is required to increase performance of employee irrespective of organization. Through this research an attempt is made to identify current preferences or desires of employee as reward for their effort on performance in Adobe metal products company. Majority of employee’s desire is to obtain monetary rewards rather than non-monetary rewards.

## 9. TYPE OF RESEARCH

Descriptive research is used to describe characteristics of a population or phenomenon being studied. The goal of descriptive research aims to accurately and systematically describe a population, circumstance, or phenomena. It is capable of providing what, when, where, and how answers. A descriptive research design can use a wide variety of research methods to investigate one or more variables.

## 10. SOURCES OF DATA COLLECTION

### Primary Data

Primary data are first sources from which the analysis directly gathers information hasn’t been gathered. In the current study essential information have been gathered through structured Questionnaire.



### Secondary Data

Secondary data is the information, which has been gathered and well-arranged for another reason. The optional source comprises of promptly accessible and measurable explanations and report whose information might be utilized for research. On the off chance that the information is important for the examination with appropriate reference. Secondary data has been gathered from both outside and inside sources.

### 11. POPULATION AND SAMPLING UNIT

The population and sampling unit consists of all the employees working in Adobe Metals Company. Such as supervisors, managers, assistance managers, engineers, operators etc.

### 12. SAMPLING METHOD

Convenience sampling method is used in the study to collect the data through questionnaire. Employees who were available during my internship tenure.

### 13. STATISTICAL TOOLS AND TECHNIQUES

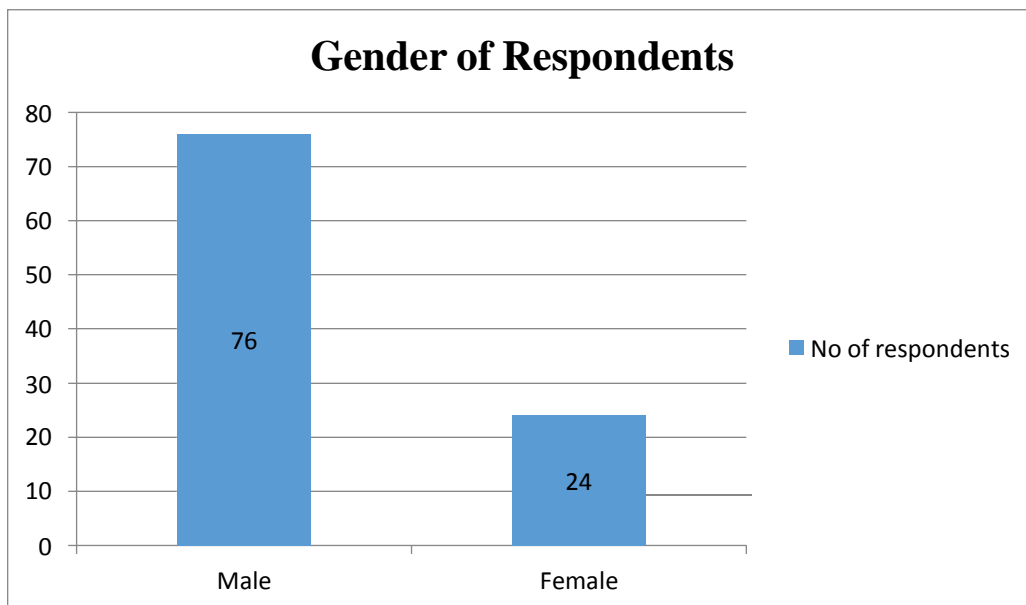
The data collected is represented in the form of tables, charts and graphs. And data is analyzed using statistical tool such as ANOVA, CHI-SQUARE, CORRELATION, WEIGHTED AVERAGE TEST, and DESCRIPTIVE STATISTICS using SPSS software.

### 14. DATA ANALYSIS AND INTERPRETATION

**Table 4.1: Showing Gender of Employees.**

Gender	No of Respondents	Percentage
Male	76	76%
Female	24	24%
<b>Total</b>	<b>100</b>	<b>100%</b>

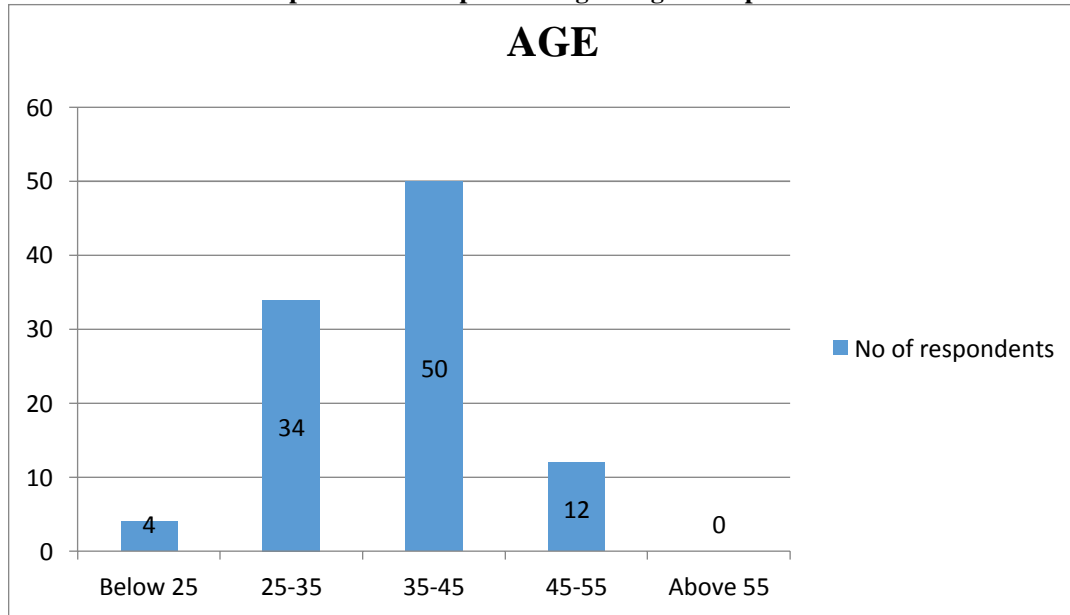
**Graph No 4.1: Graph showing employees respondents on the gender.**



**Interpretation:** The graph indicated that majority of respondents are male, as it is a hardware company other part of respondents are female as in company employment ratio reservation provided to female is less.

**Table4.2: Age of employees.**

Age	No of Respondents	Percentage
Below 25	4	4%
25 - 35	34	34%
35 – 45	50	50%
45 - 55	12	12%
Above 55	0	0

**Graph No 4.2: Graph showing the age of respondents**

**Interpretation:** Above chart shows that mainstream of respondents are belonging to the age group of 35 to 45 years this shows that company has implemented several measures such as bonus, promotion, recognition, best performer in order to appreciate employee performance which encourages them to hold on in the company thus employee retention.

**Table 4.3: Are you aware of the Reward system of your organization?**

Attributes	No of Respondents	Percentage
Yes	82	82%
No	18	18%
<b>Total</b>	<b>100</b>	<b>100%</b>



Graph 4.3: Graph showing employees respondents on aware of reward system in their organization.



**Interpretation:** From the above graph, it can be observed that a majority of employees are aware of the reward system in the organization due to the reason that they might have received the reward benefits, or they have been working since long years in the organization so that they will have an idea of reward benefit. Remaining employees are unaware of the reward system due to the reason that they might have transferred from one branch to another branch of the same organization which differs in reward system.

Table 4.4: Have you received any reward from the organization

Attributes	No of respondents	Percentage
Yes	54	54%
No	26	26%
Maybe	20	20%

Graph 4.4: Graph showing Number of Employee Respondents on Receiving Reward from their Organization



**Interpretation:** From the above graph it is seen that a large amount of respondents have received their reward benefits on the basis of their excellence in performance, which motivates them to work efficiently in turn leads to productivity. Some respondents are not awarded any reward, maybe due to lack of their performance, experience which matters for the sustainability of business and



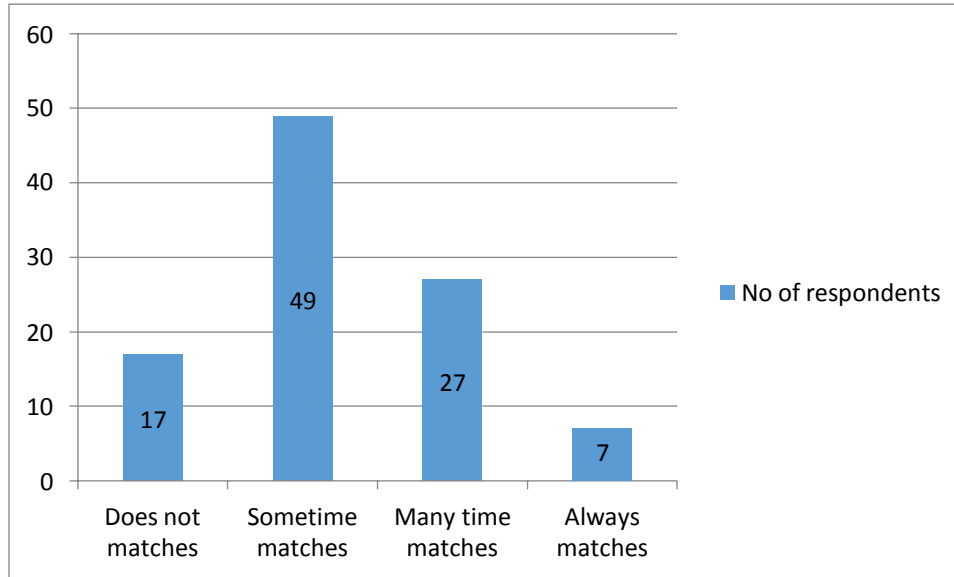


remaining might be awarded any rewards in small manner which they might be aware of it.

**Table 4.5 : Does the offered rewards matches your work efforts**

Attributes	No of respondents	Percentage
Does not matches	17	17%
Sometime matches	49	49%
Many time matches	27	27%
Always matches	7	7%

**Graph 4.5: Graph Showing Employees Respondents on the Offered Reward Matches their Work efforts.**



**Interpretation:** From the above graph it can be inferred that every employees will have their own level of expectations towards rewards system for the work done by them. Organizations should follow accurate reward system that matches employees efforts, if organization delay or provide less reward benefit then it may not matches the employees efforts.

#### **HYPOTHESIS TESTING HYPOTHESIS 1:**

H0: There is no significant relationship between employee's ability and higher reward system. H1: There is significant relationship between employee's ability and higher reward system.

A above hypothesis is tested using correlation.



## Correlations

[DataSet1] C:\Users\Dr.AIT\Desktop\SONNYA GU.sav

### Descriptive Statistics

	Mean	Std. Deviation	N
DOES THE ORGANISATION MAKES THE BEST USE OF EMPLOYEE ABILITIES	2.95	1.067	100
ARE YOU SATISFIED WITH THE EXISTING REWARD SYSTEM IN YOUR ORGANISATION	1.50	.927	100

### Correlations

		DOES THE ORGANISATION MAKES THE BEST USE OF EMPLOYEE ABILITIES	ARE YOU SATISFIED WITH THE EXISTING REWARD SYSTEM IN YOUR ORGANISATION
DOES THE ORGANISATION MAKES THE BEST USE OF EMPLOYEE ABILITIES	Pearson Correlation	1	.056
	Sig. (1-tailed)		.289
	N	100	100
ARE YOU SATISFIED WITH THE EXISTING REWARD SYSTEM IN YOUR ORGANISATION	Pearson Correlation	.056	1
	Sig. (1-tailed)	.289	
	N	100	100

DESCRIPTIVES VARIABLES=Q12.1 Q12.2 Q12.3

/STATISTICS=MEAN STDDEV MIN MAX.

P value=0.56 and Level of significance: 0.01

## INTERPRETATION

Pearson product correlation of employees abilities and reward system was found to be moderately positive and statistically significant ( $P=0.56$ ), hence it is positively correlated. Thus, the increase in higher reward system would lead to employee ability. Hence there is significant relationship between employee's ability and higher reward system.



**HYPOTHESIS:2**

A above hypothesis is tested using descriptive.

**➔ Descriptives**

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**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
BONUS	100	1	4	2.45	.783
PROMOTION	100	2	5	2.96	.816
RECOGNITION	100	1	4	2.69	.813
BEST PERFORMER	100	1	5	2.90	.810
Valid N (listwise)	100				

**INTERPRETATION**

Highest Mean = 2.96

Promotion is highly influencing effectiveness of reward system.Lowest standard deviation = 0.783

Bonus is slightly influencing the effectiveness of reward system.

Therefore, promotion is highly influencing employee’s comp aired to bonus in effectiveness ofreward system.

**HYPOTHESIS 3**

H0: There is no significant association between training encouraging working better andemployees ready to increase work effort to secure more reward.

H1: There is significant association between training encouraging working better and employees

Ready to increase work effort to secure more reward.

A above hypothesis is tested using chi square.



## Crosstabs

[DataSet1] C:\Users\Dr.AIT\Desktop\SOMNIA GF.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
WHAT IS THE BASIS OF REWARD SYSTEM? *DO YOU AGREE THE REWARDS ARE IMPORTANT TO RETAIN HIGH PERFORMER EMPLOYEES	100	99.0%	1	1.0%	101	100.0%

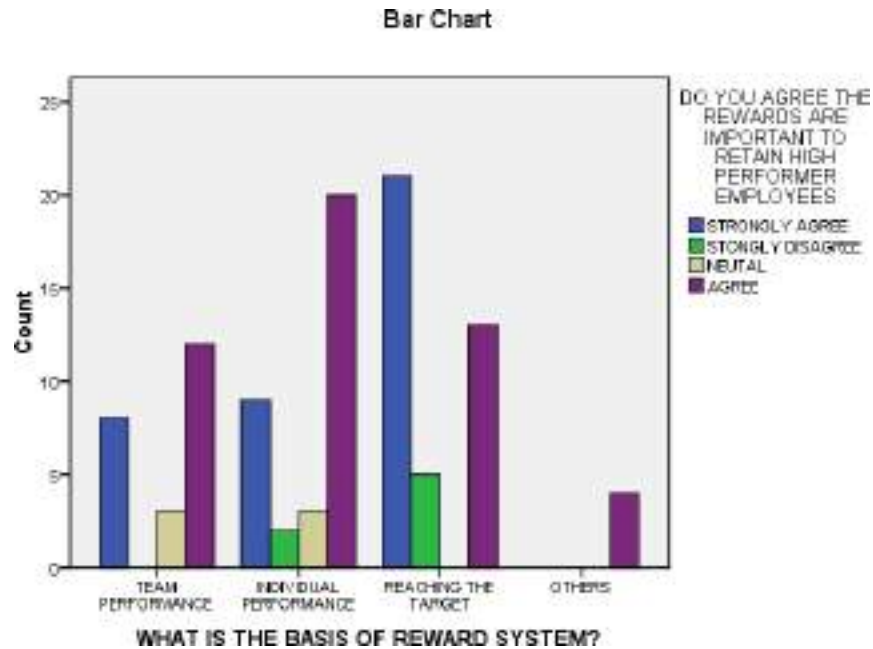
WHAT IS THE BASIS OF REWARD SYSTEM? \*DO YOU AGREE THE REWARDS ARE IMPORTANT TO RETAIN HIGH PERFORMER EMPLOYEES Crosstabulation

Count		DO YOU AGREE THE REWARDS ARE IMPORTANT TO RETAIN HIGH PERFORMER EMPLOYEES				Total
		STRONGLY AGREE	STRONGLY DISAGREE	NEUTRAL	AGREE	
WHAT IS THE BASIS OF REWARD SYSTEM?	TEAM PERFORMANCE	8	0	3	12	23
	INDIVIDUAL PERFORMANCE	9	2	3	20	34
	REACHING THE TARGET	21	6	0	13	40
	OTHERS	0	0	0	4	4
Total		38	7	6	49	100

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.914 <sup>a</sup>	9	.026
Likelihood Ratio	23.648	9	.005
Linear-by-Linear Association	1.316	1	.248
Missing Cases	100		

a. 10 cells (52.5%) have expected count less than 5. The minimum expected count is .34.



P value: 0.026

Level of significance: 0.05(5%)

#### INTERPRETATION

From the above chi-square chart it is observed that, the level of significance is greater than Value. Therefore H1 is accepted and null hypothesis is rejected.

Hence, reward system is associated with retainment of high performance employees.

#### HYPOTHESIS 4:

H0: There is no significant difference between age and promotion of the employees. H1: There is significant difference between age and promotion of the employees.

#### ANOVA TEST

A above hypothesis is tested using Anova.



## Oneway

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### Descriptives

AGE	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					YES	86		
NO	14	2.29	1.204	.322	1.59	2.98	1	4
Total	100	2.70	.732	.073	2.55	2.85	1	4

### ANOVA

AGE	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.784	1	2.784	5.454	.022
Within Groups	50.206	98	.512		
Total	53.000	99			

P value = 0.022

Level of significance = 0.05

## INTERPRETATION

As Level of significance is greater than p value therefore H1 is accepted. Hence there is a Significant difference between age and promotion.

## 6. WEIGHTED AVERAGE TEST:

This test is carried considering six variables as mentioned in factors column of below mentioned table in order to determine which among them are prioritized as per employees.

### Interpretation

Grand total=2079

Factors	Very important	Important	Neutral	Unimportant	Very unimportant
Extra allowance	6*5 =30	33*4 = 132	61*3 =183	0*2 = 0	0*1 = 0
Commission	14*5 =70	32*4 =128	47*3 =141	3*2 =6	4*1 =1
Profit share	0*5 =0	31*4 =124	54*3 =162	4*2 =8	11*1 =11
Financialreward	15*5 =75	71*4 =284	5*3 =15	5*2 =10	4*1 =4
Non-financial reward	17*5 =85	39*4 =156	28*3 =84	13*2 =26	3*1 =3
Others rewards	15*5 =75	39*4 =156	22*3 =66	17*2 =34	7*1 =7

1. Extra allowance:  $345/2079 = 0.165$
2. Commission:  $349/2079 = 0.167$
3. S Profit share:  $305/2079 = 0.146$
4. Financial reward:  $388/2079 = 0.186$



5. Non-financial reward:  $354/2079 = 0.1706$ . Others rewards:  $338/2079 = 0.162$

From the above WACC test it can be interpreted that financial reward with 0.186 is strongly influencing among different types of reward system. Therefore financial reward system extremely motivates employees.

## FINDINGS OF THE STUDY

- It is observed that 76% of respondents are male and 24% of them are female.
- It is seen nearly half of the respondents are between the ages of 35 and 45, while 34% of the respondents are of age 25-35 years, 12% of them are 45 to 55 years and 4% of them are below 25 years
- It is understood that 82% of respondents are aware of the organization reward system and 18% of them are unaware of the reward system.
- It is implied that 54% of employees had received reward from the organization, 26% of them haven't received any reward and remaining 20% of them have responded as may be.
- It is defined that 35% of respondent agree that reward has positive effect sometimes, 25% of them it many time effect and 22% of them say it does not effect the work atmosphere.

## CONCLUSION

It can be concluded that the organization contains greater part of male employees who are belonging to the age group of 35 to 45 years. A highly motivated workforce is critical to a company's success. Large amount of employees have received their reward benefits on the basis of their excellence in performance, this shows that company has implemented several measures such as bonus, promotion, recognition, best performer in order to appreciate employee performance. Employees are awarded with high reward system, they would feel more enthusiastic to work in the organization for long period with the same efforts. Employees are more driven to work at a higher level of efficiency, which allows the company to achieve its goals more efficiently and effectively. Employees goals are mutually discussed with supervisors that aids employees to work as per the systematic plans which in turn leads to the attainment of reaching the goal. Listening to their issues which helps to build confidence for employees and

Rectifying the issues by providing appropriate solutions increases productivity and profitability.

## SUGGESTIONS

The company has to consider offering more training chances to motivate the staff to produce better work. Employees should have specific goals that are created and regularly reviewed. In order to boost employee happiness and retain cohesion among workers, the company can give the majority of team performance based reward systems, which helps to cover most of the workforce. According to study, the majority of employees said that bonuses, promotions, and recognition are fine, but that the organization should make a few improvements to make them even better. According to employee comments, only sometimes do awards correspond to the work they put in, thus going forward, the business needs to concentrate on giving out prizes for tasks completed by employees. The organization must primarily concentrate on each employees unique strengths, which enable them to readily recognize and reward the staff. The organization needs to priorities 360 degree performance reviews more.

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# ANALYSIS OF EXPENDITURE FOR DENTAL PRACTICE DURING COVID 19: PANDEMIC SITUATION IN KOTTAYAM AND CHENNAI – A COMPARATIVE SECTIONAL STUDY

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## ABSTRACT

The study was an attempt to know the expenditure analysis for practising dentistry in COVID-19 by the dentists residing and practising in Kottayam and Chennai.

This study enlightens us about the difference and the negative aspects of how COVID 19 has caused drastic changes in expenses regarding practising dentistry during the pandemic.

The study was conducted in the form of a questionnaire survey that was distributed to various dental clinics in Kottayam and Chennai. The study was conducted from April 2021 - June 2021 by selecting random Chennai and Kottayam dental clinics.

A list of twenty-one open-ended questions was framed related to the cost of the materials, their availability, any hike or surge in the consultation fees, number of patients, and changes in electricity bill, before and during COVID. A total of 50 dentists responded each from Kottayam and Chennai, respectively. The overall chi-square analysis P-value was <0.05, considered statistically significant.

The pandemic has worked as a slow poison and gradually caused too many complications for the patient and the dentist, as due to the increase in protective measures done by the operator, the expense has reflected in treatment as well as the total cost for the treatment also, causing drastic changes in the affordability for effective and various treatment options. Furthermore, the high demand and inefficient supply of materials have also been a prominent aspect of this change.

The overall conclusion of this study shows us the percentage and the chi-square. The overall P-value by chi-square analysis was <0.05, considered statistically significant.

**KEYWORDS:** COVID 19 pandemic, COVID 19 expenditure, dental practice during COVID 19, the Kottayam pandemic situation in Chennai, and the comparative sectional study of COVID 19.

## INTRODUCTION

COVID -19, an unexpected guest, first came to light on November 17 2019. A 55-year-old from Hubei Province in China was suspected, per the South China Morning Post<sup>1</sup>. The virus was supposed to be stemmed out of the wet market in Wuhan, and scientists also suspected it originated from the bats and somehow passed on to other animals such as the pangolin, which then passed it on to humans and in the current scenario, the disease is spreading between people without any animal intermediary<sup>2</sup>. As per records of late 2019, the pandemic has spread over 185 countries, with over 2.6 million

cases individuals have been infected and over 180000 have died.

COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization.<sup>3</sup> Experience with SARS and the 2009 influenza pandemic showed that containment could buy us some time<sup>4</sup>

Most common symptoms: Fever, dry cough, tiredness. Less common symptoms: aches and pains. Sore throat, Diarrhoea, Conjunctivitis, headache. Loss of taste or smell. A rash on the skin or discolouration of fingers or toes. Serious





symptoms: difficulty breathing or shortness of breath, chest pain or pressure, loss of speech or movement.

COVID 19 pandemic has become a real-life threatening issue for health care workers around the globe and has caused serious consequences for dental practitioners. As regular dental care has been put to a stop in the country due to this pandemic, only the urgent cases are being considered by the dental team with the required personal protective equipment making it a little difficult to manage yet effective and providing safe delivery of dental treatment. As a result, a nationwide lockdown was put in place on March 24 2020, restricting the movement of about 1.38 billion population of India<sup>5</sup>.

COVID-19 has not only killed people by virus incursion but also due to economic and mental collapse, where developing countries suffered from unemployment and hunger. India enforced 68 days of four-phased-lockdown from March 24 to May 31 to deal with COVID-19<sup>6</sup>. In the beginning, coronavirus cases in India happened due to the abroad connection rather than transmission within the country. The first three infection cases occurred on January 30 and February 3 in Kerala as they returned from Wuhan<sup>7</sup>. The main aim of this study is to compare and analyze the expenditure for practising dentistry in Chennai and Kottayam during the Covid 19 pandemic.

## MATERIALS AND METHOD

A cross-sectional study was conducted to analyse expenditure for dental practice due to covid-19 among the dentists residing and practising in Kottayam and Chennai. Ethical Clearance was taken obtained from the Department of

## RESULTS

Public Health Dentistry, SRM Dental College and Hospital Ramapuram. The study was conducted from April 2021 - June 2021 by selecting random Chennai and Kottayam dental clinics. A list of twenty-one open-ended questions was framed related to the cost of the materials, their availability, any hike or surge in the consultation fees, number of patients, and changes in electricity bill, before and during covid, respectively. The dentist acknowledged questions prepared in the form of google forms. The study also highlights the facts about the patient response to the treatment and the precautions and changes brought by the practitioners, as in this case, the dentists, while conducting the treatment and the patient flow in the clinic regularly. Materials cost and availability also play a strong role in figuring out the average expense as it differs from one supplier to another.

A total of 50 dentists responded from Kottayam and Chennai each. As observed in Chennai, the years of practising experience were a maximum of 6-10 years [46%], and most dentists [76%] had one clinic. It was found that during the covid time, the patient flow was more when compared to pre covid time, and the electricity bill was more during the covid time. After analyzing the received data from Kottayam, it was observed that the years of practising experience were maximum of 6-10 years [40%], and most dentists [80%] had one clinic. It was found that during the covid time, the patient flow was more than pre covid time. In addition, the electricity bill was higher during the covid time. A Chi-square test was performed on the utilization of dental services in Chennai and Kottayam. The P-value <0.05 was considered to be statistically significant.

Figure 1: Distribution of study participants included in the study

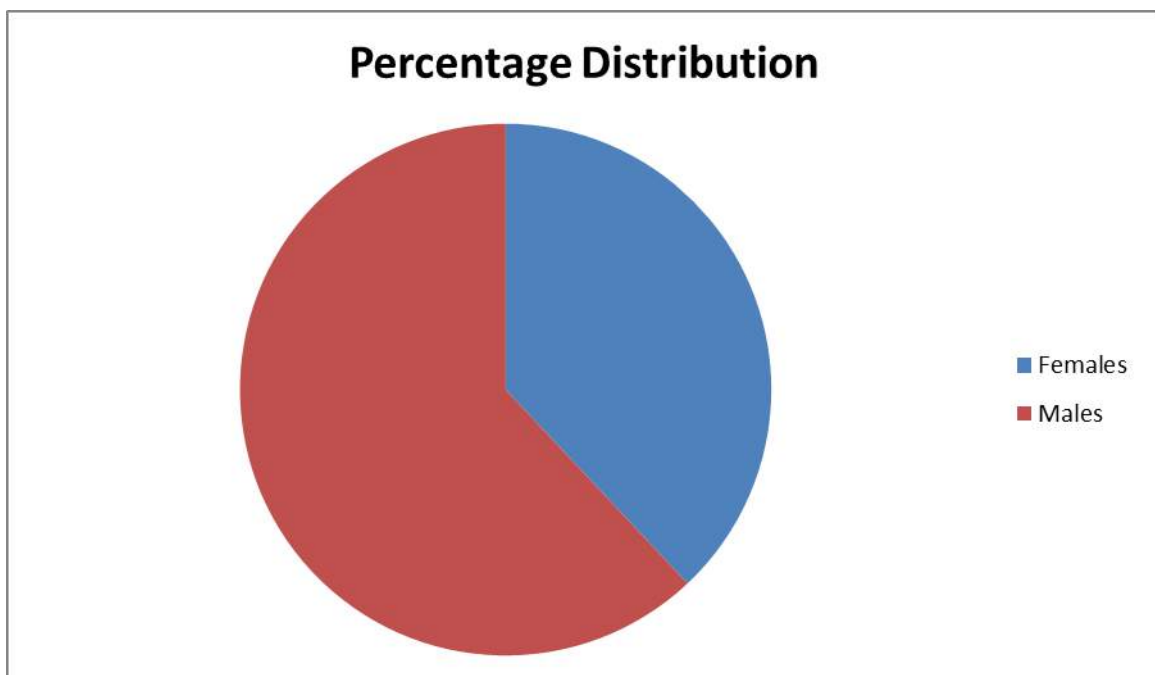


Figure 1 shows the distribution of study participants included in the study. It was found that 62% of males and 38% of females were included in the study.

**Figure 2: Distribution of study participants included in the study residing in Chennai and Kottayam**

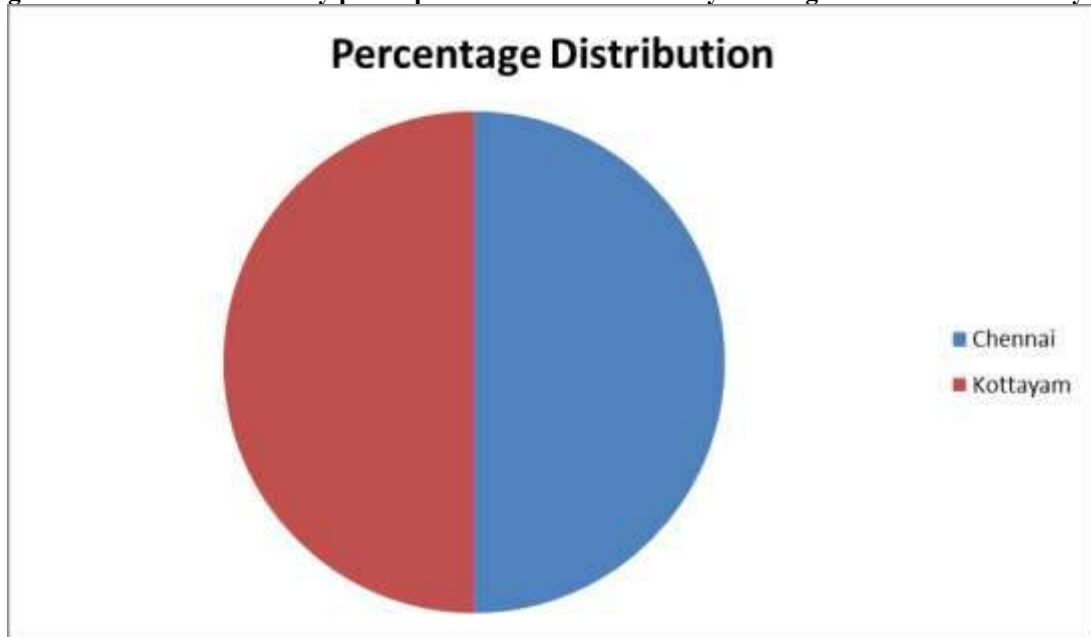


Figure 2 shows the distribution of study participants included in the study residing in Chennai and Kottayam.

Again, equal distribution was found among the Chennai and Kottayam resident.

**Table 1: Descriptive statistics on the utilization of dental services among the study participants residing in Chennai**

S. No.	QUESTIONNAIRE	OPTIONS	Study participants residing in Chennai (n-50)		Study participant residing in Kottayam (n-50)
			Frequency (n)	Percentage (%)	Frequency (n)
1.	How many years have you been practising dentistry	<b>1-5 years</b>	10	20.0	12
		<b>6-10 years</b>	23	46.0	25
		<b>11-15 years</b>	2	4.0	2
		<b>More than 15 years</b>	15	30.0	15
2.	How many dental clinics do you have	<b>One</b>	38	76.0	40
		<b>Two</b>	7	14.0	6
		<b>Three</b>	4	8.0	3
		<b>More than three</b>	1	2.0	1
3.	Average patient flow per month before COVID	<b>Less than 25</b>	6	12.0	10
		<b>25-50</b>	32	64.0	15
		<b>51-75</b>	7	14.0	20
		<b>More than 75</b>	5	10.0	5
4.	Average patient flow per month during COVID	<b>Less than 25</b>	36	72.0	8
		<b>25-50</b>	10	20.0	15
		<b>51-75</b>	2	4.0	22
		<b>More than 75</b>	2	4.0	5
5.	Total number of appointments given per day before COVID 19	<b>Less than 5</b>	22	44.0	15
		<b>5-10</b>	23	46.0	30



		<b>11-20</b>	4	8.0	4
		<b>More than 20</b>	1	2.0	1
6.	Total number of appointments given per day during COVID 19	<b>Less than 5</b>	20	40.0	12
		<b>5-10</b>	21	42.0	32
		<b>11-20</b>	8	16.0	5
		<b>More than 20</b>	1	2.0	1
7.	Did you experience any financial burden or construction? rent, material cost and supply) due to the current COVID situation? if yes, kindly mention	<b>Yes</b>	40	80.0	40
		<b>No</b>	10	20.0	10
8.	Patient Response to the Treatment and Appointment	<b>Positive</b>	42	84.0	43
		<b>Negative</b>	8	16.0	7
9.	Type of patient drape you use	<b>Disposable</b>	39	78.0	36
		<b>Reusable</b>	7	14.0	10
		<b>Both of the above</b>	4	8.0	4
10.	If disposable, please mention the cost per piece	<b>Less than 4 rupees</b>	29	58.0	24
		<b>5-10 rupees</b>	16	32.0	18
		<b>11-20 rupees</b>	4	8.0	6
		<b>More than 20 rupees</b>	1	2.0	1
11.	If reusable, please mention the cost per piece	<b>Less than 100</b>	27	54.0	24
		<b>100-200</b>	16	32.0	18
		<b>&gt;200-500</b>	5	10.0	6
		<b>More than 500</b>	2	4.0	2
12.	Number of glove boxes per month Before COVID 19	<b>Below 3</b>	40	80.0	36
		<b>3-5</b>	6	12.0	8
		<b>More than 5</b>	4	8.0	6
13.	Number of glove boxes per month during COVID 19	<b>Below 3</b>	17	34.0	34
		<b>3-5</b>	30	60.0	7
		<b>More than 5</b>	3	6.0	9
14.	How often did you sterilize the dental clinic (pre-COVID)	<b>Once a day</b>	12	24.0	12
		<b>Alternative day</b>	26	52.0	28
		<b>One a week</b>	10	20.0	8
		<b>Twice a week</b>	2	4.0	2
15.	How often do you have to sterilize the dental clinic during COVID	<b>Once a day</b>	12	24.0	32
		<b>Alternative day</b>	26	52.0	10
		<b>One a week</b>	10	20.0	4
		<b>Twice a week</b>	2	4.0	4
16.	Patient consultation fee (pre-COVID)	<b>100</b>	12	24.0	10
		<b>100-200</b>	27	54.0	29
		<b>200-300</b>	11	22.0	11
		<b>More than 300</b>	0	0	0
17.	Any increase in the consultation fees during Covid 19? (If yes, please mention the amount)	<b>200</b>	9	18.0	7
		<b>200-300</b>	41	82.0	43
		<b>300-400</b>	0	0	0
		<b>More than 400</b>	0	0	0
18.	Number of sanitisers \ sterilium bottles used per week	<b>Less than 1</b>	3	6.0	3
		<b>2 bottles</b>	26	52.0	26
		<b>2-4 bottles</b>	16	32.0	12
		<b>More than 4 bottles</b>	5	10.0	9
19.	PPE kit cost per piece by Your	<b>Less than 30</b>	4	8.0	3



	supplier	<b>31-50</b>	16	32.0	29
		<b>51-60</b>	13	26.0	9
		<b>More than 60</b>	17	34.0	9
20.	Average electricity bill (Pre Covid)	<b>Less than 1500</b>	10	20.0	20
		<b>1500-3000</b>	20	40.0	13
		<b>3000-6000</b>	18	36.0	15
		<b>More than 6000</b>	2	4.0	2
21.	Electricity bill average during COVID	<b>Less than 1500</b>	7	14.0	10
		<b>1500-3000</b>	21	42.0	19
		<b>3000-6000</b>	19	38.0	19
		<b>More than 6000</b>	3	6.0	2
22.	Do you sanitize the clinic by any enterprise	<b>Yes</b>	47	94.0	44
		<b>No</b>	3	6.0	6

Table 1 shows descriptive statistics on the utilization of dental services among the study participants residing in Chennai. The years of practising experience were maximum with 6-10 years (46%), and a greater number of dentists (76%) had one clinic. It was found that during the covid time, the patient flow was more went compared to pre-covid time. The electricity bill was found to be more during the covid time. The years of practising experience

were maximum with 6-10 years (40%), and a greater number of dentists (80%) had one clinic in Kottayam. It was found that during the covid time, the patient flow was more went compared to pre-covid time residing in Kottayam. The electricity bill was higher during the covid time in Kottayam.

**Table 2: Chi-square test was performed on utilization of dental services among the Chennai and Kottayam**

S.no	QUESTIONNAIRE	P-value
1.	How many years have you been practising dentistry	>0.05
2.	How many dental clinics do you have	>0.05
3.	Average patient flow per month before COVID	<0.05*
4.	Average patient flow per month during COVID	<0.05*
5.	Total number of appointments given per day before COVID 19	<0.05*
6.	Total number of appointments given per day during COVID 19	<0.05*
7.	Did you experience any financial burden or constraints (rent, material cost and supply) due to the current COVID situation? if yes, kindly mention	>0.05
8.	Patient Response to the Treatment and Appointment	>0.05
9.	Type of patient drape you use	>0.05
10.	If disposable, please mention the cost per piece	>0.05
11.	If reusable, please mention the cost per piece	>0.05
12.	Number of glove boxes per month Before COVID 19	>0.05
13.	Number of glove boxes per month during COVID 19	>0.05
14.	How often did you sterilize the dental clinic (pre-Covid)	>0.05
15.	How often did you sterilize the dental clinic during Covid	>0.05



16.	Patient consultation fee (pre-Covid)	>0.05
17.	Patient consultation fee during Covid	>0.05
18.	Number of sanitizers \ steriliium bottles used per week	>0.05
19.	PPE kit cost per piece by Your supplier	>0.05
20.	Average electricity bill (Pre Covid)	<0.05*
21.	Average electricity bill during COVID	<0.05*
22.	Do you sanitize the clinic by any enterprise	>0.05

Table 2 shows the Chi-square test was performed on the utilization of dental services in Chennai and Kottayam. The P-value <0.05 was considered to be statistically significant.

### DISCUSSION

Covid 19 is a zoonotic virus reported to be originated from animals. The rapid spread of the virus has led to drastic changes in the daily lifestyle of the regular crowd, people working in various other sectors and especially the health workers. COVID 19 pandemic has become a real-life threatening issue for health care workers around the globe and has caused serious consequences for dental practitioners. As regular dental care has been put to a stop in the country due to this pandemic, only the urgent cases are being considered by the dental team with the required personal protective equipment making it a little difficult to manage yet effective and providing safe delivery of dental treatment. The study was an attempt conducted to know the expenditure analysis for practising dentistry in Covid-19 by the dentists residing and practising in Kottayam and Chennai and found that the overall value by chi-square analysis the P-value <0.05 was considered to be statistically significant. It was found that 62% of males and 38% of females were included in the study. When the comparative analysis was done between the dentist in Kottayam and Chennai, it was found that in the case of Chennai, about 46 % of the dentist are practising dentistry for the past 6-10 years, and the average patient flow before covid was maximum of about 64 % that wasthe average.

The questionnaire study included a set of questions regarding the expense related to the material cost, supply, and basic equipment. It was found that the total number of appointments in a range of less than 5 dropped from 44 to 40%, 5-10 patients per day reduced from 46 – 42%. Almost 80% of the dental clinics in Chennai faced a financial crisis that included the building rent, supply of materials and the increase in the material cost that may have hampered the total expense. Also, before covid-19, 80% of the clinics used glove boxes in the range of less than three; that increased to 3-5 boxes by 60% of the clinics, indicating the increase in usage of the gloves

as the increase in the expense was also reflected when the study covered the data of consultation fees charged by the clinics, which indicated that about 54% were charging between the range of 100 to 200 range before the covid 19, which increased by 82% in the range of 200-300.

According to the research done on “Modeling the Impact of COVID-19 on dental Insurance and Utilization<sup>8</sup>”, more than 20.5 million jobs have been lost over the past two months due to the sudden strike of the pandemic in 2019, raising the United States unemployment rate to 14.7% as of April 2020, also accompanied by uncertainties and severe financial losses associated with loss of employment, employees losing their employer-sponsored dental insurance.

According to the research done on the “Impact on dental Economics and dental healthcare utilization<sup>9</sup>” in covid 19 covers about the employment for the dental practitioners the economic impact of covid 19 can jointly affect the dentist., as it has caused a reduction in the dental service utilization, the consumer of dental services avoid dental visits to prevent getting effected from the Covid-19 Infection, also the fee for the dental service, the most of it comes from employer-based dental insurance and the pocket, in such situation the utilization of the service is highly based on employment rates that naturally generates disposable income. Furthermore, the research also covers the impact the dental education as they were temporarily suspended for a while, and the teaching part was completed virtually.

This has made a large negative impact on the teaching-learning experience in dental schools. Similarly, as we can observe in my research, the expenditure has increased due to the extra protective measures in the dental treatment, but the patient count has decreased.

“Modeling the impact of Covid -19 on U.S. Dental spending -June 2020<sup>10</sup> updates about the guidelines proposed by the American Dental Association {ADA} issued on march 16,2020 guidance that only to give attention and provide services to the emergency cases and on April 1, 2020, ADA extended these guidelines and suggested to postpone the cases that include radiographs, oral examination aesthetic dentistry, routine cleaning etc., this reflects the limitations experienced by the patient as well as the dentist due to the pandemic, urgent care was given as the first and foremost priority that included uncontrolled bleeding, facial trauma, tooth fractures and biopsies of abnormal tissues[1]. Similarly, as as observed in my study, the appointments given during the covid 19 pandemic have risen. This may be due to giving priority to emergency cases first and then the remaining regular dental procedures. As far as unemployment is concerned in April, according to the Congressional budget office (CBO) the unemployment peaked at 14.7 percent before declining to 13.3 per cent in May, which also reflects the negative impact of the pandemic in the U.S.



## CONCLUSION

The research shows various aspects of the pandemic, causing drastic changes in the field of dentistry and also as how the uninvited guest has increased the quality as well as methods and priority of treatment, starting from the basic to most complex procedure to increase in precaution and safety protocols against the virus for the operator as well as the patient has increased exponentially.

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# A STUDY ON LEVEL OF ACCEPTANCE TO COPE UP THE CHALLENGES OF CORPORATE RETAILING IN SALEM CITY

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## ABSTRACT

Growth of Retail Companies in India exhibits the boom in the retail industry in India over the years. The increases in the purchasing power of the Indian middle classes and the influx of the foreign investments have been encouraging in the Growth of Retail Companies in India. The retail companies are found to be rising in India at a remarkable speed with the years and these have brought a revolutionary change in the shopping attitude of the Indian consumers. Objectives of the study, To analyse level of acceptance to cope up the challenges of corporate retailing in Salem City. Methodology of this study, The respondents belonging to Salem town region, Salem. The study examines primary as well as secondary data. The researcher collected data by using a convenience sampling method. The researcher conducted the survey for 6 months i.e., from January 2022 to June 2022. Suggested this study, A number of them were convinced that mega-retailers were receiving tax incentives and various types of tax breaks for which local small owners were not being compensated; they were also questioning the local support provided by mega-retailers in terms of charities, sponsorships, give-always and other demonstrations of good corporate citizenship. Conclude this study, Most of the organized retailing in India have started recently and is concentrating mainly in metropolitan cities. The growth in the Indian organized retail market is mainly due to the change in the consumer's behaviour.

**KEYWORDS:** Corporate Retailer, Coping strategies, etc.,

## 1.1 INTRODUCTION

Growth of Retail Companies in India exhibits the boom in the retail industry in India over the years. The increase in the purchasing power of the Indian middle classes and the influx of the foreign investments have been encouraging in the Growth of Retail Companies in India. Growth of Retail Companies in India is not yet in a matured stage with great potentials within this sector still to be explored. Apart from the retail company like Nilgiri's of Bangalore, most of the retail companies are sections of other industries that have stepped in the retail sector for a better business. The growth of Retail Companies in India is most pronounced in the metro cities of India. However the smaller towns are also not lagging behind in this. The retail companies are not only targeting the four metros in India but also is considering the second graded upcoming cities like Ahmedabad, Baroda, Chandigarh, Salem, Cochin, Ludhiana, Pune, Trivandrum, Simla, Gurgaon, and others. The South Indian zone have adopted the process of shopping in the supermarkets for their daily requirements and this has also been influencing other cities as well where many hypermarkets are coming up day to day.

## 1.2 STATEMENT OF THE PROBLEM

The retail companies are found to be rising in India at a remarkable speed with the years and these have brought a revolutionary change in the shopping attitude of the Indian consumers. The growth of Retail Companies in India is facilitated by certain factors like - Existing Indian middle classes with an increased purchasing power, Rise of upcoming business sectors like IT and engineering firms, Change in the taste and attitude of the Indians, Effect of globalization and Heavy influx of FDI in the retail sectors in India. To get further details on the growth of Retail Companies in India and other retail chain of companies in India,

## 1.3 OBJECTIVES OF THE STUDY

1. To analyse level of acceptance to cope up the challenges of corporate retailing in Salem City

## 1.4 RESEARCH METHODOLOGY

The Methodology to be adopted for a particular area would depend upon the purpose and objectives to be achieved. Based on the objectives and the hypothesis to be tested, the required data have been gathered from both primary and secondary sources. The scope of the study is confined to Salem town area's organized retail sectors. The respondents belonging



to Salem town region, Salem. The study examines primary as well as secondary data. The researcher collected data by using a convenience sampling method. The researcher conducted the survey for 6 months i.e., from January 2022 to June 2022.

### 1.5 ANALYSIS AND INTREPRETRATION

The Friedman test ranks the scores in each row of the data file independently of every other row. The Friedman chi-square tests the null hypothesis that the ranks of the variables do not differ from their expected value. For a constant sample size, the higher the value of this chi-square statistic, the larger the difference between each variables rank sum and its expected value.

**TABLE 1**  
**FRIEDMAN RANK TEST – MEAN RANK – LEVEL OF ACCEPTANCE ON THE FOLLOWING IN ORDER TO COPE UP THE CHALLENGES OF CORPORATE RETAILING**

S.NO.	FACTORS	STD DEVIATION	MEAN VALUE	RANK
1	Small traders need to update the current business news	.800	8.86	1
2	Small traders need to know the business practices of the closest competitors	.851	7.99	8
3	Small traders need to observe the government budget every year to aware of policies that affect the business	.829	7.78	11
4	Making change is required to satisfy consumers	.826	8.04	6
5	Introduction of new methods of consumer service is required	.740	8.55	3
6	Looking for other avenues is necessary, when the present business is not sustainable for long run	.949	8.41	5
7	Use of technology is inevitable to cope up the challenges of corporate retailing	.781	7.42	13
8	Use of modern operations will enhance small retail outlets	.800	8.77	2
9	Making the store more modern by interiors is necessary to attract consumers	.861	7.05	15
10	Small traders have to get good deals from suppliers even when corporate retailers come in	.793	8.43	4
11	Small traders can become a franchisee of corporate retailers	1.082	7.21	14
12	Quality of consumer service is required to cope up the challenges of corporate retailing	.832	7.98	9
13	Small traders need to hire competent sales force	.919	8.00	7
14	Small traders shall develop joint buying by group of retailers or wholesale chain	.971	7.75	12
15	Small traders can match competitor and corporate retail prices	.830	7.80	10

Source: Primary Data

This table lists the mean rank of each variable. Low rank corresponds to the higher values of the variables. Here price have lower values than the other variables with the mean value of 2.28. Easy delivery has larger values than the other variables with the mean value of 5.46. The Friedman test determines if the average ranking differs across variables. Here respondents

chose the preference of spending through debit or credit cards at Departmental Store.

**Ho:** There is no significant difference between mean ranks for respondent's level of acceptance to cope up the challenges of corporate retailing.





**TABLE 2**  
**FRIEDMAN TEST**

<b>No of respondents</b>	<b>200</b>
<b>Calculated value</b>	<b>46.754</b>
<b>Df</b>	<b>14</b>
<b>Asymp. Sig.</b>	<b>.000</b>

This table lists the result of the Friedman test. For these rankings, the chi-square value is 46.754, Degree of freedom is equal to the number of values minus 1. As 15 spending options are ranked, there are 14 degrees of freedom. It is clear from the above table that significance level is 0.000 at 5 per cent level of significance. Hence the hypothesis is rejected. At least one of the variables differs from the others.

### 1.6 SUGGESTIONS

- ❖ Small traders must open their shops earlier as corporate retailers open their retail outlets after 9 a.m only. If small traders open their shops by 6 a.m, they can do good business during these three hours.
- ❖ Small traders must have regular contact with their consumers as most consumers purchase certain provision items whenever they require if small traders have regular contacts with their regular buyers, they know the needs of these consumers. From the findings of the study, it is suggested that if small traders have their shops near these corporate retail outlets, Consumers seeking to purchase one or two items will be tempted to go to the small shops as it will take a long time to go to retail outlet to purchase the same.
- ❖ Small traders must maintain the quality of their goods so that the regular buyer base can be maintained and consumers are satisfied with the products purchased.
- ❖ Small traders should check frequently the expiry dates of the goods.
- ❖ If there is better credit availability to small traders from banks and micro –credit institutions the financial needs of the small traders will be met and they can compete with corporate regarding pricing and quality of goods.
- ❖ A private code of conduct may be formulated by small traders for dealing with suppliers and consumers so that both consumers and traders will be benefit.
- ❖ Smaller traders are well aware of their competitive position and adopt adequate marketing strategy responses to their new competition. However, many of the respondents were not properly informed of the role played by the local government and other levels of government respectively to the mega-retail situation. A number of them were convinced that mega-retailers were receiving tax incentives and various types of tax breaks for which local small owners were not being compensated; they were also questioning the local support provided by mega-retailers in

terms of charities, sponsorships, give-always and other demonstrations of good corporate citizenship.

### 1.7 CONCLUSION

Indian organized retail market is growing at a fast pace due to the boom in the Indian retail industry. In 2005, the retail industry in India amounted to 10,000 billion accounting for about ten per cent to the country's GDP. The organized retail market in India out of this total market accounted for ` 350 billion which is about 3.5 per cent of the total revenues. Retail market in the Indian organized sector is expected to cross ` 1000 billion by 2010. Traditionally the retail industry in India was largely unorganized, comprising of drug stores, medium, and small grocery stores. Most of the organized retailing in India have started recently and is concentrating mainly in metropolitan cities. The growth in the Indian organized retail market is mainly due to the change in the consumers behaviour. This change has come in the consumer due to increased income, changing lifestyles, and patterns of demography which are favourable.

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# INFLUENCE OF GENERAL WELL-BEING IN RELATION TO SOCIAL SKILL AMONG SECONDARY SCHOOL STUDENTS

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## ABSTRACT

The present study was conducted with the purpose to see Influence of General well-being in relation to social skill among secondary school students. The present study was conducted to a randomly selected sample of 100 secondary school students of Sonipat district in Haryana. General well-being developed by Dr. Ashok K. Kalia and standardized by Anita Deswal, 2010 and social skill developed by Dr. Vishal Sood, Dr. Arti Anand. And Suresh Kumar, 2012 tools were used for the collecting of data in the present study. The data were analyzed by employing mean, SD, t-test. The results of the study showed no significant difference and relation are found in the General well-being and social skill of boys and girls of secondary schools.

## INTRODUCTION

Well-being is often described as the state of being comfortable, healthy or happy. People who enjoy high levels of well-being are described as flourishing. In this context, flourishing means that the person enjoys feelings of happiness, contentment. Tables are engaged fully with what is going on around them. Flourishing also needs functioning well in the world. The person experiences positive relationships and some control over their life and has a sense of purpose. Well-being, therefore, isn't simply the opposite of ill being. Just looking at what causes distress won't necessarily help us to identify the factors. Give rise to well-being. Many researchers in the field of worked over many years to be able to more closely define well-being, for many agree that it is a global assessment of a personal quality of life according to his or her own chosen criteria. The World Health Organization agreed that this is a broad ranging concept affected in a complex way by the person's physical health, psychological state or personal beliefs, social relationships and their relationship to features of their environment. Understanding the role of our environments and in particular our built environment, is an important area of research as we spend up to 90% of our time either inside buildings or vehicles.

Social skills are the ways in which you behave, talk and play when you're around other people. It's how good of a job you do. Having conversations, understanding people's feelings and behaving when you're in certain places. Social skills are important because they help you know what to do or say to get

along better with the kids and adults that you interact with every day. Learning to get along with others will also be very important in your life as you get older. A social cue is a clue that lets you know how someone else is feeling. This can be a person's body language. The look on their face, their tone of voice, or how close or far they stand from you. Every year sees that someone is feeling sad. For some kids, learning social skills can be really challenging because it's hard for them to understand how others are thinking or feeling. They also have a difficult time knowing what to say or how to act in different situations. Since we spend a lot of time around other people, it's always helpful to try to improve your social skills. Social skills are all about how your words and actions affect other people when you're around others, you should always think to yourself is what I'm about to say or do. You can make better social skills choices. Like using your manners or playing nicely with others. Empathy is being able to understand how someone might be thinking or feeling. We can tell how others are feeling by their social cues. Start paying attention to people's faces and body language to get a better idea of how they might feel. Using empathy helps you to better get along with others. Some kids have negative thoughts about themselves whenever they get around other people. These thoughts can keep them from wanting to interact with other kids or adults. If this happens to you, practice replacing those negative thoughts with positive ones. Doing so can help you feel more confident when you're in social situations.



### REVIEW OF RELATED STUDIES

A.S. ARUL LAWARENCE, 2017. “General well-being of higher secondary students”. The investigator has selected a sample of 200 higher secondary school students who were studying 11<sup>th</sup> and 12<sup>th</sup> standards from four different schools in Cheranmadhevi Educational District, Tirunelveli by convenient sampling technique.

Minoo Daraee, Keyvan Salehi an Maryam Fakhr, 2016 “Comparison of Social Skills Between students in Ordinary and Talented Schools”. The statistical sample of the present investigation comprised female high school students in the province of Alborz, in which 200 students were selected from eight ordinary schools and 8 exceptional talent schools through cluster sampling.

### JUSTIFICATION OF THE STUDY

General well-being is a positive outcome that is important and meaningful for people. Good living order are fundamental to well-being. Well-being generally includes global Judgments of life satisfaction and feeling ranging from depression to joy. Social skills are helps us to communicate each other. Social skills are help us to understand each other feelings and happily adjust in society. So, the study is more necessary for the secondary school students to understand each other's feelings and stay healthy. The study is important for their personal and professional life.

### STATEMENT OF THE PROBLEM

“INFLUENCE OF GENERAL WELL-BEING OF SOCIAL SKILL OF SECONDARY SCHOOL STUDENTS”

### OBJECTIVE OF THE STUDY

1. To find out the general well-being of boys and girls of secondary school students.
2. To find out the social skills of boys and girls of secondary school.
3. To study the relationship between General well-being and social skills.

### HYPOTHESIS OF THE STUDY

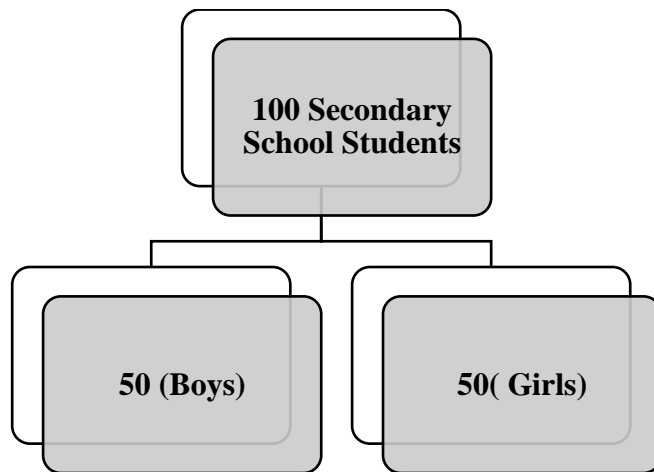
1. There will be no significant difference of General well-being of boys and girls of secondary school students.
2. There will be no significant difference of social skills of boys and girls of secondary school students.
3. There will be no significant relation of social skills and General well-being of secondary school students.

### RESEARCH METHODOLOGY

- Descriptive survey method will be used in present study.

### SAMPLE OF THE STUDY

In this paper sample of 100 secondary school students were selected through random sampling techniques among them 50 students were girls and 50 students were boys.



### VARIABLE OF THE STUDY

- Two variables were used:
- General well being
  - Social skill

### TOOL TO BE USED

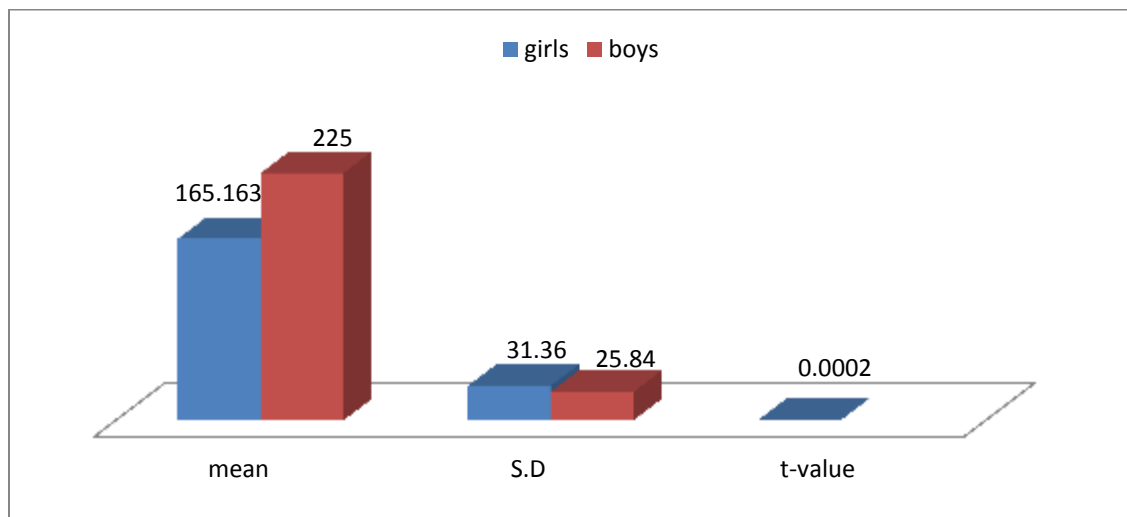
- “General well-being Scale” developed by Dr. Ashok K. Kalia and standardized by Anita Deswal, 2010.
- “Social skill Scale” developed by Dr. Vishal Sood, Dr. Arti Anand and Suresh Kumar, 2012.

### STATISTICAL TECHNIQUES USED

Mean, SD and T-test was used for analysis the data.

**RESULT AND DISCUSSION****Objective: 1.** To find out the General well-being of boys and girls of secondary school students.**Table - 1**

Group of General well-being	N	MEAN	SD	T-TEST	Level of significance
Boys	50	225	25.84	0.0002	0.05
Girls	50	165.163	31.36		

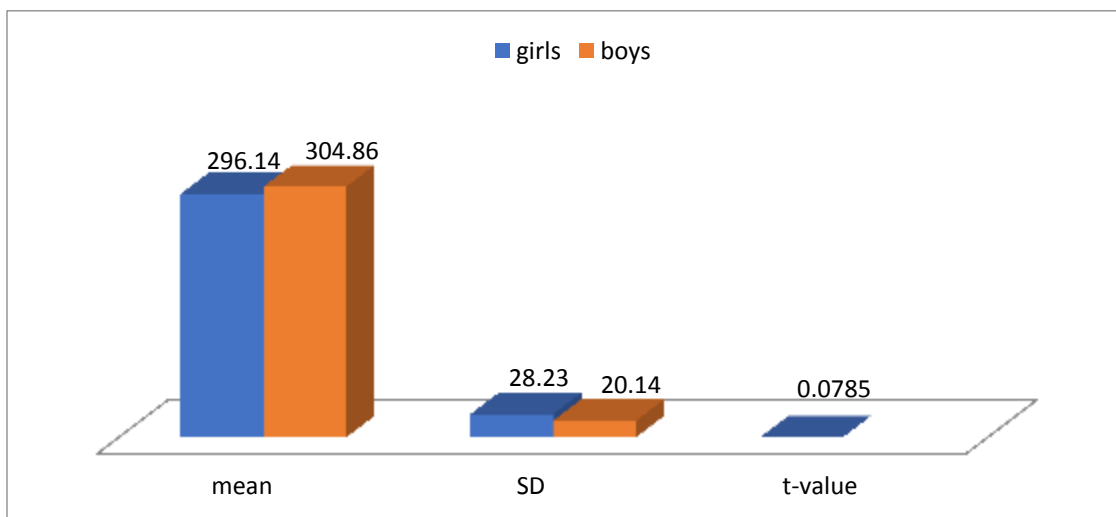
**Fig. 1**

Above table-1 & figure-1 indicates that, the mean score of General well-being of boys is 225. The mean score of girls is 165.163. The T-test score comes out to be 0.0002 which is

significant at 0.05 levels. So, null hypothesis “There is no significant difference in the General Well-being of boys and girls of secondary school students” is accepted.

**Objective: 2.** To find out the social skill of boys and girls of secondary school students.**Table - 2**

Group of Social Skill	N	MEAN	SD	T-TEST	Level of significance
Boys	50	304.86	20.14	0.0785	0.05
Girls	50	296.14	28.23		



**Fig. 2**

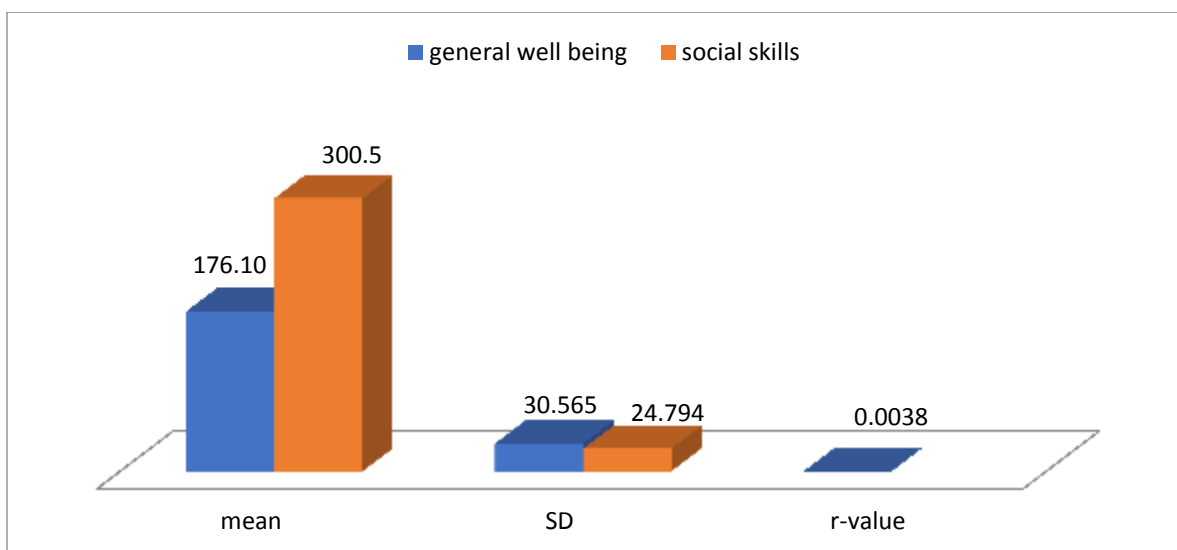
Above table -2 & Fig. 2 indicates that, the mean score of Social Skill of boys is 304.86. The mean score of girls is 296.14. The T-test score comes out to be 0.0785 which is significant at 0.05

levels. **So**, the null hypothesis “There is no significant difference in Social skill of boys and girls of secondary school students” is accepted.

**Objective: 3 To study the relationship between General well-bring and social skill.**

**Table - 3**

Group	N	MEAN	SD	r-Value	Level of significance
General Well-Being	100	176.10	30.565	0.0038	0.05
Social Skill	100	300.5	24.794		



**Fig. 3**

Above table – 3 & Fig. 3 indicate that, the mean score of General Well-being is 176.10. The mean score of Social Skill is 300.5. The r-value score comes out to be 0.0038 which is not significant at 0.01 levels. **So**, the null hypothesis “There is no

significant relation of General Well-being and Social Skill of secondary school students” is accepted.



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# ONLINE TEACHER COMPUTER SELF-EFFICACY AND PERFORMANCE IN THE NEW NORMAL

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## ABSTRACT

*This study utilized quantitative descriptive correlational design and examined relationship between teachers' computer self-efficacy and performance Schools Division of Calamba City. Based on the findings, there is a moderate positive relationship between teachers' computer self-efficacy and performance. Thus, suggested that as the teachers' computer self-efficacy increases, similarly, teacher performance increases. In conclusion, the result implied that teachers' computer self-efficacy is closely and have moderately positive relationship to teachers' performance in doing their task as teachers in the new paradigm shift in Department of Education through the flexible learning modality in East District of SDO Calamba City. Future researchers may conduct similar study to further investigate means of helping teachers to increase their performance through computer self-efficacy for the enhancement in learning delivery of teaching and learning process. Lastly, future researchers may investigate other factors that may be affecting performance or may look at the effect of the factors on each variable.*

**KEYWORDS:** *Online Teacher, Computer Self-efficacy, Teacher Competency, COVID-19 Education*

## INTRODUCTION AND RATIONALE

The development of the society does not only rely on the natural resources like landscape, natural oil reserves, fisheries, forest, and agricultural products also to the human resources. In building the nation education plays a significant role. The progression of society will not materialize without educating its sovereign people. A civilization was greatly improved from ancient to contemporary time.

The quality of education has always been put into question. The teaching and learning had always been into measures. Education is a social institution that enables the individual to have a certain knowledge that provides them the idea of what is important, the concept and fact and the skills to find a way of descent living for the young generation.

The occurrence of the COVID-19 pandemic around the globe causes the disruption of the educational system over the world. Some countries have a backup plan that they easily manage the challenges in the school stoppage due to health and safety protocols that the World Health Organization prescribed. Ancient philosopher Cicero famous quotation stated, "Solus Populi est Suprema Lex, where it means that the welfare of the people is the supreme law. The safety of the sovereign people is paramount during this COVID-19 pandemic crisis. Secretary Briones once said in the press conference that the education of the students must not stop. Consequently, the backup plan in restoring the good flow of education to the learners is somewhat not perfectly constructed. Therefore, to get back on track there

must be a development of novel and permanent systems, redesigned to meet the needs of the learner who are involved in this crisis. However, it is observable that during March and April the lockdown all over the world started after China. There is a presence of large gaps in students' learning opportunities due to the school operation stoppage (Bozkurt, 2020).

Amid COVID-19 Pandemic crisis the whole world health care institution, governance of all the government was all challenged. Most organization or institution faces challenges or crisis. The difference with a health crisis or pandemic crisis is that occurs during this time is a bigger spectrum and one effect of this is that one wrong move of one person will affect the whole community or in this subject matter, the whole department and in the bigger horizon it will be the whole country will suffer as a result the Inter-Agency Task Force (IATF) did not allow the face-to-face classes.

The activity of teacher was performed within the context of the teaching and learning process. There are different factors that affect teachers on how they perform or carry out their roles and functions. According to Mekonnen (2016) the factors that affect the performance of teachers are of two types: external factors and internal factors. External factors include facilities in the learning environment, set of procedures and standards, salary and benefits they receive. Internal factors include job satisfaction, work related pressure, family related pressure, job contentment, age, sex, civil status, length teaching experience, highest educational attainment, coaching and mentoring



exposure, motivation, and self-efficacy beliefs in doing their roles and responsibilities. Motivated teacher could result to have a high academic performance of learners this is according to Cano (2006). Additionally, to have a motivated teacher in the school will enable the learner to be fully motivated to do learning activity which yields a greater and effective teaching and learning. A competent is teacher can perform duties and responsibilities are paramount in educative process.

The concept of self-efficacy defined as been as the personal beliefs that one can of perform in an appropriate and effective manner to attain certain goals (Bandura, 1997). Consequently, it underlines the importance of self-efficacy as a critical component in teacher effectiveness. Therefore, self-efficacy operates as a key factor in generating system of human competence. The link between teacher self-efficacy and personal agency a lie in personal experience and a teacher's ability to mirror on that experience and make decisions about future courses of action. Teacher self-efficacy is an essential motivational construct that shapes teacher success in the classroom. During this time the COVID-19 pandemic crises cause the sudden shift in education.

The learning deliveries for the learners are into three modalities: modular, blended, and online learning. There are challenges in education sector during this pandemic crisis. The access to the internet may hinder some student too continue their education. With the new norm in education teachers should be given a proper training on how to leverage distance learning.

The situation of teachers during this pandemic, are new to the so-called new normal in education. As to the situation that exist in the Department of Education where different learning modalities are present. The alternative learning modalities that co-exist with the condition during this pandemic is the online learning, blended learning, and modular learning. These different learning modalities are all new to the teachers in the broader sense. However, is not new to some sort of education like Alternative Learning System where it uses partly the modular method to some situation where the learner is still working with their employees. The blended learning is where the learner with smartphone or tablet with weak internet connectivity. Finally, the online learning modality is accessible to the learners with strong or stable connectivity, laptop, or desktop with more i3 core processor to exploit the different applications in the online platforms. Teachers in online learning modalities in Department of Education are at firsthand experience. Some teachers have their Edtech trainings and yet still on the condition of "on the process of knowing and practicing" what are these online platforms could offer to the learners.

According to Todorova & Bjorn-Andeson (2011), the main lessons is to embrace e-learning technology before disaster strikes. As of today, we are forced to practice online learning; however, things would have been different if we already

mastered it. The saying goes on better to be late than never. Disasters will occur and it will the technologies will help us to cope (Meyer & Wilson, 2011). In addition, natural disasters can stimulate out motivation or internal drive for the adoption of highly innovative communication technology and e-learning tools (Tull et al., 2017)

In line with this the researchers decided to study the online teachers' computer self-efficacy and competency. The objective of the study determines where is/are the difficulty/ies of the teachers, what action plan like technological or computer-self seminar can be formulated based on the findings of the study.

## LITERATURE REVIEW

### Self-efficacy

Believing in oneself is significant in achieving a goal. According to Bandura (1997), self-efficacy is the belief of an individual that they can perform a specific task. Similarly, computer self-efficacy refers to the result of one's capability to use computers (Compeau & Higgins, 1995). According to Murphy et. al., (1989), self-efficacy refers to individual perceptions that they are capable of performing activities of tasks are concluded to have high self-efficacy and are more likely to attempt to repeat that task. Conversely, individual who perceive themselves as less capable are less likely to be successful in achieving the certain task and are less likely to attempt to do the given task again (Barling & Bettie, 1983, Bandura, 1977).

The study of Ferreira (2013) on teacher self-efficacy aims to determine the measurement of teacher self-efficacy in technology enhanced student-centered learning environments. The findings enable to create a preliminary measure of teacher efficacy in relative to the use of technology for student-centered learning. The research result can assist the teachers and educational organizations by increasing teacher efficacy in relation for the technology-enhanced student-centered learning to help the challenges from industrial age to information age.

Gardner (2014) explores the predictive relationship between the two variables, the academic performance and self-efficacy with the use of the third variable like academic entitlement, class status, ethnicity, and gender. Consequently, the result of the study is that there is no significant predictive relationship between the predictor variable of self-efficacy, academic performance ethnicity, or gender. The researcher suggested furthering the study using the variables of self-efficacy, academic performance, academic entitlement, gender, ethnicity, and class status.

Another study about the self-efficacy beliefs conducted in the Philippines is by Flores (2013) of De La Salle University. The research is to determine if there is a relationship among self-concept, writing performance, and self-efficacy of 211 freshman college students. The factors self-concept, self-





efficacy, and writing performance are all significantly related, it was noted that self-efficacy beliefs are better predictors of their writing performance. It is therefore can be concluded that self-efficacy plays important role in achieving a good performance of freshman students in their writings.

Additionally, Fives and Buehl (2010), determined the factor structure of the long and short forms of the teachers' sense of efficacy. The study's finding is that teachers with 10 or more years in service and those who teach at the elementary level reported that they have a significantly higher level of efficacy than those who are in pre-service or teaching at the middle or high school level.

### Computer Self-Efficacy

Early measures of computer self-efficacy started from the acknowledgment and accessibility of computers within the 1980s. Murphy, Coover, and Owen (1989) published one of the primary measures of computer self-efficacy, which focused on mainframe computer skills. Researchers put the scale into questions. The tools of 1980s were criticized because rather envisioning the capabilities became the measurement of skills. Other measures got to be rapidly obsolete since they contained references to obsolete program such as WordPerfect (Compeau & Higgins, 1995). Other researchers drafted computer self-efficacy and lacked psychometric properties. Consequently, Chiu and Wang (2008), studied the self-regulation and computer self-efficacy and utilizes items from different authors.

Nonetheless of the validity issues with past computer self-efficacy measurement tools, researchers envisioned theoretical applications and the future utility of such advances. Cassidy and Eachus (2002) envisioned a tool to identify students with low computer self-efficacy

Who may face motivational challenges and negative perceptions of controls in their educative environment, this measure is called computer self-efficacy. Low levels of computer self-efficacy are associated with high levels of anxiety and stress, which ultimately leads to a decline in performance (Compeau and Higgins, 1995).

In this digital educational revolution, teacher who are computer savvy intends to achieve better and go further in delivering various online learning activities to the students. According to Harris et. al., of Hechinger Newsletter in USA Today published on September 03, 2020, they stated that experts say teachers are ideally should receive several days, weeks or months of in-depth training in handling online classes. However, individuals with higher computer self-efficacy in using the computer and its applications tends to increase their interest in using the computer (Gulten et al., 2011). The integration of technology plays an important role in achieving quality education relevant to digital education in the 21st century. It is the teacher's duty to use technology in the classroom to enhance educational activities and learning

opportunities that lead to better learning experiences (Escalaw, 2020) According to He and Freeman (2010) computer self-efficacy refers to an individual's judgment on its ability to perform multiple computer applications, performed specific computer related tasks. Teachers who received extensive training before the start of online classes were very well prepared (Vilppu et. al., 2019)

Without the beliefs in one's ability to perform a task, an individual will face a difficulty in achieving such task. In some Arab countries like Iraq face a level of lacking technology (Al Batainah and Anderson, 2015). The school and universities have a problem in lacking of technology that leads most students to become unfamiliar with use of technologies (Abdullah et.al., 2015) as a result most of the Iraqis students computer self-efficacy result to a low level of CSE. Escalaw et al., (2020), conducted a study on technological pedagogy. The result of the study revealed that, when technological pedagogy innovation through collaborative reflective activity, using online collaborative application has a significant improvement of learner's engagement. Thus, resulted to increase academic achievement.

Teachers connect the students to the real-world events and guide them to be independent learners. While teacher believe that the learners only learned through teacher-led instruction will not tend to encourage the students to explore the use of technology. According to Francis (2017) teachers are open-minded about technology integration in their teaching it is expected that their adoption to technology is slow and below the required competency (UNCTAD 2018). Research studies have found that external work, attitude towards use of computer may influence the use of computer in teaching (Teo, 2010). It is crucial for instructors to use ICT in today's classrooms (Kass, 2014). Teachers influence change in their own schools through integrating technology (Vandeyar, 2017). Some educators go beyond the traditional bounds of the teaching and learning process.

### Teachers Performance

The teachers had been the focal point of education (Boudersa, 2016). Therefore, teachers are expected to be knowledgeable and competent to impart all knowledge to be transferred to the learners. Teacher must realize and recognize the diversity and complexity of the students in the classroom. Learners may vary in terms of ethnicity, gender, culture, language abilities and interests. The main responsibility of teachers is to provide the teaching and learning process using different teaching strategies. The daily responsibilities of teacher will cost a lot in terms of physiological and psychological factors of the teachers. Therefore, teachers will need to keep motivated to do their professional work. Motivated teachers will create an environment that is conducive to learning, as a result the learners also are motivated to learn.



Teachers as prime movers in implementing curriculum (Duze, 2012). In this regard, teachers' commitment is a substantial aspect for achieving quality education. Therefore, the success of education is directed on teaching professional competence and commitment basing on teachers' knowledge, skills, attitudes, and values, as well as accountability on effective teaching which can be measured in terms of school performance. Teaching and learning involves the process of transferring knowledge from the one who teach to the one who is learning. The learners are considered as the most significant participant in the teaching and learning process. Learners are considered as the primary subject or primary stakeholder of education. The knowledge that acquired by the learners will be evaluated if the teaching and learning objectives are achieved. A teacher cannot limit her roles as a dispenser or facilitator of knowledge. It is known to all that teacher serves an important role in the community and even in the broader spectrum, which is the society.

Teachers, as the core facilitators of learning, are the forefront of any academic institution (Escalaw, 2021). The first thing to be considered for learning to take place is the competencies of the teachers, more than any technological advances that a university can offer. Therefore, technology in education was being used to make the teaching and learning process enjoyable. However, it doesn't mean that the technology will replace the teacher. It only means that the teacher will become a facilitator of learning process. Nowadays, it is observable that teacher provide different strategies to let the students lively participate or engage in an experiential learning. Similarly, Bayocot (2014) expounded the role and responsibilities of teachers to achieve effective teaching and productive learning, teachers should see themselves as capable of achieving the dimensions of good teaching. Teachers should balance their teaching activity inside the classroom, different teaching strategies should be used to further the learning experience and enrich the skills and ability of the students.

In this study the teacher's competency will be measure thru the new Results-based Performance Management System (RPMS) for School Year (SY) 2020-2021. As reference to Section 10.k of "DepEd Order (DO) No. 11, s. 2020 titled Revised Guidelines on Alternative Work Arrangements in the Department of Education During the Period of State of National Emergency due to COVID-19 Pandemic". The Key result areas includes Content Knowledge and Pedagogy; Content Knowledge and Pedagogy; Diversity of Learners & Assessment and Reporting Curriculum and Planning; Community Linkages and Professional Engagement & Personal Growth and Professional Development.

The term content knowledge refers to the body of information and knowledge that teachers teach, and those students are expected to learn in a given subject or content area, such as mathematics, science, English language arts, or social

studies. With adequate content and pedagogical knowledge, teachers can respond to students productively. Teachers' understanding of the nature and purpose of the discipline strongly influences their personal pedagogical content knowledge, i.e. what they highlight as important.

Numerous researchers suggested that self-efficacy have a positive effect on the performance either by students, teachers, school heads or any person therefore in achieving the positive academic performance of the online learners, teacher should have a high computer self-efficacy.

In consistent with the challenges that teaches encountered during new normal in education, and with the literature presented above the researchers decided to have this research to materialize. While the educational digital revolution is on the verge of intensifications this digital learning even in basic education is inevitable. Educational institutions should be ready not only for this pandemic to the forthcoming of total digital rise education.

## RESEARCH QUESTIONS

This study aims to assess the online teacher computer self-efficacy and competencies at Schools Division of Calamba City during Covid-19 pandemic.

Specifically, it seeks to answer the following questions:

1. What is the level of respondents' competency in terms of;
  - 1.1 Content Knowledge and Pedagogy
  - 1.2 Content Knowledge and Pedagogy
  - 1.3 Diversity of Learners & Assessment and Reporting
  - 1.4 Curriculum and Planning
  - 1.5 Community Linkages
  - 1.6 Professional Engagement
2. What is the level of online teacher computer self-efficacy in terms of;
  - 2.1 Basic Computer Skills
  - 2.2 Media-Related Skills
  - 2.3 Web-Based Skills?
3. Is there a significant relationship between respondents' computer self-efficacy and competencies?
4. What action plan may be prepared based on the findings of the study?

## SCOPE AND LIMITATION

This study will focus on the online in Department of Education Calamba Division Junior High School department that determine the level of teaching competency and computer-self efficacy. Moreover, this study will determine if there is a significant relationship between the teachers competency and the computer self-efficacy, and explore what are the challenges faced by teachers during the new normal set-up of education.



## RESEARCH METHODOLOGY

This study will utilize quantitative research design that will employ descriptive-correlational. The research seeks to investigate whether there is a relationship between the computer self-efficacy and competency of online teachers. This study also deals with testing the hypothesis and development of theories, principles and generalizations that is universally accepted and valid.

### A. Sampling

The respondents of this study are the 169 online teachers of Division of Calamba City school year 2020-2021. This sample was taken from 300 teachers in online teaching. Proportionate random sampling will be use. Proportionate sampling is a method of sampling in which the researchers divide a finite population into subpopulations and then applies random sampling techniques to each subpopulation

### B. Data Collection

The researchers crafted a letter to be to the Schools Division Superintendent and sought permission to conduct the study after the approval, the questionnaire has been administered using Google forms. After that, the link has been sent to the teachers through their respective digital platform group. After gathering the data, data has been organized and tabulated and subjected to statistical tools and has been presented in table and charts for easy interpretation.

The research survey questionnaire to be used for this research is the Murphy Computer Self-Efficacy (CSE) to gather the respondents' computer self-efficacy while for teacher competencies is the Performance Management System (RPMS) for School Year (SY) 2020-2021. As reference to Section 10.k of "DepEd Order (DO) No. 11, s. 2020 titled Revised Guidelines on Alternative Work Arrangements in the Department of Education During the Period of State of National Emergency due to COVID-19 Pandemic".

### C. Ethical Issues

The researchers will look for the support from Schools Division Superintendent, school head, chief adviser, and online teachers. A permit letter should be sent to the school principal for the permission to conduct the study. Confidentiality of the data gathered should also be considered in line with Data Privacy Act.

### D. Plan for Data Analysis

The data gathered will be tabulated, organized in such a way that it is easy for analysis. The result of the survey questionnaires will be analyzed and interpreted. Quantitative research will be used in analyzing data. Then it will be presented in a graphs and tables for easy interpretation of the results.

## RESULT AND DISCUSSION

The following section is the result of the study.

**Table 1. Level of Teacher's Competency**

Components	Mean	SD	Interpretation
Content Knowledge and Pedagogy	4.00	0.50	Satisfactory
and Reporting	4.11	0.49	Satisfactory
Curriculum and Planning	4.10	0.59	Satisfactory
Community Linkages	4.20	0.52	Satisfactory
Professional Engagement	4.23	0.53	Satisfactory

*Legend:*  
 4.50 - 5.00 Outstanding  
 3.50 - 4.49 Very Satisfactory  
 2.50 - 3.49 Satisfactory  
 1.50 - 2.49 Fair  
 1.00 - 1.49 Low

Presented in Table 1 shows that Content Knowledge and Pedagogy was satisfactory (M=4.00, SD=.50) while Diversity of Learners & Assessment and Reporting (M=4.11, SD=.49), Curriculum and Planning (M=4.10, SD=.59), Community Linkages (M=4.20, SD=.52) and Professional Engagement (M=4.23, SD=.53) the teachers' competency could be interpreted that it has a very satisfactory level. Therefore, teachers are very satisfactorily accomplishing their duty as teachers despite the new normal education. It can also observe that community linkages as key result area of the teacher competency has a high mean score of 4.20. It is also interpreted that during this paradigm shift in education, teachers need to have a linkages to all the stakeholders in the education especially to the local government units.

**Table 2. Result Teachers Computer Self-Efficacy**

Components	Mean	SD	Descriptive Interpretation
Basic Computer Skills	3.40	0.54	Satisfactory
Media-Related Skills	3.28	0.50	Satisfactory
Web-Based Skills	3.23	0.48	Satisfactory
<b>General Assessment</b>	<b>3.30</b>	<b>0.51</b>	<b>Satisfactory</b>

*Legend:* 4.50 - 5.00 - Outstanding  
 3.50 - 4.49 - Very Satisfactory  
 2.50 - 3.49 - Satisfactory  
 1.50 - 2.49 - Fair  
 1.00 - 1.49 - Low

Table 2 shows that the teachers' computer-self-efficacy is satisfactory level. As a result, it is interpreted that teachers have fairly belief on their ability to use the computer and other technological devices likewise with different application software to be use for online classes. In summation the ability of the teacher for technological provision in teaching and learning are somewhat needs a room for improvement. The result was backed by the study of Turel (2014) states that teachers believe they have strong computer self-efficacy beliefs, that their proficiency in certain programs is high, and that they often utilize computers for a variety of purposes.

**Table 3. Result of Teachers Computer Self-Efficacy and its Relation to Performance**

Coefficient (r) =	0.48
N	218
p value	0.00



Presented in Table 3 is the result of teachers' computer self-efficacy and teachers' performance. There was a moderate positive correlation between the teachers' computer self-efficacy and teachers' performance,  $r(167) = [0.48]$ ,  $p = [0.00]$ . Therefore, there is a moderate positive relationship between the teacher's computer self-efficacy and performance.

Therefore, teachers should be subjected to trainings and seminars to improve their computer skills which is relevant to the digital education especially in this time of pandemic. The result of this findings supports the study of Turel (2014); Chen (2017) and Escalaw (2020). The result of Pearson Correlation at p-value of .00 and r values of 0.48 which was equivalent to medium positive relationship.

## CONCLUSION

It paramount to note that in the 21 digital education digital skills of teachers are significant and is relevant to the day-to-day teaching roles of the teachers. In this digital educational revolution, teacher who are computer savvy intends to achieve better and go further in delivering various online learning activities to the students. In today's education it is important to teachers to use ICT for teaching (Kass, 2014; Francis (2017) teachers are open-minded about technology integration in their teaching. It is the teacher's duty to use technology in the classroom to enhance educational activities and learning opportunities that lead to better learning experiences (Escalaw, 2020). Teachers with in-depth training before the start of the online classes were very well-prepared thus result to have a high computer self-efficacy in teaching online (Vilppu et al., 2019).

Therefore, the success of education is directed on teaching professional competence and commitment basing on teachers' knowledge, skills, attitudes, and values, as well as accountability on effective teaching which can be measured in terms of school performance. The learners are considered as the most significant participant in the teaching and learning process. The first thing to be considered for learning to take place is the competencies of the teachers, more than any technological advances that an educational institution can offer.

## Recommendation

Based on the findings of the study, the researcher recommends the strengthening of the technological trainings for teachers. While most of the trainings are redundant and overlapping in every hierarchy in the bureaucracy of the institution it is more urgent and long-term remedy to have a training department within the school or even a cluster to monitor closely the progression in digital skills of the teachers. Parallel research also was recommended to support or debunk the findings of this study.

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# TECHNICAL CHANGES AND INNOVATIONS IN LAND TRANSPORT IN TURKESTAN IN 1917-1924

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## ABSTRACT

*This article describes the technical changes and innovations that took place in the field of land transport in the Turkestan region during 1917-1924.*

**KEY WORDS:** *land transport equipment, car, bicycle, motorcycle, brichka, telega, cart, "Sedov" plane, "Swift", "Royal" bicycle, "Peugeot", "Reno", "Bence" car, "Management of Transport Department" office, carriage, coach, horse station.*

## INTRODUCTION

Analyzing the innovations and changes in the field of transport technology in 1917-1924, it becomes clear that significant bold steps are being taken in this direction. In one of the sources of the archive, it is noted that: "Transport equipment includes air fleet, steamship, boat, barge, barque, bicycle, motorcycle, car, brichka, telega, cart, samokat (self-propelled vehicles)<sup>1</sup>".

The vehicles mentioned above actually entered the Turkestan region from the end of the 19th century to the first ten days of the 20th century. In 1912, the Sedov airplane was tested for the first time in Tashkent, "Swift", "Royal" bicycles, three-wheeled motorcycles, "Peugeot" and "Renault" cars with a speed of 35-40 km per hour, capable of carrying four and six people, with a large horsepower. A lot of information is given in sources and historical literature about the German "Bents" car, a steamer, a motor boat and boats that sailed in the Amudarya fleet<sup>2</sup>.

## MAIN PART

Archival sources confirm that land, water, and air transport entered the transport technique, and changes took place in these directions during the period under study. A special "Transport Department Management" office was established in the BXSР, XXSR.

It should be noted that there are no fundamental changes in the technical innovations that travel on land routes. Horse-drawn carriages have been used for many years. Carts were mainly 2- and 4-wheeled carts, which differed somewhat in their construction technique and shape in Bukhara,

Khorezm oases, and the Ferghana Valley. These carts are suitable for transporting people and goods. In the years 1917-1924, large-wheeled slow-carrying carts were replaced by 2-horse carts, which carried relatively more cargo. At the same time, four-wheeled cargo-carrying brichka (temga), passenger carriages with soft seats and umbrellas began to spread. Especially since 1920, the introduction of foynun brichkas gained positive significance.

According to archival sources, in the BXSР and the XXSR, the "Transport Department" office was a part of the Internal Affairs Inspectorate, and carriages and horses were provided at the expense of the State Carriage Transport Office. Carts were primarily used for military purposes. Cart transport traveled inter-provincially in the republics. In the BXSР, the road distance of carriage transport was more than 2 thousand miles (verst), and in the XXSR it was about 460 miles. 450 carts and 309 horses served in the BXSР, 276 carts and 229 horses in the XXSR. There were 24 permanents, 4 irregulars, total: 28 horse stations in the BXSР, while there were 9 horse stations in the XXSR. Up to 254, up to 115 coaches served in BXSР<sup>3</sup>. The sources provide information about the directions of the horse stations, their distance, and even the rent. In particular, Bukhara-Vobkent (24 miles), Vobkent-Karmana (80 miles), Karmana-Nurota (90 miles), Karmana-Abusoi (32 miles), New Bukhara-Old Bukhara (15 miles), Bukhara-Karakol (70 miles), Bukhara-Olot (85 miles) and so on<sup>4</sup>. Horse stations are provided with coaches and horses, depending on the size of the station. For example, Karmana horse station (12 coaches and 150 horses), Karshi horse station (16.12), Chorjoi horse station (16.12), Dushanbe horse station (20.15), Sherabad horse station (15.12), Boysun horse station (12.10), Guzor horse station (12.8) etc.<sup>5</sup> In

<sup>1</sup> NAU, Fund R-58, List 1, Volume 5, Sheet 32.

<sup>2</sup> Look. Sedov's plane in Tashkent // Bukharoy Sharif, April 4, 1912, issue 21; Air transport, National Encyclopedia of Uzbekistan, Volume XII. -T.: 2005. -B. 256. Shodmonova S. The role of transport in the emergence of new techniques and technologies in Turkestan (based on periodical press materials) // History of Uzbekistan. 2009. #1. -B.66-72, etc.

<sup>3</sup> NAU, fund R-59, list 1, collection volume 97, sheets 111, 112, 113, 114, 115, O'MA, fund R-73, list 1, collection volume 8, 4,5, 6 sheets.

<sup>4</sup> NAU, fund R-59, list 1, collection volume 97, sheets 111, 112, 113, 114, 115,

<sup>5</sup> NAU, fund R-73, list 1, collection volume 8, 4,5, 6 sheets.



addition to the above, in the main and additional horse stations such as Islam, Chirakchi, Shahrisabz, Oqrabab, Chorshinjan, Hasantoy, Karakol, Denov, Ziyovuddin, Zandani, Laqlaqa, Romitan, Shafirkon, Sultanabad, Pirmachit, Azizabad, Ghijduvan, Gulistan Gishti, from 6 to 12 horses, 8 to ten coaches served. Horses should be healthy, strong, thoroughbred and provided with hay and fodder by the Ministry of Internal Affairs. Horses were checked at intermediate stations and replaced by officials. Coaches are provided with special uniforms and military weapons (pistols and rifles) as the road is rough<sup>6</sup>. As we mentioned above, the fare varies from 10 Bukhara soums to 35 Bukhara soums depending on the distance. Because the prices of carts and work animals are high, 1 horse at the end of 1921 and at the beginning of 1922 was 125-150 thousand rubles, a donkey - 22 thousand rubles, a camel - 50 thousand rubles from 125 thousand rubles. The cart is also expensive, the rental price for 1 day was 40,000 rubles<sup>7</sup>.

Khiva-Sherabad (45 miles), Porso-Khojayli (57 miles), Khiva-Hazorasp (80 miles), Hazorasp-Pitnak (30 miles), Pitnak-Daryumota (120 miles), Khojayli-Kohna Urganch (33 miles) routes in the USSR Horse-drawn carriages and carriages carried people and cargo. Their rent and freight charges ranged from 10 manats to 50 manats, depending on the distance. Road settlement was also made through Russian ruble, Bukhara gold coin. The distribution of carts varies by region, there are 28 carts in Khiva, 25 in Shahabad, 27 in Porsuda, 35 in Tashkhovuz, 19 in Khojalay, 17 in Kokhna Urganch, 11 in Hazorasp, 5 in Pitnak, and 19 in Daryumot<sup>8</sup>.

Historical data confirm that the cart was the main means of transport on land, and it was used in all three republics until recent years. For example, according to the agreement between the RSFSR and the USSR on January 28, 1923, vehicles such as cars, bicycles, motorcycles, motor boats, airplanes were included in the list of equipment to be brought to Khorezm. However, the first cars entered Khorezm oasis in 1927, they were "Reno-Sohavo" cars with a speed of 40-45 km/h, produced by the French company "Reno". Of the self-propelled vehicles, only the tractor entered the oasis during the XXSR. The information about this is different, the dates of 1923, 1924 are recorded in archive documents. The following information confirms that the cart remained the main means of transport: "At the end of 1923, the Transport Department of the USSR had 400 coaches, more than 200 carts, and about 200 horses<sup>9</sup>. Sources provide information related to the purchase of horses and carts to transport cotton from cotton sales points to factories. One of the information states: "Additional purchase of 2 horses and 2 carts for the

New Bukhara Cotton-Oil Combine to transport raw materials from the Ziyovuddin and Karmana cotton sales points to the factory, as well as the purchase of 15,000 strong and durable sacks made in Calcutta (Hististan)." However, during the study of the materials of the press of that time, it was confirmed that in 1922-1924 there was little car traffic on the roads in Old Bukhara and neighboring Eastern countries.

"On January 28, 1922, under the supervision of Ismail Efandi Sadir, Deputy Minister of Education, 25 students were sent to study medicine in the Turkish cities of Sultania and Kostomira in the USSR. In his memorial article, he wrote that 2 students fell from a car and had to stay in the hospital for 2-3 weeks while reaching Kostomira region, "Bukhara News reported"<sup>10</sup>. It is known from the above excerpt that since 1922, cars from Turkey have been driving on city streets, Bukhara students were greeted with respect and rode in cars.

Or in the 25th issue of the "Azod Bukhara" newspaper: "On the streets of Bukhara, there are many people who get stuck under a carriage, horse or car after fast-moving cars and carriages, lose legs and arms... On November 21 (1923), such a fast-moving car killed Sharif Ismail watchmaker. an unpleasant message with the content of "overwhelmed and killed"<sup>11</sup>. Although this news is unpleasant, it informs that there were cars on the streets of Bukhara since 1923. However, we could not find information in archival sources about the model of these cars, how fast they travel per hour, and from which countries they were imported.

The fact that automobile traffic was launched in the BXR can be seen from the measures taken by the National Economy Council of the BSR in the fall of 1923 to repair roads and stations on the Kogon (New Bukhara)-Old Bukhara route. In October 1923, the Bukhara National Economy Council allocated 30 billion rubles for the repair of the Kogon-Bukhara road. allocated rubles. In this regard, a contract was concluded with the road construction engineer Zakharyants, and he was given 240 Bukhara coins in advance<sup>12</sup>. In the next places, 20 pounds of gunpowder (1 pound-450 grams), 50 arshins of cord were given to Zakharyants for the construction of a highway and the expansion of the Kogon-Bukhara highway<sup>13</sup>. The above evidence also confirms that the car entered Bukhara in 1923. However, the dirt roads of Bukhara in some places, adapted to carts, created inconveniences for automobile transport.

One of the vehicles moving on land is a tram, and this vehicle existed in the city of Tashkent, the center of the Turkestan ASSR. In 1917-1920, the tram service continued in Tashkent, it was stated in the memoirs of the first leader of the

<sup>6</sup> NAU, Fund R-48, List 1, Collection Volume 267, Sheets 97, 98, Collection Volume 47, Sheet 7.

<sup>7</sup> NAU, Fund R-48, List 1, Collection Volume 47, Sheet 7.

<sup>8</sup> NAU, Fund R-7, List 1, Collection Volume 8, Sheet 6, OMA, Fund R-2027, List 1, Collection Volume 21, Sheets 32, 33.

<sup>9</sup> NAU, Fund R-53, List 1, Volume 20, Sheet 10. OMA, Fund R-7, List 1, Collection Volume 8, Sheet 6.

<sup>10</sup> Today's situation of Ottoman Turks // Bukhara News, No. 122, December 31, 1922

<sup>11</sup> Streets of Bukhara//Ozod Bukhara, issue 25, December 16, 1923.

<sup>12</sup> NAU, Fund R-53, List 3, Collection Volume 48, Sheets 1, 2, Sheets 8, 9.

<sup>13</sup> NAU, Fund R-53, List 1, Collection Volume 48, Sheet 13.





government of the XXSR, Polvonniyoz Haji Yusupov. "When I was on a trip to Tashkent in May 1917, it is important that tram service was started in this city along with ferries and cars<sup>14</sup>".

He expressed his opinion about the widespread use of the tram service by the population: "When I was in Tashkent in 1917, we sat in the tram with the members of the Khorezm delegation and arrived at the place where the Shorayi Islam meeting was held," wrote P. Yusupov<sup>15</sup>". P. Yusupov also showed that he used the car and tram service, and that the fare is cheaper than the ferry.

Journalist and writer N. Naimov, in his historical story "The Last Ruler", interviewed the old mother Robiya Majidova after Amir Syed Olimkhan fled from Bukhara (September 1920), passing through Gijduvan, he spent 1 evening in the house of the merchant Abdulla Sharif under the name of a merchant. They were stopped in front of Khojai Jahan mausoleum and mosque by an old enlightened man. Amir Olimkhan was in the car and was sitting in the front seat, and in the back seat were the ambassador of Afghanistan in Bukhara, Abdulshukurkhan, the employee of the embassy of this country in Tashkent, Muhammad Aslamkhan, and several other people. Amir got out of the car and talked to the father. However, the car ran out of fuel, and the emir and his companions continued the journey in an umbrella carriage<sup>16</sup>.

Perhaps this car could travel 40-45 km per hour. There was probably a "Bents" car that could accommodate 6-7 people. It was also noted that when he went for a walk in a car, he was followed by mounted guards. The above information showed that Amir Said Olimkhan was brought up as a person like his father Abdullah Khan, and that he used a car on the streets of Bukhara unlike his father. If we rely on the above information, the date of the appearance of the car in Bukhara and the start of its movement will be pushed back a little further.

## CONCLUSION

So, we witnessed significant changes in the field of land transport technology in the Turkestan region during the period of 1917-1924. In particular, although the cart was widely used as the main means of land transport in this period, a number of new technical tools were also introduced. The establishment of the "Transport Department Management" office has led to certain changes in this area. The first automobiles gradually entered the region. Such news has a positive significance in the field of land transport technology.

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<sup>14</sup> Haji Polvonniyoz Yusupov. Memories... -B.80.

<sup>15</sup> This is the author. -B. 81

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## SOIL-RECLAMATION CHARACTERISTICS OF IRRIGATED MEADOW SOILS IN THE ZARAFSHAN HOLLOW

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### ABSTRACT

*Previous studies have shown that the main causes of development of secondary salinization processes are soil warming, evaporation of groundwater in alluvial, agro-irrigation and lysos rocks, accumulation of easily soluble salts in the surface layers of soils. In some areas the groundwater table is observed at a depth of 2-3 m and more, in the main plains areas about 1-2.0 m, during the vegetation period it rises up to 1 m, the amplitude of seasonal fluctuations reaches 1.0-1.5 m.*

### INTRODUCTION

The country has now reached a high stage of development and is rapidly adopting advanced technologies in agriculture. Overcoming the consequences of today's problems is one of the urgent tasks. Out of a total of 2 million 418.8 thousand ha of irrigated land in the country, 1 million 743.6 thousand ha (72.1%) are saline soils of varying degrees. Particularly in Navoi region 96,8 thousand hectares of irrigated land, 62.4 thousand hectares (64.5%) of saline soils are exposed to salinization (reclamation of irrigated lands of the Republic of Uzbekistan) and their reclamation. Tashkent, University Press, 2018) [1].

Previous studies have shown that the main causes of development of secondary salinization processes are soil warming, evaporation of groundwater in alluvial, agro-irrigation and lysos rocks, accumulation of easily soluble salts in the surface layers of soils. Extremely arid climate of Zarafshan hollow with high amplitude of fluctuations during the year and daily temperature, dry and hot summer, almost low temperatures in winter, low

cloudiness and humidity in summer, very low amount of atmospheric precipitation, specific nature of wind activity. All this, especially low relative humidity and frequent winds, increase moisture evaporation from the soil and contribute to its salinization. [2].

Low temperatures during the winter months lead to freezing of the arable soil layer, which worsens its water-physical properties and makes it difficult to cultivate and wash away salts. The average annual temperature in the districts is 14.2-15.1°C, the hottest July temperature is 28.3-29.6°C, the coldest January temperature is -0.4-1.5°C. The average monthly temperature during the growing season is 22.8-24.4°C. Average annual precipitation in Navoi region is 177-236 mm. The average monthly relative humidity in the region is 55-56%, and fluctuates from 31 to 78% respectively. High temperatures and dry air cause strong evaporation.

Also in irrigated meadow soils, common in the zone of these processes, under the influence of natural anthropogenic factors, the groundwater table approaches the surface (1-3 m) and their salinity exceeds 3-5 g/l in the upper and middle parts of the



profile and secondary salinization processes develop. [3].

The results of the study will be important for maintaining the State Land Cadastre and monitoring the ameliorative-ecological condition and fertility of irrigated grasslands in the foothills and deserts. [4].

The main objective of the study is to determine the level of salinity of irrigated land in the region and the negative impact of salinity on soil fertility, as well as to develop scientifically sound recommendations for the prevention of soil salinity.

### PLACE OF STUDY AND METHODS OF IMPLEMENTATION

Irrigated meadow soils of Navbahor district of Navoi province, where the Zeravshan hollow is located, were chosen as the object of study.

The research was carried out in the Republic of Uzbekistan on the basis of the "Methodological Guidelines on soil surveys and soil mapping for the State Land Cadastre" (2013), as well as comparative-geochemical and laboratory- analytical methods.

### RESEARCH RESULTS AND DISCUSSION

The total land area of Navbahor district of Navoi region, where Zarafshan hollow is located, is 20,415.0 ha. By its geographical location Navbahor district belongs to Central Asian arid continental climatic region (province) of Turan subtropical climatic zone and is characterized by unique features related to foothill-semi-desert zone. The climate is characterised by a large amplitude of fluctuations during the year and daily temperatures, dry and hot summers, almost low temperatures in winter, low cloudiness in summer, very low precipitation and peculiarities of wind activity.

The hilly broad plains of the region are composed of diverse, complex deposits of ancient Quaternary age. The territory of the region is located at an altitude of 400-650 m above sea level. Brown soils of the region are developed in different lithological and hydrogeological conditions.

As a result of the study, irrigated meadows of the area were formed in the alluvial groundwater regime near the natural surface of the lower river

terraces. Hydromorphic soil formation conditions in the foothills and upper parts of river terraces were influenced by human factors. Irrigation groundwater rose by 1-2 m and ensured transition of automorphic and semi-hydromorphic soils into hydromorphic ones. Gravel was deposited under meadows at the depth of 0.3-0.5-1.2 m. The main part of the irrigated pastures constitutes the agro-irrigation layer. Ancient irrigated soils. Humus in bulk layer is 1-1,5%, nitrogen 0,07-0,12%. Humus in newly cultivated soils is observed in range from 0.4 to 0.8 % depending on genetic features of old soils. Gross nitrogen in these soils is low (0.02-0.06%).

Soils are strongly carbonate, evenly distributed on profile (9-11% S02). Gypsum is very low ((0.10-1.18%), S04). Due to proximity of groundwater to irrigated meadow soils, they are saline, some places are slightly saline.

In some areas the groundwater table is observed at a depth of 2-3 m and more, in the main plains areas about 1-2.0 m, during the vegetation period it rises up to 1 m, the amplitude of seasonal fluctuations reaches 1.0-1.5 m. Especially in the lowlands of the plains, where groundwater runoff is almost absent, the amount of readily soluble salts increases, and the primary salinity in soils and groundwater becomes mainly chloride-sulphate and magnesium-sodium salinity. The group of non-saline and slightly saline soils consists of dry residue (0,135-1,219 %), easily soluble salts (NaCl, Na2SO4, MgSO4), in medium saline segments the content of dry residue is 1433-1116 %, and in highly saline ones - 1542-1350 %. Chloride and sulphate ions are fixed at 0-32 cm depth in amount of 0.114 and 0.836 % respectively.

Due to dynamic changes in hydrogeological conditions of the district during the year and irrigation activities, it is saline in varying degrees, Irrigated agricultural lands in the region 20415.0 ha, highly saline lands 716.3 ha or 3.73% of total irrigated land, medium saline lands 2757.3 ha of total irrigated land%, slightly saline lands 7577.5 ha. The total irrigated area is 37.12 %, the area of non-saline lands is 9105.0 ha or 44 % of the total irrigated land 59 %.



**Figure 1. The area of irrigated land in Navbahor district by salinity level (in %).**

The study area above brown earth The salt stock in the 0-1-meter layer is formed depending on the natural conditions of the farms as well as anthropogenic factors and farming culture. The chemical composition of salinity consists of chloride-sulphate and, in some cases, sulphate salts. It is now established that the amount of salts in the upper 0-1 m layer of highly saline soils increases sharply.

## CONCLUSION

Irrigated meadow soils of Navbahor district of Zarafshan hollow have different salinity, soil-reclamation conditions are harsher than in other desert areas, in order to prevent salinization and to increase soil fertility and maintain besides developed measures for soil salinity control the following tasks are foreseen:

- 1) Study of changes in morphological structure and other physico- chemical properties, main types and sub-types of soils of the region under the influence of climatic factors;
- 2) Organise the implementation of salt leaching and other reclamation measures in accordance with timing and standards, and ensure the drainage of surface water and groundwater;
- 3) The groundwater level should be kept below the "critical depth" (2.5-3.0 m), taking into account the salt accumulation processes in the foothills of the area;
- 4) The area of Navbahor district depends on parent rock, mechanical composition, gypsum and layer thickness and initial quantity of chlorine ions, depth and salinity level of saline soils with sloping proluvial, developed on plains, with

different salinity, definition of agromelioration measures and strengthening of research works.

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# SOCIAL ENTREPRENEURSHIP FOR SUSTAINABLE DEVELOPMENT: A PARADIGM OF SOCIAL WORK INTERVENTION DURING THE COVID-19 CRISIS

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## ABSTRACT

*Social entrepreneurship (S.E.) is a strategic pathway for sustainable development. During the COVID-19 Pandemic, S.E. played a crucial role in managing the crisis and worked as a vehicle toward sustainable development by exercising its potential through large-scale innovations and creativity. During the Pandemic emergency, social entrepreneurs immensely contributed to deploying sustainability innovations in addressing the most pressing social needs worldwide. However, S.E. emerged as the new paradigm of social work intervention with many innovations and inclusiveness. Through this paper, the authors have tried to discuss the multifaceted dimensions of interventions through sustainable livelihood, i.e., creating livelihood promotions, inventions, social value creations, inclusiveness, and sustainable growth, which provided new directions towards sustainable solutions.*

*During the COVID-19 Pandemic, when medical science was engaged in finding the antidotes of the CORONA virus, social entrepreneurs in all corners found social entrepreneurship as a possible antidote to the emerged sustainable development challenges. They have worked as changemakers through small and large-scale interventions, impacting sustain social values while actively contributing toward socio-economic and environmental sustainability. In the social sector, social entrepreneurs always played a dynamic role in engaging in the process of value creation through innovations, adaptations, and learning. Especially in the pandemic emergency, they have done a remarkable job of identifying the unmet needs of the people and have come up with meaningful products to market as fast as possible. They have become apparent as social sustainability pillars of sustainable development with various potential characteristics highlighted in this paper.*

**KEY WORDS:** *Entrepreneurship, sustainability, development, Innovations, inclusiveness*

## INTRODUCTION

The world is facing many sustainable development challenges due to the COVID-19 Pandemic. Since World War II, this is the first time the entire human race has been in the fight against the Coronavirus in warfare mettle. In the last hundred years, COVID19 witnessed an extraordinary human disaster. People across the globe are exercising their collective intelligence where innovations and creativity are phenomenal in providing a strategic direction for adopting new life skills for survival. Minimizing the spread and intolerable burden of loss of lives because of the disease has been the main agenda of all nations. In this strategic response, there was a strong call from WHO Director-General Dr. Tedros Adhanom Ghebreyesus to different sectors in April 2020 for a holistic intervention. He appealed to the whole government and society to respond with strength of mind matching the front-line health workers and other COVID worriers. Further, he stressed the importance of unity within and among the nations while dealing with the Pandemic.

The COVID-19 Pandemic not only changed our foregone conclusion on how to learn and perform over a disastrous situation but also taught humanity the importance of social entrepreneurship as a shift to address the socio-economic vulnerabilities caused by the crisis. Once again, social entrepreneurship emerged as a sustainable way out of the present distress and paved a new paradigm shift in social work intervention during this crisis. It is all about analyzing socio-economic concerns of the existing problem with the objective of a positive change by applying entrepreneurial principles. Social entrepreneurship is pursuing sustainable solutions to neglected problems with positive externalities. ( Santos, 2012). It's an innovative arrangement for dealing with people and their vulnerability sustainably, especially during sudden shocks and pitfalls. It's a process that integrates other disciplines and people with all stakes in its pursuit through sustainably exercising their collective intelligence. In its real sense, social entrepreneurship has become apparent as a strategy that promotes collective responsibility among people for strengthening community cohesion. Social entrepreneurship is a systematic way of social intervention where social innovation plays a crucial role in the social entrepreneurship process. It leads not only the economic growth but also due process, truly inspire to the advent of social progress. It directs us to live respectful, interdependent lives, bearing in mind a great sense of respect for socio-environmental diversity. It helps people be self-reliant in all spheres of their lives and be virtuous in society as a part of their human rights. On the whole, social entrepreneurship sensibly and strategically addresses the people's pain points, aligning the very principle concepts and underlining philosophies of the social work profession.



## OBJECTIVES OF THE PAPER

- To understand the role of social entrepreneurship in the COVID19 Pandemic.
- To analyze social entrepreneurship as a new paradigm of social work intervention for sustainable development.
- To study the underpinning characteristics of social entrepreneurship and its phenomenal growth.

## METHODOLOGY

The paper has followed the desk research. It is purely based on secondary sources from various books, related journal articles, referred blogs from multiple electronic media, and other online sources. It analyses the relevant literature to align and understand the subject based on the stated objectives.

## COVID19 EMERGED AS A PANDEMIC

In December 2019, Wuhan City of China witnessed the first COVID-19 virus. Within a brief span, the outbreak of the virus created havoc among the human race all over the world. The disease was caused by the novel coronavirus causing COVID 19, subsequently named SARS-CoV-2 according to Coronavirus disease 2019(COVID-19) Situation Report-94. On January 30, 2020, exactly after one month, the Director-General of the World Health Organisation (WHO) declared the outbreak of COVID19 to be a Public Health Emergency of International concern and issued Temporary Recommendations. WHO officially declared COVID-19 infection as a pandemic on March 11, 2020. Also, the WHO risk assessment classified COVID-19 as a "Very -high-risk" global Pandemic.

## PANDEMIC CHALLENGES

COVID19 Pandemic emerged with multiple challenges and created mammoth socio-economic problems before the human race worldwide. "The outbreak of COVID-19 has greatly impacted nations, especially the nationwide lockdowns which have brought social and economic life to a standstill." Chaudhary, M., Sodani, P. R., & Das, S. ( 2020). Since the outbreak of the COVID19 Pandemic, the human race has been struggling to find a way to overcome the adverse effect of COVID19. In India, the crisis witnessed a terrible mass exodus amidst a countrywide lockdown that hugely affected social, economic, health, psychological and political life. The consequence of the COVID19 Pandemic was so vast that it was beyond the human race's capacity to control the situation. COVID-19 left a vast propound of human suffering with psychological turmoil in societies overwhelmed by large-scale human disasters and left the blueprint of adverse impact. Due to the Pandemic, the world witnessed a significant loss of productivity and production. Finally, the world received a grim picture with the loss of life, loss of human resources, loss of economy, loss of education for the children, loss of business, and loss of employment opportunities. Not only these, but they also affected the achievement of Sustainable Development Goals (SDG) considerably by 2030.

COVID19 Pandemic created a lot of challenges before the Sustainable Development Goals, and "the pandemic has shown that this crisis is fuelled by poverty, hunger, weak health systems and lack of clean water and sanitation, education and global cooperation." Horton, R. ( 2020). , Bedford, J., Enria, D., Giesecke, J., Heymann, D. L., Ihekweazu, C., Kobinger, G., Lane, H. C., ... WHO, S. T. A. G. I. H. ( 2020) "The global recession caused by the COVID-19 response is alarming and has made researchers question whether the sustainable development goals (SDGs) are fit for the post-pandemic age. Some have even claimed that certain SDG targets might be counter-productive because they enhance growth rather than development." Time to revise the Sustainable Development Goals. ( 2020) "Under a 'COVID Baseline' scenario, the Pandemic could raise the number of people living in extreme poverty by 44 million in 2030. Uncertainties are manifold, and under a 'High Damage' scenario, the world could see a staggering 251 million people driven into extreme poverty by the Pandemic, bringing the total number to 1 billion by 2030. "At the same time, the U.N. University estimated that the economic fallout could push an estimated half a billion people into poverty and take global development progress back three decades, primarily in emerging economies." After the II World War, nobody had witnessed such a devastating state and had predicted such an unprecedented situation that would create a blocking block of social development and change the trajectory of the Sustainable Developmental Goals(SDG)2030.

## Social Entrepreneurship as a Turning Point for Sustainable Development Aimed COVID19 Challenges

In the shadow of the COVID-19 Pandemic, sustainable development objectives seem to be a challenging task. The Pandemic has significantly impacted each section of society and each sector of development. In this state of affairs, the importance of Social Entrepreneurship (S.E.) is certainly level-headed. It facilitates a demand-driven approach and enables an environment for sustainable development. It also facilitates bringing economic stability along with creative solutions to the cumulative problems confronted by our society. Social entrepreneurship is a rational strategy for social change and is also used as an instrument for systematic changes where a collaborative approach plays a crucial role in leveraging change, making skills for social cohesion and social development. Social entrepreneurship emerged with underlying very complex abilities to contribute to change. "A new era of collaborative social entrepreneurship focused on bringing about large-scale systemic change is emerging, giving us hope that we will be able to navigate an increasingly complex and uncertain world with confidence, converting adversities into opportunities." V.Shashikumar, (2016) The father of Social Entrepreneurship Bill Drayton Says 'Society Is At A Profound Turning Point'

(www.forbes.com/sites/devinthorpe/2019) Once again, after 40 years, the relevance of social entrepreneurship is deeply understood during the COVID19 Pandemic. It is keenly realized that social entrepreneurship has a great role in "contributing to decent work by showing the possibility of social enterprise that inherently takes a social value and economic growth



simultaneously in to account." (Rob, 2019) "However, social entrepreneurs are individuals who find innovative solutions that respond to exactly those challenges and support their solutions with innovative business models" Choi, N., & Majumdar, S. (2014) Social entrepreneurship demands multi-players supports where people get an opportunity to excel their innovative solutions to address the existing problems.

Regarding social entrepreneurship, The Members of the COVID Response Alliance for Social Entrepreneurs said that "we call on all actors to stand by social entrepreneurs as first responders to the COVID-19 crisis and as pioneers of a green, inclusive society and economic system." C.Catherine (2020), It is. Indeed, this is high time to understand the depth of Social entrepreneurship and its impact on social change and sustainable development. It's always come up with extraordinary solutions to extraordinary problems and "presents an extraordinary opportunity to develop cost-effectiveness and high impact as pillars for sustainable development." Therefore social entrepreneurship is the turning point for sustainable development, which could lead to a harmonious society. Social values could prevail, and a more significant social impact could lead to a more remarkable social change, nurturing social interdependency as a new normal aimed at COVID19 challenges.

### Social Entrepreneurship Initiatives During COVID19

All over the world, social entrepreneurs played a significant role, and they have done tremendous work in various fields during the COVID19 Pandemic. They have worked not only as social entrepreneurs but also as social innovators during the COVID19 pandemic crisis. Initiations with innovations created a new footprint in the field of social entrepreneurship. During COVID19, their initiatives and innovative approaches provided hope for the human race facing unprecedented challenges. "Social innovation is the DNA of social entrepreneurs," said Vincent Otieno Odhiambo, regional director for Ashoka East Africa, a nonprofit working with social enterprises — businesses aiming to do good while making a profit." Yi, L.Beh & Bhalla.N.(2020). During the crisis, S.E. demonstrated their social responsibilities with more sustainable models to build inclusive economics for a long. At the same time, their involvement in the crisis in terms of providing services and care to poor and vulnerable groups is excellent. Sharing information to the needy, individual counseling through APP support, community tracing initiatives, support of up migration labor, initiative social entrepreneurship, and their pro-social motives helped lead to positive social outcomes. Some of the exemplary Social entrepreneurship initiatives have been taken by the entrepreneurs as their social responsibility. The followings are

### S.E. INITIATIVES WORLDWIDE: SOME REFLECTIONS

Sl. No	Name of the Organisations	Social Entrepreneurship Initiatives
1.	<b>The COVID Response Alliance for Social Entrepreneurs</b>	<ul style="list-style-type: none"> <li><b>The collaborative effort has taken over 80 global leaders to support social entrepreneurs</b> in pooling knowledge, experience, and responses to alleviate suffering and advance new change models for a more inclusive, equitable, and sustainable world.</li> <li>The Alliance represents a network of over 90,000 social entrepreneurs. And 1.9 billion people benefited.</li> </ul> <p><b>Areas of Interventions:</b></p> <ul style="list-style-type: none"> <li><b>Protecting livelihoods</b></li> <li><b>Mitigating millions of tonnes of CO2</b></li> <li><b>Improving access to health</b></li> <li>Education and energy-driven social inclusion movements for the disabled, homeless, or those with refugee status.</li> </ul>
	<b>Source</b>	Social entrepreneurs are first responders to the COVID-19 crisis. This is why they need support <a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/</a> <sup>1</sup> COVID-19 Action Agenda Leaders on the Front Line: "Why Social Entrepreneurs Are Needed Now More than Ever," available at: <a href="https://www.schwabfound.org/our-covid-19-response">https://www.schwabfound.org/our-covid-19-response</a> <sup>2</sup>
2.	<b>Jan Sahas in India</b>	<ul style="list-style-type: none"> <li><b>Covered</b> 2,81,000 affected people in 90 districts of 15 states in India.</li> <li>Provided cooked food to over 4,20,000 migrant workers</li> <li>Distributed 11,000 PPE kits</li> <li>Supported emergency transportation to 17,000 migrants and their families</li> <li>Online cash transfer, medical and mobile balance to individuals in 145 districts of 19 states across India.</li> </ul>
	<b>Source</b>	Sharma, U.(2020 ), " <i>Indian NGO founder who helped migrants in lockdown on Schwab list of social innovators,</i> " available at: <a href="https://theprint.in/india/indian-ngo-founder-who-helped-migrants-in-lockdown-on-schwab-list-of-social-innovators/509106">https://theprint.in/india/indian-ngo-founder-who-helped-migrants-in-lockdown-on-schwab-list-of-social-innovators/509106</a> <sup>3</sup>



		<a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/</a>
3	<b>Youth Co: Lab</b>	<ul style="list-style-type: none"> <li>• An initiative co-led by UNDP and Citi Foundation serves a social entrepreneurship movement in Asia-Pacific</li> <li>• Supported 7,000 young entrepreneurs who have developed or improved over 600 start-ups, each accelerating the Sustainable Development Goals (SDGs) in their way.</li> </ul>
	<b>Source</b>	<p>Hellema, M. (2020), "Playing their part – Four ways in which our young social entrepreneurs responded to COVID-19", available at: <a href="https://www.youthcolab.org/post/playing-their-part-in-countering-the-pandemic-four-ways-in-which-our-young-social-entrepreneurs-ha">https://www.youthcolab.org/post/playing-their-part-in-countering-the-pandemic-four-ways-in-which-our-young-social-entrepreneurs-ha</a><sup>4</sup></p> <p>World Economic Forum (2020), "Social entrepreneurs are first responders to the COVID-19 crisis. This is why they need support", available at: <a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/</a><sup>5</sup></p>
4	NextBillion	<ul style="list-style-type: none"> <li>• Created and continually updates an incredibly rich resource list: Coronavirus Resources for the Social Impact Sector.</li> <li>• Organized COVID-19 news, events, and analysis relevant to the sector</li> <li>• The page now includes over 100 links to useful resources, from funding sources to data maps</li> </ul>
	<b>Source</b>	<p>Roussos, P. (2020), "Unity During the Pandemic: How the Social Enterprise Community is Coming Together to Survive COVID-19," Available at: <a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">Nextbillion.net</a><sup>6</sup></p> <p><a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/</a></p>
5	<b>Euclid Network (EN) Regions</b> Europe, Middle East, North Africa	<ul style="list-style-type: none"> <li>• Euclid Network (EN) is the European Network for social enterprises, impact-driven leaders, and a strategic partner to the European Commission. The Network consists of national social enterprise networks, social incubators, social funds, and universities, all intending to enhance social entrepreneurship</li> <li>• EN conducted a survey among its members (prominent national networks for social entrepreneurship) from 20 countries to assess the impact of the COVID-19 Pandemic on social entrepreneurship. EN is continuously updating and sharing the results with the European Commission and other stakeholders from the public and private sectors to take coordinated action</li> </ul>
	<b>Source:</b>	<p><a href="https://euclidnetwork.eu/">https://euclidnetwork.eu/</a><sup>7</sup></p> <p><a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/</a></p>
6	<b>IKEA Foundation Regions</b> East Africa, South Asia	<ul style="list-style-type: none"> <li>• The IKEA Foundation supports partners who offer programs for social entrepreneurs to identify and understand the challenges they face due to the COVID-19 crisis. They have offered partner organizations tailor-made support to ensure that they can continue the important work they do and, where necessary, adapt to the current situation.</li> <li>• Backing and working with social entrepreneurs, IKEA Social Entrepreneurship creates greater opportunities and contributes to improving everyday lives around the world. Together with dedicated partners and experienced IKEA coworkers, they co-develop programs, products, and services with their partners to scale up social entrepreneurs' businesses and increase their impact.</li> </ul>
	<b>Source:</b>	<p><a href="https://ikeafoundation.org/">https://ikeafoundation.org/</a><sup>8</sup></p> <p><a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis/</a></p>
7	<b>Mercy Corps Ventures Regions</b>	Mercy Corps Ventures has provided: – Access to emergency financing, including debt relief, equity, and grants – Technical assistance related to pivoting business models, managing financials, and accessing government support or other relief mechanisms





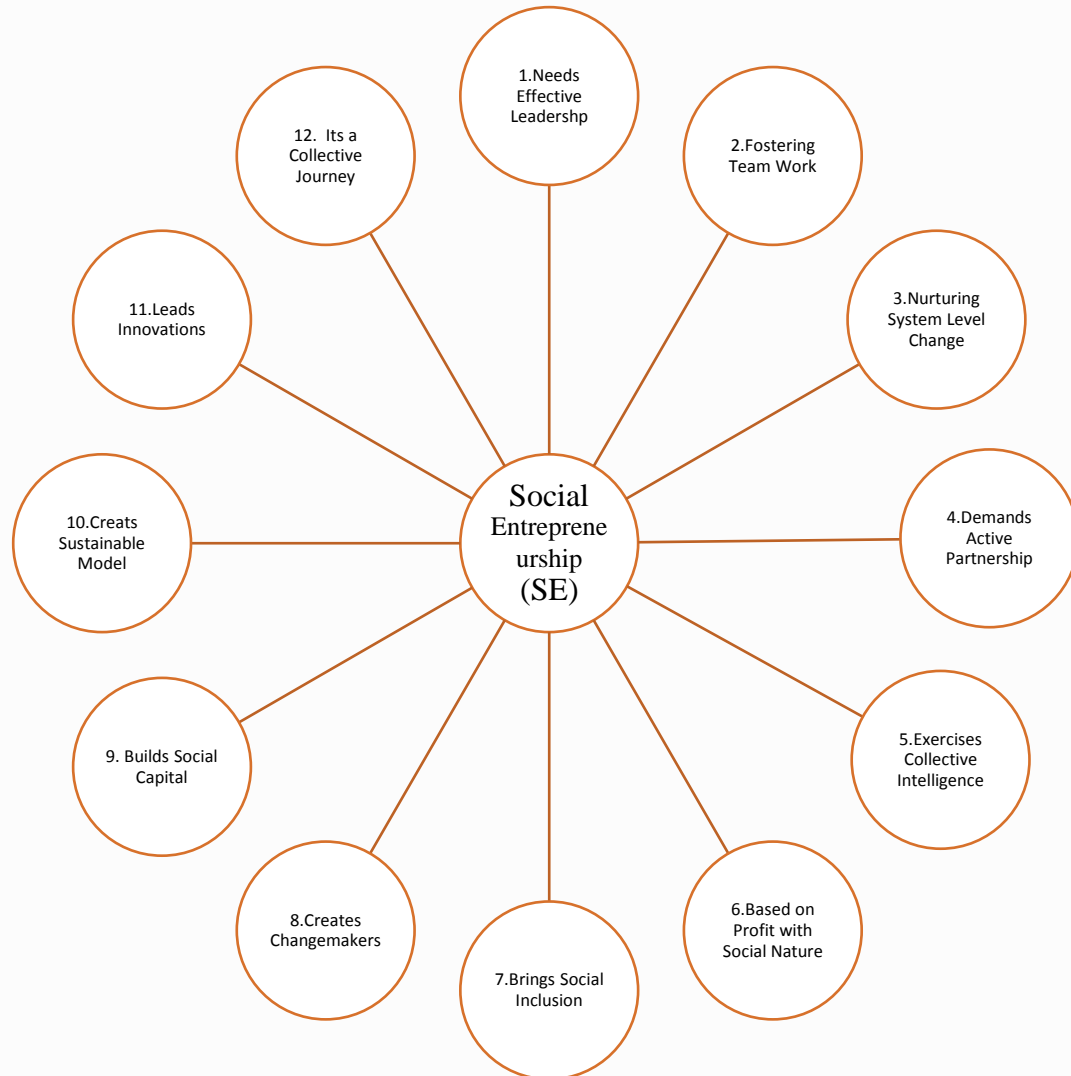
	Africa, Central & South America, South-East Asia	
	<b>Source:</b>	<a href="https://www.mercycorps.org/what-we-do/ventures">https://www.mercycorps.org/what-we-do/ventures</a> <sup>9</sup> <a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis</a>
<b>8</b>	<b>Ashoka Regions</b> Globo	Ashoka has been co-entrepreneurship at local, regional, and global levels, raising the visibility of social entrepreneurs throughout the crisis and creating impact.
	<b>Source:</b>	<a href="https://www.ashoka.org/en">https://www.ashoka.org/en</a> <sup>10</sup> <a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis</a>
<b>9</b>	<b>Yunus Social Business (YSB)</b> Regions South America, East Africa, South Asia	YSB has been providing: – Emergency payroll grants so social businesses can keep their teams employed and recover more easily – Technical assistance related to operations or human resources, managing financials, and the supply chain
	<b>Source:</b>	<a href="https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis">https://www.weforum.org/agenda/2020/09/social-entrepreneurs-are-first-responders-to-the-covid-19-crisis</a>

Apart from these, the COVID19 Pandemic witnessed many entrepreneurs worldwide who have done remarkable jobs in the field of social entrepreneurship. Once again, they have shown their proactiveness in handling the pandemic crisis by applying the social entrepreneurship approach and acting as first responders in addressing various social issues in the setting of exemplary role models.

### CHARACTERIZING SOCIAL ENTREPRENEURSHIP AND ITS PHENOMENAL GROWTH

The concept of social entrepreneurship is a global phenomenon that unfolds at the local level as encompassing a multi-range of activities but needs some broad involvement of actors and sectors for its promotion, penetration, and positioning. According to In Mair, J., In Robinson, J., & In Hockerts, K. (2014), "enterprising individuals devoted to making a difference; social purpose business ventures dedicated to adding for-profit motivations to the nonprofit sector; new types of philanthropists supporting venture capital-like 'investment' portfolios; and nonprofit organizations that are reinventing themselves by drawing on lessons learned from the business world. In the past decade, 'social entrepreneurship' has made a popular name for itself on the global scene as a 'new phenomenon that is reshaping the way we think about social value creation.'" Though S.E. is gradually a field of action in a pre-paradigm state, it is evolving as a new area of intervention that could complement social work intervention in terms of resolving conflicting discourses in many ways within its future paradigm development. Nowadays, S.E. is instrumental for social change in creating new markets and market niches with some underpinning characteristics. The followings are

### Characterizing Social Entrepreneurship



**1. SE Needs Effective Leadership:** The leader is the team commander, and how the leader leads the team is called leadership. Leadership is the art of motivating and managing the team or group toward a common goal. Leadership always matters a lot in winning over challenges. Leadership provides the strategic direction to meet the organizational needs and provides an inspiring vision to the others for achieving their common objectives. "Leadership is influence. If people can increase their influence with others, they can lead more effectively. Leadership is a process, not a position. Leadership deals with people and their dynamics, which are continually changing. They are never static. The challenge of leadership is to create change and facilitate growth." MAXWELL, J. O. H. N. C. (2021). For entrepreneurial growth, leaders play critical roles in their organizations and act as initiators of the new system, organizational culture, and program.

**2. S.E. Fostering Teamwork:** Teamwork is the most crucial aspect of Social Entrepreneurship. Social impacts depend on the effectiveness of Teamwork, and the kind of relationship with the people we work with determines our progress in our entrepreneurial journey. Teamwork helps solve problems and facilitates a collaborative atmosphere for all to work together. Teamwork creates an enabling environment for collective wisdom where all the team members get opportunities for brainstorming for the team to exchange ideas and develop innovative ways of doing things. Teamwork harnesses creativity and innovations to build efficiency, quality improvement, and morale and encourage group cohesion. Effective Teamwork consistently demonstrates unity and integrity among the team members to achieve the highest degree of satisfaction and provides the highest degree of social impact. Reinhold Niebuhr's quote: "Nothing we do, however virtuous, can be accomplished alone." "The whole is greater than the sum of its parts. One plus one equals three or more." Covey, S. R., Covey, S., & Collins, J. C. (2020)



**3. S.E. Nurturing System-Level Change:** System change is about addressing the root causes of social problems, and it's an approach that leads to a progressive direction for a sustainable future. It teaches us how individuals, organizations, places, business actions, and innovations are interconnected and interdependent with system change. System change may be small, big, simple, or complicated, but it takes place as the situation demands. It's a demand-driven approach. System change should be need-based. It is a process that intends to address the inherent problems. It may be social, economic, political, or environmental, but system-level change demands community-based initiatives and community revitalization efforts to address the problems' potential causes. During the COVID19 Pandemic, system-level changes played a significant role in addressing the COVID19 situation. Examples of actions at this scale include quarantine measures, social distancing, contact tracing, and universal vaccine coverage. The system taught us how to address the pandemic crisis and provided the right direction for positive impact. System-level change acts as a defensive player during the COVID19 Pandemic and protects the human race for survival. This system-level change provides a progressive shape to social entrepreneurship. System-level change is the precondition of societal change and acts as a tool for organizational growth. "A recent report by the Schwab Foundation uses a definition by Martin Fisher, co-founder, and CEO of KickStart International, which goes like this: Systems change is "fundamentally, and on a large scale, changing the way a majority of relevant players solve a big social challenge, such that a critical mass of people affected by that problem substantially benefit." Odin Mühlenbein, (2018).

**4. SE Demands Active Partnership:** Active partnership is one of the strategic decisions of the social entrepreneurs, which helps not only develop a healthy relationship with the Community Based Organisations (CBOs) but also helps a lot in making a collective decision for collective benefits. The active partnership develops a joint venture among the various organizations and people to achieve their intended goals. "Active partnerships would make social entrepreneurs develop not only perseverance, but also become more competent in contributing to social issues" Tirta, A., Gunawan, A., Stoffers, J., Byomantara, D. G. N., & Sujatha, D. K. (2018). Active partnership demands you to be involved in the association's daily operations, and it fosters the growth of social entrepreneurship. "Active partnership support workplace movement. Active Partnerships are locally based strategic organizations that recognize that activity levels are affected by a complex system of influences, and no single organization or program creates sustainable change at scale. By adopting a collaborative whole system approach, Active Partnerships seeks to make active lifestyles the social norm for everyone and address the worrying levels of inactivity in society." The active partnership could lead to collaboration for change, and it could be the panacea for achieving SDG 2030.

**5. S.E. Exercises Collective Intelligence:** Collective intelligence is the precondition of social entrepreneurship, and without collective intelligence, social entrepreneurship does not exist. Therefore collective intelligence is the fundamental exercise for social entrepreneurship. It produces ideas to run the business innovatively. Social entrepreneurship encourages appropriate interactions and dialogs with interested stakeholders leveraging collective intelligence to objectify and explore business opportunities. It plays as a concrete mechanism that works to improve the entrepreneurial cognition process. It helps in concretizing the ideas.

**6. S.E. Based on Profit with Social Nature:** The uniqueness of Social entrepreneurship is profit with social nature. Fund and innovative solutions play a vital role in the social entrepreneurship process. People come up with brilliant ideas and exercise their collective wisdom against all the odds to succeed at creating new products and services that help in improving people's life. This S.E. provides better financial and psychological rewards than the monotonous big corporate. The process of social entrepreneurship not only nurtures profit-making but also nurtures social values for which they work for a noble social cause. "Social entrepreneurship is intended to drive societal transformations, and such entrepreneurs concurrently act to address particular cases of social issues and problems and empower transformational progress throughout the system." Gandhi, T., Raina, R., & SpringerLink (Online service). (2018).

**7. S.E. Brings Social Inclusion:** Social inclusion is the strategic objective of Social entrepreneurship. Social Entrepreneurship provides practical grounds to the people and their participation in progress to foster social inclusion where local knowledge, ground-level experiences, and innovations create a conducive environment for positive social change. It allows the people to consider local dynamics and cultural context to establish a creative problem-solving mechanism for sustainable development. Socially inclusive social entrepreneurship encourages inclusive leadership. "Inclusive leaders appreciate everybody's contribution and inspire innovation by involving people at risk of being excluded from society." Paola Bortini, Angelica Paci, Anne Rise, Irene Rojnik, (2016), "As a community, we need to empower all voices, no matter their faith, background, disadvantage, disability or age. People need to feel like they have a place here, a true home, a sense of belonging, a sense of self, and respect from others. Then they will truly be able to contribute to our future."

**8. S.E. Creates Changemakers:** All changemakers are not social entrepreneurs, but all social entrepreneurs are changemakers. Their involvement in the social entrepreneurship process indicates they are a reason for being. They have a mindset change with innovative solutions to society's most pressing social, economic, and environmental challenges. They are well-motivated and spirited individuals who are always committed to the good of all and good with all. "A social enterprise is a type of business where the bottom line and success metrics are measured in more than just profits. Instead, social enterprises typically measure



success based on a triple bottom line People, Planet and Profit." Social entrepreneurship creates changemakers, and changemakers create entrepreneurship.

"Carol Sanford, in her most recent book: *The Regenerative Business*, agrees as she emphasizes that successful businesses today stop the practice of motivating people with incentives, rewards, and recognition and shift to fostering initiative and self-management. She states that just important as technical skills; people need to develop a regenerative mindset defined by the fundamental characteristics of 1.) a desire to grow and improve, 2.) a motivation to engage and learn from others, and 3.) derive meaning from contributing to something larger than themselves."

**9. S.E. builds Social Capital:** Social capital builds social entrepreneurship, and social entrepreneurship facilitates building the trust of community people. Both are highly interconnected and interdependent. Bonding social capital is the necessary element that plays a dynamic role in upholding the entrepreneurial spirit and to holds the organization together. Social capital is significant in encouraging entrepreneurship when people can access essentials via social networks. "Social capital has been variously and broadly defined as involving the building and maintaining of networks and the norms of behavior that underpin them (Putman, 2000); the goodwill that is endangered by the fabric of social relations and that can be mobilized to facilitate action (Adler and Kwon, 2002:17); and taken to be the sum of the resources that accrue to an individual or group, by virtue of possessing networks (Bourdieu and Wacquant, 1992). Jason Cope, Sarah Jack, Mary B. Rose, (2007) "The relationship between social capital and social entrepreneurship was studied by Madhooshi and Samimi (2015), and it can be concluded that social entrepreneurs build their social capital which is one of the reasons why some social entrepreneurs are more successful in their ventures than those who do not leverage on social capital. The research confirmed that values are a vital element in social capital. A person who shares similar values may more easily develop relationships of trust faster and be more willing to work together. "...trust cannot be expected to appear easily when there is not a system of common or shared values and a sense of commitment and belonging" Mehrdad Madhooshi, Mohammad Hossein Jafari Samimi, (2015).

**10. S.E. Creates Sustainable Model:** For several decades' social entrepreneurship emerging as the source of transformational social change. Due to their innovative and holistic business model, they are emerging as changemakers and coming up with "designing sustainable interventions that bring effective results (Bent-Goodley, 2002)". Antonela Spínola Jesus, (2016). "In the late 1970s, for example, Muhammad Yunus secured funding to conduct an experiment in which very poor borrowers were given tiny loans. The experiment grew into the famed Grameen Bank, a financially sustainable social business serving disadvantaged Bangladeshis. As others around the world saw that it was possible to make a tidy profit lending to poor people, they adopted the Grameen model, vastly magnifying the impact of Yunus's initial innovation. Not only these, but social entrepreneurs, like The COVID Response Alliance for Social Entrepreneurs, Ashoka, Skoll, Mindo, The Center for the Advancement of Social Entrepreneurship (CASE), Jan Sahas, Youth Co: Lab, MyMizu, NextBillion, Social Capital Markets (SOCAP), and iKure like so many entrepreneurs in all over the worlds are coming with new ideas and innovations with empathizing social and ecological problems with entrepreneurial means. For example, In the view of the present Pandemic, they have a very constructive role in managing the crisis with their mission. During the present COVID 19 pandemic, it is experienced that social entrepreneurs are more conscious of the complexities and contingencies of local embeddedness. They are more resilient in handling the crisis with social innovations and scientific evidence with the systemic vision of the social world, which provides a sustainable perspective for social change. Not only this, their systemic approach is extraordinarily brilliant in managing the COVID19 Pandemic. They have developed various sustainable models as social entrepreneurs to achieve the Sustainable Development Goals by 2030. "Sustainability is about an organizations' capacity to endure over time. In the context of social enterprise, sustainability has two sides. One side relates to the fact that an enterprise needs to be able to survive and endure financially over time." Singh, A., & Reji, E. M. (2021).

**11. S.E. Leads Innovations:** Social entrepreneurship is a process that constantly needs and leads to creative solutions. Due to their inherent capacity and capabilities, collective wisdom is eventually responsible for showing sustainable, innovative solutions for sustainable development. Social entrepreneurship is emerging as a new wave of growth, innovation, and development. It is found that social entrepreneurship is more sensitive and more responsive to social market needs. "They systematically identify and respond to such needs long before the bulk of the marketplace encounters them. In this sense, social enterprises are on the cutting edge when it comes to dealing with certain needs, and that obliges them to innovate as a matter of course." Huysentruyt, M. (2014).

"The reasons behind the popularity of social entrepreneurship are many. On the most basic level, there's something inherently interesting and appealing about entrepreneurs and the stories of why and how they do what they do. People are attracted to social entrepreneurs like last year's Nobel Peace Prize laureate Muhammad Yunus for many of the same reasons they find business entrepreneurs like Steve Jobs so compelling. These extraordinary people come up with brilliant ideas and, against all the odds succeed at creating new products and services that dramatically improve people's lives." Roger L. Martin & Sally Osberg Spring (2007) "Social entrepreneurship is a credible, self-sustainable instrument of social reuse of confiscated assets." Peter Kovač Vujanović, P.K., Lipenkova, S., Orlando, E. (2019).



**12. S.E. Is a Collective Journey:** It is indeed the journey of social entrepreneurship is not an alone effort. It needs the joint effort of others to excel. Social entrepreneurship is a collective journey of enthusiastic people with great social value, humility, and compassion towards the human race. It's a collective action for sustainable development and a collaborative effort for substantive change. More ever, it's a journey of the Social Network of social development. It's a unique way of the trip where "multiple actors collaboratively play to address social problems, create new institutions, and dismantle outdated institutional arrangements" Montgomery, A. W., Dacin, P. A., & Dacin, M. T. (2012). Here it may conclude it's a journey of collective impact. Apart from these characteristics, so many good elements also influence entrepreneurship. Therefore, an open mind must be required to understand the other critical aspects from a theoretical and practical point of view.

## THE PARADIGM OF SOCIAL WORK INTERVENTION IN SOCIAL ENTREPRENEURSHIP

"The professional future of social work depends on its capacity of self-confrontation and reconstruction of its intervention styles in the face of there-identification of social problems" (Mouro, 2006: 517) Jesus, A. S (2016).

Problems always create a ground for self-introspection to learn the potential causes of problems. Trials make us know to correct. It makes us learn how to develop agility and the ability to adapt to new challenges. With this unique adaptability, we build our strength to challenge the situation to a new normal. Both mentally and physically, we develop our power to confront problems. A new strategic path always emerges where there is a problem. The situation creates an impulse to find out an alternative way of adjustment. Therefore, innovation plays a critical and dynamic role in solving the problem and allowing learning new things and making further adjustments in our life. Novel Coronavirus entered the human race as havoc; apparently, an unprecedented crisis emerged before humanity, making us learn so many things.

During COVID 19 pandemic, social entrepreneurs created a remarkable job in the social development perspective, and they could reach millions for their social work mission. They gave a new paradigm of social work intervention and taught us that social entrepreneurship could be used as an assistance tool for solving the COVID19 pandemic crisis. They also made us realize that social work and social entrepreneurship are interconnected, and their interconnectedness produced wisdom for reconstructing new social work practices. Social entrepreneurship is a new framework for social work practice, which is highly observed during the COVID-19 crisis through the example mentioned above of social entrepreneurship worldwide. Social entrepreneurship is used not only for social development but also for economic and ecological integration of the most vulnerable social groups by rediscovering and developing new potential and capabilities of the population as part of the social work mission during the COVID19 Pandemic. Social entrepreneurship could be instrumental in achieving sustainable development goals. Social entrepreneurship is a new paradigm for social work intervention. That could lead to economic progress and social justice through innovative business models, which could bring transformational change and achieve the Sustainable Development Goals(SDG) by2030 by creating a more inclusive economy, social values, interdependency, and new ways of partnership for change.

## CONCLUSION

During the COVID19 Pandemic, social entrepreneurs played a pivotal role in responding to unprecedented situations, demonstrating their social responsibilities with more sustainable models to build inclusiveness for a long. They came up as the first responders of the COVID19 Pandemic and focused on addressing the most pressing social needs. They have had to adapt quickly and extensively to the crisis's health, social and economic dimensions and evolved as changemakers. Social entrepreneurship became an eye-opener for others to contribute to sustainable livelihood pathways with innovations and value-added services during the pandemic crisis. They acted as a catalyst for the nation's overall prosperity as they led to the socio-economic empowerment of the people and technological solutions at large. S.E. is more aligned with social work. It provided a new paradigm for social work intervention considering social entrepreneurship as one of the latest frameworks for social work learning and practice. They should take it as an opportunity in a new normal as the best tool for reaching the poorest of the poor in society, which could lead to economic progress and social justice through innovative business models. It could bring transformational change and lead to achieving the Sustainable Development Goals(SDG) by2030 by creating a more inclusive economy, social values, interdependency, and new ways of partnership for change. It is true; Social entrepreneurship has a bright field full of energy, innovations, and uniqueness for its expansion with the proposition of a new modus of Operandi for social work practitioners to achieve sustainable development. Though social entrepreneurship is a recent phenomenon, it needs a field of research for its enrichment. In this present scenario, S.E., considered a field of study, is in start-up mode. They are coming with exciting works in their endeavor with a sustainable way of innovations and interventions. Social Entrepreneurship is a brightening field full of energy and potentialities for its expansion with the proposition of a new modus of Operandi for sustainable development.

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# JPMRT: AN EFFECTIVE MEASURE TO REDUCE STRESS AND ANXIETY

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**“Mental health affects every aspect of your life. It’s not just this neat little issue you can put into a box.”**

**– Shannon Purser**

## ABSTRACT

*Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Over the course of life, each and every person experience mental health problems in one or other way, this will influence their thinking, mood, and behavior. It will also affect their physical as well as mental health which lead to stress, anxiety and many physical symptoms. These events can affect physically or psychologically and will cause health related issues. So, it is better to prevent these occurrences by various measures whether by engaging in diversional therapy, meditations, yoga, exercises and relaxation techniques. Jacobson’s Progressive Muscle Relaxation Technique is proving measure to reduce health related issues by inducing sleep, refreshing by relaxation, reducing stress and anxiety.*

**KEYWORDS:** Stress, Anxiety, Relaxation, Pregnancy

## INTRODUCTION

A healthy mind can lead to a healthy body. Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood.

Over the course of life, each and every person experience mental health problems in one or other way, this will influence their thinking, mood, and behavior. It will also affect their physical as well as mental health which lead to stress, anxiety and many physical symptoms. Many measures are there to deal with the condition but JPMRT is the proven technique to reduce the symptoms and improving health.

## DEFINITION

Jacobson’s relaxation technique is a type of progressive relaxation therapy that focuses on tightening and relaxing specific muscle groups in sequence. By concentrating on specific areas of muscles, tensing and then relaxing them, one can become more aware of one’s own body and physical sensations. Dr. Edmund Jacobson invented

the technique in the 1920s as a way to help patients deal with anxiety. He felt that relaxing the muscles could relax the mind as well. The technique involves tightening one muscle group while keeping the rest of the body relaxed, and then releasing the tension.

## BENEFITS

Practicing relaxation techniques can have a variety of health benefits, such as:

- relieving anxiety;
- reducing work-related stress;
- lowering your blood pressure reducing the likelihood of seizures improving sleep.

## EVIDENCE BASED STUDIES

Research shows a connection between relaxation and blood pressure, perhaps because stress is a contributing factor to high blood pressure. Research both old and new provides some evidence that Jacobson’s relaxation technique may help people with epilepsy reduce the amount and frequency of their seizures. In some cases, people who didn’t get more sleep still felt better rested after relaxation therapy.





Research has shown that PMR offers a range of benefits, including pain relief and better sleep. It may also reduce migraine attacks, systolic blood pressure. Migraine is a neurological condition that causes intense pain in your face and head. Migraine attacks can be triggered by stress, including normal everyday stressors.

An interventional study conducted by Kyriakoula Merakou, Konstantinos Tsoukas, Georgios Stavrinou, Eirini Amanaki, Antonia Daleziou, Ntina Kourmoussi, Georgia Stamatelopoulou, Evi Spourdalaki, Anastasia Barbouni in 2019 on 50 unemployed individuals to assess the Effect of Progressive Muscle Relaxation on Emotional Competence: Depression-Anxiety-Stress, Sense of Coherence, Health-Related Quality of Life, and Well-Being of Unemployed People in Greece found that PMR reduced symptoms of depression, anxiety, and stress. At the same time, it improved feelings of well-being and quality of life.<sup>1</sup>

In 2020 a randomized clinical trial conducted by Mehdi Harorani, Fahimeh Davodabady, Behnam Masmouei, Niloofar Barati to assess the effect of progressive muscle relaxation on anxiety and sleep quality in 80 burn patients. These patients often experience high anxiety and poor sleep quality due to their physical and psychological conditions. The patients were divided into two groups. One group did PMR for 20 to 30 minutes a day, 3 days in a row. The other group just received routine care and treatment. After 3 days, the researchers determined that the patients who did PMR showed a significant decrease in anxiety and an improvement in sleep quality compared to the group who only received routine care.<sup>2</sup>

Patients with Coronavirus Disease 2019 (COVID-19) will experience high levels of anxiety and low sleep quality due to isolation treatment. Some sleep-improving drugs may inhibit the respiratory system and worsen the condition. Prolonged bedside instruction may increase the risk of medical infections. Kai Liu, Ying Chen, Duozi Wu, Ruzheng Lin, Zaisheng Wang, Liqing 2019 Pan conducted a randomized controlled clinical trial to investigate the effect of progressive muscle relaxation on anxiety and sleep quality of COVID-19, a total of 51 patients who entered the isolation ward were included in the study and randomly divided into experimental and control groups. The experimental group used progressive muscle relaxation (PMR) technology for 30 min per day for 5 consecutive days. During this period, the control group received only routine care and treatment. The study concluded that Progressive muscle relaxation as an auxiliary method can reduce anxiety and improve sleep quality in patients with COVID-19.<sup>3</sup>

According to a study conducted by Bianca Meyer, Armin Keller, Hans-Georg Wöhlbier, Claudia Helene Overath, Britta Müller, and Peter Kropp 2016, PMR can decrease the frequency of migraine episodes. The researchers believe it helps by balancing levels of serotonin, a neurotransmitter that's often low in people with migraine.<sup>4</sup>

Progressive Muscle Relaxation (PMR) helps to improve the emotional state of antenatal mothers with stress and anxiety, which is necessary to keep the fetus healthy inside the womb.

Singaravelu Rajeswari and Nallepalli Sanjeeva Reddy conducted a randomized controlled study from May 2015 to June 2017 with 250 primigravidae to assess the Efficacy of

Progressive Muscle Relaxation on Pregnancy Outcome among Anxious Indian Primi Mothers. The study suggests that PMR practice is useful during pregnancy to decrease stress, anxiety, and for reducing the occurrence of postpartum complications.<sup>5</sup>

Pregnancy may be accompanied by serious physiological and psychological changes as it is a stressful period in a woman's life. Azam Sadeghi, Masoud Sirati-Nir, Abbas Ebadi, Matin Aliasgari, and Zahra Hajiamini conducted a clinical trial on 60 primigravida women in Iran to determine the effect of progressive muscle relaxation on pregnant women's general health. The results showed the effectiveness of progressive muscle relaxation on pregnant women's general health, the prenatal clinics can include a training program for progressive muscle relaxation in the routine training programs for pregnant women.<sup>6</sup>

Progressive relaxation therapy is generally safe and doesn't require a professional guidance. Sessions typically last no more than 20-30 minutes, making it manageable for people with busy schedules. Progressive muscle relaxation involves tensing then relaxing muscles, one by one. This may help ease stress and anxiety.

## STEPS

Sit in a quiet and comfortable area. Avoid holding breath, which can cause more tension. Inhale deeply when you tense your muscles and exhale fully when you relax. Wear loose, light weight clothing.

- Start by lying or sitting down. Relax the entire body. Take five deep & slow breaths.
- Lift the toes upward. Hold, then let go. Pull the toes downward. Hold, then relax.
- Next, tense the calf muscles, then let go.
- Move your knees toward each other. Hold, then let go.
- Squeeze your thigh muscles. Hold, then relax it.
- Clench your hands. Pause, then release.
- Tense your arms. Hold, then let go.
- Squeeze your buttocks. Pause, then let go.
- Contract your abdominal muscles. Pause, then release the tension.
- Inhale and tighten your chest. Hold, then exhale and let go.
- Raise the shoulders to your ears. Pause, then let go.
- Purse your lips together. Hold, then release.
- Open your mouth wide. Hold, then let go.
- Close your eyes tightly. Pause, then release.
- Lift eyebrows. Hold, then release.

After completing relax the whole body completely. Keep your eyes closed and let yourself remain in the relax position. Open your eyes and enjoy renewed energy, feel relaxed and refreshed.

## CONCLUSION

In everyday life each and every person is facing some kind of stress whether related to study, career, work place, professional role, health related or familial issues, social adjustments. These events can affect physically or psychologically and will cause health related issues. So it is



better to prevent these occurrences by various measures whether by engaging in diversional therapy, meditations, yoga, exercises and relaxation techniques. Jacobson's Progressive Muscle Relaxation Technique is proving to reduce health related issues by encouraging relaxation, inducing sleep and generating freshness and new energy.

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# ADVANTAGES OF USING MODERN TELECOMMUNICATIONS IN THE EDUCATIONAL PROCESS

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## ABSTRACT

*This article provides information on the advantages of using modern telecommunications in the educational process. In the field of educational system in our country, the issue of mastering modern information-telecommunication and computer technologies, Internet system, modern methods of digital and wide-format telecommunications is defined as one of the urgent tasks. Distance education is an important factor in solving these tasks.*

**KEY WORDS:** *telecommunication, education, student, interaction, computer, laptops, moodle system*

Distance education based on Internet technologies is a modern universal form of professional education, which is designed for individual requests, personal needs and specializations of learners. In particular, the Moodle distance learning platform is one of the universal systems developed for the use of various training and educational methods for this purpose.

Distance education gives all aspirants the opportunity to improve their professional level according to their individual characteristics. In this method of teaching, the student learns teaching-methodical materials in an interactive mode independently at the same time, passes tests, performs control work under the guidance of the teacher and interacts with other students in the "virtual" training group.

The emergence of the principles of student activity within the educational process, individualization and differentiation of teaching, became the basis for the transition to project activities based on distance education. Various information and communication technologies are used in distance education. In this case, the use of each technology will depend on the goals and issues facing the distance course.

Distance education is distinguished by the following advantages: an increase in the number of students, the involvement of advanced teachers, scientists and experts in the fields of science in lectures, the unification of students and teachers from different

countries, the organization of the educational process using active teaching methods and new pedagogical technologies, direct communication innovations to the students.

The distance education system has its own purpose, content, method and tool forms - a set of teaching methods and techniques that provide the educational process in distance education - pedagogical technologies of distance education.

Pedagogical technologies widely used in the distance education system include Case technology, TV technology, and Internet technologies.

Case technology - reflects a set of audiovisual and multimedia teaching materials in distance education;

TV technology - includes the delivery of educational methodical information through television or video communication programs.

Internet technology is important because distance education is based on the principles of access to global information and education networks, integration and mutual scientific communication and independent education.

The multimedia approach is characteristic for the first method, educational resources based on publications, audio-video materials are created using various educational tools, and the following educational materials are delivered to students through the computer network:



- interactive database;
- electronic journals;
- educational computer software products (electronic textbooks).

The interactive database is a systematized set of knowledge that can be mastered through telecommunication technologies, on the basis of which course organizers provide a base of necessary materials for students and pedagogues with the help of created resources.

E-journals are considered periodicals and are delivered to learners via a computer network. They serve as an important source of information for learners.

Educational computer programs placed on the central server provide methodological support for teaching. Communication with a remote computer is established using a modem or the Internet.

Individual teaching method - provides student-to-teacher or student-to-student interaction. This is done through telephone and email technologies. Remote teaching or management (the “tutor” system) is carried out by means of a computer network and is an important pedagogical process in distance education.

While the “one-to-many” method of teaching, in which the student passively participates in the educational process, has an important place in traditional education, it is considered one of the methods of special importance in the development of the modern information technology environment.

With the development of telecommunication technologies, the “many-to-many” teaching method, aimed at activating the interaction of all participants in the educational process, will become more intense. In other words, not only between the teacher and students, but also the intensification of students’ interaction based on interactive methods becomes an important source of learning. The development of these methods will greatly help the effective conduct of collective learning discussions, seminars and conferences in teaching.

The principle of demonstrability means increasing the effectiveness of education by affecting all the senses of a person in education. In distance education, this principle is mainly provided by means of virtualization technology. In particular, it envisages wide use of video films, educational computer programs, and interactive technologies.

For the effective use of telecommunications in education, it is necessary to know their properties and functions in order to clearly determine for which didactic tasks it is advisable (from the point of view of pedagogy and psychology) to use one or another of them. The choice of one or another method or means of teaching is determined, on the one hand, by the specifics of the subject, the specific didactic task being solved, and, on the other hand, by the didactic properties of specific teaching aids. Telecommunications are considered precisely as a means of organizing the cognitive activity of students. As you know, didactics is a theory of learning that shows patterns, principles of learning, tasks, content of education, forms and methods of teaching and learning, stimulation and control in the educational process, characteristic of all academic subjects, at all age stages of education.

Under the didactic properties of a particular teaching aid, including telecommunications, they understand the natural, technical, technological qualities of the object, those aspects of it, aspects that can be used for didactic purposes in the educational process. Three groups of didactic properties can be distinguished.

1. Didactic properties of educational information presentation technologies: display and transmission of information in text, graphics, sound, video and animation format through electronic educational resources:

- a) the ability to search for information of interest; the possibility of consolidating knowledge and processing acquired skills;
- b) the possibility of assessing knowledge, skills;
- c) organization of communication with the teacher.

2. Didactic properties of technologies for the transfer of educational information:

- a) preparation, editing and processing of educational, methodological, scientific information;
- b) storage and backup of information;
- c) systematization of information;
- d) dissemination of information in various forms;
- e) providing access to information using electronic banks and databases to obtain the necessary information;



3. Didactic properties of technologies for organizing the educational process:

- a) e-mail: transmission of messages simultaneously to a large number of students;
- b) asynchronous exchange of information (text, graphics, sound) between the teacher and students;
- c) possibility of organizing consultations, control, etc.;

4. Teleconferencing:

- a) providing synchronous and asynchronous communication, which allows conference participants to send their information at any convenient time, as well as receive it from other participants;
- b) participants have the opportunity to think carefully before sending messages;
- c) the possibility of organizing a discussion of the proposed topic, consultations and other forms of educational activities;

5. videoconferencing: possibility of demonstrating educational information in multimedia, graphical form;

- a) carrying out experiments, setting up experiments;
- b) the possibility of organizing group participation in the discussion and interpretation of information;
- c) synchronous exchange of information.

It is the didactic properties that allow telecommunications to perform didactic functions aimed at the implementation of certain aspects of the educational process (explanations, clarifications, discussions, conducting control cuts, tests, creative work, and so on). Didactic functions are understood as an external manifestation of the properties of teaching aids used in the educational process to solve educational, educational and developmental tasks. The didactic functions of telecommunications are largely determined by their interactivity due to hypertext and multimedia technologies:

On the one hand, the formation of the information society significantly affects the penetration of information technologies into all areas of educational activity, on the other hand, the informatization of education, forming the information culture of society members, contributes to its informatization.

Tasks of introducing telecommunications into the educational process are determined by goals. In the

pedagogical literature, there are three fundamental pedagogical goals:

- 1) Intensification of all levels of the educational process.
- 2) The development of the student's personality.
- 3) Implementation of the social order.

In conclusion, the unifying task of introducing telecommunications into education is the task of forming telecommunication competence, which consists of three groups of tasks determined by the general direction of the educational process:

1) Educational tasks: study of several disciplines at once; mastery of reproductive skills by students (arising in the course of calculations, verification and processing of results, systematization and classification, analysis and synthesis, the ability to plan an experiment); formation of a system of basic knowledge and skills and their further replenishment and development; expansion of the scope of additional education for students (circles, sections, electives, scientific societies, elective courses (elective)); deepening of interdisciplinary connections; development of a conscious and deeper approach to learning (leads to the formation of a deeper understanding of the material); facilitate and systematize the professional activities of teachers and administration; improving the objectivity and efficiency of monitoring and evaluating learning outcomes; teaching methods of constructive interaction and mutual understanding.

2) Educational tasks: increasing the effectiveness of extracurricular activities of students; development of the ability of interpersonal and informal communication between students and teachers; organization of meaningful leisure for children and youth; organization of effective and efficient interaction between teachers, students and parents; formation of attitude to telecommunications as a tool for communication, learning, self-expression, creativity; increasing the educational impact of all forms of extracurricular activities.

3) Developing tasks: formation of skills to develop a strategy for finding solutions to both educational and practical problems; formation of the ability to predict the results of the implementation of decisions made on the basis of modeling the studied objects, phenomena, processes; development of sustainable motivation and fulfillment of the need for



acquiring new knowledge, for one's own development; development of attention, memory, imagination, perception, thinking, ingenuity; development of the ability of free cultural communication; development of students' awareness of themselves as creators of their own knowledge; formation of creative skills; development of general cultural interests.

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## IMAGE CAPTION GENERATOR

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### ABSTRACT

Generating accurate captions for an image has remained one of the major challenges in Artificial Intelligence with plenty of applications ranging from robotic vision to helping the visually impaired. Long term applications also involve providing accurate captions for videos in scenarios such as security system. The aim is to build an optimal system which can generate semantically and grammatically accurate captions for an image and also to suggest captions which can be used on social media platforms. In this system, images are preprocessed and captions are generated. Then the image features are extracted using Resnet50. Then the captions are generated word by word using LSTM. The application hopes to be useful for visually impaired people and to be useful for generating the social media captions which can be used on various social media platforms.

**KEYWORDS**-CNN, RNN, LSTM, Resnet50

### I. INTRODUCTION

Making a computer system detect objects and describe them using natural language processing (NLP) in an age-old problem of Artificial Intelligence. This was considered an impossible task by computer vision researchers till now. With the growing advancements in Deep learning techniques, availability of vast datasets, and computational power, models are often built which will generate captions for an image. Image caption generation is a task that involves image processing and natural language processing concepts to recognize the context of an image and describe them in a natural language like English or any other language. Making a computer system detect objects and describe them using natural language processing (NLP) in an age-old problem of Artificial Intelligence. This was considered an impossible task by computer vision researchers till now. With the growing advancements in Deep learning techniques, availability of vast datasets, and computational power, models are often built which will generate captions for an image. Image caption generation is a task that involves image processing and natural language processing concepts to recognize the context of an image and describe them in a natural language like English or any other language.

Our model is based on a deep learning neural network that consists of a vision CNN followed by a language generating RNN. It generates complete sentences as output captions or descriptive sentences. In recent years a lot of attention has been drawn towards the task of automatically generating captions for images. However, while new datasets often spur considerable innovation, benchmark datasets also require fast, accurate, and competitive evaluation metrics to encourage rapid progress. Being able to automatically describe the content of a picture using properly formed English sentences may be a very challenging

task, but it could have an excellent impact, as an example by helping visually impaired people better understand the content of images online. This task is significantly harder, for instance, than the well-studied image classification or visual perception tasks, which are a main focus within the computer vision community. Deep learning methods have demonstrated advanced results on caption generation problems. What is most impressive about these methods is that one end-to-end model is often defined to predict a caption, given a photograph, rather than requiring sophisticated data preparation or a pipeline of specifically designed models. Deep learning has attracted a lot of attention because it's particularly good at a kind of learning that has the potential to be very useful for real-world applications. The ability to find out from unlabeled or unstructured data is a huge benefit for those curious about real-world applications.

### II. METHODOLOGY

The modules are divided into following sections:

#### Preprocessing of Image

For image detection, we are using a pre-trained model ResNet50 which is trained on image net dataset. For feature extraction, the image input is 244\*244\*3 size and will give an output vector of length 2048. The features of the image are extracted just before the last layer of classification as this is the model used to predict a classification for a photo.

#### Creating the vocabulary for the image

First cleaning of the text is done by splitting it into words and handling punctuation and case sensitivity issues. As computers do not understand English words, they are represented with numbers and they map each word of the vocabulary with a unique index



value, and the encoding of each word into a fixed sized vector is done and it represents each word as a number. In order to achieve the mentioned objectives we do-Loading the data, creating a descriptions dictionary that maps images, removing punctuations, converting all text to lowercase and removing words that contain numbers, separating all the unique words and creating vocabulary from all the descriptions, creating a file to store all the captions.

### Training the model

In our dataset we have a file Flickr\_8k.trainImages.txt file that contains a list of 6000 image names that will be used for training purposes. First creation of a dictionary that contains captions for each photo from the list of photos is done. Next tokenization of vocabulary is done using keras. Keras library provides a function that will be used to create tokens from vocabulary and then to a tokenizer.pkl pickle file. To make this a supervised learning task, we have to provide input and output to the model for training. The model was trained on 6000 images and each image will contain a 2048 length feature vector and the corresponding caption for the image is also represented as numbers. This large volume of data generated for 6000 images is not possible to hold in memory, so generator method that will yield batches was used. To train the model, 6000 training images will be used by generating the input and output sequences in batches from the above data generation module and fitting them to the model. Training the model was done with 200 epochs.

### Testing on individual images

Testing the model on images is done on random images. The predictions contain the max length of index values so we will use the same tokenizer.pkl to get the words from their index values.

### III. MODELING AND ANALYSIS

Although it is sometimes not clear whether a description should be deemed successful or not given an image, priorart has proposed several evaluation metrics. The most reliable (but time consuming) is to ask for raters to give a subjective score on the usefulness of each description given the image.

The most commonly used metric so far for image caption generators has been the BLEU score, which is a form of precision of word n-grams between generated and reference sentences.

BLEU (BiLingual Evaluation Understudy) is a metric for automatically evaluating machine-translated text. The BLEU score is a number between zero and one that measures the similarity of the machine-translated text to a set of high quality reference translations. A value of 0 means that the machine-translated output has no overlap with the reference translation (low quality) while a value of 1 means there is perfect overlap with the reference translations (high quality). It has been shown that BLEU scores correlate well with human judgment of translation quality. Note that even human translators do not achieve a perfect score of 1.0.

Testing should also be done on the GUI

**Table 1: Test Case -1: Generate caption by clicking on caption image button**

<b>Test scenario</b>	Generating caption by clicking on caption image button			
<b>Test case description</b>	The caption image button is clicked after uploading the image	<b>Test priority</b>	High	
<b>Prerequisite</b>	Image should be uploaded	<b>Postrequisite</b>	The caption is generated	
<b>Action</b>	<b>Input</b>	<b>Expected output</b>	<b>Actual output</b>	<b>Test result</b>
Click on Caption Image button	A jpeg image	Caption relevant to the image should be generated	Caption was generated on clicking the caption image button	Pass





**Table 2: Test Case -2: Recommend social media captions by clicking on Recommend Captions button**

<b>Test scenario</b>	Recommend social media captions by clicking on Recommend Captions button			
<b>Test case description</b>	The recommend caption button should generate relevant social media captions based on the label generated	<b>Test priority</b>	High	
<b>Prerequisite</b>	The label should be generated beforehand	<b>Postrequisite</b>	A list of social media captions should be generated	
<b>Action</b>	<b>Input</b>	<b>Expected output</b>	<b>Actual output</b>	<b>Test result</b>
Click on Recommend Caption button	A label defining the image	A list of social media captions based on the label	5 captions based on the label was generated	Pass

#### IV. RESULTS AND DISCUSSION

For caption generators, the quantitative evaluation metric is BLEU (Bilingual Evaluation Understudy) scores:

The BLEU score is a number between zero and one that measures the similarity of the machine-translated text to a set of high quality reference translations. A value of 0 means that the machine-translated output has no overlap with the reference translation (low quality) while a value of 1 means there is perfect overlap with the reference translations (high quality)

Cumulative BLEU scores capture the weighting of the different n-grams during the calculation of BLEU scores.

**Individual N-Gram Scores :** An individual N-gram score is the evaluation of just matching grams of a specific order, such as single words (1-gram) or word pairs (2-gram or bigram). The weights are specified as a tuple where each index refers to the gram order.

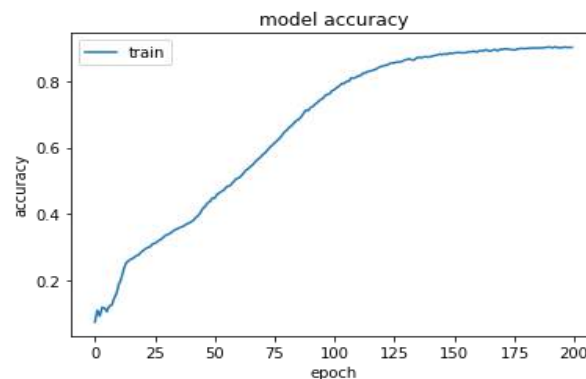
**Cumulative N-Gram Scores :** Cumulative scores refer to the calculation of individual n-gram scores at all orders from 1 to n and weighting them by calculating the weighted geometric mean.

The cumulative and individual 1-gram BLEU use the same weights, e.g. (1, 0, 0, 0). The 2-gram weights assign a 50% to each of 1-gram and 2-gram and the 3-gram weights are 33% for each of the 1, 2 and 3-gram scores.

It is common to report the cumulative BLEU-1 to BLEU-3 scores when describing the skill of a text generation

Fig 4.3 shows the cumulative scores obtained for the model but there are few weaknesses of BLEU scores which are that the BLEU metric performs badly when used to evaluate individual sentences. For example, both example sentences get very low BLEU scores even though they capture most of the meaning. Because n-gram statistics for individual sentences are less meaningful, BLEU is by design a corpus-based metric; that is, statistics are accumulated over an entire corpus when computing the score. Note that the BLEU metric defined above cannot be factorized for individual sentences.

Hence we can define a human evaluation system with four categories-Describes without errors,describes with minor errors,somewhat related to image,unrelated to the image



**Fig 1: A graph of accuracy vs epoch showing training accuracy.**

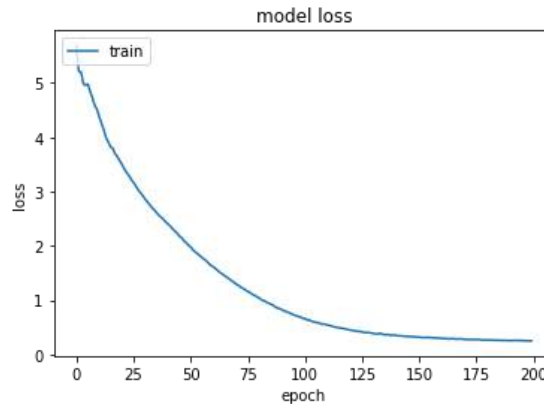


Fig 4.2: A graph of loss vs epoch showing training loss.



Fig 3: Captions based on the label is predicted

Table 3: BLEU score for different metrics

Cumulative 1-gram	0.700000
Cumulative 2-gram	0.557773
Cumulative 3-gram	0.430509

## V. CONCLUSION

A CNN model combined with the LSTM model has been presented which gives a reasonable description of an image in English language. We also extract a label based on the image and generate captions which can be used on social media. The model has been trained on Flickr 8k dataset and its BLEU scores have

been found to match the state of art results. As the size of the dataset and epochs increases, the performance of the model will improve. Based on the captions labels were generated using neural networks and these labels were then used to look up catchy social media captions. A GUI was then developed which can make the model easy to use.



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# MEDIA LITERACY SKILLS AND INTERNET USE AMONG PRIVATE SECONDARY SCHOOL STUDENTS IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA

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## ABSTRACT

*The study was embarked upon to examine the relationship between media literacy skills and internet use among private secondary school students in Ibadan North LGA, Oyo state, Nigeria. The population of this study comprises of 1,689 senior secondary school two students. Multistage sampling procedure was adopted in selecting the study sample. At the first stage, a simple random sampling techniques was used in selecting 30% of the private secondary schools in Ibadan North LGA, Oyo State, Nigeria. This amounted to 17 Schools. At the second stage, a probability proportionate to size method was used to select 50% of SSS2 students in selected private secondary schools. This gave a total of 313 respondents. Descriptive statistics of mean, standard deviation, frequency count and percentage were used to answer research questions 1 and 2, while Pearson product moment correlation (PPMC) was used to test the hypothesis posed in the study. The findings revealed that Private secondary school students in Ibadan North LGA utilised facebook, Twitter, YouTube, Google Docs, search engines and News sites as Internet tools being regularly used on a daily basis. The major purposes of Internet tools used by the students were for surfing to do assignments, playing games, sending e-mails to friends, downloading learning resources to do assignments, surfing for studying, reading newspaper, reading sport information, listening to music and seeing videos, shopping, use for social media and reading books online. There was high level of media literacy skills among private secondary school students in Ibadan North LGA, Oyo state, Nigeria. There was a significant positive relationship between media literacy skills and internet use among the students. It was recommended that school management should explore media literacy skills as a way of improving ethical use of Internet use among the students.*

**KEYWORDS:** *Medial literacy skills, Internet use, Private senior secondary school students, Oyo State, Nigeria*

## INTRODUCTION

The Internet is one of the technological developments of the late 20<sup>th</sup> century that is useful in all facets of life. Digital technologies, such as computers, internet tools and applications have become entangled in young people's lives. This revolution in information and communication technology (ICT) and the internet is exerting profound effects on education, because of the vast information resources available to support teaching, learning and research. Therefore, ICT could be described as facilitator of communication and collaboration among the students, thereby having resultant effect on education. Regardless of the people's location, internet enables easy communication among the students for different purposes including sharing of ideas, knowledge, experiences, and cultures. This was corroborated by the assertion of The Internet Society (2017) that the internet has become a useful tool for education. Hence, it is pertinent to examine use of internet among secondary school students.

Abbas, Aman, Nurunnabi and Bano (2019) identified the impact of the internet on education by highlighting that, the

internet can provide access to large amount of information resources, while Kamal (2017) supported the fact that the internet is exposing students to current trends and resources in their field of studies. The internet is therefore adjudged as being a global collection of different types of communication, information transfer and resource sharing. Among young people, there is easy use of the communication applications of the internet, such as instant messaging, blogs, and social networking sites (Facebook, Snapchat, Instagram etc) are more popular.

Mishra, and Kereluik, (2011) noted that the internet has now become a useful tool for schoolwork and assignments so much that students are gaining more trust and confidence in it as a good educational tool although, some unguarded students might sometimes ignore the use of the internet as it contributes to their academic work and decide to use it for fraudulent activities as well as immoral acts, such as accessing phonographic and other related materials on the net. Consequently, it is equally expedient that students respond to the rapidly changing technology and prepare themselves by having



the right attitude to handle information effectively even outside the school system.

The purpose of use of various internet tools by secondary school students expectedly should be mostly for academic purpose among others. Studies have however shown that students use the internet more to communicate socially than using it for their academic work. Regardless of the unending uses of internet, Nwokedi (2017), Bakshy, Messing, and Adamic (2015) submitted that some students still lack the skill of searching the internet, which could be attributed to their low media literacy skill. It should be noted that media literacy skill could influence how students will use the internet.

In the past, literacy was used to describe the ability to write, but today the definition of literacy is wider as teenagers and young adults live in multimedia environments. In these environments, most information will open their eyes to rich and intricate combination of words, images and sounds. Media literacy as a concept has been defined in different ways by different scholars. Center for media literacy (2019), defined media literacy as a framework to access, analyze, evaluate, and create messages in variety forms. Thus, media literacy is the ability to access, analyze, evaluate and create messages across a variety of contexts. Therefore, a media literate person is someone who can access, analyze, evaluate and produce both print and electronic media.

A media literate student should be able to decode, evaluate, analyze and produce both print (Posters, Charts, books, magazines, maps etc) and electronic media (Emails, social media etc). A media literate student possesses the abilities to access, understand and create media to meet their information or educational needs (Martens, 2010). Students do not only need access to media such as the internet, they also need the means and skills to process media contents effectively. Media literacy skills also include the ability to locate and share materials, comprehend information and ideas, analyze messages in different forms.

The growing relevance of media in the life of secondary school students has given rise on the need to incorporate media literacy education in the school curriculum to help guide students on the appropriate use of electronic media particularly the internet. This would give room for competitiveness, creativity, and lifelong learning. (Abbas et al, 2019) In other words, media literacy is becoming increasingly popular in contemporary learning environment, due to the fast technological changes, which also requires secondary school students to acquire the necessary media literacy skills in order to maximise the benefits of the internet. It is in the light of this that the study investigated the predictive influence of media literacy skill on internet use among private secondary school students in Ibadan North LGA, Oyo State, Nigeria with a view to come up with recommendations that would help improve students' media literacy and internet use.

## STATEMENT OF THE PROBLEM

It has almost become impossible to carry out productive activities without the use of internet. Most importantly, educational institutions including secondary schools are now adopting the use of internet for teaching and learning. However, in Nigeria, observations revealed that secondary school students have not been able to maximize the potential of the internet resources due to some personal traits, and factors. Some of these factors include negative/inappropriate use of the internet, not using suitable tools of internet, not spending ample time for productive purposes, among others. Young adults especially secondary school seems to lack media literacy skills which could hinder them from getting productive resources from the internet. While technology is pervasive in the modern society, not all young people in secondary schools view the technology as beneficial. If this continues without being looked into, it would cause moral decadence, low learning performances, hindrance of educational, economic and National growth, among others.

## OBJECTIVES OF THE STUDY

The specific objectives of the study are to;

1. examine internet use pattern (types of internet tools used, purpose and frequency of use) among private secondary school students in Ibadan north LGA, Oyo state, Nigeria;
2. assess the level of media literacy skills of private secondary school students in Ibadan North LGA, Oyo state Nigeria.
3. find out the relationship between media literacy skill and internet use among private secondary school students in Ibadan North LGA, Oyo state Nigeria.

## RESEARCH QUESTIONS

The following research questions guided the study;

1. What is the internet use pattern (types of internet tools used, purpose and frequency of use) among private secondary school students in Ibadan north LGA, Oyo state, Nigeria?
2. What is the level of media literacy skills of private secondary school students in Ibadan North LGA, Oyo state Nigeria?

## HYPOTHESIS

The null hypothesis below was tested at 0.5 level of significance.

There is no significant relationship between media literacy skills and internet use among private secondary school students in Ibadan north LGA, Oyo state, Nigeria.

## METHODOLOGY

This study adopted the survey research design of the correlational type. The population of this study comprises of 1,689 senior secondary school students 2 (SSS2) in all private secondary schools in Ibadan North LGA, Oyo State, Nigeria.



Multistage sampling procedure was adopted in selecting the study sample. At the first stage, a simple random sampling technique was used in selecting 30% of the private secondary schools in Ibadan North local government area. This amounted to 17 schools. At the second stage, a probability proportionate to size method was used to select 50% of SSS2 students in the selected private secondary schools. This gave a total of 313 respondents. The data for this study was collected through a self-structured questionnaire, tagged Media Literacy Skills and Internet Use (MLSIU). The first section obtained demographic

information while section B and C obtained information on Media Literacy Skill ( $r = 0.70$ ) and Internet Use ( $r = 0.83$ ). Descriptive methods of data analysis such as frequency, percentage, mean, and standard deviation were used in analysing research questions 1 and 2 while pearson product moment correlation was used for research hypothesis raised.

## RESULTS AND DISCUSSION OF FINDINGS

Demographic profiles of respondents

**Table 1: Distribution of respondents by gender**

Gender	Frequency	Percent
Male	113	36.1
Female	200	63.9
<b>Total</b>	<b>313</b>	<b>100.0</b>
Age	Frequency	Percent
14-16years	240	76.7
17-19years	73	23.3
<b>Total</b>	<b>313</b>	<b>100.0</b>

The background information on gender of respondents shows that there were more female students with response rate of 63.9% than their male counterparts with 36.1% response rate. The implication of this is that there are more female students in the schools surveyed as at the time of this study. Findings show that most of the respondents were between ages 14-16 years

with 76.7% response rate. This means that most of the respondents were within the age bracket of 14-16 years of age.

**Research question 1:** What is the internet use pattern (types of internet tools, frequency and purpose of use) among private secondary school students in Ibadan North LGA, Oyo state, Nigeria?

**Table 2: Type of Internet tools used by students**

Type of Internet Tools	Frequency/ Percentage (%)	Mean	Std. Dev.
Facebook	313 (100%)	1.00	.000
Twitter	194 (62.0%)	1.38	.486
Linkedin	0 (0.0%)	2.00	.000
Weblog (Blogs)	31 (9.9%)	1.90	.299
Youtube	295 (94.2%)	1.06	.233
Goggle docs	285 (91.1%)	1.09	.286
Wikis	75 (24.0%)	1.76	.428
Slide share	18 (5.8%)	2.84	4.160
Search engines	240 (76.7%)	1.23	.424
Podcasting	60 (19.2%)	1.81	.394
News sites	206 (65.8%)	1.34	.475



Table 2 presented information on the internet use pattern among private secondary school students in Ibadan North LGA, Oyo state, Nigeria as it revealed that majority of the respondents commonly utilised Facebook (100%), Youtube (94.2%), Google Docs (91.1%), search engine (76.7%), News sites (65.8), Twitter (62.0%), while the type of internet tools not been utilised by the respondents are LinkedIn (0.0%), Weblog (9.9%), Slide share

(5.8%), Podcasting (19.2%) and Wikis (24.0%). The implication to drawn from this is that facebook, Twitter, YouTube, Google Docs, search engines and News sites are the most commonly used internet tools by private secondary school students in Ibadan North LGA, Oyo state, Nigeria.

**Table 3: Frequency of use of Internet**

Internet Use	Frequency	Percent	Mean	Std. Dev.
Daily	221	70.6	1.33	.540
Weekly	81	25.9		
Once in two weeks	11	3.5		
Total	313	100.0		

Table 3 presented information on the frequency of Internet use among private secondary school students in Ibadan North LGA, Oyo state, Nigeria as it revealed that majority of the respondents used internet on a daily basis with valid percentage of (70.6%) compare to weekly (25.9%), and once in two weeks (3.5%).

None of the respondents indicated the use of internet monthly or never with (0.0%). It can therefore be deduced that private secondary school students in Ibadan North LGA, Oyo state, Nigeria make daily use of Internet tools.

**Table 4: Purpose of Internet Use**

Purpose of use	Strongly Agree (4)		Agree (3)		Disagree (2)		Strongly Disagree (1)		Mean	Std. Dev.
	F	%	F	%	F	%	F	%		
Surfing to do assignments	136	43.5	160	51.1	17	5.4	0	0.0	3.38	.588
Playing games	89	28.4	206	65.8	18	5.8	0	0.0	3.23	.540
Sending e-mails to teachers	49	15.7	35	11.2	90	28.8	139	44.4	1.98	1.089
Sending e-mails to friends	77	24.6	154	49.2	77	24.6	5	1.6	2.97	.746
Downloading learning resources to do assignments	123	39.3	158	50.5	0	0.0	32	10.2	3.19	.877
Surfing for studying	92	29.4	214	68.4	5	1.6	2	0.6	3.27	.516
Reading newspaper	134	42.8	143	45.7	36	11.5	21	6.7	3.31	.668
Reading sport information	106	33.9	150	47.9	36	11.5	21	6.7	3.09	.846
Newsgroup	91	29.1	125	39.9	91	29.1	6	1.9	2.96	.812
Listening to music and seeing videos	136	43.5	116	37.1	15	4.8	46	14.7	3.09	1.032
Shopping	59	18.8	198	63.3	26	8.3	30	9.6	2.91	.806
Use for social media	180	57.5	125	39.9	5	1.6	3	1.0	3.54	.582
Reading books online	89	28.4	224	71.6	0	0.0	0	0.0	3.28	.452
N= 313										

Table 4 presented information on the purpose of internet use among private secondary school students in Ibadan North LGA, Oyo state, Nigeria as it revealed that majority of the respondents use internet for the following purposes: for social media (mean= 3.54), surfing to do assignments (mean= 3.38), reading newspaper (mean= 3.31), reading books online (mean=

3.28), playing games (mean= 3.23), downloading learning resources to do assignments (mean= 3.19), reading sport information (mean= 3.09), listening to music and seeing videos (mean= 3.09), sending e-mails to friends (mean= 2.97), newsgroup (mean= 2.96), and shopping (mean= 2.91). The implication to be drawn from the results is that surfing to do



assignments, playing games, sending e-mails to friends, downloading learning resources to do assignments, surfing for studying, reading newspaper, reading sport information, listening to music and seeing videos, shopping, use for social media and reading books online are the major purposes for which the private secondary school students make use of Internet tools.

This result is in line with Yesilyurt et al (2019), who posited that the use of reliable internet resources is greater for productive activities, and helps students to broaden their academic knowledge, research and assignments by accessing information worldwide and also enhances easy communication to the academic community. Daniel (2013) in his findings concluded that it is very common to see secondary school students on their mobile phone, laptops and computer using social media platforms, such as Facebook, Tiktok, Instagram, WhatsApp to connect with various people all around the world. Also, 70.6% of the respondents agreed they use Internet daily which showed that private secondary school students in Ibadan North LGA, Oyo state, Nigeria uses internet well. Respondents

as well revealed that they use the internet for all purposes highlighted in the questionnaire. This finding is in line with that of researchers like Abbas et. al, (2019) and Babatunde (2019), who have found out that the internet use consists of positive and moderately high achievement at all educational levels. Also, according to Seriff (2017), internet use supports constructive pedagogy where use technology to explore and understanding concept which promotes orderly thinking with better problem-solving strategies. Therefore, findings from these studies suggest that the use of internet among private secondary school students in Ibadan North LGA, Oyo state, Nigeria was high as it is essential for learning and other productive activities. So, it is necessary to consider the appropriateness of internet use and ease of accessibility for students use.

**Research question 2:** What is the level of media literacy skills possessed by private secondary school students in Ibadan North LGA, Oyo state, Nigeria?

**Table 5: Information on the media literacy skills level**

Media Literacy Skills	Strongly Agree (4)		Agree (3)		Disagree (2)		Strongly Disagree (1)		Mean	Std. Dev.
	F	%	F	%	F	%	F	%		
<b>ACCESS/SELECT INFORMATION</b>										
I can access genuine information	122	39.0	176	56.2	15	4.8	0	0.0	3.34	.567
I can determine genuine source of information	91	29.1	219	70.0	0	0.0	3	1.0	3.27	.506
I can use PowerPoint slides to supplement information	17	5.4	241	77.0	53	16.9	2	0.6	2.87	.483
I can select media appropriate to the purpose, occasion and audience to develop into a formal presentation	65	20.8	197	62.9	49	15.7	2	0.6	3.04	.624
I am familiar with the operational functions of media	134	42.8	175	55.9	2	0.6	2	0.6	3.41	.542
Weighted Mean= 3.26										
<b>ANALYSE MEDIA</b>										
I can analyse information in print format	59	18.8	118	37.7	116	37.1	20	6.4	2.69	.849
I can analyse information in non-print format	76	24.3	216	69.0	18	5.8	3	1.0	3.17	.559
I understand how to operate media device	132	42.2	175	55.9	6	1.9	0	0.0	3.40	.529
Weighted Mean = 3.16										
<b>CREATE/PRODUCE MEDIA</b>										
I am able to utilize media for my homework	89	28.4	216	69.0	6	1.9	2	0.6	3.25	.516
I can cite sources from non-print media	119	38.0	156	49.8	33	10.5	5	1.6	3.24	.702
I can produce information in digital format	34	10.9	231	73.8	48	15.3	0	0.0	2.96	.511





Weighted Mean = 3.15										
EVALUATE MEDIA										
I have the ability to apply all skill for media surfing and searching web page	118	37.7	192	61.3	3	1.0	0	0.0	3.37	.502
I can share files legally	88	28.1	146	46.6	79	25.2	0	0.0	3.03	.731
I can use media tools in online participation	59	18.8	116	37.1	106	33.9	32	10.2	2.65	.902
Weighted Mean = 3.02										
Criterion Mean= 2.50					Overall Weighted Mean = 3.12					

Table 6 presented information on the level of media literacy skills possessed by private secondary school students in Ibadan North LGA, Oyo state, Nigeria as it revealed that majority of the respondents indicated that they are familiar with the operational functions of media (3.41) and that they can access genuine information (3.34), in the same vein, majority of the respondents affirmed that they can determine genuine source of information (3.27), Also, respondents indicated that they can select media appropriate to the purpose, occasion and audience to develop into a formal presentation (3.04) while average number of respondents indicated that they can use PowerPoint slides to supplement information (2.87). Since the weighted mean of 3.26 was greater than 2.50 criterion mean set as benchmark for level of accessing and selecting information, it could be inferred that media literacy skills among senior secondary school two students in private schools in Ibadan North local Government Area possessed high level of accessing and selecting media skills.

Report on respondents' level of how to analyse media revealed that respondents indicated that they easily understand how to operate media devices (3.40). In the same vein, respondents indicated that they can analyse information in non-print format (3.17) while average numbers of respondents indicated that they can analyse information in print format (2.69). Since the weighted mean of 3.16 was greater than 2.50 criterion mean set as benchmark for level of analyzing media, it could be inferred that senior secondary school two students in private schools in Ibadan North local Government possessed high level of analyzing media skills.

Result also revealed that respondents are able to utilize media for; homework (3.25), citing sources from non-print media (3.24). In the same vein, findings revealed that a good number of respondents can produce information in digital format (2.96) with weighted mean of 3.15 which surpasses the criterion mean 2.50. It could be inferred that secondary school two students in private schools in Ibadan North local Government possessed high level of skill in media creation and production.

Report on respondents' level of how to evaluate media revealed that respondents indicated that they have the ability to apply all skill for media surfing and searching web page (3.37). In the same vein, respondents indicated that they can share files legally (3.03). On the other hand, average numbers of respondents indicated that they can use media tools in online participation (2.65). Since the weighted mean of 3.02 was

greater than 2.50 criterion mean set as benchmark for level of analyzing media, it could be inferred that senior secondary school two students in private schools in Ibadan North local Government Area possessed high level of skills in evaluating media.

Findings from the study revealed that the media literacy skills level of the students is high. This is in line with the finding of Omah (2013), who discloses that media literacy advocates contends that children and youth should be able to respond positively to media. Also, The Youth Media and Communication Initiative (YMCI) emphasized that media literacy skills in the life of secondary school students cannot be over emphasized as it would give room for competitiveness and choice by supporting innovation, creativity and lifelong learning.

In other words, media literacy skill is becoming increasingly popular in contemporary learning environment, because of rapid technological changes which also requires secondary school students to acquire the necessary media literacy skills. The growing relevance of media in the life of secondary school students has given rise to the need to incorporate media literacy education in the school curriculum. Secondary school students with high level of media literacy skills would be able to ask good questions, seek out information in relevant issues, evaluate the quality of information available, and engage in dialogues with others. Student who is media literate should be able to appreciate and enjoy the media which appeals to him/her; should be able to get useful information from the unwanted and know the appropriate media to employ for task (Hobbs, 2016).

Also, from the finding, we could conclude that students only use information which finds them rather than decide what information they need which is an inadequate media skill on the path of the respondents. Only few of the respondents could analyse information in non-print format, could select media appropriate to the purpose, occasion and audience, could share files legally, could produce information in digital format, could use PowerPoint slides to supplement information, could analyse information in print format, could use media tools in online participation. This is in line with the findings of Ngah and Masood (2021) who summarized that while the 'Google generation' of adolescents could access online information, their ability to process texts was somewhat limited. They finally concluded that modern day's adolescents have a poor



understanding of their information needs, finds it difficult to develop effective search strategies with little time spent evaluating information for relevance and accuracy.

**HYPOTHESIS**

There is no significant relationship between media literacy skills and Internet use among private Secondary School Students in Ibadan North L.G.A of Oyo state, Nigeria.

Table 7: Result of PPMC Showing the Significant Relationship Between Media Literacy Skills and Internet Use among Private Secondary School Students in Ibadan North L.G.A of Oyo State, Nigeria.

Variable	Mean	Std.Deviation	N	R	P	Remark
Media Literacy Skills	43.68	3.931	313	.225**	.000	sig.
Internet Use	58.94	5.874	313			

\*Sig. at .05 level

Table 7 presents the result of relationship between media literacy skills and Internet use among private Secondary School Students in Ibadan North L.G.A of Oyo state, Nigeria. The findings show that there was a significant positive relationship between media literacy skills and internet use among private Secondary School Students in Ibadan North L.G.A of Oyo state, Nigeria (r = .225, p = .000<.05). This implies that media literacy skills increase the level of internet use among private Secondary School Students in Ibadan North L.G.A of Oyo state, Nigeria. Therefore, the hypothesis is rejected.

improve their media literacy skills which will impact on their internet use.

- School management should explore media literacy skills as a way of improving ethical use of internet use among students.
- School management should ensure provision of internet facilities in schools

**CONCLUSION**

The emergence of the internet has brought a new wave to the society. Nigerian students are growing in a fast-changing media environment. The internet has made things easily and gives students the power to share, create, inform and communicate issues on the internet. Thus, there is need for them to have skills in media literacy which is necessary for using social media effectively. Students live in a world where many types of social media strive to attract people’s attention and as a result preference of students for media in accessing information ethically. It can be concluded from the study that students in secondary school are media literate and know how to find their ways around the internet using internet tools for varieties of things ranging from social media use, entertainment, educational and other productive purposes. Also, when students are well guided on the use of internet, there’s high possibility of drastic improvement in their academic endeavour. Therefore, media literacy skills strongly predicted internet use among private secondary school students in Ibadan North LGA.

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**Recommendations**

In the light of these findings, the following recommendations are hereby made towards solving the problems identified in the study:

- Parents, schools and stakeholders concerned should continue to encourage students to use the internet effectively in terms of giving preference for academic purpose as against use for entertainment and social purposes.
- Also, stakeholders such as school librarians and school management should design and implement media literacy programme for the training of students to



# THE INFLUENCE OF LIQUIDITY, LEVERAGE, PROFITABILITY, AND ACTIVITIES ON COMPANY VALUE (Empirical Study on Automotive and Component Sub-Sector Companies on the Indonesia Stock Exchange 2015 - 2020)

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## ABSTRACT

*This study aims to examine the effect of Liquidity, Leverage, Profitability, and Activity on Firm Value. The population in this study is the automotive and component sub-sector manufacturing companies listed on the Indonesia Stock Exchange for the 2015–2020 period with a total of 12 companies. The sample was selected based on the criteria for completeness of the data according to the variables and obtained 11 company data. The value of the company is based on April's closing stock price data per year.*

*The data analysis method used in this study is multiple linear regression analysis with the help of the SPSS 20 program.*

*The results of this study indicate that Liquidity (CR), Profitability (NPM) have a significant positive effect on firm value and Activity (TATO) has a significant negative effect on firm value but Leverage (DER) has no significant effect on Firm Value.*

**KEYWORDS:** *Liquidity, Leverage, Profitability, Activities, and Firm Value.*

## PRELIMINARY

In the modern era, which is currently in a pandemic era, many companies are operating in various sectors that compete very tightly. The Covid-19 pandemic has had a huge impact on the economy. PT Astra International Tbk recorded a decline in the company's financial performance due to the COVID-19 pandemic. Astra Group's consolidated net income in the first half of 2020 was recorded at Rp89.8 trillion. This achievement decreased by 23 percent compared to the same period last year which amounted to Rp116.18 trillion. This decline in revenue also resulted in a 44 percent decline in the company's net profit to Rp5.5 percent. However, due to the sale of Bank Permata shares during this period, the Astra Group posted a net profit of IDR 11.4 trillion, an increase of 16 percent compared to the first half of 2019 which was IDR 9.8 trillion. percent to Rp3,773 compared to the value of net assets per share on December 31, 2019.

PT Indomobil Sukses Internasional Tbk (IMAS), released its financial report as of March 2020 or the first quarter of 2020. As a result, the downward pressure on sales made the company book a net loss of Rp164.50 billion in the three months this year. Every company always has many goals, one of which is to increase the value of the company and get the maximum profit possible.

According to (Indrarini, 2019), company value is an investor's perception of the level of success of managers in managing company resources entrusted to them which is often associated with stock prices. With the high value of the company, the welfare of shareholders will also be high, which will affect investors who will increase capital in the company. Maximizing the value of the company can provide benefits to shareholders if the price is higher.

According to Kariyoto (2017:37), the liquidity ratio is the company's ability to meet its short-term debt to short-term creditors. According to Kasmir (2018: 134), the current ratio or current ratio is a ratio to measure the company's ability to pay short-term obligations or debts that are due immediately when they are collected as a whole. Several previous studies using the Current Ratio (CR) measuring instrument conducted by Andriani & Rudianto (2019), and Dwiputra (2020) resulted that liquidity had a significant effect on firm value. Meanwhile, research by G. Lumentut (2019), then Taniman (2020), and Markonah et al., (2020), states that liquidity does not affect firm value.

According to Harahap (2015: 306), the leverage ratio is a ratio that measures how far the company is financed by obligations or external parties with the company's ability described by equity. Any use of debt by the company will affect the ratio and returns. From the research that has been done by Sukmawardani & Ardiansari (2018), Kadim & Sunardi (2019), state that the Debt to Equity Ratio (DER) affects firm value. In contrast to research by Mulyadi et al. (2020) and Purba & Sidauruk (2020), which states that the Debt to Equity Ratio (DER) does not affect firm value.

According to Kasmir (2017: 196), the profitability ratio is a ratio to assess the company's ability to seek profit. In this study, profitability is proxied by Net Profit Margin (NPM), which is a ratio used to measure the profit margin on sales. To measure this ratio is by comparing the net profit after tax with net sales. Research on this ratio has been carried out by Mulyadi et al. (2020), and Fadilah et al (2021) which results that Net Profit Margin influences firm value, but it is different from the results of research by Manoppo & Arie (2016), and by Janice & Toni (2020) which results that Net Profit Margin does not affect firm value.



According to Kasmir (2017: 114), the activity ratio, or what is commonly called the turnover ratio is a ratio used to measure the efficiency level of utilization of company resources such as sales, inventory, receivables collection, and or ratios to assess the company's ability to carry out daily activities. According to Kasmir (2017:185), Total Assets Turn Over is a ratio used to measure the turnover of all assets owned by the company and measure how much sales are obtained per rupiah of assets. Research by (G. Lumentut, 2019), and (Welas2, 2019) results that the Total Asset Turn Over Ratio affects firm value. In contrast to research by (Astutik, 2017) which states that this ratio does not affect firm value.

## LITERATURE REVIEW, FRAMEWORK FOR THINKING, HYPOTHESES

### 1. Agency Theory

According to Jensen and Meckling (1976) explaining the agency relationship in agency theory (agency theory) that the company is a collection of contracts (nexus of contract) between owners of economic resources (principals) and managers (agents) who manage use and control of these resources. According to Supriyono (2018: 63), the behavior of agency theory (agency) is a concept that explains the relationship between the principal (contract giver) and agent (contract recipient), the principal of the agent contract to work for the purpose he has so that the agent is given the authority to make decisions. This theory explains that there is a difference in interests between the principal and the agent, where the agent tries to maximize the contractual fee he receives while the principal tries to maximize profits in investing. This can be seen from the value of the company as well as through financial ratios such as liquidity, leverage, profitability, and activity.

### 2. Signaling Theory

According to Spence (1973) in Fauziah (2017), states that the signals conveyed in the labor market are associated with economic indicators as models and signaling functions. By giving a signal or signal, the management (internal party) tries to provide relevant information about what management has done, so that it can be used by investors (external parties) to make investment decisions, where the decision is following their understanding of the signal. This is supported by the meaning of signal theory according to Brigham, Eugene F, (2014: 184), signaling theory is a behavior of company management in giving instructions to investors regarding management's view on the company's prospects for the future.

### 3. Company Value

According to Indrarani (2019:2), firm value is an investor's perception of the level of success of managers in managing company resources entrusted to him which is often associated with stock prices. According to Riana & Iskandar (2017) firm value is the amount received if the company is sold as a business that is operating. According to Wijaya (2017: 1), the value of companies that go public (public companies) is reflected in the market price of the company's shares, while the value of companies that have not gone public (closed companies) is reflected when the company is about to be sold. Thus it can be

concluded that the value of the company greatly influences external parties such as investors in making investment decisions. This study uses a measuring instrument Price to Book Value with the following formula:

$$\text{Price Book to Value} = \frac{\text{market price per share}}{\text{book value per share}}$$

Source: Brigham & Houston (2010:151)

### 4. Liquidity

According to Kariyoto (2017:37), the liquidity ratio is the company's ability to meet its short-term debt to short-term creditors. According to Harahap (2016:301), the liquidity ratio describes the company's ability to settle its short-term obligations. From the results of the ratio measurement, if the current ratio is low, it is said that the company lacks the capital to pay debts. However, if the results of the measurement ratio are high, it does not mean that the company's condition is good. This can happen because cash is not used as well as possible. Based on the explanation described above, it can be concluded that the liquidity ratio is a ratio that shows the company's ability to meet its short-term obligations by using the company's current assets. According to Sujarweni (2017: 60), the current ratio is a ratio used to measure the company's ability to pay its short-term obligations by using its current assets. The current ratio level can be determined by comparing current assets with current liabilities. The formula for calculating the current ratio is as follows:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

### 5. Leverage

According to Harahap (2015: 306), the leverage ratio is a ratio that measures how far the company is financed by obligations or external parties with the company's ability described by equity. This ratio shows the comparison between long-term financial claims used to fund long-term investment opportunities with long-term returns as well. The formula used is as follows:

$$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

### 6. Profitability

According to Sirait (2017: 139), the definition of profitability or the company's ability to earn a comprehensive profit, and convert sales into profits and cash flow. Then, according to Fahmi (2016: 80), the profitability ratio is a ratio that measures the effectiveness of overall management as indicated by the size of the level of profits obtained from sales and investment. Through profitability, it can provide information about the company's ability to increase profits. The information reflected in this ratio can convince investors in making investment decisions. Net profit margin is a measure of profit by comparing net income after interest and taxes



compared to sales. According to Kasmir (2017: 200), this ratio shows the company's net income on sales.

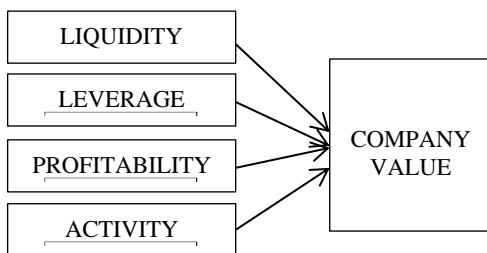
$$\text{Net Profit Margin} = \frac{\text{Net Profit} \times 100\%}{\text{Sales}}$$

### 7. Activity

According to Henry (2015: 209), the activity ratio is a ratio used to measure the effectiveness of the company in utilizing existing resources. There are three types of this ratio, one of which is the Total Asset Turn Over Ratio, according to Kasmir (2017:185), total assets turnover is a ratio used to measure the turnover of all assets owned by the company and measure how much sales are made. obtained from each rupiah of assets. Systematically the calculation of Total Assets Turn Over is as follows:

$$\text{TATO} = \frac{\text{Sales}}{\text{Total Assets}}$$

### FRAMEWORK OF THINKING



### HYPOTHESIS

According to Sugiyono (2017:63), the hypothesis is a provisional result of the research problem formulation, where the research problem formulation has been stated in the form of a question sentence. It is said to be temporary because the answers given are only based on relevant theories, not yet based on empirical facts obtained through data collection. From the explanation supported by previous research, several hypotheses were proposed in this study, including:

- H1: Liquidity affects the value of the company
- H2: Leverage affects firm value
- H3: Profitability affects firm value
- H4: Activities affect firm value

### RESEARCH METHODS

#### 1. Population and Research Sample

The population in this study is the automotive and component sub-sector manufacturing companies listed on the Indonesia Stock Exchange from 2015 to 2020, totaling 13 company data. In this study, the sampling technique used by the author is to use a purposive sampling technique or sampling based on criteria that have been found previously by the researcher. The criteria used by the company to select the research sample are:

1. Automotive sub-sector manufacturing companies listed on the Indonesia Stock Exchange (IDX) during

the research year 2015 - 2020

2. Manufacturing companies in the automotive and components sub-sector that are Initial Public Offering (IPO) and delisting in 2015 - 2020

### 2. Variable Definition and Operation

#### A. Company Value (Dependent Variable)

Agus Prawoto (2016: 21) company value is the value of all assets, both operational and non-operational tangible assets. Company value is proxied using the ratio Price to Book Value (PBV).

$$\text{Price Book to Value} = \frac{\text{market price per share}}{\text{book value per share}}$$

#### B. Liquidity (Independent Variable)

According to Kariyoto (2017:37), the liquidity ratio is the company's ability to meet its short-term debt to short-term creditors.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

#### C. Leverage (Independent Variable)

According to Harahap (2015: 306), the leverage ratio is a ratio that measures how far the company is financed by obligations or external parties with the company's ability described by equity.

$$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

#### D. Profitability (Independent Variable)

According to Sirait (2017: 139), the definition of profitability or the company's ability to earn a comprehensive profit, and convert sales into profits and cash flow.

$$\text{Net Profit Margin} = \frac{\text{Net Profit} \times 100\%}{\text{Sales}}$$

#### E. Activity (Independent Variable)

According to Hery (2015: 209), the activity ratio is a ratio used to measure the effectiveness of the company in utilizing existing resources.

$$\text{TATO} = \frac{\text{Sales}}{\text{Total Assets}}$$

### 3. Data Analysis Method

The analytical method used:

- 1) Descriptive statistics
- 2) Classical Assumption Test which include normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test.
- 3) Model Suitability Test consisting of coefficient of determination test, individual parameter significance test (t-test), and simultaneous significance test (f test).
- 4) Linear regression analysis doubled to determine the effect of liquidity, leverage,



profitability, and activity on firm value with the following equation:

$$PBV = \alpha + \beta_1 CR + \beta_2 DER + \beta_3 NPM + \beta_4 TATO + \varepsilon$$

Information:

PBV: Firm Value

$\beta_1, 2, 3, 4$ : Constant

CR: Liquidity as measured by Current Ratio

DER: Leverage as measured by Debt to Equity Ratio

NPM: Profitability as measured by Net Profit Margin

TATO: Activity as measured by Total Asset Turnover

$\varepsilon$ : Coefficient of error

## RESULTS

### Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
CR	66	.17	5.76	1.5774	1.19318
DER	66	.83	3.75	.9571	.83851
NPM	66	-45.18	35.67	2.8991	11.95171
TATO	66	.18	13.88	2.0167	1.82813
PBV	66	.88	3.78	1.4226	1.82385
Valid N (listwise)	66				

Based on the data in the table above, the number of samples (N) processed in this study amounted to 66 consisting of 11 automotive and component manufacturing companies listed on the Indonesia Stock Exchange for 6 years (2015–2020), consisting of the liquidity variable (CR), leverage (DER), profitability (NPM), activity (TATO), and firm value (PBV).

### 1. Classic assumption test

#### 1.1 Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		63
Normal Parameters <sup>a,b</sup>	Mean	.0E+0
	Std. Deviation	.81127968
	Absolute	.148
Most Extreme Differences	Positive	.148
	Negative	-.097
Kolmogorov-Smirnov Z		1.175
Asymp. Sig. (2-tailed)		.127

a. Test distribution is Normal.

b. Calculated from data.

The amount of data used in this study is 66 data, after outliers, the amount of data used is 63 data. The number of outliers is 3 data from 66 data. with the criteria of normally distributed data, namely Asymp.Sig. (2-tailed) of 0.127 which means  $Asymp.Sig. (2-tailed) > 0.05$  and it is stated that the data is normally distributed and accepted to continue to the next test.

### 1.2 Multicollinearity Test

#### Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	CR	.658	1.519
	DER	.782	1.278
	NPM	.729	1.372
	TATO	.807	1.240

a. Dependent Variable: PBV

The tolerance value of all independent variables has a tolerance value of not less than 0.10. The results of the calculation of the Variance Inflation Factor (VIF) value also show that there is no single independent variable that has a VIF value of more than 10. It can be concluded that there is no symptom of multicollinearity between independent variables.

### 1.3 Autocorrelation Test

#### Model Summary<sup>b</sup>

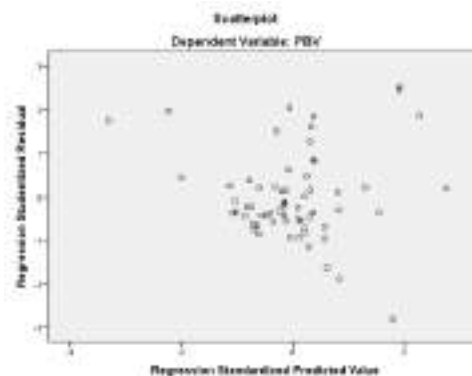
Model	Durbin-Watson
1	1.111

a. Predictors: (Constant), TATO, DER, NPM, CR

b. Dependent Variable: PBV

The Durbin-Watson (D-W) test was obtained with a value of 1.111. The D-w value lies between -2 to +2, so it can be concluded that there is no autocorrelation.

### 1.4 Heteroscedasticity Test



This research data does not occur or is free from heteroscedasticity problems because the data points spread above and below or around the number 0, and do not form a pattern.



## 2. Coefficient of Determination Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.631 <sup>b</sup>	.402	.261	80876

a. Predictors: (Constant), TATO, DER, NPM, CR  
 b. Dependent Variable: PBV

That 36.1% of the variation of the firm value variable (PBV) can be explained by the variation of the independent variables of liquidity (CR), leverage (DER), profitability (NPM), and activity (TATO) on firm value (PBV) in this study. As for the rest, which is 63.9%, it is explained by other variables not examined in this study which may affect firm value.

## 3. The goodness of Fit Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.430	4	6.857	9.747	.000 <sup>b</sup>
Residual	40.887	50	.704		
Total	68.317	52			

a. Dependent Variable: PBV  
 b. Predictors: (Constant), TATO, DER, NPM, CR

In the table above, it can be seen that the calculated F value is 9.747 with a sig of 0.000. With a significant probability value of  $0.000 < 0.05$ , thus the variables of liquidity (CR), leverage (DER), profitability (NPM), and activity (TATO) together affect the firm value or it is said that the regression model can be used to predict the dependent variable, namely the value of the company proxied by PBV.

## 4. Hypothesis Testing (T-Test)

### H1 = Liquidity Ratio affects Firm Value

Based on the test results above, it can be seen that the significance value of the Current Ratio (CR) is  $0.011 < 0.05$  (significant) with a t value of 2.631, this means that liquidity (CR) has a positive and significant effect on firm value and the hypothesis is accepted. The results of this study are in line with the results of research conducted by Andriani & Rudianto (2019), and Dwiputra (2020) resulting that liquidity has a significant effect on firm value. And in contrast to research by G. Lumentut (2019), then Taniman (2020), and Markonah et al. (2020), which state that liquidity does not affect firm value.

### H2 = Leverage Ratio affects Firm Value

Based on the results of the tests that have been carried out, the results obtained that the Debt to Equity Ratio (DER) has a significance value of  $0.362 > 0.05$  (not significant) with a t value of 0.919, this means that liquidity has no significant effect on firm value and the hypothesis is rejected. These results support the results of research conducted by Sukmawardini & Ardiansari (2018), and Kadim & Sunardi (2019) which state that the Debt to Equity Ratio (DER) affects a firm value.

### H3 = Profitability Ratio affects Firm Value

Based on the results of the tests that have been carried out, the

results obtained that the Net Profit Margin (NPM) has a significance value of  $0.005 > 0.05$  (significant) with a t value of 2.888, this means that profitability (NPM) has a positive and significant effect on firm value and the hypothesis received. These results support the results of research conducted by Mulyadi et al. (2020), and Fadilah, et al., (2021) which results that Net Profit Margin influences firm value, but it is different from the results of research by Manoppo & Arie (2016), and Janice & Toni (2020) which results that Net Profit Margin does not affect firm value.

### H4 = Activity Ratio affects Firm Value

Based on the test results above, it can be seen that the significance value of Total Asset Turn Over (TATO) is  $0.006 < 0.05$  (significant) with a t value of -2.841, this means that activity has a positive and significant effect on firm value and the hypothesis is accepted. This result is in line with what has been done by (G. Lumentut, 2019), and (Welas2, 2019) with the result that the Total Asset Turn Over Ratio affects firm value. In contrast to research by (Astutik, 2017) which states that this ratio does not affect firm value.

## DISCUSSION

1. In the study, partial and simultaneous results of CR have a positive and significant effect on firm value. If it is associated with a signal theory where a high CR value will have an impact on good company value, in this case, the company is declared capable of managing assets properly and efficiently to increase profits so that it will provide a positive signal for investors. However, if the current ratio is too high (overvalue) it indicates that asset management is not optimal or there are idle funds so it becomes a consideration for investors in investing. The results of this study are in line with research by (G. Lumentut, 2019), then (Taniman, 2020), and (Markonah et al., 2020), which state that liquidity does not affect firm value. And it is inversely proportional to the results of research conducted by (Andriani & Rudianto, 2019), and (Dwiputra, 2020) resulting that liquidity having a significant effect on firm value.
2. Debt to Equity Ratio describes the ratio of debt and equity in the company's funding and shows the company's own capital ability to meet all its obligations. A low DER means that the company's debt is smaller than all assets owned, so that if the company goes bankrupt or it can be said to be in financial difficulty, for example at this time, namely the Covid19 pandemic, the company can still pay off all debts. However, although a high DER ratio shows a bad signal, it does not apply to all companies due to problems in generating profits as happened in 2020 when there was a decline in sales due to Covid19. In addition, with the difficulty of generating profits while the company's operational activities are still running, the company can't take on debt for the smooth running of its operational activities. So that a high DER value can provide a signal for management to maximize the use of debt and convert it into optimal profits and minimize additional debt. The results of this study are in line with research by (Mulyadi



et al., 2020) and (Purba & Sidauruk, 2020), which state that the Debt to Equity Ratio (DER) does not affect firm value. However, contrary to research that has been done by (Sukmawardani & Ardiansari, 2018), (Kadim & Sunardi, 2019), states that the Debt to Equity Ratio (DER) affects firm value.

3. In the results of this study, NPM has a positive coefficient value of 0.035 and a significant value with a sig value of 0.005. With the Covid-19 pandemic which has an impact on the decline in people's purchasing power and has an effect on decreasing sales, there will be a decrease in profits which will affect the decline in stock prices and also have an impact on the value of the company. Besides, the increase in costs will have an impact on the income received from sales, if the company does not increase the selling price of its products. This will create a conflict of interest between the principal and the agent. Where the principal wants a high profit while the agent has tried as much as possible to want it. Related to the signal theory where the higher the company's profit, the better the value of the company, and this will be the interest of investors to invest. The results of this study are supported by (Mulyadi et al., 2020), and (Fadilah, Hasni., and Rika Lidyah., 2021) which results that the Net Profit Margin influences firm value. But it is different from the results of research conducted by (Manoppo & Arie, 2016), and (Janice & Toni, 2020) which results that Net Profit Margin does not affect firm value.
4. Total Assets Turn Over is a ratio used to measure the turnover of all assets owned by the company and measure how much sales are obtained per rupiah of assets (Kasmir, 2017:185). The greater this ratio, it means that the assets can rotate faster and can also make a profit and show the more efficient use of the overall assets to generate sales. In line with the signal theory, the higher the level of effectiveness, the higher the opportunity for the company's growth in the future. And this will be a positive signal for investors to invest. This result is in line with what has been done by (G. Lumentut, 2019), and (Welas2, 2019) with the result that the Total Asset Turnover Ratio affects firm value. In contrast to research by (Astutik, 2017) which states that this ratio does not affect firm value.

## CONCLUSION

From the results of data research and discussion carried out, the conclusions obtained are:

1. Liquidity, as proxied by the Current Ratio (CR), has a positive and significant effect on firm value.
2. Leverage proxied by Debt to Equity Ratio (DER) does not have a significant effect on firm value.
3. Profitability proxied by Net Profit Margin (NPM) has a positive and significant influence on firm value.
4. Activities proxied by Total Asset Turn Over (TATO) have a negative and significant effect on Company Value.

## SUGGESTION

The suggestions from the research to be conveyed are as follows:

1. For the management of the company, it is better to conduct periodic evaluations of the company's performance and are expected to pay attention to the company's financial cycle and further optimize the use of assets owned so that they can survive in the current conditions, namely the presence of covid19.
2. For investors, you should be more careful in understanding the company's financial statements and consider the information provided by management regarding the performance that has been carried out and the conditions that occurred during the COVID-19 pandemic.
3. For further researchers, researchers should increase the vulnerable period used in conducting research and other proxies and use other samples that include general so that more samples can be obtained.

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# MENTAL ILLNESS: CAUSAL BELIEFS, ATTITUDE, HELP-SEEKING PATHWAYS AND COUNSELLING IMPLICATIONS

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## ABSTRACT

*The purpose of this study was to investigate the causal beliefs, attitudes, and helping-seeking pathways of mental illness, as well as the counselling implications of adults in the Anambra State community of Ihiala. Three research questions guided the study. This paper adopted a descriptive survey research design. To select 200 participants from Ihiala, a semi-urban Igbo community in Anambra State, multi-stage (random and opportunity) sampling was used. This study had three structured questionnaires, each covering a specific purpose. The instruments were subjected to face and content validation to make sure they were valid. The Cronbach Alpha Method was used to determine the internal consistency of the instruments, and an overall co-efficient of 0.89 was obtained. Ten undergraduate students were recruited and briefed to help with the administration of the questionnaires to the participants. Frequency counts and percentages were used to answer the research questions 1, while the arithmetic mean and standard deviation were used to answer the research questions 2 and 3. The findings revealed that the most frequently endorsed causal categories were "misuse of substances," "evil forces," "brain injury," and hereditary. There was a lot of prejudice and negative attitude given to mentally ill people as well as pathways to mental healthcare for mental illness among Igbo people in Anambra State. Based on the study's findings, it was suggested that the government, in collaboration with counsellors and non-governmental organizations, launch comprehensive mental health prevention programs. The effectiveness of these programmes will assist in reducing high-risk problems experienced as a result of a lack of mental health information. Such information and mental health education could essentially decrease the number of people that are victims of various forms of health diseases and illnesses.*

**KEYWORDS:** *Mental Illness, Mental Health, Causal Beliefs of Mental Illness, Attitude, Help-seeking Pathways*

## 1. INTRODUCTION

Mental illness is a clinically significant psychological or behavioural disorder associated with distress, disability or a significantly increased risk of suffering pain, disability, death or important loss of freedom (American Psychiatric Association, 2005). Mental disorders are the leading cause of years lived with disability (YLDs) worldwide, accounting for 37% of all healthy life years lost through disease and 14% of the global burden of disease (Vos, Flaxman & Naghavi, 2012). They constitute risk factors for many health problems (Prince, Patel & Saxena, 2017) and create substantial personal burden for affected individuals in

terms of personal suffering, their families in terms of crippling burden of care and life-time lost productivity, and the society at large in terms of a drain on national resources (Foldemo, Gullberg, Ek & Bogren, 2015). Epidemiological findings suggested that almost 50% of the population will experience at least one mental disorder in their lifetime, and at least 25% have suffered from a mental disorder during the past 12 months (Foldemo, Gullberg & Bogren, 2015). Foldemo et al., projected that common mental disorders will disable more people than complications arising from heart diseases, traffic accidents and wars.



It is important to note that the majority of people meeting the criteria for mental disorders under-utilize mental health services in spite of the availability of effective treatment for most mental disorders in developed nations (Le Meyer, Zane, Cho & Takeuchi, 2009). World Mental Health Survey (Wang, Guilar-Gaxiola & Alonso, 2017) indicates that the treatment gap for severe mental disorders is low in Middle Income Countries (LMIC) and can be as large as 75%. The survey reported that persons with mental health needs receiving formal mental healthcare in Nigeria over 12 months was as low as 1.6%. Mental health is generally under-researched in Nigeria and Africa as a whole (Alem & Kebede, 2013; Gureje, Abdulmalik, Kola, Musa, Yasamy & Adebayo, 2015). This is why it fundamentally undermines mental healthcare such as: Policy initiatives, efforts at plugging the gaps in formal treatment, evolution of responsive models of mental healthcare and improvement of the notion of mental illness. To provide empirical basis for mental health interventions in Nigeria, this paper explores the perspectives of the Anambra State on three dimensions of mental illness: Causal beliefs, attitudes toward persons with mental illness, preferred treatment pathways and counselling implications.

In Nigeria, there is a general belief that both physical and mental diseases originate from various external factors such as breach of a taboo or custom, disturbances in social relations, hostile ancestral spirits, spirit/demonic possession, evil machination, evil eye, sorcery, affliction by God or gods and natural causes (Okafor, 2019; Thomas, 2018). Idemudia (2014) reiterated that a high prevalence of supernatural causal beliefs relating to witchcraft and curse by enemies with as much as 75% of respondents attributing mental illness solely to an evil spell. However, increasingly mixed attributions that include biological and psychosocial causations became evident with later studies. In another study that investigated the knowledge, attitude, causal beliefs, manifestations and treatment of mental illness among adults in a rural northern Nigerian population (Kabir, Iliyasu, Abubakar & Aliyu, 2014), misuse of psychoactive agents (alcohol, cannabis and other street drugs) was the most endorsed causal factor (34.3%) followed by divine punishment (18.8%), magic/spirit possession (18.0%) and accidents/trauma (11.7%) while beliefs in hereditary and life distress as causal factors were uncommon.

Attitude is an evaluative disposition towards someone or something (Zimbardo & Leippe, 2011). Attitudes influence behaviour: They serve the dual purpose of guiding behaviour towards various goals and away from adverse outcomes, and they help people to efficiently process complex information about the social world. To be marked as “mentally ill” carries a public, internal (self) and associative stigma one need to undertake a test. Public stigma occurs when the general population endorses stereotypes and decides to discriminate against people labelled “mentally ill” (Corrigan, Druss & Perlick, 2014). It is mostly caused by the stereotypes of people with mental illness as unpredictable, violent, deranged, incompetent or retarded (Atilola & Olayiwola, 2011). A similar finding is reported in the classic Rosenhan (2013) study whereby eight

people without mental health problems presented themselves at various mental hospitals, complaining that they had been hearing voices utter the words “empty,” “hollow,” and “thud”. Stigma has the potential to impact on all aspects of life (Schulze, Ritche-Werling, Matschinger & Angermeyer, 2013). It begets social exclusion which deprives people with mental illness of their basic citizenship rights, happiness and sharing in the ‘commonwealth’ of life (Pilgrim, 2009). It strips people off their dignity and represents a major barrier to effective rehabilitation and reintegration of people with mental illness.

Healthcare seeking behaviour is conceptualised as a sequence of remedial actions taken to rectify perceived ill-health (Ahmed, Adams, Chowdhury & Bhuiya, 2010). Studies suggest that pathways to healthcare are not random; while clinical factors such as symptom severity provide the impetus to the pathway, the decision to seek help and the selection of a help provider are structured by the convergence of personal, developmental, psychosocial, cultural, systemic and socio-economic factors (Cauce, Dommenech-Rodriguez & Paradise, 2012). According to Anderson, Fuhrer and Malla (2010), pathways for remedial actions include; mainstream (psychiatric) pathways (deals with biomedical explanation for mental illness with emphasis on the diagnosis of symptoms which are treated primarily through medical interventions); the general medical pathway (patients could see any care provider of their choice including having direct access to mental health professionals); the “Free Market” model (traditional and faith (alternative) healers play important roles alongside orthodox professionals in the third pathway that could be described as ‘free market’ model of care and is mostly observable in traditionalist (collectivist) societies of the developing world).

Mental illness represents one of the highest burdens of all disease and a major factor in perpetuating low academic achievement and school dropout. Currently, 80 percent of students in Nigeria do not receive treatment that would effectively reduce impairment while 99 percent lack the awareness on mental health (Eaton, et al., 2013). Furthermore, there is growing international evidence that mental ill health and low educational achievement interact in a negative cycle in low-income countries of which Nigeria belongs. This cycle increases the risk of mental illness among people who live in poverty. In Nigeria for example, there is lack of mental health awareness and basic management skills among primary health workers talk more of educators (WHO-AIMS, 2016). Realizing this limitation, World Health Organization (WHO) recommended school mental health education programs. This way, suffering of students may be reduced with early recognition and timely treatment of mental disorders. Mostly in developing countries, the burden of mental illness is very substantial and there would likely be a disproportionately large increase in the coming decades (WHO, 2008).

A case of attempted suicide by a 2019 UTME candidate in Ogun state was a case out of numerous cases to show the level of mental illness in the country where students prefer to take their own lives instead of fighting for their future. The



student Segun in senior secondary 3 reportedly took sniper, a pesticide used for agricultural weeds after failing his UTME exams because he was infuriated that he would lose the chase to acquire tertiary education (Vanguard news, 2017). While some experts like Dr, Pius Adejoh of department of Sociology University of Lagos thinks it is a reflection of the level of moral decadence in the country from the family which is supposed to be a place of solace, to the over competitive society, social media influence, pressure to become somebody in the midst of diminished opportunities among others. However on the contrary, Saleem Pat Ogolowo a consultant therapist at Synapse rehabilitation center Abuja identified unresolved grief and depression as the leading cause of these mental illness among students. While students like Segun make headlines in the country day after day, this is also a warning sign of what could be a catastrophic crisis to come for Nigeria. According to a study by National Depression, about third of Nigeria's population reported experiencing depressive symptoms with seven million diagnosed with the condition. Though this mental illness is regarded by WHO as the planet's leading cause of disability, Nigeria has further complications by failing to get its acts together through adequate data collection on the mental health of its citizens which has kept experts and authorities from developing coherent policies in order to fix the situation. This is in line with Dr, Joyce Omoaregba's report that the country needs more studies with adequate data and information in order to address the issue. In confirmation, Damola(2014) in his research attested to the fact that Nigeria's mental health issues is shrouded in secrecy, cultural traditions and social stigma which pushes patients into isolation, denial and away from seeking help. Another obstacle is seen in lack of mental health laws in the country which truncated the modern understanding of psychiatry, thereby giving room to traditional and spiritual connotations giving room to superstitions and misconceptions about mental health. This has led also to attribution of mental illness to witchcraft attacks, spiritual attacks rather than medical. Hence people resorted to seeking help from spiritual authorities and drugs rather than medications. This study thus as result of limited research on mental health issues of this nature sought to determine the causal beliefs, attitude, helping-seeking pathways of mental illness as well as counselling implications.

## 2. OBJECTIVES OF THE STUDY

The main objective of this study is to investigate the causal beliefs, attitude, and helping-seeking pathways of mental illness as well as counselling implications of adult-persons in Ihiala community of Anambra state. Specifically, this study examined:

1. The extent to which Igbo people of Anambra State make psychosocial, causal attributions for mental illness
2. The extent to which Igbo people of Anambra State demonstrate negative attitudes towards persons with mental illness

3. The extent to which Igbo people of Anambra State seek spiritual, traditional and conventional psychiatric treatments for mental illness

## Research Questions

1. To what extent do the Igbo people of Ihiala, Anambra State make psychosocial, biological and supernatural causal attributions for mental illness?
2. To what degree do Igbo people of Ihiala, Anambra State demonstrate negative attitudes towards persons with mental illness?
3. To what extent do they seek spiritual, traditional and conventional psychiatric treatments for mental illness?

## 3 REVIEW OF RELATED LITERATURE

According to WHO (2014), mental health is a state of well-being in which every individual realizes his or her own potentials, able to cope with the normal stresses of life, work productively, think fruitfully, and are able to make useful contributions within his/her community. WHO (2016) went further to emphasize that, mental health is a state of complete physical, emotional, psychological, personal and social well-being, and not merely the absence of diseases or infirmity. From the United Nation (UN) Sustainable Development Goal (2015) in promoting mental health and well-being, the prevention and treatment of substance abuse are integral parts of the sustainable development agenda to transform the World by 2030. However, this was adopted by the United Nations General Assembly on 25<sup>th</sup> September, 2015. This is in recognition of the importance of the areas of health within global development and health priorities.

A mentally healthy person is one who is functioning at a high level of behavioural, emotional adjustment and adaptiveness, and not one who is simply not ill. Mental health from the researcher's point of view is the ability to face the real facts of life and adapt to it in order to gain the greatest possible satisfaction. Usually, there are obstacles in achieving the greatest possible satisfaction in life; such obstacles may be a challenge to an individual or a roadblock. Where such cannot be overcome, then the emotional needs may be difficult to meet. Therefore, such an individual may become angry or hostile, or may feel fearful or anxious and eventually adopts defense mechanisms.

Mental health is the emotional, social, and intellectual fitness of the mind and body (Patel, 2013). He further stressed that one sign of mental health is the ability to find satisfaction in relationship with others such as friends, family, and co-workers. Good mental health brings about positive co-existence which enhances positive interpersonal relationship leading to peace of mind and balanced emotions. This is what every individual needs in order to be adequately adjusted to life situations and assurance to good health. In order to help your positive thinking and comfort of mind, look for good mental health.

Mental health problems which include neurological disorder, behaviour disorders, among others are common to all



countries and cause immense suffering. People with these disorders, according to Okpenge (2008), are often subjected to social isolation, poor quality of life, and increased mortality. These disorders, as he said, are the causes of a staggering economy. From WHO (2002), over one hundred million people worldwide are affected by mental illness, behavioural, neurological and substance use disorders. For instance, an estimate made by WHO (2002) showed that 154 million people globally suffer from depression, 25 million People from schizophrenia, 15 million people from drug use disorder, and 100 million are affected by alcoholic use disorder.

A recently published WHO reports showed that 50 million people suffer from epilepsy and 24 million from asthma and other serious diseases. WHO (2006) study showed that in 2005, 326 million people suffered from migraine, 61 million from cerebrovascular disorders, and 18 million suffered from neuro-infections or neurological sequence of infections. Also, according to Lewis (2011), 10 million people had disorders which required holistic remediation. Kleinman (2013) opined that people with mental health problems or illness were affected and are still affected by chronic conditions such as cancer, heart and cardiovascular diseases, diabetes, and HIV/AIDs. When untreated, they bring about unhealthy behaviour, non-compliance with prescribed medical treatments, diminished immune functioning, and poor prognosis. According to Patel (2013), cost effective treatments are available for most of these disorders. If correctly applied, it could allow most of the affected people to become well functional members of the society.

Furthermore, it was estimated that as much as 25% of all primary care consultations have a mental health component (WHO, 2006). The following are rapidly increasing: mental health problems from poverty, marginalization, poor environmental sanitation, social disadvantage, and relationship issues such as divorce; physical conditions problems such as heart disease and reductions in economic productivity; and interruption of child and adolescent educational problems, among others. Kessler (2013) stated that at the developmental level, at least 10% of children are considered to have mental health problems. With mental disorders contributing to an average 20% of disabilities at the global society level, it poses major challenges to global health. About 35 – 50% of mental health cases in developed countries and approximately 75 – 85% in less developed countries received no treatment in their mental health related problems due to the high prevalence of mild and sub-threshold cases (WHO, 2010). These milder cases, which can be found in various communities all over the world, require careful considerations because they are prone to progress to serious mental disorders when immediate attention is lacking.

#### Characteristics of Mental Health Persons

John (2014) mentioned the under-listed as the characteristics of mentally healthy persons. He said the mentally healthy person;

- a. Accepts problem and conflicts and works through them to a satisfactory end.

- b. Is able to love and accept the love of others; finds satisfaction in human relationships.
- c. Can work and play cooperatively in give and take relationships.
- d. Tries to understand the reasons for his/her own behaviour and the behaviour of others. Remembers that behaviour is an effort to satisfy emotional and physical needs.
- e. Uses defense mechanisms when effective, but does not depend upon them to solve all problems.
- f. Has a standard of values that guides actions.
- g. Is able to change or adjust behaviour when necessary, but only if moral standards are maintained.
- h. Has developed a philosophy of life that meets the demands of society, satisfies personal dreams and goals, and is within his/her capabilities.
- i. Can control anger and hostility, as well as other emotions, and has learned harmless ways of getting rid of hostility.
- j. Develops creative interests and abilities so that satisfaction can be found in doing things well.
- k. Takes pride in being prepared to accept responsibility for ideas, feelings, and actions.

#### 4. METHODOLOGY

This study adopted a descriptive survey research design. Multi-stage (random and opportunity) sampling was used to select participants ( $N = 200$ ) from Ihiala, a semi-urban Igbo community in Anambra State. As a semi-urban town with a fairly representative demographic, Ihiala was chosen as a microcosm of the wider Igbo community.

#### 5. SAMPLING DESIGN

The first stage of sampling involved a random selection of villages, markets, schools and corporate business establishments in the town through a balloting process. In the second stage, the invitation to participate was extended to people as they were encountered in the selected settings. Questionnaires were administered in each of the four selected settings to the first 50 people who consented to the study thus making a total of 200 respondents. A structured questionnaire developed by the researcher was used. This study was structured on three questionnaires. The first questionnaire addressed the psychosocial, biological and supernatural causal attributions for mental illness. It consisted of 15-items under 3 sub-scales representing the 3 (psychosocial, supernatural and biological) causal models.

The second instrument titled “The Community Attitudes to Mental Illness scale” (CAMI) by Taylor and Dear (1981) was adapted for the second instrument (attitudes towards people with mental illness). It is a 40-item self-report inventory developed to gauge community rather than professionals’ attitudes toward people with mental illness. It consisted of four subscales measuring two negative and two positive constructs: Authoritarianism (which seeks a clear difference between



persons with mental illness and others and proposes hospitalization for them); Social Restrictiveness (which expresses beliefs that people with mental illness are dangerous and are to be avoided or restricted); Benevolence (which expresses sympathy toward persons with mental illness and acknowledges public responsibility to help them) and Community Mental Health Ideology (which reflects acceptance of mental health services and people with mental illness in the community). But for the purpose of this paper, 7-item questions were used. Each of the items had a four-point response scale: strongly agree, agree, disagree and strongly disagree. The third instrument was structured on a 5-item of pathways to mental healthcare for mental illness. It was structured on a four point likert scale of strongly agree (SA); Agree (A); Disagree (D) and Strongly Disagree (SD) with values 4, 3, 2, and 1 respectively. The instruments were subjected to face validation to make sure the instruments were valid. The Cronbach Alpha Method was used to determine the internal consistency of the instruments and an overall co-efficient of 0.89 was obtained.

## 6. DATA COLLECTION

Undergraduate students were recruited and briefed to help with the administration of the questionnaires to the participants. Invitation to participate was extended to prospective participants and those that consented to the study were surveyed. Those who needed help with the pragmatics of completing the questionnaires were provided assistance. Most of the questionnaires were completed and collected on the spot. A maximum time frame of one week was accorded those who needed time to complete the questionnaires. While a predetermined 200 participants were recruited for the exploratory study, for the subsequent confirmatory study, a characteristic high response rate of 98% was achieved in the survey of the sample.

## 7. STATISTICAL DESIGN

Frequency counts and percentages were used to answer the research question one while the arithmetic mean and standard deviation was used to answer the research questions 2 and 3.

## 8. RESULTS

**Research Question 1:** What are the causation attributions for mental illness present among the Igbo people of Ihiala?

**Table 1: Respondents' Descriptive Statistics for Causal Attributions of Mental Health**

S/N	Psychological factors	Freq	%
1	Social factors	134	66.8
2	Misuse of substances	192	96.3
3	Personal deficit	96	47.9
<b>Supernatural factors</b>			
4	Divine sanction	131	65.4
5	Evil forces	191	95.3
6	Fate	97	48.4
<b>Biological factors</b>			
7	Hereditary	174	86.8
8	Brain injury	186	93
9	Childbirth/infection	54	27.1

The result in Table one revealed the causal attributions of mental health among the Igbo people of Ihiala, Anambra State. The result showed that the most frequently endorsed causal category was 'misuse of substances' (96.9%) followed by evil forces (95.3%), brain injury (93.0%) and hereditary (86.8%).

Childbirth/infection (27.1%), personal deficit (47.9%) and fate (48.4%) were the least endorsed causations.

**Research Question 2:** what are the attitudes of respondents towards people with mental illness in Igbo people of Ihiala in Anambra State?

**Table 2: Respondents' Mean and Standard Deviation Ratings on Attitudes of adults Towards Persons with Mental Illness**

S/N	Attitudes towards people with mental illness	X	SD	Remarks
10	I can allow someone who recovered from mental illness care for my children	2.26	0.77	Disagree
11	I can employ someone who has recovered from mental illness as house-help	2.69	0.82	Agree
12	I can marry someone who is cured of mental illness	2.03	0.73	Disagree
13	I can employ someone who has recovered from mental illness as security	2.52	0.69	Agree
14	I can confide in someone cured with mental illness	2.66	0.86	Agree
15	I can do business with someone cured with mental illness	1.92	1.13	Disagree
16	I can share my belongings with someone cured of mental illness	1.99	1.01	Disagree
<b>Cluster Mean</b>		<b>2.29</b>		<b>Disagree</b>



Data in Table 2 revealed that items 10, 12 15 and 16 with mean scores 2.26, 2.03, 1.92 and 1.99 were rated disagreed while items 11, 13 and 14 with mean scores 2.69, 2.52 and 2.66 were rated agreed. The cluster mean of 2.29 summarized that respondents have a negative attitude towards persons with mental illness among Igbo people in Anambra State. The standard deviation scores ranging from 0.69 – 1.13 means that

the difference between the standard deviation scores were not much, therefore this shows that the items are homogeneous.

**Research Question 3:** What are the pathways to mental healthcare for mental illness among Igbo people in Anambra State?

**Table 3: Respondents’ Mean and Standard Deviation Ratings of Pathways to Mental Healthcare for Mentally-Ill Persons**

S/N	Pathways to mental healthcare	X	SD	Remarks
17	A mentally ill person can get better if sacrifices are offered for his/her past mistakes	3.53	0.67	Agree
18	Mental illness is better handled in the native or traditional way	3.30	0.64	Agree
19	Mental illness can be cured through breaking of ancestral curses	3.29	0.61	Agree
20	Mentally ill person should be taken to the psychiatric hospital	3.26	0.60	Agree
21	Mentally ill person can get better if they follow good advice	2.29	0.85	Disagree
<b>Cluster Mean</b>		<b>3.13</b>		<b>Agree</b>

The result presented in Table 3 revealed that items 17 – 20 with mean scores 3.53, 3.30, 3.29, and 3.26 were rated agreed while item 21 with mean score 2.29 was rated disagreed. This means that respondents disagreed that mentally ill persons can get better if they follow good advice. The cluster mean of 3.13 revealed that most of the items are pathways to mental healthcare for mental illness among Igbo people of Anambra State. The standard deviation score ranging from 0.61 – 0.85 revealed that means that the difference between the standard deviation scores were not much, therefore this shows that the items are homogeneous.

unpredictability and dangerousness which underpins the widespread fear of schizophrenia held by many.

The finding in research question three revealed that pathways to mental healthcare for mental illness include making sacrifices, handling it the native or traditional way, and breaking of ancestral curses. This supports the finding of Aniebue and Ekwueme (2009) that there was leading initial choice of spiritual pathway, before the biomedical psychiatric and the traditional pathways. This finding also agreed with that of Ikwuka et al., (2014) that the majority of patients had used the alternative services either alone or prior to presenting at conventional mental health facilities.

## 9. DISCUSSION

The finding in research question one revealed that the most frequently endorsed causal category was ‘misuse of substances’, evil forces, brain injury and hereditary while childbirth/infection, personal deficit and fate were the least endorsed causations. This finding supported that of Agbodike (2008) that the traditional Igbo society also believes that mental illness can be caused by disharmony with one’s lifestyle especially when it involves excessive alcoholism and substance abuse. Ewhrujakpor (2009) agreed that the significantly low contribution of nurses to the endorsement of supernatural causations could be linked to the nursing training experience which exposes nurses to conventional mental health knowledge.

The finding in research question two revealed that respondents have a negative attitude towards persons with mental illness among Igbo people in Anambra State. This implies that the societies see mental illness as a deviation from normality. This finding agreed with that of Levey and Howells (1995) that majority see people with mental illness as ‘different’ while a similarly significant proportion (91.5%) endorsed the immediate hospitalisation of anyone that shows signs of mental illness. Ewhrujakpor (2009) supported that people with psychotic conditions such as schizophrenia are thought of as being essentially ‘different’ in terms of their perceived

## 10. CONCLUSION

It is evident from literature that the public are not well prepared and lack adequate dissemination of information about mental health. Based on this finding, this paper concluded that the most frequently endorsed causal category was ‘misuse of substances’, evil forces, brain injury and hereditary. There were lots of prejudice and negative attitude given to mentally ill persons as well as pathways to mental healthcare for mental illness among Igbo people of Ihiala, in Anambra State.

## 11. COUNSELLING IMPLICATIONS OF MENTAL HEALTH

Counselling is a form of assistance that involves many activities that will help individuals in understanding himself or herself and the problems encountered. Therefore, a lot of benefits would accrue when mental health counselling is adequately inculcated into public health programs to include;

1. Developed health skills, self-management skills, and self-discipline culture useful in maintaining a positive and stable emotional and socio-psychological well-being.



2. Identify health practices and cultures that will shape and encourage the people now, in future, and their future health life styles.
3. Failure and frustrations in life are signs and symptoms of poor mental health which may be situational, but which may also be resolved through counsellor's regular advocacy, sensitization mental health programmes, and health monitoring programmes.
4. Stress coping, good diets, regular exercises, good living condition, among other strategies should be taught to students and entire society by the counsellors through organized seminars and workshops.
5. Good mental health is a pre-requisite for good health living, good mental ability, emotional balance, and positive interpersonal relationship. As such, the counselor has a great role to play in the re- education of the incidence that could enhance effectiveness in the above listed factors.
6. The counselor should also assist every individual to develop his/her positive health self-concept. The counselor should ensure to sensitize the public with information about their lifestyle regarding sleeping procedures, eating behavior, nutrition, exercise, stress and its management, life coping mechanisms, blood screening and genotype tests habit, regular check-up among many others. This will go a long way to enhance good healthy living and individual's emotional and psychological balance.

## 12. RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. The public health situation now and later should be of great worry especially considering the increase abuse of drugs, mental problems, fever, behaviour problems among others that are threatening to wipe out the nation's potentials. As such, functional and pragmatic intervention programmes by the government are urgently required to checkmate the negative trend of these nasty problems.
2. The governments in collaboration with the counsellors and NGOs should embark on comprehensive good mental health preventive programmes. The effectiveness of these programmes will assist to reduce high risk problems experienced through lack of mental health information. Such information and mental health education could essentially decrease the number of people that are victims of various forms of health diseases and illnesses.
3. The three tiers of governments should embark on regular workshops, seminars, radio and television programmes, using various models, health experts, sociologists, counselors mental health facilitators, among others to carry information regarding good mental health to grassroots level in every state of

Nigeria. This will go a long way to imbibe good mental health management skills in the people's daily activities. This will also reduce the huge amount the government spends on health problems and in the purchase of drugs yearly.

4. Mental health routine guidance teaching and information programmes dissemination should be embedded into all schools and institutions' curriculums and programmes. The governments should employ more professional counsellors and psychologists into all levels of schools and colleges and must be encouraged to provide valuable information on good mental health behavior and its consequences.

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# SKIN CANCER CLASSIFICATION

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## ABSTRACT

*Skin cancer is considered as one of the most dangerous types of cancers and there is a drastic increase in the rate of deaths due to lack of knowledge on the symptoms and their prevention. Thus, early detection at a premature stage is necessary so that one can prevent the spreading of cancer. Skin cancer is further divided into various types out of which the most hazardous ones are Melanoma, Basal cell carcinoma and Squamous cell carcinoma. The project is about detection and classification of various types of skin cancer using machine learning and image processing tools. In the pre-processing stage, dermoscopic images are considered as input. Dull razor method is used to remove all the unwanted hair particles on the skin lesion, then Gaussian filter is used for image smoothing. For noise filtering and to preserve the edges of the lesion, Median filter is used. Color is an important feature in analyzing the type of cancer, color-based k-means clustering is performed in segmentation phase. The statistical and texture feature extraction is implemented using Asymmetry, Border, Color, Diameter, (ABCD) and Gray Level Co- occurrence Matrix (GLCM).*

**KEYWORDS:** Melanoma, Deep Learning, image segmentation

## 1. INTRODUCTION

The aim of this project is to develop a deep learning based model driven architecture to classify dermal cell images. Skin cancer rates are the 6th most types of cancer that are increasing globally. Generally, skin consists of cells and these cells comprise tissues. Thus, cancer is caused due to the abnormal or uncontrolled growth of the cells in the corresponding tissues or to the other adjacent tissues. Exposure to UV rays, depressed immune system, family history, etc., the reason for the occurrence of cancer. This type of irregular pattern of cell growth can be given as either benign or malignant. Benign tumors are cancer type and generally, they are considered as moles, which are not harmful. Whereas, malignant tumors are treated as cancer which is life threatening. They can also damage the other tissues of the body. The layer of the skin consists of three types of cells: Basal cell, Squamous cell, and Melanocyte. These are responsible for the tissues to become cancerous. There are different types of skin cancers, of which Melanoma, Basal cell carcinoma (BCC), Squamous cell carcinoma (SCC), which are considered as dangerous types. Early detection of melanoma at its premature stage is the best way to decrease the effect of the disease.

## 2. LITERATURE REVIEW

Authors Alkushayni, S.et al. in [1] carried out a critical assessment of existing machine learning and deep learning models for the classification of skin tumors. The work concluded the performance of DenseNet201>CNN> SVM. Authors Created 3 custom CNN models with additional layers. All 3 custom CNNs outperformed traditional methods.

Authors S. Bechelli et al. in [2] carried out a critical assessment of machine learning and deep learning models for the classification of skin tumors. The authors performed segmentation and preprocessing steps to obtain gray level skin

level images with pre-trained Levenberg Marquardt Neural Network for clustering and classification from PH2 database.

Authors H. Alquran et al. in [3] tried classification of cancer using Principal Component Analysis(PCA). Authors implemented statistical feature extraction using GLCM(Gray level co-occurrence matrix).The features based on GLCM and gray level histogram allow the differentiation of homogeneous and high contrast or luminous tissue areas.

Authors of [4] T. Brinker et al. performed systematic review of the state-of-the-art research on classifying skin lesions with CNNs. The authors concluded that CNN with transfer learning is much more efficient than traditional CNN.

Authors in [5]. E. Jana et al., studied skin lesions based on dermoscopic images PH2 datasets (200 images) using 4 different machine learning methods namely; ANN, SVM, KNN and Decision Tree. Correctly classified instances were found as 92.50%, 89.50%, 82.00% and 90.00% for ANN, SVM, KNN and DT respectively.

Authors in [6] Pacheco, A et al., diagnose melanoma and non-melanoma using a dermoscopic image. They also diagnose benign and malignant cutaneous tumors among 12 types of skin diseases using clinical images.

## 3. DETAILS

The dataset used in the paper is openly available on Kaggle (SIIM-ISIC Melanoma Classification, 2020). It consists of around forty-four thousand images from the same patient sampled over different weeks and stages. The dataset consists of images in various file formats. The raw images are in DICOM (Digital Imaging and Communications in Medicine), containing patient metadata and skin lesion images. DICOM is a commonly used file format in medical imaging. Additionally, the dataset also includes images in TFRECORDS (TensorFlow Records) and JPEG format.

## 4. METHODOLOGY



Fig. 1. Methodology Flowchart

### 4.1. Data Preprocessing

In any machine learning project, it is critical to set up a trustworthy validation scheme, in order to properly evaluate and compare models. This is especially true if the dataset is small to medium size, or the evaluation metric is unstable, which is the case of this project. There are 33k images in train data. However, only 1.76% are positive samples (i.e., malignant). The small number of positives causes the AUC metric to be very unstable, even with 5-fold cross validation.

### 4.2. Data Augmentation

In a small size dataset, image augmentation is required to avoid overfitting the training dataset. After data aggregation, we have around 46k images in the training set. The dataset

contains significant class imbalance, with most of the classes having an "Unknown" category. We have defined our augmentation pipeline to deal with the class imbalance. The augmentation that helps to improve the prediction accuracy of the model is selected.

## 5. RESULTS

We have used ensemble terminology to train diverse models and take the average probability ranks of the models to get the final prediction. The model configuration is as follows:

1. Backbone Pre-trained CNN Model: Efficient Net B4, B5 and B7. We have chosen to use the B4, B5 and B7 variant of the efficient net over B0 as they have achieved higher accuracy on ImageNet competition.
2. Targets: All the models are trained in nine categories.
3. Original images are cropped to 68x768 and 512x512 pixels. To reduce the random noise and black border on the edge of the images.
4. Resized image input sizes to 380x380 and 448x448 pixels. The images are resized to lower resolution due to GPU memory constraints. Otherwise, it was planned to load the images with the original cropped image pixels.
5. Cosine Decay learning rate is set to  $3e-5$  and  $1e-5$  with 1 Warmup epoch. Along with the pre-trained model, we are using Cosine decay with a warmup learning rate scheduler. Warmup strategy gradually increases the learning rate from zero to the initial learning rate during initial Nth epochs or m batches. Cosine decay is used in conjunction with the warmup learning rate scheduler to decrease the initial learning rate value steadily. Cosine decay is used rather than exponential or step decay. It reduces the learning rate slowly at the start and end while falling linearly in the middle—cosine decay helps to improve the training process.

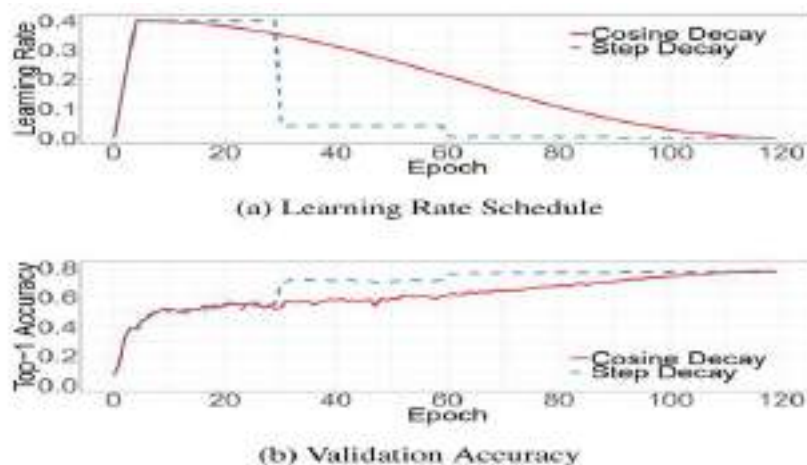


Fig. 2. Network Configuration

6. Optimiser: Adam. Adam combined the best properties of RMSProp and AdaGrad to handle the sparse gradients on the noisy problems. As we have sparse data, Adam is used because of the adaptive learning rate.

7. Training Epoch: 15. As we are using the ensemble methodology, we have trained all the variants of the EfficientNet model on 15 epoch.



8. Training and validation batch size of 8 for B4 and 4 for B5 and B7 is used. The reason behind choosing the small batch size is due to GPU memory constraints. Otherwise, we have planned to use a batch size of 64 for the training and validation set.

## 6. CONCLUSION

One of the deadliest cancer forms is melanoma, and the proportion of people getting affected by melanoma is increasing rapidly. To make the solution available to the public and dermatologists, we have successfully integrated the optimized model with our CAD system.

The model is trained on a constant split; that is, the training and testing split remains the same in every model. But to ensure the splits are relatively unbiased, K-fold Cross-Validation can be used. A model can become robust if trained on a five-fold split. So, a single fold contains 15 epoch, and by the end of the training process, the model will be trained on five different holdouts set with 75 epoch in total (5 fold x 15 Epoch). K-fold Cross-Validation strategy only works if a more significant number of GPUs are available as the EfficientNet model takes longer to train.

Also, the project can be extended by detecting the skin cancer region with bounding boxes and providing the proportion of cancerous cells in the proposed region. It will help dermatologists understand where the network is looking, and it also helps improve the network performance if the wrong inference is performed.

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# PERFORMANCE APPRAISAL IN IMPROVING PRODUCTIVITY AT H & R JOHNSON

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## ABSTRACT

*Managing human resources is more difficult and essential. Since the firm has realised that its people are a valued resource, trends in employee retention, job security, etc. have increased. Using "Performance" is the main theme of the research. The manner in which the business carries out its performance review procedure. Focusing on human resource management is the most important aspect of the organisation. A variety of resources are required by the organisation, but human resources are the most effective. Performance evaluation is one of the important human resource tasks that is universally recognised by all organisations. The primary objective of the report was to provide a realistic understanding of how the performance evaluation process and methods effect the development of an organization's human resources. In this case, the study also served some other crucial purposes, such as giving the organisation a critical assessment so that suggestions could be made regarding any defects that were found. The report has been significant because it covered so many diverse topics. highlighting the primary areas of evaluation, offering applicable critique, and, based on descriptive presumptions, proposing some useful recommendations. Ceramic tiles company in India tracks the long and rich history of ceramic tiles production, the trendy producing method of varied styles of tiles and also the dynamic international ceramic tiles market. The pattern of consumption and production of ceramic tiles is increasing at a robust rate in India. India is the third-largest producer of ceramic tiles worldwide. Employee appraisal is unquestionably necessary on a regular basis throughout one's working life. Performance appraisal is very important for determining staff training and development needs as well as measuring their respective strengths and weaknesses. A performance appraisal system's main objectives are to improve employee growth and staff morale.*

**KEYWORDS :** *Performance Appraisal, H & R Johnson, Improving Productivity, Employees.*

## INTRODUCTION

Throughout one's working career, employee appraisals are undoubtedly required on a frequent basis. It is continuously practised, very desirable, and practical. The task of selecting the traits and attributes to be evaluated for the purpose of calculating employee assessment falls under the purview of the HR department. Performance evaluation is crucial for identifying staff training and development needs as well as for assessing their individual strengths and limitations. The data gathered during the performance appraisal process is quite useful in assessing and evaluating several essential HR issues such as salary, wages, promotion, demotion, retention, transfer, and bonus, among others. These evaluations are based on the present employees accomplishment of goals while working. It is based on the employees personality.

The origin of ceramic tiles is found 7 to 8 thousand years ago. The various sources show that the history of tiles is originated in Egypt in 4000 BC. Ceramics were primarily used for decorations. Earlier these were used in white and blue patterns which is later transformed in various varied patterns. The Shang-Yin dynasty (1523– 1028 BC) saw the production of excellent white ceramic ware in China, the world's foremost hub of ceramic art. These pieces had the earliest Chinese glaze. By 900 A.D., ornamental tiles were widely used in Persia, Syria, Turkey, among other places due to the development of the craft of making and decorating ceramic tiles. With the development of transport and communication its usage was spread in other geographical areas also.

The H and R Johnson company was established in 1958. It is the pioneer company of ceramics in India HRJ has given many innovated products to supply complete solutions to its customers during the past 5 decades. Currently, HR has the distinction of being the only company in India to offer complete solutions for kitchens, sanitary items, bathtub fixtures, marble, quartz, and tiles. H and R offers glazed walls and floor tiles, bathtub products, kitchens, laminate/designed wooden floors, and designed marble and quartz.

An employees excellence in matters relevant to his current job and his potential for a better job are evaluated in a methodical, routine, and objective manner during a performance review. During an employee performance review, managers evaluate an employees overall performance, pinpoint strengths and problems, offer comments, and help the employee develop goals. The majority of the time, employees can ask questions of and give feedback to their bosses. Reviews of each employees performance are conducted. To discuss the review, the manager and employee will have a private meeting. Future goals will be discussed by the employee and the boss.



## OBJECTIVES

The current study focuses on the assessment of performance evaluation methods and strategies, as well as their impact on employees in the ceramics company. The following are the study's specific sub-objectives:

- To identify the Performance Appraisal at H & R Johnson.
- To determine the employees' perception towards the effectiveness of Performance Appraisal at H & R Johnson.

## REVIEW OF LITERATURE BOICE AND KLEINER (2020)

Worked on framing the successful performance appraisal systems. They reported that the organizations could have dedicated and committed manpower only when the performance appraisal processes are successful. In the whole process, the assurance and dedications of the top management is required to communicate the organizations policies and procedures to the employees. The researchers also developed a framework to understand effective performance appraisal process. That model identified the requirement for the training of the employees involved in the systems, proper documentation of records and clearly stated objectives were required for the objective system to be more effective.

### Poon (2020)

Studied on the probable consequences of political performance evaluation on job satisfaction and intention to leave and he found that performance's appraisals ratings were generally influenced by political motives. He discussed the effects of employees' views of political goals on their job happiness and intention to leave their respective organisation in performance appraisals. He collected information only through the white collar employees and they were occupationally heterogeneous from various organizations. With the help of regression technique the author found if perceived performance rating of employee are manipulated a per rater's personal prejudice, that brought reduction in job satisfaction and ultimately proved a main reason for quitting their jobs. Moreover it was also observed that there were no effects of manipulations of ratings for motivation, one employee turnover intention and job satisfaction.

### Kuvaas (2019)

Examined the various associations among perception of employees for Work performance and developmental performance evaluation. He found that Positive responses to employee reviews are required. The author examined two different models: mediation and moderation. These models illustrated the relationship between workers self-reported job performance and their perceptions of developmental performance appraisals. In that work the researcher approached four hundred thirty four persons as respondents. It was mainly observed that there was positive relationship among personnel with weak autonomy orientations, poor outcomes for those who had strong autonomy orientations, and adverse outcomes for those who did not. This study relies on self reported questionnaire. The author also suggested that, in order to investigate causality issues, experimental research are needed. Mainly, it was concluded that autonomy orientation mattered for the relationship among the considered factors. Further it was suggested that more effort were required for participative system of performance system.

### Payne (2018)

Compared employees reactions regarding the use of online and traditional performance appraisal systems. Online employees reported significantly lower levels of quality for the PA rating than traditional employees. This was the first study of its kind which used to compare the attitude of the employees of both online and offline. The author considered only one organization.

### Vilela (2017)

Examined the research in the area of Affective context, impression management strategies, and their impact on evaluating sales effectiveness. This study covers 35 organisations of nine industries. The data is derived from the 122 sales employees. It is found showed the supervisors opinion of the salesperson is positively connected with supervisor-focused impression management.

### Spinks (2017)

Studied computerized PAS. The researchers wanted to know whether the effective performance appraisal affects the overall productivity of the system or not. It was also found that the performance appraisal system could be further improved and this crucial aspects definitely helps the management and workforce. Further, it is found that software is quite helpful in conducting the appraisal more effectively. The process could be made easier and more structured with the help of computer software.

## METHODOLOGY

### Type of Research

Descriptive research is what being done right now. The goal of this study is to investigate how performance is evaluated in a company and to address any concerns that workers may have.

### Source of Data Collection

Both primary and secondary data are used in the investigation. While secondary data is gathered via books, journals, research papers, and websites, primary data is gathered through the use of questionnaires.



**Sampling method**

Simple random method is used for the survey. Lower level of management is selected such as supervisors, foremen, section officers as a sampling method for the survey.

**Population and sampling unit**

- Target population : Employees in H & R Johnson, there are 1200 employees in the company.
- Sampling unit : lower level of management such as supervisors, foremen, section officers as a sampling unit for the survey

**Sampling Size**

The respondents for the study is employees of H & R Johnson Ceramic tiles company, there are 1,200 employees working from which the sample size for the study is set to 100 respondents.

**Statistical tools and techniques**

The statistical software SPSS was used to analyse the data. Statistical techniques such as One-way Anova, Chi Square and Descriptive statistics is used to test the responses and information collected from the survey in the study.

**ANALYSIS AND INTERPRETATION**

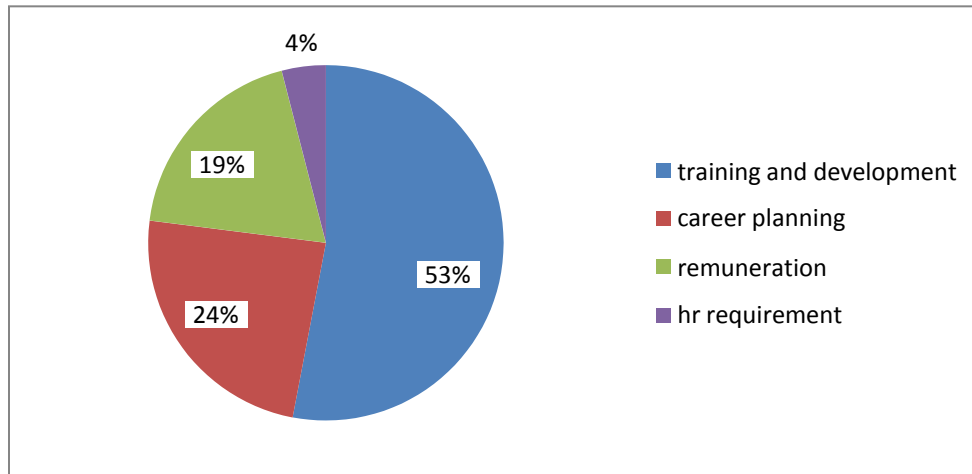
**Table - 01 Purpose of Performance Assesment**

Purpose	No. of respondents	Percentage
Training and development	53	53%
Career Planing	24	24%
Remuneration	19	19%
HR requirement	4	4%
Total	100	100%

**Analysis**

From the above table it shows that Out of 100 respondents 53% of the respondents have opted the purpose of Performance assessment for training and development, 24% of the respondents for career planning, 19% of the respondents for remuneration and 4% of respondents for HR requirement.

**Graph - 01**



**Interpretation**

The above graph shows the purpose of performance assessment. It shows the majority of the respondents haveopted the purpose of Performance Assesment for Training and development.

**Table – 02 Does the Appraiser need Training**

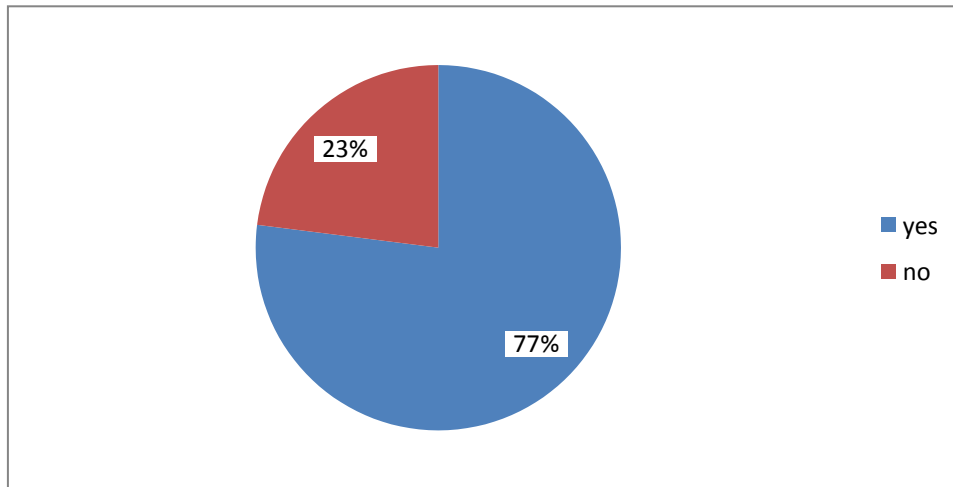
Training	No. of respondents	Percentage
Yes	77	77%
No	23	23%
Total	100	100%



**Analysis**

The above table shows that, Out of 100 respondents 77% of respondents have opted for yes the appraiser need training and 23% of respondents for no.

**Graph - 02**



**Interpretation**

The above graph shows that does the Appraiser need Training for conducting Performance Appraisal in the company. The majority of the respondents have opted for YES the Appraiser need Training for conducting Performance Appraisal.

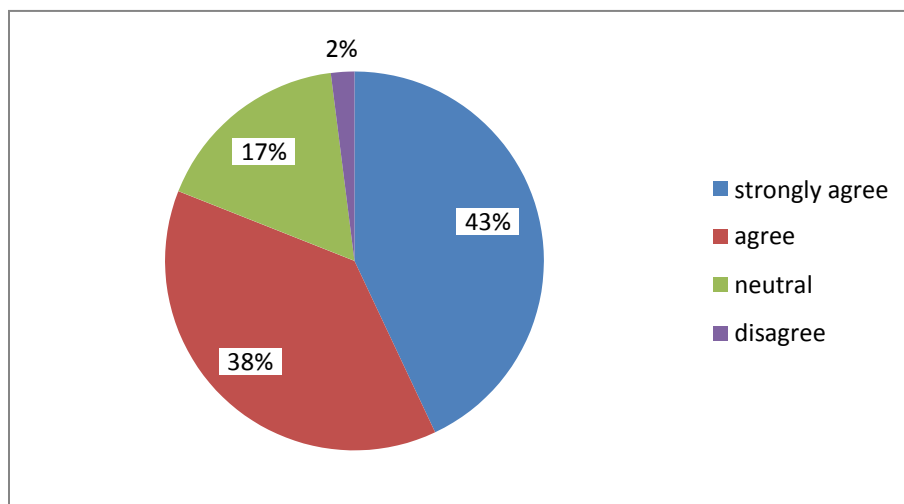
**Table – 03 Work Appreciation**

Appreciation	No. of respondents	Percentage
Strongly agree	43	43%
Agree	38	38%
Neutral	17	17%
Disagree	2	2%
Total	100	100%

**Analysis**

From the above table it shows that, Out of 100 respondents 43% of respondents strongly agree for getting appreciated for their work, 38% of the respondents agree, 17% of the respondents opted for neutral and 2% of respondents opted disagree.

**Graph - 03**







### Interpretation

The above graph shows the appreciation for the work performed by the employees. It shows that majority of the respondents opted for getting appreciation for their work and few members opted for not getting appreciation for their work.

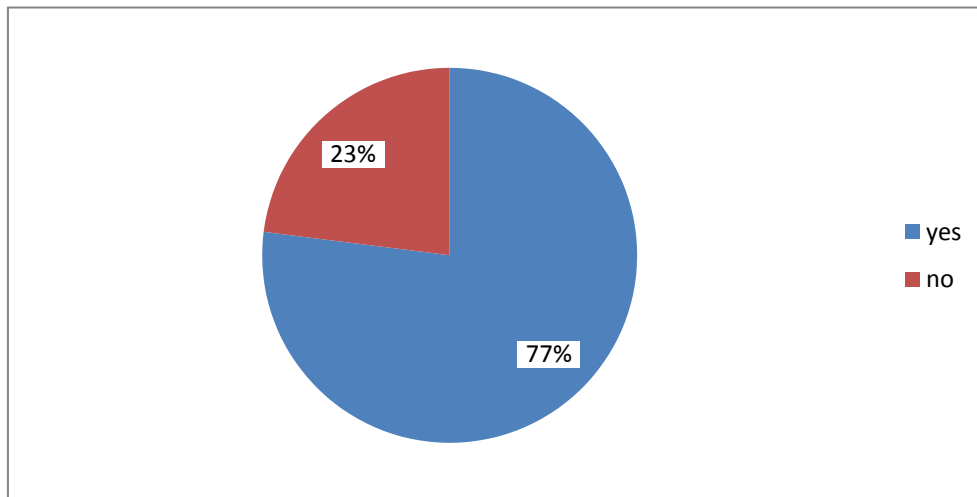
**Table – 04 Receive Salary or Increment after Performance Appraisal**

Salary or Increment	No. of respondents	Percentage
Yes	77	77%
No	23	23%
Total	100	100%

### Analysis

The above table shows that, Out of 100 respondents 77% of the respondents have opted Yes they receive salary and increment after Performance Appraisal, 23% of the respondents have opted No.

**Graph – 04**



### Interpretation

The above graph shows the employees receives salary or increment after Performance Appraisal. It proves that majority of the respondents receive salary and increment after Performance Appraisal in the company they are working.

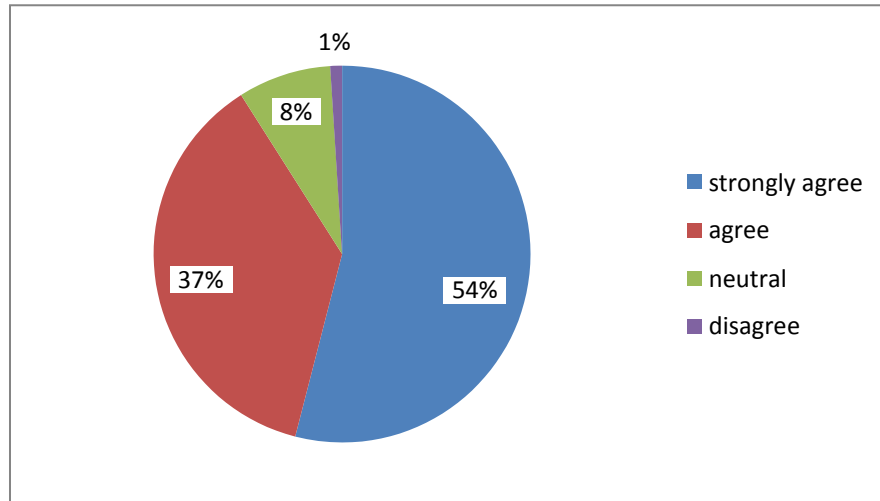
**Table – 05 Performance Appraisal improves motivation and job satisfaction**

Motivation and job Satisfaction	No. of respondents	Percentage
Strongly agree	54	54%
Agree	37	37%
Neutral	8	8%
Disagree	1	1%
Total	100	100%

### Analysis

From the above table it shows that, Out of 100 respondents 54% of the respondents have strongly agreed that it improves employee motivation and job satisfaction, 37% of respondents have agreed, 8% of the respondents have opted neutral and 1% of the respondent have disagreed.

Graph - 05



**Interpretation**

The above graph shows Performance Appraisal improves employee motivation and job satisfaction. It shows that majority of the respondents strongly agree that Performance Appraisal improves employee motivation and job satisfaction.

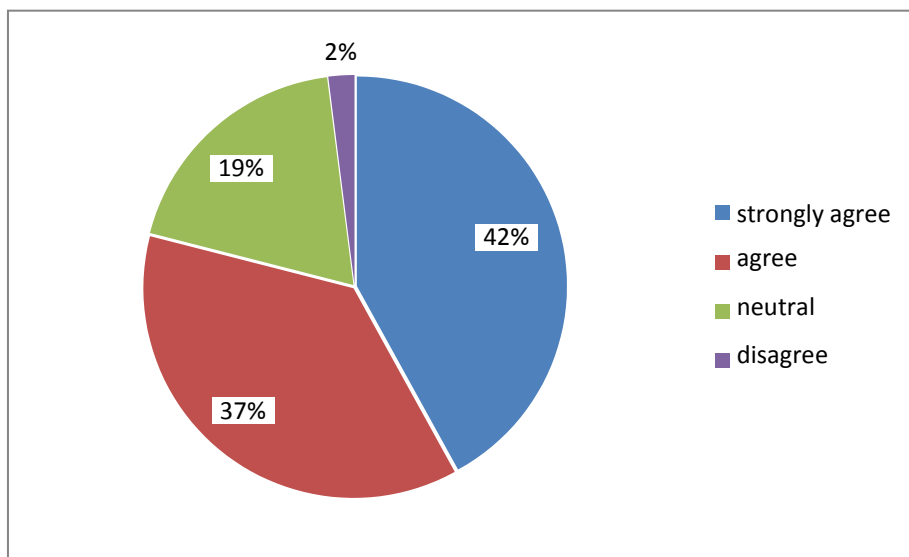
**Table – 06 Performance Appraisal change the behavior of the employees**

Behavioral change	No. of respondents	Percentage
Strongly agree	42	42%
Agree	37	37%
Neutral	19	19%
Disagree	2	2%
Total	100	100%

**Analysis**

From the above table it shows that, Out of 100 respondents 42% of the respondents strongly agree for the changes in the behavior, 37% of the respondents only agree to it, 19% of the employees opted for neutral and 2% of the respondent disagreed.

**Graph - 06**



**Interpretation**

The above graph shows Performance Appraisal change the behavior of the employees. It proves that majority of the respondents strongly agree for Performance appraisal change the behavior of the employees.



## HYPOTHESIS TESTING

### 1. One way Anova

**Performance appraisal change the behaviour of the employee**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.956	1	3.956	6.310	.014
Within Groups	61.434	98	.627		
Total	65.390	99			

## CONCLUSION

**P value is 0.014**

**Level of significance = 0.05(5%)**

From the above anova table “F” calculated at a degree of freedom is 6.310 where P value is 0.014.

At the level of significance of 5% i.e 0.005, from the output P value is greater than 0.005. Therefore, null hypothesis is accepted and alternative hypothesis is rejected.

Hence there is no significant difference between Performance Appraisal change the behavior of the employee and receiving salary or increment after Performance Appraisal.

### 2. Chi square analysis

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Performance appraisal change the behaviour of the employee * Do you receive salary or increment after performance appraisal	100	98.0%	2	2.0%	102	100.0%

**Performance appraisal change the behaviour of the employee \* Do you receive salary or increment after performance appraisal**

**Crosstabulation**

Count

		Do you receive salary or increment after performance appraisal		Total
		yes	no	
Performance appraisal change the behaviour of the employee	Strongly Agree	35	7	42
	Agree	30	7	37
	Neutral	12	7	19
	Disagree	0	2	2
Total		77	23	100



**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.050 <sup>a</sup>	3	.018
Likelihood Ratio	9.107	3	.028
Linear-by-Linear Association	5.989	1	.014
N of Valid Cases	100		

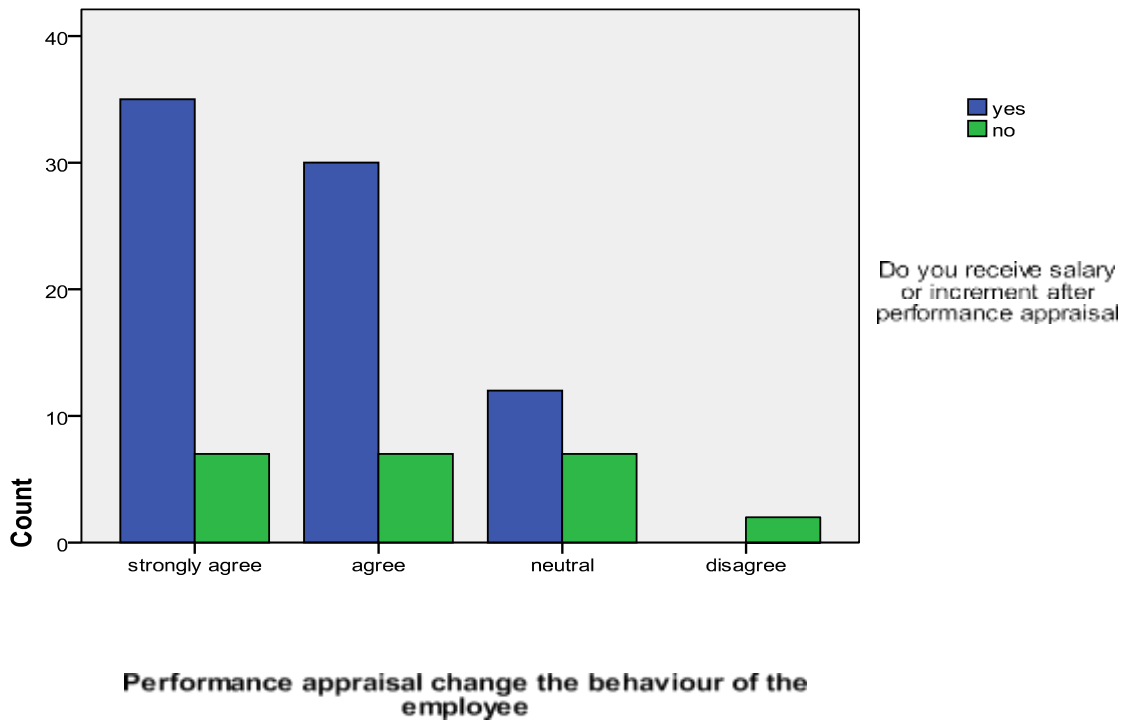
a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .46.

**Conclusion**

**P Value** = 0.018

**Level of Significance** = 0.05(5%)

As the level of significance is lesser than P value, null hypothesis is accepted and alternate hypothesis is rejected. Therefore there is no significant relationship between receiving salary or increment after Performance Appraisal with Performance Appraisal change the behaviour of the employees.





### 3. Descriptive

#### *Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
<i>Do you think performance appraisal helps people set and achieve meaningful goal</i>	100	1	3	1.33	.711
<i>Purpose of performance assessment</i>	100	1	4	1.74	.906
<i>Performance appraisal give constructive criticism in a friendly and positive manner</i>	100	1	3	1.58	.843
<i>Performance appraisal improves motivation and jobsatisfaction</i>	100	1	4	1.56	.686
<i>Performance appraisal change the behaviour of the employee</i>	100	1	4	1.81	.813
<i>Do you receive salary or increment after performance appraisal</i>	100	1	2	1.23	.423
<i>Valid N (listwise)</i>	100				

### CONCLUSION

**Highest Mean** is 1.81

**Lowest Standard Deviation** is 0.423

**Highest Mean** : Performance Appraisal is highly influencing the change in behavior of the employees.

**Lowest Standard Deviation** : Receiving salary or increment is slightly influencing the employees after Performance Appraisal.

### FINDINGS

It has been discovered that most of the employees consider the best purpose of Performance Assessment is Training and Development. It demonstrates that most of the employees say that the appraiser need training before conducting Performance Appraisal in the company. It is analysed that most of the staff strongly agree that their work is appreciated in the company they are working. As per the analysis it was found that most of the staff receive salary or increment after Performance Appraisal. Majority of the employees strongly agree that Motivation and job satisfaction are increased through performance appraisals. It was found that many of the respondents strongly agree that the practice of Performance Appraisal in the company change the behavior of the employees. According to anova testing it shows that, At the level of significance of 5% i.e 0.005, from the output P value is greater than 0.005. Therefore, We accept the null hypothesis and reject the alternative. Hence there is no significant difference between Performance Appraisal change the behavior of the employee and receiving salary or increment after Performance Appraisal.

### SUGGESTIONS

- Performance Appraisal should be considered as the top HR priority. The management should consider it as an employee's growth tool.
- Management should have to create free and fair environment where employees could communicate with anybody in the company.
- Performance Appraisal should be treated as 'Psychological Development Tool' for employees. It bridges the gap between appraiser and appraise.
- To make Performance Appraisal more effective the management should take the following steps like : recognize the employee as an individual in the organization : health, safety and welfare measures should be maintained; salary should be fair in accordance with the roles and the responsibilities assigned to employees; and retention methods should be suitable and meaningful for the growth of the company.



## CONCLUSION

Performance Appraisal assess a personal staff efficiency and effectiveness in the light of specific predetermined criteria and structural goals. Performance Appraisal plays a very important role in the company because it improves job performance and it helps to know where the employees stand in their performance. From the study it conclude that Performance Appraisal provides the opportunity to set personal goals. Performance Appraisal is mainly the recognition, reward to an employee and helps in reducing the grievance among the employees.

Employees was fairly satisfied with salary rating was increased by performance rating and was happy with the present appraisal system. Overall, this project work helps to know every aspects of performance appraisal system.

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# DEVELOPMENT IN CHILDRENS BY ERIKSON: CONCEPT NOTE

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## ABSTRACT

*Erikson's theory builds sequentially upon the preceding stages and also prepares the way for the developmental phases which follow. According to Erikson, people at every stage experience a conflict which acts as a turning point in the course of their development. Erikson believed these conflicts centre on an individual's ability to develop a psychological quality or a failure to develop that quality. At such moments, there is rich potential for personal growth but also some potential risk of failure. Those who are able to deal successfully with such conflict will emerge from the stage fortified with psychological strengths which will sustain them through the remainder of their life's journey. But if they should fail to deal with these conflicts effectively, they run the risk of failing to acquire some essential skills required for a robust and resilient sense of self. Erikson also believed that our behaviours and actions are driven by a sense of competence. So each phase of Erikson's theory focuses upon developing competence in a certain area of life. And when the stage is handled well, the individual develops a sense of mastery, sometimes described as ego strength or ego quality. However, if a stage is poorly navigated, the individual will be left with some sense of inadequacy as regards that particular developmental feature.*

**KEYWORDS:** *Developmental Stages, Conflict, Generativity and Stagnation etc,*

**Erik Erikson** (1902-1994) was an ego psychologist who established an influential theory of psychosocial development. Erikson maintained that personality develops in a predetermined order through eight stages of psychosocial development, from infancy to adulthood. During each stage, the person experiences a psychosocial crisis which could have a positive or negative outcome for personality development. For Erikson (1958, 1963), these crises are of a psychosocial nature because they involve psychological needs of the individual (i.e., psycho) conflicting with the needs of society (i.e., social). According to the theory, successful completion of each stage results in a healthy personality and the acquisition of basic virtues. Basic virtues are characteristic strengths which the ego can use to resolve subsequent crises.

Erikson's theory is cast in terms of the dominant tensions which exist in eight life stages he described as follows:

**Stage 1 – Trust vs. Mistrust** *Infancy*

**Stage 2 – Autonomy vs. Shame & Doubt** *Early childhood*

**Stage 3 – Initiative vs. Guilt** *Preschool*

**Stage 4 – Industry vs. Inferiority** *School age*

**Stage 5 – Identity vs. Confusion** *Adolescence*

**Stage 6 – Intimacy vs. Isolation** *Young adulthood*

**Stage 7 – Generativity vs. Stagnation** *Middle adulthood*

**Stage 8 – Integrity vs. Despair** *Maturity*

Erikson was in agreement with Freud that human personality developed in a series of phases. His psychosocial development theory therefore describes the impact of social experiences across the whole human lifespan, especially in terms of how

social interaction and relationships play a role in the ongoing growth and development of humans.

## 1. ERIK ERIKSON STAGES OF DEVELOPMENT

One strength of psychosocial theory is that it provides a broad structure which can be used to view development across the human lifespan. It also focuses attention upon the essentially social nature of human beings and the critical influence social relationships have on growth and development.

### 1.1 Stage 1: Trust vs. Mistrust

The first stage of Erikson's theory of psychosocial development occurs between birth and 1 year of age and is the most fundamental stage in life. Because an infant is utterly dependent, developing trust is based on the dependability and quality of the child's caregivers. At this point in development, the child is utterly dependent upon adult caregivers for everything they need to survive including food, love, warmth, safety, and nurturing. If a caregiver fails to provide adequate care and love, the child will come to feel that they cannot trust or depend upon the adults in their life.

### 1.2 Stage 2: Autonomy vs. Shame and Doubt

The second stage of Erikson's theory of psychosocial development takes place during early childhood and is focused on children developing a greater sense of personal control.



### 1.2.1 The Role of Independence

At this point in development, children are just starting to gain a little independence. They are starting to perform basic actions on their own and making simple decisions about what they prefer. By allowing kids to make choices and gain control, parents and caregivers can help children develop a sense of autonomy.

### 1.2.2 Potty Training

The essential theme of this stage is that children need to develop a sense of personal control over physical skills and a sense of independence. Potty training plays an important role in helping children develop this sense of autonomy. Like Freud, Erikson believed that toilet training was a vital part of this process. However, Erikson's reasoning was quite different than that of Freud's. Erikson believed that learning to control one's bodily functions leads to a feeling of control and a sense of independence. Other important events include gaining more control over food choices, toy preferences, and clothing selection.

### 1.3 Stage 3: Initiative vs. Guilt

The third stage of psychosocial development takes place during the preschool years. At this point in psychosocial development, children begin to assert their power and control over the world through directing play and other social interactions. Children who are successful at this stage feel capable and able to lead others. Those who fail to acquire these skills are left with a sense of guilt, self-doubt, and lack of initiative.

### 1.4 Stage 4: Industry vs. Inferiority

The fourth psychosocial stage takes place during the early school years from approximately ages 5 to 11. Through social interactions, children begin to develop a sense of pride in their accomplishments and abilities. Children need to cope with new social and academic demands. Success leads to a sense of competence, while failure results in feelings of inferiority.

### 1.5 Stage 5: Identity vs. Confusion

The fifth psychosocial stage takes place during the often turbulent teenage years. This stage plays an essential role in developing a sense of personal identity which will continue to influence behavior and development for the rest of a person's life. Teens need to develop a sense of self and personal identity. Success leads to an ability to stay true to yourself, while failure leads to role confusion and a weak sense of self. During adolescence, children explore their independence and develop a sense of self. Those who receive proper encouragement and reinforcement through personal exploration will emerge from this stage with a strong sense of self and feelings of independence and control. Those who remain unsure of their beliefs and desires will feel insecure and confused about themselves and the future.

### 1.6 Stage 6: Intimacy vs. Isolation

Young adults need to form intimate, loving relationships with other people. Success leads to strong relationships, while

failure results in loneliness and isolation. This stage covers the period of early adulthood when people are exploring personal relationships. Erikson believed it was vital that people develop close, committed relationships with other people. Those who are successful at this step will form relationships that are enduring and secure.

### 1.7 Stage 7: Generativity vs. Stagnation

Adults need to create or nurture things that will outlast them, often by having children or creating a positive change that benefits other people. Success leads to feelings of usefulness and accomplishment, while failure results in shallow involvement in the world.

During adulthood, we continue to build our lives, focusing on our career and family. Those who are successful during this phase will feel that they are contributing to the world by being active in their home and community. Those who fail to attain this skill will feel unproductive and uninvolved in the world.

### 1.8 Stage 8: Integrity vs. Despair

The final psychosocial stage occurs during old age and is focused on reflecting back on life. At this point in development, people look back on the events of their lives and determine if they are happy with the life that they lived or if they regret the things they did or didn't do. Erikson's theory differed from many others because it addressed development throughout the entire lifespan, including old age. Older adults need to look back on life and feel a sense of fulfillment. Success at this stage leads to feelings of wisdom, while failure results in regret, bitterness, and despair. At this stage, people reflect back on the events of their lives and take stock. Those who look back on a life they feel was well-lived will feel satisfied and ready to face the end of their lives with a sense of peace. Those who look back and only feel regret will instead feel fearful that their lives will end without accomplishing the things they feel they should have.

## 2. CONCLUSION

Each stage in Erikson's theory builds on the preceding stages and paves the way for following periods of development. In each stage, Erikson believed people experience a conflict that serves as a turning point in development. If people successfully deal with the conflict, they emerge from the stage with psychological strengths that will serve them well for the rest of their lives. If they fail to deal effectively with these conflicts, they may not develop the essential skills needed for a strong sense of self.

Stage 1- Success in this stage will lead to the virtue of **hope**. By developing a sense of trust, the infant can have hope that as new crises arise, there is a real possibility that other people will be there as a source of support. Failing to acquire the virtue of hope will lead to the development of fear. This infant will carry the basic sense of mistrust with them to other relationships. It may result in anxiety, heightened insecurities, and an over feeling of mistrust in the world around them. Consistent with Erikson's views on the importance of trust, research by Bowlby and Ainsworth has





outlined how the quality of the early experience of attachment can affect relationships with others in later life.

Stage 2- The child is developing physically and becoming more mobile, and discovering that he or she has many skills and abilities, such as putting on clothes and shoes, playing with toys, etc. Such skills illustrate the child's growing sense of independence and autonomy. For example, during this stage children begin to assert their independence, by walking away from their mother, picking which toy to play with, and making choices about what they like to wear, to eat, etc.

Stage 3- During this period the primary feature involves the child regularly interacting with other children at school. Central to this stage is play, as it provides children with the opportunity to explore their interpersonal skills through initiating activities. Children begin to plan activities, make up games, and initiate activities with others. If given this opportunity, children develop a sense of initiative and feel secure in their ability to lead others and make decisions.

Stage 4- Children are at the stage where they will be learning to read and write, to do sums, to do things on their own. Teachers begin to take an important role in the child's life as they teach the child specific skills. It is at this stage that the child's peer group will gain greater significance and will become a major source of the child's self-esteem. The child now feels the need to win approval by demonstrating specific competencies that are valued by society and begin to develop a sense of pride in their accomplishments. If children are encouraged and reinforced for their initiative, they begin to feel industrious (competent) and feel confident in their ability to achieve goals. If this initiative is not encouraged, if it is restricted by parents or teacher, then the child begins to feel inferior, doubting his own abilities and therefore may not reach his or her potential. If the child cannot develop the specific skill they feel society is demanding (e.g., being athletic) then they may develop a sense of inferiority. Some failure may be necessary so that the child can develop some modesty. Again, a balance between competence and modesty is necessary. Success in this stage will lead to the virtue of **competence**.

Stage 5- This is a major stage of development where the child has to learn the roles he will occupy as an adult. It is during this stage that the adolescent will re-examine his identity and try to find out exactly who he or she is. Erikson suggests that two identities are involved: the sexual and the occupational. According to Bee (1992), what should happen at the end of this stage is "a reintegrated sense of self, of what one wants to do or be, and of one's appropriate sex role". During this stage the body image of the adolescent changes.

Stage 6- During this stage, we begin to share ourselves more intimately with others. We explore relationships leading toward longer-term commitments with someone other than a family member. Successful completion of this stage can result in happy relationships and a sense of commitment, safety, and care within a relationship. Avoiding intimacy, fearing commitment and relationships can lead to isolation, loneliness, and sometimes depression. Success in this stage will lead to the virtue of **love**.

Stage 7- Psychologically, generativity refers to "making your mark" on the world through creating or nurturing things that will outlast an individual. During middle age individuals experience a need to create or nurture things that will outlast them, often having mentees or creating positive changes that will benefit other people.

Stage 8- Erik Erikson believed if we see our lives as unproductive, feel guilt about our past, or feel that we did not accomplish our life goals, we become dissatisfied with life and develop despair, often leading to depression and hopelessness. Success in this stage will lead to the virtue of **wisdom**. Wisdom enables a person to look back on their life with a sense of closure and completeness, and also accept death without fear. Wise people are not characterized by a continuous state of ego integrity, but they experience both ego integrity and despair. Thus, late life is characterized by both integrity and despair as alternating states that need to be balanced.

### 3. STRENGTHS AND WEAKNESSES OF ERIKSON'S THEORY

Erikson's theory also has its limitations and attracts valid criticisms. By extending the notion of personality development across the lifespan, Erikson outlines a more realistic perspective of personality development (McAdams, 2001). Based on Erikson's ideas, psychology has reconceptualized the way the later periods of life are viewed. Middle and late adulthood are no longer viewed as irrelevant, because of Erikson, they are now considered active and significant times of personal growth. Erikson's theory has good face validity. Many people find that they can relate to his theories about various stages of the life cycle through their own experiences. However, Erikson is rather vague about the causes of development. What kinds of experiences must people have to successfully resolve various psychosocial conflicts and move from one stage to another? The theory does not have a universal mechanism for crisis resolution. Indeed, Erikson (1964) acknowledges his theory is more a descriptive overview of human social and emotional development that does not adequately explain how or why this development occurs. For example, Erikson does not explicitly explain how the outcome of one psychosocial stage influences personality at a later stage.

However, Erikson stressed his work was a 'tool to think with rather than a factual analysis.' Its purpose then is to provide a framework within which development can be considered rather than testable theory. One of the strengths of Erikson's theory is its ability to tie together important psychosocial development across the entire lifespan. Although support for Erikson's stages of personality development exists (McAdams, 1999), critics of his theory provide evidence suggesting a lack of discrete stages of personality development (McCrae & Costa, 1997). One major weakness of psychosocial theory is that the exact mechanisms for resolving conflicts and moving from one stage to the next are not well described or developed. The theory fails to detail exactly what type of experiences are necessary at each stage in order to successfully resolve the conflicts and move to the next stage.



### 3.2 Support

One of the strengths of psychosocial theory is that it provides a broad framework from which to view development throughout the entire lifespan. It also allows us to emphasize the social nature of human beings and the important influence that social relationships have on development. Researchers have found evidence supporting Erikson's ideas about identity and have further identified different sub-stages of identity formation. Some research also suggests that people who form strong personal identities during adolescence are better capable of forming intimate relationships during early adulthood. Other research suggests, however, that identity formation and development continues well into adulthood.

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# MACROECONOMIC DETERMINANTS OF EXCHANGE RATE VOLATILITY IN NIGERIA: AN EMPIRICAL ANALYSIS (1981-2019)

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## ABSTRACT

*The purpose of this research work is to empirically investigate the determinants of exchange rate volatility in Nigeria. Using quarterly time series data from 1981 to 2019. Augmented Dickey- fuller(ADF) stationarity test was used, ARCH and GARCH(1.1) model, long-run and short-run relationship between variables has been investigated using johansen cointegration and Vector Error Correction(VECM) .The model confirmed the existence of short-run and long-run relationship between exchange rate volatility and macro-economic variables such as Reserve, Inflation, GDP, MCAP, and Trade balance. The Error Correction term is statistically significant in each of the cointegrating equations and is negative the result revealed that change in money supply is positively related to changes in exchange rate volatility equally revealed a short-run effect between exchange rate volatility with Reserve, govt expenditure, MCAP, and trade balance to be positive, and positive short-run relationship between money supply and inflation. The GARCH (1.1) results show that macro-economic variables such as GDP, INFL and MCAP had negative values and significant impact on mean value of exchange rate volatility except trade balance which is statistically significant, this shows that at least six of the seven variables have significant impact on exchange rate volatility. This research work therefore, recommends for structural reforms, diversification of the economy, exchange rate policy reforms among other things.*

**KEYWORDS:** Exchange Rate Volatility, Exchange Rate Regimes, Money supply, Trade Balance, GARCH.ECM

## INTRODUCTION

The exchange rate and its volatility are important variables influencing Nigerian economic activity. As a result, variations in the foreign currency (FX) market have long piqued the interest of economists and statisticians alike. When the FX market is examined by volume, it is discovered that worldwide daily FX transactions topped \$4 trillion in 2010, which is more than the yearly value of global commerce (Bank for International Settlement, 2010). The world's total foreign reserves increased to \$9.7 trillion in 2010, whereas Nigeria's reserves peaked at \$64 billion before the global financial crisis in 2008 and fell to \$31.7 billion in late-2011 (BIS, 2010; CBN, 2011). Exchange-rate volatility refers to swings or fluctuations in the exchange rate over time. Since the establishment of flexible exchange-rate regimes in 1986, the Naira has been very volatile versus major currency rates in Nigeria. As a result, continuous exchange rate volatility was assumed to have resulted in currency crises, production pattern distortions, and abrupt swings in external reserves. Currency discussions have recently taken center stage as a result of the Eurozone currency and sovereign debt crises, US dollar volatility, worries about China's currency rates, and the strengthening of the Japanese yen, among other factors.

Greene (2014) observes that uncertainty associated with exchange rates is an unobservable variable of economic importance, and several extensions have been proposed since the development of autoregressive conditional heteroscedasticity (ARCH) models in the 1980s, including: GARCH, EGARCH, TARARCH, TGARCH, DTARCH, VGARCH, APARCH, STARCH, and STAR, among others. While traditional econometric models are estimated under the assumption of variance homogeneity, GARCH models enable the conditional variance to fluctuate over time as a result of previous mistakes while keeping the unconditional variance constant (see the seminal papers of Engle, 1982). Nigeria has used many exchange-rate systems since transitioning from a fixed to a flexible exchange-rate system.

From 1986 to 2012, the following frameworks were used in the FX market: the dual exchange-rate system (1986-1987), the Dutch auction system (DAS) (1987), the unified exchange-rate system (1987-1992), and the fixed exchange-rate system (1992-1998). The reintroduced DAS (1999-2002), the retail Dutch auction system (2002-2006), and the wholesale Dutch auction system (2006-to date) are others. As a result, modelling efforts must include exchange rate regimes in connection to specific macroeconomic factors that have had an impact on Nigerian economic development through exchange rate since 1986. This has already inspired a



number of previous publications; so, the purpose of this research is to investigate the effect of macroeconomic factors on exchange rate volatility in Nigeria using the conventional GARCH model and VECM.

## 2.0 LITERATURE REVIEW

Review of related literature examined few studies on macro-economic factors that determined foreign exchange rates movement.

Mpofu (2020) examined the determinants of real exchange rate volatility in South Africa using quarterly time series data from 1986 to 2015. The study used ARDL cointegration approach and found that real exchange rate volatility is higher in flexible exchange rate regime and that an increase in the volatility of gold price generates more volatility of real exchange rate while an increase in the volatility of output, money supply and government consumption is associated with a reduction in real exchange rate volatility.

Ojo and Temitayo (2018) examined the determinants of exchange rate in Nigeria using the ARDL Bounds test approach to cointegration from 1986 to 2016. The study found that the gross domestic product, Interest rate and inflation rate have positive effect on exchange rate in Nigeria while degree of openness recorded a negative effect on exchange rate in Nigeria. This study examined the determinants of exchange rate without necessary assessing how they affect volatility clustering in exchange rate in Nigeria. Ramli (2020) also examined the determinants of exchange-rate volatility from 2004 to 2015. The study used GARCH (1, 1) and found that that trade openness, reserve assets, and stock market index negatively and significantly determine the exchange-rate volatility while productivity positively and significantly determine the exchange-rate volatility.

Nor, Masron and Alabdullah (2020) assessed the effect of macroeconomic factors on the volatility of Somalia's unregulated exchange rates using monthly data from January 1995 to December 2012. EGARCH (exponential generalized autoregressive conditional heteroskedastic) model was utilized and the study found that the unregulated exchange rate volatility of Somalia is influenced by its own shocks and the macroeconomic factors such as domestic price, imports, money supply, and hot money. The study also found that although Somali shilling circulated without regulatory authority for the period of the statelessness, this circulation has been accompanied by volatile exchange rates. However, this study focused on few macroeconomic factors

Chen, Du and Hu (2019) investigated the impact of Economic Policy Uncertainty (EPU) on China's exchange rate volatility from December 2001 to November 2018. The study used quantile regression and found that the impact of EPU on exchange rate volatility in China exhibits asymmetry as well as heterogeneity in different markets and that the EPU for China impacts positively and significantly on all quantiles volatilities of exchange rates. The study also found that EPU has a mixed effect on exchange rate volatility with apparent economy-by-economy differences. The US, Europe and Japan EPU have significant impacts, while Hong Kong EPU is insignificantly correlated with exchange rate volatility.

Udoh and Udejaja (2019) also investigated the relationship between financial dollarization and nominal exchange rate volatility in Nigeria using a Threshold Autoregressive Conditional Heteroscedasticity (TARCH) model on monthly data from December 2009 to September 2018. The study found that nominal exchange rate volatility in Nigeria is driven by the degree of financial dollarization and that exchange rate volatility exhibit high degree of persistence and ratchet effect. The study also found that bad news of depreciation in the nominal exchange rate trigger foreign currency holding which further depreciates the domestic currency exchange rate more than the good news of appreciation lead to further appreciation of the nominal exchange rate of the domestic currency.

Kilicarslan (2018) examined the determinants of exchange rate volatility to identify the factors affecting exchange rate volatility in Turkey from 1974 to 2016. The study used GARCH model to calculate the real effective exchange rate volatility and the Johansen cointegration test to determine whether there is a long-term relationship between variables while FMOLS method was used to determine the long-run relationship. The study found that that there is a long-run relationship between the variables involved in the analysis and that domestic investment, money supply and trade openness positively affects exchange rate volatility significantly while foreign direct investment, output, and government expenditure negatively affects real effective exchange rate volatility in Turkey.

Insah and Chiaraah (2013) determined the sources of exchange rate volatility in Ghana. The study used Autoregressive Distributed Lag (ADL) Model from 1980 to 2012. The study found that both domestic and external debts were negatively related to real exchange rate volatility while current external debt and a four year lag of domestic debt had significant impacts on real exchange rate volatility. The study however, neglected main determinants as proposed by the traditional theory of exchange rate in interrogating their significance.

Ajao (2015) examined the determinants of real exchange rate volatility in Nigeria from 1981 through 2008. GARCH (1,1) techniques was used to obtain the volatility of exchange rate and the ECM was used to examine the various determinants of exchange rate volatility in Nigeria while the co-integration analysis reveals the presence of a long term equilibrium relationship between real exchange rate volatility and its various determinants. The study found that openness of the economy, government expenditures, interest rate movements as well as the lagged exchange rate are among the major significant variables that influence real exchange rate volatility during this period.

On aspects of fluctuations in exchange rate, Rana, Anik and Biplob (2019) examined the main factors behind exchange rate fluctuations of Bangladesh from 1987 to 2017. The study used Johansen co-integrating test, VAR, Ganger causality test and



FMOLS test. The study found no co-integrating equations for long run relationship but rather the short-run relationship. VAR model and Ganger causality test showed that that GDP growth and international trade positively affect exchange rate while remittance has negative effect on exchange rate

Studies have been carried out on exchange rate volatility in Nigeria such as Yinusa, 2008,olowe,2009,ogunleye.2009,Yinusa and Akinlo,2008,Akpokodje,2009,Aliyu,2009a,Aliyu,

2010, Adeoye and Atanda, 2011, Adeoye and Saibu, 2006, Adenekan,Sani and Itodo,2019.What we should understand is that studies on the determinants of exchange rate volatility are very few and most of the studies carried out observed limited number of factors and majority focus more on interrelationship of factors based on theories with little or no attention given to some important macroeconomic variables. This study departs from other studies based on the data coverage and macroeconomic variables used in the model unlike in other studies where only one set or few set of data is used.

### 3.0 METHODOLOGY

Methodology is a framework of procedures selected by a researcher to integrate diverse components of study in a sufficiently logical way in order to effectively address the research topic. There are several forms of research methods, including experimental, ex-post facto, survey, correlational, semi-experimental, or quasi-experimental study and review. Ex-post facto research approach is used in this work. It is often used to test ideas regarding cause-and-effect connections in place of actual experimental research. This research approach is recommended because it is the best design for dealing with the link between two or more variables in terms of cause and effect. The research also employs a descriptive and analytical approach. It is the most effective and reliable design for determining the source of any given effect. As a result, the research will include both descriptive and analytical methodologies. The analytical procedures include, of course, the unit root test, ARCHH/GARCH, Johansen test, and error correction test.

#### 3.1 Theoretical Framework

The theoretical framework for this study is hinged on the traditional theory, monetary approach, portfolio balance theory and the Purchasing Power Parity (PPP) theory. To the traditional theory, exchange rate is determined by current account balance (Ogawa, 1987). That is,

$$EXR = f(CAB) \quad (1)$$

Where,  $EXR$  is the exchange rate and  $CAB$  is the current account balance. However, current account balance is influenced by the relative prices ( $RP$ ) and income ( $Y$ ). That is,

$$CAB = f(RP, Y) \quad (2)$$

$$\text{Thus, } EXR = f(RP, Y) \quad (3)$$

The Purchasing Power Parity (PPP) theory also asserts that exchange rate is influenced by the national relative price level (Dornbusch, 1987; Officer, 1976). In other ways, the exchange rate is determined in the foreign exchange market, where dollars and other currencies are traded freely. That is, the effect of the balance of trade on the supply and demand for foreign exchange determines domestic currency exchange rate. As a result, when a country's trade account does not balance-that is, when exports exceed imports-there is relatively more supply or demand for that country's currency, which influences the price of that currency on the global market. Therefore, exchange rate is determined by Exports ( $EXPT$ ), Imports ( $IMPT$ ) and Income ( $Y$ ). equation (3) can be re-stated as:

$$EXR = f(EXPT, IMPT, Y) = (TRDBAL) \quad (4)$$

Improving exchange rate calls for concerted efforts for domestic price level or price level, income, interest rate. Exchange rate is determined by the nominal interest rate differential while a rise in the domestic price level relative to foreign prices leads to changes of the real exchange rate (Sundqvist, 2002). More so, higher interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and cause the exchange rate to rise and vice versa (Khan, 2010; Sundqvist, 2002). In international trade, the difference between export and import is called trade balance (Trade\_bal). Therefore, export and import were replaced with Trade\_bal in the equation (4) Therefore, equation (4) can be restated as:

$$EXR = (TRADE\_BAL, Y) \quad (5)$$

The modern theory also asserts that exchange rate is a function of relative shift in money stock, inflation rate and domestic output between a country and a trading partner economy (Allor, 2020). The inflation and income or output has also been identified by the



traditional theory of exchange rate. Furthermore, the monetary model postulates three basic determinants of exchange rate as relative money supply and relative income (Allor, 2020). Hence, the equation (5) can be re-specified as:

$$EXR = f(TRADE\_BAL, Y, INF, M2) \quad (6)$$

The study incorporates the other determinants of exchange rate as explained by the Portfolio Balance theory. These include domestic money or monetary base, domestic bonds and foreign bonds, and government expenditure. Thus, incorporating the market capitalization in equation (6), the model becomes:

$$EXR = f(TRADE\_BAL, Y, INF, M2, MCAP, GOVEXP) \quad (7)$$

Specifying the equation (7) in a functional form and replacing Y for GDP (Gross Domestic Product), the equation can be re-stated as:

$$EXR = f(TRADE\_BAL, GDP, INF, M2, MCAP, GOVEXP) \quad (8)$$

Incorporating the exchange rate regime (*EXRG*) as a dummy variable (DUMV) and excess reserves (*ERES*), the equation (8) can be re-specified as:

$$EXR = f(TRADE\_BAL, GDP, INF, M2, MCAP, GOVEXP, DUMV, RES) \quad (9)$$

Where EXR is exchange rate, TRADE\_BAL in trade balance, INF is inflation rate, M2 is Money Supply, MCAP is market capitalization, GOVEXP is government expenditures, DUMV is exchange rate regime as represented by dummy variable and RES is the excess reserves.

### 3.2 The Model for the Study/Model Specification

To assess exchange rate volatility, the Autoregressive Conditional Heteroskedasticity (ARCH) approach and GARCH will be utilised. Engle (1982) proposed ARCH models, which were generalised as GARCH (Generalized ARCH) by Bollerslev (1986) and Taylor (1988). (1986). The ARCH model will be used to test for the ARCH effect and assess whether or not the exchange rate is volatile. The Autoregressive Conditional Heteroskedasticity (ARCH) models were developed particularly to model and predict conditional variances. The dependent variable's variance is represented as a function of previous values of the dependent variable and independent, or exogenous, factors. The estimation equation is:

$$EXR_t = \alpha + \beta_1 EXR_{t-1} + \varepsilon_t \quad (10)$$

Where  $EXR_t$  is the exchange rate series.

The squared of estimated residual ( $\varepsilon_t^2$ ) obtained in equation (10) is then regressed on its lag as follows:

$$\varepsilon_t^2 = \gamma_0 + \gamma_1 \varepsilon_{t-1}^2 + v_t \quad (11)$$

If the probability value of this test is smaller than any of the conventional statistical significance limits, the null hypothesis of no ARCH effects will be rejected (0.05). If the null hypothesis is rejected, it suggests the existence of the ARCH effect; otherwise, it implies the lack of the ARCH effect. The occurrence of volatility necessitates the use of ARCH-type models for estimate. Engle's (1982) ARCH model proposes that the variance of the residuals at time t () relies on the square of error terms from previous periods, implying that the variance is not constant. Two separate specifications are examined while creating an ARCH model: one for the conditional mean and the other for the conditional variance. As a result, the ARCH model is as follows:

Equation of Mean:

$$Y_t = X_t^1 \theta + \varepsilon_t \quad (12)$$

Variance Equation

$$\delta_t^2 = \alpha + \beta \varepsilon_{t-1}^2 + u_t \quad (13)$$

This analysis will also take into account Bollerslev's (1986) General Autoregressive Conditional Heteroskedasticity (GARCH) model. It is a development of Engle's ARCH model. It accounts for the influence of variation on volatile time series in a way that the ARCH



model does not. Both ARCH and GARCH have the identical mean equations, however the conditional variance equations vary. The estimate process for the GARCH model is the same as for the ARCH model; the only variation is the conditional variance equation,

$$\text{which is shown below. } \delta_t^2 = \alpha + \beta_1 \varepsilon_{t-1}^2 + \beta_2 \delta_{t-1}^2 + u_t, \quad (14)$$

Where;  $\varepsilon_{t-1}^2$  is the ARCH term and  $\delta_{t-1}^2$  is the GARCH term. The closer the sum of the coefficients to 1, the slower the mean reverting and the closer the sum to 0, the faster the mean reverting.

In addition, Vector Error Correction (VECM) models will be used in the research to estimate and examine the drivers of exchange rates. The VECM models are least squares regressions using lags of both the dependent and explanatory variables as regressors (Greene, 2008). They are linear time series models in which the dependent and independent variables are connected not only in real time, but also through past (lagged) values. The general VECM model is as follows:

$$y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^p \psi_i y_{t-i} + \sum_{j=1}^k \sum_{l_j=0}^{q_j} \beta_{j,l_j} x_{j,t-l_j} \varepsilon_t + \Phi ECT_{t-1} \quad (15)$$

where  $\varepsilon_t$  are the usual innovations,  $\alpha_0$  is a constant term, and  $\alpha_1$ ,  $\psi_i$  and  $\beta_{j,l_j}$  are respectively the coefficients associated with a linear trend, lags of  $y_t$ ,  $\Phi$  the coefficients associated long adjustment and lags of the  $k$  regressors  $x_{j,t}$  for  $j = 1, \dots, k$ .

Following the theoretical model as calibrated from the traditional theory, monetary approach, portfolio balance theory and the Purchasing Power Parity (PPP) theory as stated in equation (9), the model can be expressed in a functional form as:

$$EXRV = f(TRADE\_BAL, GDP, INF, M2, MCAP, GOVEXP, DUMV, RES) \quad (16)$$

Where EXRV represent exchange rate volatility. Thus, taking natural logarithm and specifying the stochastic form of equation (16), it can be restated as:

$$EXRV = \alpha_0 + \alpha_1 TRADE_{BAL} + \alpha_2 GDP + \alpha_3 INF + \alpha_4 M2 + \alpha_5 MCAP + \alpha_6 GOVEXP + \alpha_7 DUMV + \alpha_8 RES + \mu \quad (17)$$

Where  $\alpha_0$  is the intercept,  $\alpha_1 - \alpha_8$  is the parameters to be estimated,  $\ln$  is natural logarithm and  $\mu$  is the stochastic error term.

Thus, following a typical generalized ARDL  $(p, q_1, q_2, \dots, q_k)$  model is specified as:

$$y_t = \sum_{j=1}^p \delta_j y_{t-j} + \sum_{j=0}^q \beta_j' X_{t-j} + \varepsilon_t + \Phi ECT_{t-1} \quad (18)$$

Where  $y_t$  is the dependent variable,  $(X_t)'$  is a  $k \times 1$  vector that are allowed to be purely  $I(0)$  or  $I(1)$  or co-integrated;  $\delta_j$  is the coefficient of the lagged dependent variable called scalar;  $\beta_j$  are the  $k \times 1$  coefficient vectors;  $p, q$  are optimal lag orders;  $\varepsilon_t$  is the stochastic error term. And the reparameterised VECM  $(p, q, q, \dots, q)$  error correction model is specified as:

$$\Delta y_t = \theta [y_{t-1} - \lambda' X_t] + \sum_{j=1}^{p-1} \xi_j \Delta y_{t-j} + \sum_{j=0}^{q-1} \beta_j' \Delta X_{t-j} + \varepsilon_t \quad (19)$$

Where

$\theta = -(1 - \delta)$ , group specific speed of adjustment coefficient (expected that  $\theta < 0$ )

$\lambda'$  = vector of long-run relationships

$ECT = [y_{t-1} - \lambda' X_t]$ , the error correction term

$\xi_j, \beta_j'$  are the short-run dynamic coefficients

The dynamic equilibrium for the equation (17) can be specified as:



$$EXRV = \alpha_0 + \alpha_1 inTRADE_{BAL} + \alpha_2 inGDP + \alpha_3 inINF + \alpha_4 inM2 + \alpha_5 inMCAP + \alpha_6 inGOVEXP + \alpha_7 inDUMV + \alpha_8 inRES + \sum_{j=1}^q \alpha_8 in DUM + \upsilon$$

$$EXRV = \sum_{j=1}^q \alpha EXRV + \sum_{j=1}^q \alpha_1 inTRADE_{BAL} + \sum_{j=1}^q \alpha_2 inGDP + \sum_{j=1}^q \alpha_3 inINF + \sum_{j=1}^q \alpha_4 inM2 + \sum_{j=1}^q \alpha_5 inMCAP + \sum_{j=1}^q \alpha_6 inGOVEXP + \sum_{j=1}^q \alpha_7 inRES + \sum_{j=1}^q \alpha_8 inDUM + U \quad (20)$$

And the error correction model of the equation (17) is written as:

$$EXRV = \theta \sum_{j=1}^q \alpha EXRV + \sum_{j=1}^q \alpha_1 inTRADE_{BAL} + \sum_{j=1}^q \alpha_2 inGDP + \sum_{j=1}^q \alpha_3 inINF + \sum_{j=1}^q \alpha_4 inM2 + \sum_{j=1}^q \alpha_5 inMCAP + \sum_{j=1}^q \alpha_6 inGOVEXP + \sum_{j=1}^q \alpha_7 inRES + \sum_{j=1}^q \alpha_8 inDUM + U \quad (21)$$

Where  $\theta$  is the speed of adjustment coefficient that measures how long it takes the system for converge towards long-run equilibrium.

### A priori expectation

The theoretical expectation is that imports of goods and services, inflation rate, interest rate, flexible exchange rate regime, and money supply will have a positive influence on exchange rate/exchange rate volatility, whereas exports of goods and services, market capitalization, foreign direct investment, fixed exchange rate regime, and foreign exchange reserves will have a negative influence.

### 3.3 Explanations and Measurement of Variables

**Trade balance (TB)** as a proxy for imports and exports) Otherwise known as balance of trade Is the difference between the total value (in monetary terms) of a country's export and import for a given period of time usually a year, balance of a trade calculates or measures inflow of imports and outflow of export over a period of time ,the balance of trade of a country could either be positive or negative ,it depends on the position of exports and imports of a country, if for example if export is greater than imports then a country will experience positive trade balance surplus and on the other hand if country's import is greater than its export the trade balance will be in deficit or negative ,so balance of trade becomes favorable when the value of country's export is greater than the value of its imports and its equally determine how productive and import dependent a country is. For more understanding of the two components of trade balance an explanation on each is given below.

**Exports (EXPT):** The value of all products and other market services given to the rest of the world is represented by exports of commodities and services. They include the cost of goods, freight, insurance, transportation, travel, royalties, licencing fees, and other services including communication, construction, financial, information, business, personal, and government services. Employee remuneration, investment income (previously known as factor services), and transfer payments are not included. The data is in constant local currency (naira).

**Imports (IMPT):** The value of all products and other market services received from the rest of the world is represented by imports of goods and services. They include the cost of goods, freight, insurance, transportation, travel, royalties, licencing fees, and other services including communication, construction, financial, information, business, personal, and government services. Employee remuneration, investment income (previously known as factor services), and transfer payments are not included. The data is in constant local currency (naira).

However, trade balance (TRADE BAL) should be used as a proxy for both export and import since it shows the net value of both export and import.

**Gross Domestic Product (GDP):** GDP at purchaser prices is the total of the gross value contributed by all resident producers in the economy plus any product taxes and minus any subsidies not included in the product value. It is computed without regard for depreciation of manufactured assets or depletion and deterioration of natural resources. The data are in the current local currency (naira).

**Inflation (INF):** The rate of price change in the economy as measured by the yearly growth rate of the GDP implicit deflator. The GDP implicit deflator is defined as the ratio of GDP in constant local currency to GDP in current local currency.

**Broad Money Supply (M2):** This is the sum of currency outside banks, demand deposits other than those of the central government, time, savings, and foreign currency deposits of non-central government resident sectors, bank and traveler's checks, and other securities such as certificates of deposit and commercial paper.





**Market capitalization (MCAP):** For listed domestic corporations, market capitalization (also known as market value) is the share price multiplied by the number of shares outstanding (including their various classes). Investment funds, unit trusts, and entities whose only purpose is to hold shares of other publicly traded firms are not eligible. The information is presented in local currency units (naira).

**Government expenditure:** Refers to the any amount of money expended by the public sector on provision of services like health care, education, social services, acquisition of goods and provision of defense, etc.

**Exchange Rate Regime (EXRG):** An exchange rate regime is the method through which a country's or currency union's monetary authority administers its currency in relation to other currencies and the foreign exchange market. There are two primary sorts of regimes: There is a floating (or flexible) exchange rate system in which currency rates are controlled purely by market forces and are often adjusted via open-market activities. Fixed (or pegged) exchange rate regimes emerge when a nation determines that the value of its own currency is directly related to the value of another currency or commodity. The intermediate regime is another regime that exists between the floating and fixed regimes. There are also floating exchange rate regimes (free float and managed float (or filthy float)), intermediate rate regimes (band (goal zone, crawling peg, crawling band, currency basket peg, and fixed exchange rate regime), and fixed exchange-rate systems (currency board, dollarisation and currency union). The research assigns a 1 if the object is free floating and a 0 otherwise.

**Foreign exchange reserves (RESV):** Foreign exchange reserves are assets in foreign currencies maintained on reserve by a central bank. These reserves are utilised to back up obligations and have an impact on monetary policy. It includes any foreign currency owned by a central bank, such as Nigeria's Central Bank (CBN).

### 3.4 Data Sources Required

This research will rely on secondary data. These data will be sourced from the Central Bank of Nigeria Statistical Bulletin and the World Bank Development Indicators, and will include the exchange rate, exports of goods and services, imports of goods and services, inflation rate, interest rate, money supply, market capitalization, foreign direct investment, exchange rate regime, and excess reserves. The data comes in the form of quarterly data from 1981 to 2019.

### 3.5 Data Collection Method

Secondary data will be used in the research from the Central Bank of Nigeria Bulletin and the World Development Indicators website. As a result, the research will gather data via the internet and statistics bulletins.

### 3.6 Data Analysis Method

In order to analyse the data, the research will use both graphical and econometric methods. The graphical tools describe the main statistical properties of the data under examination and also give a historical context for our data's behaviour. Unit root tests, Autoregressive Conditional Heteroskedascity (ARCH)/GARCH technique, and VECM method are among the econometric instruments to be employed. The traditional unit root tests, specifically Augmented Dickey-Fuller (ADF) unit root tests, are among those evaluated. This will be used to determine the data's stationarity. The VECM approach will be used to investigate the long-run and short-run drivers of currency rate volatility in Nigeria. Method of Autoregressive Conditional Heteroskedascity (ARCH)/GARCH After determining that there is volatility clustering in the series, the research will test and construct the exchange rate volatility series. Volatility testing of an ARCH-type models with two equations the mean equation and the variance equation. The AR components are captured by the mean equation, whereas the ARCH components are captured by the variance equation. The investigation will confirm the two basic characteristics of the volatility series of exchange rates. The investigation will also determine if the shock is permanent or transitory. That is, whether the impact of the shock on currency volatility is permanent or transient. The GARCH (1, 1) function will be used to test for volatility and generate the volatility series.

## 4.0 ANALYSIS AND INTERPRETATION OF RESULTS

### 4.1 Stationarity Test:

Since the data used in this study are time series, there is need to check the stationarity of the data. The stationarity properties of our data was checked using the Augmented Dickey Fuller (ADF) test (Dickey and Fuller 1979, 1981)



Table 4.1

Variable	Unit Root Tests(ADF) t-Statistic	5% level of significance	Conclusion
Exchange rate volatility	- 4.257603	-2.943427	(1)
GDP	-8.244402	-2.945842	(1)
GOVERNMENT_EXPENDITURE	-6.681073	-2.951125	(1)
INFLATION	-8.413875	-2.948404	(1)
M2	-8.399201	-2.945842	(1)
MCAP	-7.131939	-2.948404	(1)
RESERVES	-4.414995	-2.976263	(1)
TRADE_BALANCE	-3.232678	-2.967767	(1)

Check for the Unit Root the Augmented Dickey-Fuller unit root test was used to establish the order of integration and confirm the stationarity of the variables employed (ADF). Table 4.1 shows the results of the Augmented Dickey-Fuller unit root test. We cannot reject the null hypothesis of unit roots for the variables at their levels at the 5% significance level. However, stationarity was achieved after varying each variable once. This means that the variables are of order one integrated, I (1). This demonstrates that the variables are dynamic in nature and would be inappropriate for a static model. As a result, the use of a dynamic model such as the GARCH (1,1) in assessing the drivers of exchange rate volatility in Nigeria is justified.

Table 4.2: Heteroskedasticity Test: ARCH

F-statistic	6.544151	Prob. F(1,150)	0.0115
Obs*R-squared	6.354188	Prob. Chi-Square(1)	0.0117

Test Equation:

Dependent Variable: WGT\_RESID^2

Method: Least Squares

Date: 10/15/21 Time: 22:45

Sample (adjusted): 1981Q1 2019Q4

Included observations: 152 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.798927	0.147438	5.418752	0.0000
WGT_RESID^2(-1)	0.204450	0.079921	2.558154	0.0115
R-squared	0.041804	Mean dependent var		1.004200
Adjusted R-squared	0.035416	S.D. dependent var		1.552685
S.E. of regression	1.524942	Akaike info criterion		3.694860
Sum squared resid	348.8171	Schwarz criterion		3.734648
Log likelihood	-278.8094	Hannan-Quinn criter.		3.711023
F-statistic	6.544151	Durbin-Watson stat		2.001214
Prob(F-statistic)	0.011514			

The data for the quarterly Naira/USD exchange rates used in this research were gathered. The data, which spans the years 1981 to 2019, came from the Central Bank of Nigeria (CBN) and the World Bank's online databases. As a standard precondition in the literature for dealing with volatile financial series, the pre-estimation analysis is carried out in three stages: the first provides descriptive statistics for the exchange rates under consideration; the second tests for the presence of structural breaks in the series; and the third tests for potential heteroscedasticity in the series using the ARCH LM test. A time series with autoregressive conditional heteroscedasticity (ARCH) effects exhibits conditional heteroscedasticity (or autocorrelation) in the squared series. To examine the likelihood of ARCH effects in the exchange rate series under examination, we use Engle's (1982) ARCH Lagrangian Multiplier (LM)



test approach, which starts with a univariate model. The existence of effect in the model implies that negative shocks increase volatility more than positive shocks of the same size. If the sign of the p-value is statistically significant, negative shocks cause more volatility than positive shocks of the same size. As a result, the generalised autoregressive conditional heteroskedastic model (GARCH) will be utilised.

#### 4.2 Long-Run and Short-Run Analysis

**Table 4.3: Johansen Co-integration Test**

Date: 10/19/21 Time: 13:41

Sample (adjusted): 1981Q1 2019Q4

Included observations: 100 after adjustments

Trend assumption: Linear deterministic trend

Series: EXCHANGE\_RATE\_VOLATILITY INFL\_RATE LOGM2 LOGGDP GOV\_EXPENDITURE LOGMCAP

LOGRESERVE LOGTRADE\_BALANCE DUMV

Lags interval (in first differences): 1 to 4

##### Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.892075	633.9046	197.3709	0.0001
At most 1 *	0.765940	411.2724	159.5297	0.0000
At most 2 *	0.701532	266.0545	125.6154	0.0000
At most 3 *	0.421372	145.1452	95.75366	0.0000
At most 4 *	0.354482	90.43560	69.81889	0.0005

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

##### Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.892075	222.6322	58.43354	0.0000
At most 1 *	0.765940	145.2179	52.36261	0.0000
At most 2 *	0.701532	120.9093	46.23142	0.0000
At most 3 *	0.421372	54.70960	40.07757	0.0006
At most 4 *	0.354482	43.77019	33.87687	0.0024

Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

A Johansen cointegration test was also performed to see if a linear combination of two or more variables integrated of the same order is stationary or whether a long run connection exists between the variables under examination. The optimal lag of the VECM model, however, was determined to be four (4,) using the Akaike Information criteria (AIC), which was thought to be the best criterion for selecting the optimum lag of sample sizes. The results reveal that both the Max-Eigen and Trace tests identify 5 cointegrating equations at the 5% level



Vector Error Correction Estimates									
Date: 10/19/21 Time: 14:20									
Sample (adjusted): 1981Q1 2019Q4									
Included observations: 100 after adjustments									
Standard errors in ( ) & t-statistics in [ ]									
Error Correction:	EXRATE_V OL	INFL_RAT E	M2	GDP	GOVEX PEND	MCAP	RESERV E	TRADE_B ALANCE	DUMV
<b>CointEq1</b>	-0.138	-0.127	0.009	0.002	0.038	-0.02	-0.308	0.04	0.0024
	-0.02	-0.141	-0.023	-0.01	-0.03	-0.05	-0.125	-0.151	-0.019
	[-6.77370]	[-0.90]	[0.40]	[0.19]	[1.34]	[-0.43]	[-2.45]	[0.266]	[0.220]
<b>EXRATE_VOL(-4)</b>	-0.339	-0.29	-0.08	-0.05	0.264	0.082	0.244	-0.931	0.0292
	-0.077	-0.532	-0.086	-0.05	-0.11	-0.19	-0.473	-0.57	-0.041
	[-4.402]	[-0.54]	[-0.93]	[-1.1]	[2.482]	[0.44]	[0.51]	[-1.633]	[0.711]
<b>D(INFL RATE(-4))</b>	0.004	-0.217	-0.019	0.073	0.087	-0.08	-0.399	0.73	-0.0248
	-0.027	-0.186	-0.03	-0.02	-0.04	-0.07	-0.166	-0.2	-0.0144
	[0.139]	[-1.16]	[-0.61]	[4.4]	[2.33]	[-1.27]	[-2.41]	[3.65]	[-1.72]
<b>D(LOGM2(-4))</b>	0.495	-0.002	-0.352	-0.14	-0.3	0.038	1.502	-5.235	0.1074
	-0.19	-1.316	-0.212	-0.12	-0.26	-0.46	-1.17	-1.411	-0.101
	[2.602]	[-0.00]	[-1.7]	[-1.2]	[-1.14]	[0.08]	[1.28]	[-3.710]	[1.057]
<b>D(GOV EXPENDIT</b>	-0.223	-0.571	0.014	-0.06	-0.76	-0.6	1.55	-0.965	0.0148
	-0.068	-0.469	-0.076	-0.04	-0.09	-0.16	-0.417	-0.503	-0.0362
	[-3.28]	[-1.21]	[0.183]	[-1.4]	[-8.08]	[-3.65]	[3.71]	[-1.91]	[0.408]
<b>D(LOGMCAP(-4))</b>	-0.109	0.393	0.106	0.026	0.159	-0.34	-0.12	0.922	0.0144
	-0.049	-0.341	-0.055	-0.03	-0.07	-0.12	-0.303	-0.365	-0.026
	[-2.20]	[1.15]	[0.92]	[0.8]	[2.33]	[-2.85]	[-0.39]	[2.523]	[0.549]
<b>D(LOGRESERVE(-4</b>	-0.103	0.158	0.047	0.016	-0.02	-0.07	-0.418	0.078	-0.0164
	-0.027	-0.188	-0.03	-0.02	-0.04	-0.07	-0.167	-0.202	-0.0145
	[-3.80]	[0.837]	[1.55]	[0.9]	[-0.46]	[-1.01]	[-2.53]	[0.38]	[-1.13]
<b>D(DUMV(-4))</b>	0.286	0.74	0.122	0.039	-0.13	0.007	1.223	1.905	-0.3162
	-0.114	-0.789	-0.127	-0.07	-0.16	-0.28	-0.701	-0.846	-0.0608
	[2.50]	[0.93]	[0.95]	[0.6]	[-0.84]	[0.022]	[1.74]	[2.25]	[-5.19]
<b>C</b>	-0.005	-0.011	-0.003	0	0	-0	-0.026	-0.02	0.0082
	-0.003	-0.02	-0.003	0	-0	-0.01	-0.018	-0.021	-0.0015
	[-1.59]	[-0.54]	[-0.83]	[-0.4]	[0.026]	[-0.57]	[-1.51]	[-0.96]	[5.37]
<b>R-squared</b>	0.896	0.67	0.695	0.814	0.843	0.763	0.793	0.894	0.9532
<b>Adj. R-squared</b>	0.832	0.464	0.506	0.698	0.745	0.615	0.663	0.827	0.924

### Interpretation of Result of Short-Run and long-run Relationship

The estimated coefficients for the error-correction model are shown in the preceding table. The empirical model outperforms both theoretically and statistically. To begin, the ECT term's coefficient is statistically significant and negative in all cointegrating equations. These results suggest the existence of an equilibrium connection between the variables in each cointegrating equation. This means that ignoring the long run connection between variables would have resulted in misspecification of the underlying dynamic structure. The absolute values of the ECT component of each equation are used to calculate the monthly change in exchange rate due to the disequilibrium between the actual and equilibrium levels. The response pace to the previous period's disequilibrium varies significantly between interconnections. This means that the adjustment of exchange rate volatility to changes in the regressors might take anywhere between 3 and 6 months. The findings suggest that there are market dynamics in the foreign currency market that work to restore long-run equilibrium following a short-run disruption.

Second, almost all of the computed coefficients have the predicted signs, which is compatible with theoretical concerns. Money supply fluctuations are positively connected to variations in exchange rate volatility. The outcome of the previous period's exchange rate volatility also demonstrates that, in addition to its long-run influence, exchange rate volatility has a significant short-run effect on



GDP, market capitalisation, and government spending. Exchange rate volatility has a negative short-run association with reserves, government spending, market capitalisation, and trade balance, but a positive short-run link with money supply and inflation.

The Speed of Adjustment coefficient, i.e., the coefficient on the error correction term (ECT), is negative and statistically significant at the 1% significance level, indicating a long-run consistent link between exchange rate volatility and the right-hand side variables in Equations (1& 2). If there is a shock in the system, the negative sign implies a return to equilibrium. The findings reveal that in the short run, deviations from our long-run equilibrium are rectified at a rate ranging from 0.022 percent to 13% each year. In other words, it is projected that the exchange rate volatility will take somewhat more than a year and a half to recover to its equilibrium level after a shock in the system, which might have a detrimental influence on the economy's external competitiveness.

### Hypothesis

Restatement of Hypothesis in Null and Alternate Form

**H0:** macroeconomic factors do not have positive and significant impact on Exchange Rate Volatility **H1:** Macroeconomic factors do have positive and significant impact on Exchange Rate Volatility

### 4.3 Presentation of GARCH Result

The table below presents the GARCH result for the test study hypothesis.

Table 4.4

Dependent Variable: LOG(EXCH\_RATE\_VOLATILITY)  
 Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)  
 Date: 10/15/21 Time: 23:16  
 Sample (adjusted): 1981Q1 2019Q4  
 Included observations: 153 after adjustments  
 improve likelihood (non-zero gradients) after 50 iterations  
 Coefficient covariance computed using outer product of gradients  
 Presample variance: backcast (parameter = 0.7)  
 GARCH = C(9) + C(10)\*RESID(-1)^2 + C(11)\*GARCH(-1) +  
 C(12)\*GARCH(-2)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GDP)	-1.131564	0.030536	-37.05613	0.0000
LOG(GOVT_EXP)	1.667877	0.034462	48.39730	0.0000
LOG(INFL)	0.185157	0.001289	143.6990	0.0000
LOG(M2)	0.384448	0.007240	53.10048	0.0000
TRADE_BAL	-0.000781	0.000699	-1.117466	0.2638
RES	-2.28E-08	5.59E-09	-4.079865	0.0000
MCAP	-4.73E-05	2.65E-06	-17.82762	0.0000
C	0.404162	0.058057	6.961467	0.0000
Variance Equation				
C	0.000189	0.000138	1.372324	0.1700
RESID(-1)^2	1.346417	0.324310	4.151635	0.0000
GARCH(-1)	-0.157993	0.035933	-4.396888	0.0000
GARCH(-2)	0.126326	0.059507	2.122881	0.0338
R-squared	0.598186	Mean dependent var	3.501496	
Adjusted R-squared	0.576168	S.D. dependent var	1.925534	
S.E. of regression	0.403133	Akaike info criterion	-0.411255	
Sum squared resid	23.56482	Schwarz criterion	-0.173573	
Log likelihood	43.46098	Hannan-Quinn criter.	-0.314704	
Durbin-Watson stat	2.048563			



### Interpretation of Result

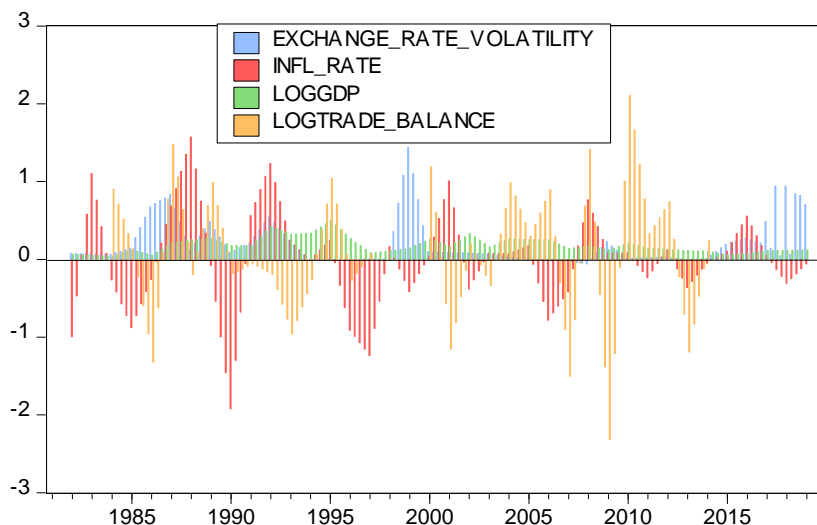
This hypothesis was used to test the impact of macroeconomic factors on exchange rate volatility Nigeria. Trade balance was adopted as proxy for both export and import. The GARCH mean equation results show that the coefficient of the macroeconomic variables such as GDP, INFL and MCAP as shown in table 4.6 had negative values and significant impact on mean value of exchange rate volatility except trade balance which is not statistically significant. All the other variables have positive impact. This shows that six variables in the model have significant impact on mean value of the volatility.

Volatility persistence measures the period of time required for volatility to dissipate or decay and it is computed by the sum of the coefficients of ARCH and GARCH effects. This shows that the coefficients of the GARCH and ARCH terms ( $\beta_2 + \beta_3$ )  $> 1$  in the model have long memory and volatility is persistent. Both GARCH and ARCH also are statistically significant given their p-values are below 5% level of significant. Since  $\beta_2 + \beta_3 = 1.315$ . The results also revealed that ARCH and coefficients of the GARCH terms are both positive and significant at 5 per cent level, which confirms the presence of volatility in the series. Following standard inferences from the literature, it suggests that there is greater indication of explosive level of persistence. Hence, we reject null hypothesis and conclude that macroeconomic variables do have impact on exchange rate volatility in Nigeria. This finding is consistent with a priori expectation, since volatility in exchange rate cause by activity of economic agents which both direct and indirect effect naira as a store of value, indirectly promote uncertainty among economic agents, and precipitate inflationary pressure. Specifically, in an import dependent economy like Nigeria, where wages are rigid, and exchange rate volatility promotes imported inflation that leads more volatility.

### Decision

Given the fact that coefficient of exchange rate volatility as shown in the variance equation captured by GARCH and ARCH term (1.315) with the P value (0.0000) is less than the significance value (0.05), the result is consistent with a priori expectation, hence we reject null hypothesis and conclude that macroeconomic variables do have impact on exchange rate volatility in Nigeria.

### GRAPHICAL ILLUSTRATION OF HOW MACROECONOMIC VARIABLES IMPACT ON EXCHANGE RATE VOLATILITY IN NIGERIA



The graph displayed above shows systematic relationships amongst macroeconomics variable and how they affect each other both in the short run and long run. The graph shows that GDP, inflation rate and trade balance all have significant impact of exchange volatility in Nigeria from 1981 to 2019 as shown on the graph above. The graph also shows that there is a complex relationship with amongst these macroeconomic variables which are sometimes direct and at other times indirect. Above all the graph shows that macroeconomic variables have significant impact on exchange rate volatility in Nigeria in the period under review as shown by the graph above.

### 4.4 Post Estimation Test

#### 4.4.1 Diagnostic Tests; ARCH Effect

It is important to analyses the behavior of the model so as to determine the extent to which its results can be relied on. The necessity of diagnostic testing involves checking residuals of the series for any problems. Should problems be present, this may indicate that the



model is inefficient, and that parameter estimates may be biased. Diagnostic checks included for the purposes of this particular research are tests for serial correlation, heteroscedasticity, normality.

Table 4.5

**Heteroskedasticity Test: ARCH**

<b>F-statistic</b>	<b>1.357195</b>	<b>Prob. F(20,112)</b>	<b>0.1595</b>
<b>Obs*R-squared</b>	<b>25.94537</b>	<b>Prob. Chi-Square(20)</b>	<b>0.1676</b>

**Test Equation:****Dependent Variable: WGT\_RESID^2****Method: Least Squares****Date: 10/15/21 Time: 23:41****Sample (adjusted): 1986Q1 2019Q4****Included observations: 133 after adjustments**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>C</b>	<b>0.923177</b>	<b>0.414611</b>	<b>2.226610</b>	<b>0.0280</b>
<b>WGT_RESID^2(-1)</b>	<b>0.362297</b>	<b>0.093992</b>	<b>3.854533</b>	<b>0.0002</b>
<b>WGT_RESID^2(-2)</b>	<b>-0.148206</b>	<b>0.099739</b>	<b>-1.485933</b>	<b>0.1401</b>
<b>WGT_RESID^2(-3)</b>	<b>-0.033986</b>	<b>0.098170</b>	<b>-0.346192</b>	<b>0.7298</b>
<b>WGT_RESID^2(-4)</b>	<b>-0.059248</b>	<b>0.097374</b>	<b>-0.608459</b>	<b>0.5441</b>
<b>WGT_RESID^2(-5)</b>	<b>-0.013631</b>	<b>0.097270</b>	<b>-0.140131</b>	<b>0.8888</b>
<b>WGT_RESID^2(-6)</b>	<b>0.050650</b>	<b>0.097301</b>	<b>0.520553</b>	<b>0.6037</b>

<b>R-squared</b>	<b>0.195078</b>	<b>Mean dependent var</b>	<b>1.127278</b>
<b>Adjusted R-squared</b>	<b>0.051342</b>	<b>S.D. dependent var</b>	<b>1.197229</b>
<b>S.E. of regression</b>	<b>1.166090</b>	<b>Akaike info criterion</b>	<b>3.289129</b>
<b>Sum squared resid</b>	<b>152.2939</b>	<b>Schwarz criterion</b>	<b>3.745500</b>
<b>Log likelihood</b>	<b>-197.7271</b>	<b>Hannan-Quinn criter.</b>	<b>3.474581</b>
<b>F-statistic</b>	<b>1.357195</b>	<b>Durbin-Watson stat</b>	<b>2.009980</b>
<b>Prob(F-statistic)</b>	<b>0.159524</b>		

The result of the ARCH test indicated absence of remaining ARCH effect as the Prob. Chi-Square is greater than 0.05, while the residual correlation test clearly indicated absence of autocorrelation as all the probabilities were evidently larger than 0.05 as shown in the table below.

**4.4.2 Residual correlation test**

Table 4.6

**Date: 10/12/21 Time: 19:54****Sample: 1981Q1 2019Q4****Included observations: 38**

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*
. .	. .	1	-0.052	-0.052	0.1120 0.738
.* .	.* .	2	-0.103	-0.106	0.5587 0.756
.* .	.* .	3	-0.070	-0.083	0.7721 0.856
. .	. .	4	-0.031	-0.052	0.8142 0.937
. * .	. * .	5	0.165	0.147	2.0691 0.840

Serial correlation or autocorrelation arises when the error term observations in a regression are correlated. This error term indicates a random “shock” to the model, or anything that is absent from the model. If the error term observations follow a pattern, this pattern



will constitute evidence of autocorrelation. For each observation, the error term indicates the gap between the actual value of the dependent variable and the anticipated value. In the existence of serial correlation, then there will most likely be opportunities to enhance the model so that the regression performs a better job of predicting the dependent variable. A glance at the residual correlation test clearly demonstrated lack of autocorrelation as all the probabilities were definitely bigger than 0.05 showing that the model is adequately stated.

## 5.0 CONCLUSION AND RECOMMENDATIONS

Understanding exchange rate behaviour, with specific attention on how macroeconomic factors impact the degree and size of its volatility is vital for Nigeria, given its structural reliance on the external sector. An increased volatility in the exchange rate of the naira would raise great anxiety regarding the speculative assault and its associated bubble in the foreign currency market. The consequence is the bad impact on the growth of exports, production, and its potency at undermining the efficacy of monetary policy management, in light of the pass-through effects of exchange rate to domestic prices. To this regard, the policy goals, which are oriented at exchange rate stability, would benefit greatly from empirical research geared at exploring the influence of macroeconomic factors on exchange rate volatility in Nigeria and its consequence on the value of the naira.

### 5.1 Research Findings

The Summary of the outcomes is as follows:

- a. That the coefficient most of the macroeconomic variables of had negative but substantial influence on exchange rate volatility
- b. That the coefficient of inflation rate was negative and not-significant in explaining currency rate volatility in Nigeria.
- c. That the money supply coefficient has a positive and considerable influence on exchange rate volatility in Nigeria.
- d. Volatility persistence indicates the amount of time necessary for volatility to decay over time, which is calculated by adding the coefficients of the ARCH and GARCH effects. This demonstrates that the coefficients of the GARCH and ARCH terms are more than one  $(2+3) > 1$  in model 1, model 2, and model 3, and that the volatility is persistent.
- f. At the 1% significance level, the coefficient of the error correction term (ECT) is negative and statistically significant, indicating a steady long-run link between exchange rate volatility and the right-hand side variables in Equations (1 & 2). If there is a shock in the system, the negative sign implies a return to equilibrium. The findings reveal that in the short run, deviations from our long-run equilibrium are rectified at a rate ranging from 0.022 percent to 13% each year.

### 5.2 Comparison of Findings with Study Objective

This section relates the study's findings to the study's goals. The comparison is intended to offer proof that the aims of this research have been met ideally. As an example, consider the following:

#### Research Objective

The objective is fulfilled prudently, as shown by the regression findings from this research. According to the findings, macroeconomic factors have a detrimental influence on exchange rate volatility. The results are congruent with those of Hviding et al (2004) and Aranyarat (2007). These researchers agree that policies affecting macroeconomic factors should be consistent in order to preserve a stable exchange rate, which minimises uncertainty and stimulates current and future investment. Inconsistent policies, on the other hand, cause exchange rate volatility, which may amplify internal and external shocks and harm economic development. Domestic businesses in Nigeria, in particular, depend heavily on the foreign market for intermediate inputs; as a result, exchange rate fluctuation raises the cost of production and limits enterprises' capacity to expand output. Exchange rate volatility stymies economic progress by decreasing industrial capacity, signifying a currency crisis, a high level of uncertainty, precipitating internal and external shocks, and lowering trust in the economy.

The goal of this research is to look at the influence of macroeconomic factors on exchange rate volatility utilising five (5) important macroeconomic indicators. Economic growth, trade terms, government spending, trade flows, market capitalization, and external foreign reserves are all macroeconomic indicators. The generalised autoregressive heteroscedasticity (GARCH) estimation approach was used to attain these goals. Bollerslev (1986) generalised autoregressive heteroscedasticity (GARCH), a variation of Engel (1982) autoregressive heteroscedasticity (ARCH) model, was used to define the model. The GARCH model is justified because it has the ability to distinguish between predictable and unpredictable elements in the real exchange rate formation process, which is not prone to overstating volatility; a high-order ARCH model may have a more parsimonious GARCH representation that is much easier to identify and estimate, and because all coefficients must be positive, it ensures that the variance is finite, and all characteristics must lie within the univariate distribution. The study's results are quite fascinating, and they are primarily explained by the structure of the Nigerian economy. The findings revealed that macroeconomic factors had a detrimental influence on exchange rate volatility. As a result, future research should include more of the factors as important drivers.





### 5.3 Recommendations

We suggest the following recommendations based on the study's findings:

#### 1. Maintain Exchange Rate Policies:

This empirical research tells Nigerian policymakers that policy instability in relation to important macroeconomic factors causes exchange rate volatility. As a result, the Central Bank of Nigeria may lower the degree of exchange rate volatility through stabilising policies relating to main macroeconomic factors. In theory, the policy selected to stabilise important macroeconomic fundamentals, which favours a managed-float regime with a relatively limited fluctuation range, is reasonable and must be consistent.

#### 2. Create countercyclical fiscal buffers during economic expansion:

The release of the findings, which revealed that exchange rate volatility is caused by trade balance and external foreign reserves, emphasises the necessity to accumulate reserves in order to properly protect the naira from swings. This might be accomplished by enhancing the mechanism for excess crude account (ECA). To be successful in developing fiscal buffers, crude oil revenues over the benchmark in the appropriation act must be put in the surplus crude account. The account might be ring-fenced by legislation such that it is only triggered during negative macroeconomic shocks. In this manner, the government might accumulate sufficient reserves to stabilise the foreign exchange.

#### 3. Diversification of the Nigerian Economy:

Because the Nigerian economy is import reliant, the findings demonstrated a bidirectional association between exchange rate volatility and trade balance. This highlights the critical necessity to diversify the economy in order to improve exports. Essentially, the value of a country's currency is determined by its demand and convertibility. To stabilize the foreign exchange rate, the economy must be diversified, and intentional efforts must be made toward import substitution and export-oriented industrialization, both of which must generate foreign currency for the nation.

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# A STUDY ON TALENT ACQUISITION AT DOLPHIN –V LIFT TECHNOLOGIES –VISHAKAPATNAM

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## ABSTRACT

*Talent acquisition implies recognizing a person's inherent skill traits, personality and offering him a right task. Every person has a unique talent that suits him to a particular job profile and any other position will cause discomfort. It is the job of the Management, particularly the HR Department to place candidates in various positions in terms of their interest and qualifications Talent Management takes all efforts to boost up the morale of the work force to retain them and reduce the labour turnover. A platform is laid up for the potential career growth of the talented employees in every organization. It is imperative to study the importance of Talent Management Practices followed by the companies. It needs a critical and in-depth analysis. The effective practices of talent acquisition strive to develop and retain potential workforces and improve organizational performance. The present study has highlighted the Talent Management Practices prevailing in the Dolphin Elevators. Accordingly, the positive results gathered from the study will certainly be useful for the organization, as it will help the management to create effective strategies for developing and retaining talented employees. The study was carried out with data collection of 50 employees to find out the results, which helps employees, as management explores hidden qualities and lays focus on developing the talent of their employees.*

**KEYWORDS:** Talent acquisition, labour turnover, organisational performance, Talent management

## 1. INTRODUCTION

Human Resource Management (HRM) is concerned with managing the people resources of an organization. In fact, managing human resources is the most crucial and challenging task that management has to perform, crucial because it is key to sustainability in the present competitive world and challenging because no two individual are same. Human resources management is the only resources that are living part of the organization. It is this living part which vibrates positive energy and leads to the planning, organizing, controlling, coordinating and directing of the rest of the resources within the organization. It is this sub system which will ultimately lead to the overall growth of the organization. Thus, human resource is a crucial sub system in the process of management.

According to M L Cuming, "Human resource management is concerned with obtaining the best possible staff for an organization and having got them looking after them, so that they want to stay and give their best to their jobs."

According to Leon C. Megginson, the term human resource can be thought of as, "the total knowledge, skill, creative abilities, talents and aptitudes of an organization's workforce as well as the values, attitudes and beliefs of the individual involved.

## Objectives of Human Resource Management

1. Advising management on the HR policies required to ensure that the organization has a highly motivated and performing workforce, has people equipped to cope with change and meet its legal employment obligation.
2. Attracting, hiring, rewarding, maintaining and developing the human resource of an organization.
3. Handling crises and difficult human relations situations to ensure that they do not get in the way of the organization achieving its objectives.
4. Providing a communication link between the work force and organization's management.
5. Acting as a custodian of organizational standards and values in the management of human resources .

Talent acquisition is the process of finding and acquiring skilled human labour for organizational needs and to meet any labour requirement. When used in the context of the recruiting and HR profession, talent acquisition usually refers to the talent acquisition department or team within the Human Resources department. The talent acquisition team within a company is responsible for finding, acquiring, assessing, and hiring candidates to fill roles that are required to meet company goals and fill project requirements.

Talent acquisition as a unique function and department is a relatively new development. In many companies, recruiting itself is still an indistinct function of an HR generalist. Within many corporations, however, recruiting



as a designation did not encompass enough of the duties that fell to the corporate recruiter. A separate designation of talent acquisition was required to meet the advanced and unique functions. Modern talent acquisition is a strategic function of an organization, encompassing talent procurement, but also workforce planning functions such as organizational talent forecasting, talent pipelining, and strategic talent assessment and development.

Talent acquisition is quickly becoming a unique profession, perhaps even distinct from the practice of general recruitment. Talent acquisition professionals are usually skilled not only in sourcing tactics, candidate assessment, and compliance and hiring standards, but also in employment branding practices and corporate hiring initiatives. Talent acquisition as a function has become closely aligned with marketing and PR as well as Human Resources. As global organizations need to recruit globally with disparate needs and requirements, effective recruiting requires a well thought out corporate messaging around hiring and talent development. Talent acquisition professionals often craft the unique company message around the approach the company takes to hiring and the ongoing development of employees. The employment brand therefore encompasses not only the procurement of human capital, but the approach to corporate employee development. The unique needs of large companies especially to recruit and hire as well as attract top talent led to the development of a unique talent acquisition practice and career.

Recruiting professionals often move between agency recruiting and corporate recruitment positions. In most organizations, the recruitment roles are not dissimilar: the recruitment role is responsible for sourcing talent and bringing qualified candidates to the company. However, modern talent acquisition is becoming a unique skill-set. Because talent acquisition professionals many times also handle post-hire talent issues, such as employee retention and career progression, the talent acquisition role is quickly becoming a distinct craft. Some recruitment industry advisors even advocate for a talent department unique from the HR department, because talent acquisition and development is so intertwined with a company's ultimate success and effectiveness.

As a craft, talent acquisition is of course not new; it is the simple process of recruiting good talent to meet company needs. As a profession, however, talent acquisition is quickly evolving into a unique and important job function.

### **Defining Talent Acquisition**

Recruiters, sources, HR professionals, hiring managers. Combined, these powerhouse functions make up Talent acquisition (TA) — the organizational task of, quite simply, finding the right person for the job. In a corporate setting, it's often placed under the human resources (HR) umbrella, and involves sourcing, attracting, interviewing, hiring, and on boarding employees.

### **Recruiters in Talent Acquisition**

Since the bulk of a successful TA team relies on

recruiters, let's break down what it takes to be a rock star one. First, it helps to be a people person. You're comfortable cultivating and maintaining relationships, especially across jobs, industries, and personality types. People who tend to do well in this role are also good at thinking big-picture about the needs of their company, and how to fulfill them. And since you want to always be signing top talent, a background in sales can be tremendously helpful, as you're ultimately in the business of selling jobs to promising candidates—and promising candidates to top stakeholders.

But maybe most importantly, talent acquisition professionals need to think like hunters: always on the prowl for top talent and relentless in their pursuit.

### **Talent Acquisition vs. Recruiting: What's the Difference?**

It's easy to confuse these two. In many ways, they share the same goals: placing people into open positions.

But, there are differences. Job recruiting addresses a company's short-term headcount needs. Talent acquisition, on the other hand, is an overall business and HR strategy that factors in an organization's long-term goals, and acknowledges that people (or talent) can play a huge role in a company's future successes. Unlike simply filling seats, talent acquisition is an ongoing process that tends to identify and vet appropriate candidates for executive-level positions, leadership roles, and jobs that require specialized training.

## **1.2 NEED OF THE STUDY**

Talent acquisition implies recognizing a person's inherent skill traits, personality and offering him a right task. Every person has a unique talent that suits him to a particular job profile and any other position will cause discomfort. It is the job of the Management, particularly the HR Department to place candidates in various positions in terms of their interest and qualifications Talent Management takes all efforts to boost up the morale of the work force to retain them and reduce the labour turnover. A platform is laid up for the potential career growth of the talented employees in every organization. It is imperative to study the importance of Talent Management Practices followed by the companies. It needs a critical and in-depth analysis.

## **1.3 SCOPE OF THE STUDY**

The effective practices of talent acquisition strive to develop and retain potential workforces and improve organizational performance. The present study has highlighted the Talent Management Practices prevailing in the Dolphin Elevators. Accordingly, the positive results gathered from the study will certainly be useful for the organization, as it will help the management to create effective strategies for developing and retaining talented employees. It will also help employees, as management explores hidden qualities and lays focus on developing the talent of their employees.

## **1.4 OBJECTIVES OF THE STUDY**

1. To understand the Talent acquisition procedure or process at Dolphin elevators
2. To understand how the organisation (Dolphin Elevators) identifies the talent of employees



3. To know the more acceptable sources of recruitment for Dolphin Elevators
4. To analyse the recruiters expectations from the interviewees in Dolphin Elevators
5. To suggest possible improvements of Talent acquisition process in Dolphin Elevators

### 1.5 RESEARCH METHODOLOGY

#### A. Tools used

- i. Tools used for data collection is both Primary Data and Secondary Data.
  - a. Primary Data includes the data collected through questionnaire.
  - a. Secondary Data includes the data collected through libraries, books, news papers, magazines and Internet.
- ii. Tools used for Data Analysis is Percentage analysis

#### B. Data collection methods

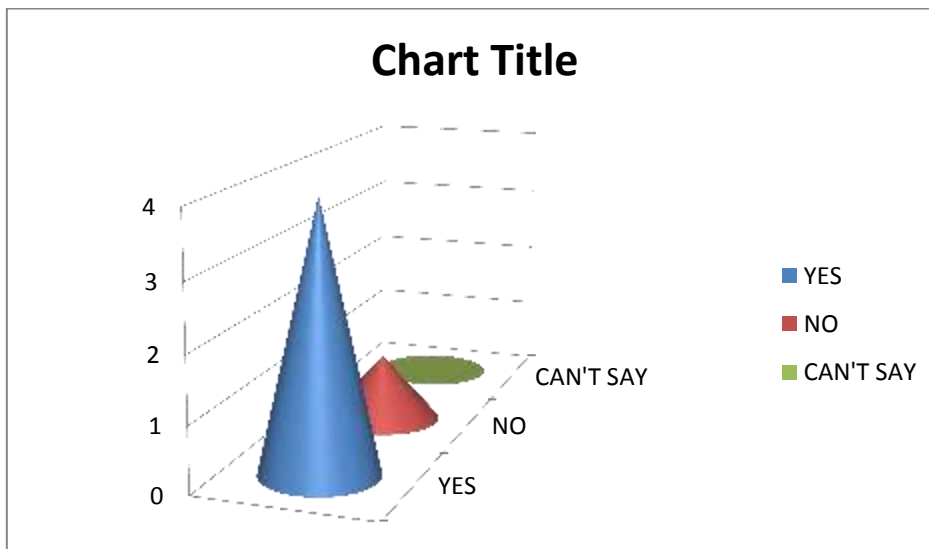
Collection of data was done through questionnaire method; employees were requested to fill the questionnaire to meet the following objectives of the research.

1. To understand the Talent acquisition procedure or process

### 1.7 DATA ANALYSIS AND INTERPRETATION

#### 1. Do you consider the reference check as an internal part of recruitment?

Parameter	Response	% of response
a) Yes	4	80
b) No	1	20
c) Can't say	0	0
<b>Total</b>	<b>50</b>	<b>100</b>



2. To understand how the organisation identify the talent of employees
3. To know the more acceptable sources of recruitment
4. To analyse the recruiters expectations from the interviewees

The information collected about Dolphin Elevators consists of both primary and secondary data. We have collected information by the interviews of employees through questionnaire survey and the information is also gathered from libraries, books, news papers, magazines and Internet.

#### C. Sample description

Sample consist of a about 50 employees of a Dolphin Elevators of various department Data analysis procedure Data analysis is done using the Percentage analysis.

### 1.6 LIMITATIONS OF THESTUDY

- Due to constraints of time and many other resources this study is confines to the employees of Dolphin Elevators..
- The opinions, behavior and attitudes of the respondents reflected in this study are restricted to the duration of the research and are subject to change with the passage of time.
- The sample size is 50. The study was confined to it.

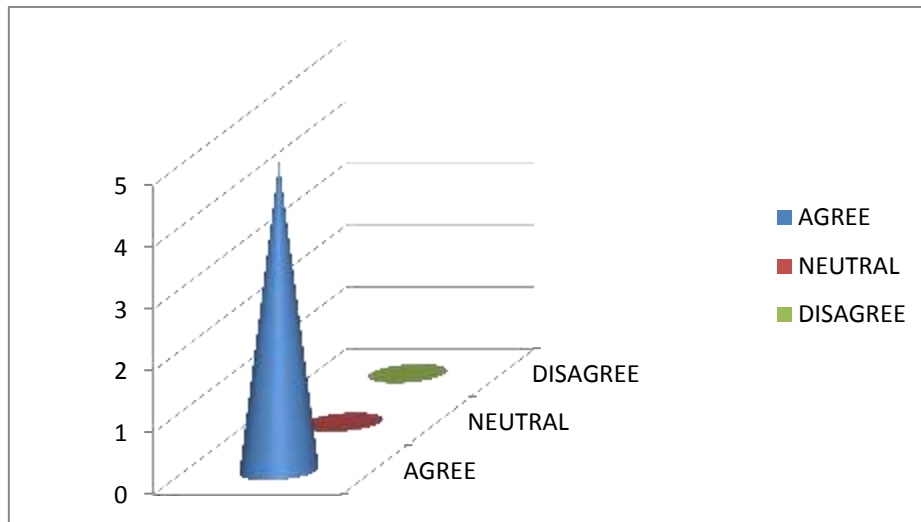
**Interpretation**

From the above graph, we can clearly say that 80% of HR employee respondents (4 HR employees) agreed that they consider reference check as an integral part of recruitment. 20% of HR employee respondents (1 HR employee) did not

agree that they consider reference check as an integral part of recruitment. From the above analysis we can say that reference check is an integral part of recruitment in Dolphin Elevators.

**2. During the time of recruitment, do you think external source more acceptable than internal source?**

Parameter	Response	% of response
a) Agree	50	100
b) Disagree	0	0
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>



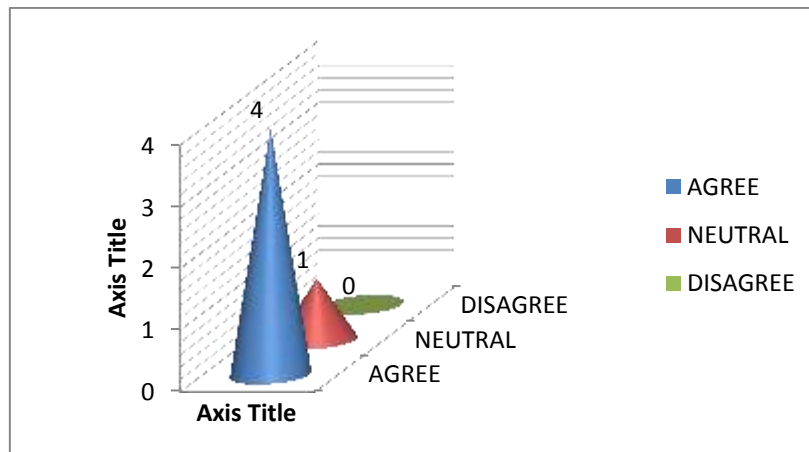
**Interpretation**

From the above graph, we can clearly say that 100% of HR employee respondents (5 HR employees) agreed that external source is more acceptable than internal source during the time

of recruitment. From the above analysis we can say that external source is more acceptable than internal source during the time of recruitment at Dolphin Elevators.

**3. Do you consistently appoint high caliber employees?**

Parameter	Response	% of response
a) Agree	4	80
b) Disagree	1	20
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>





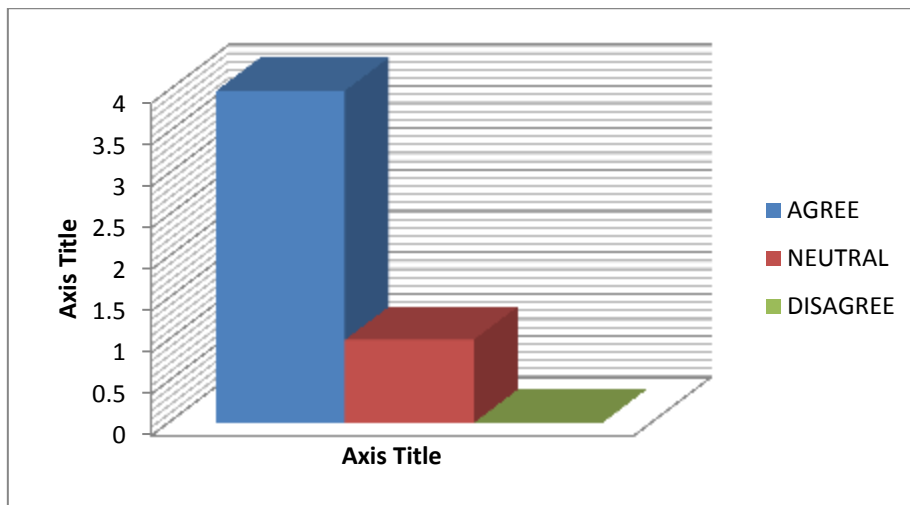
**Interpretation**

From the above graph, we can clearly say that 80% of HR employee respondents (4 HR employees) agreed that they consistently appoint high caliber employees. 20% of HR

employee respondents (1 HR employees) did not agree that they consistently appoint high caliber employees. From the above analysis we can say that they consistently appoint high caliber employees at Dolphin Elevators.

**4. Do you ensure that salaries being set are according to the market scenario?**

Parameter	Response	% of response
a) Agree	4	80
b) Disagree	1	20
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>



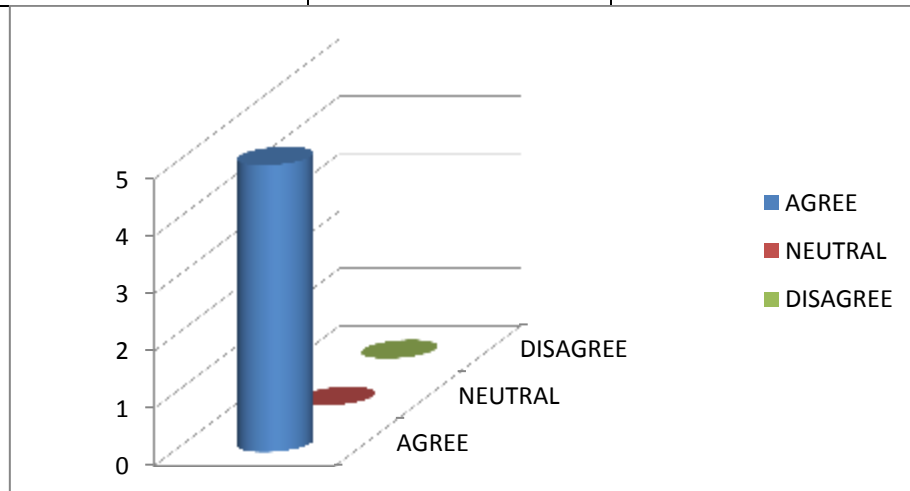
**Interpretation**

From the above graph, we can clearly say that 80% of HR employee respondents (4 HR employees) ensured that salaries are set according to market scenario. 20% of HR employee

respondents (1 HR employees) did not ensure that salaries are set according to market scenario. From the above analysis we can say that salaries are set according to market scenario.

**5. Do you ensure that vacancies do not remain open for long period of time?**

Parameter	Response	% of response
a) Agree	5	100
b) Disagree	0	0
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>





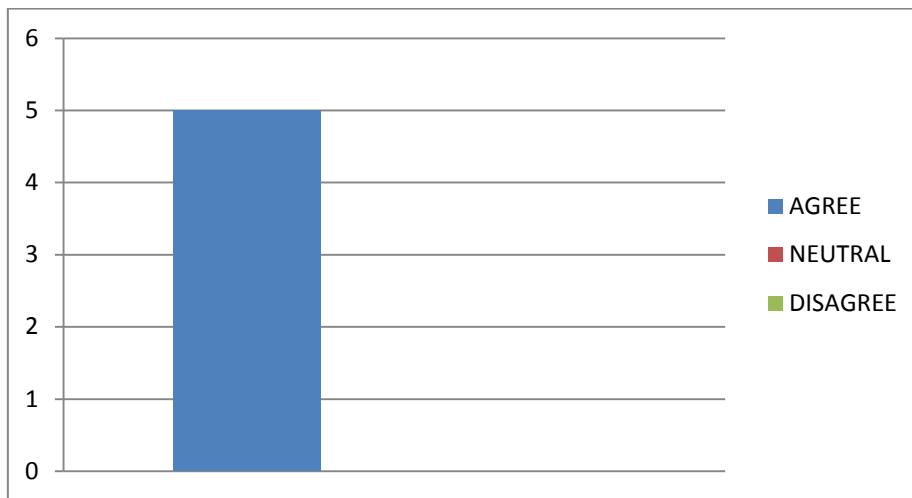
**Interpretation**

From the above graph, we can clearly say that 100% of HR employee respondents (5 HR employees) agreed that

vacancies don't remain open for long period of time. From the above analysis we can say that vacancies don't remain open for a long period of time at Dolphin Elevators.

**6. Do you possess a good overall knowledge of HR recruitment process and policies?**

Parameter	Response	% of response
a) Agree	5	100
b) Disagree	0	0
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>



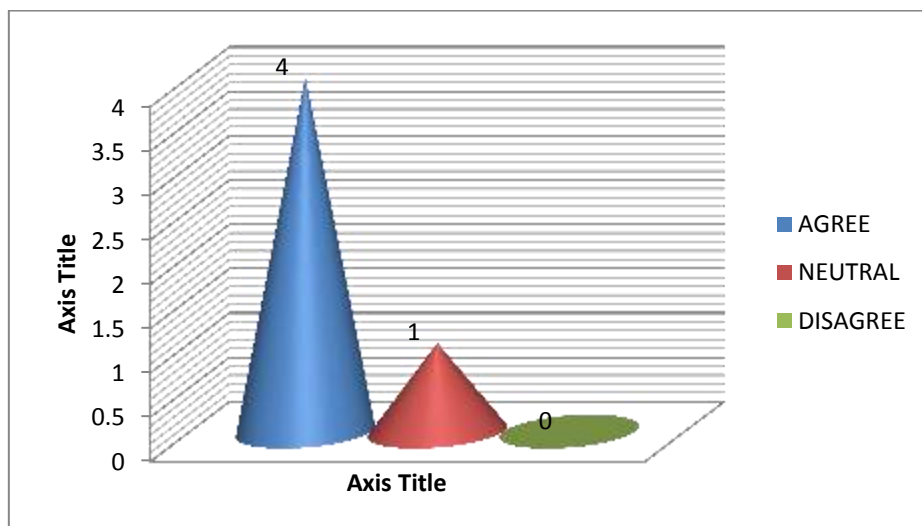
**Interpretation**

From the above graph, we can clearly say that 100% of HR employee respondents (5 HR employees) agreed that they possess good overall knowledge about recruitment process

and policies. From the above graph we can say that all HR employees possess good overall knowledge about recruitment process and policies at Dolphin Elevators.

**7. Is a person's character is more important compared to their job skills, when it comes to being a good employee in your company?**

Parameter	Response	% of response
a) Agree	4	80
b) Disagree	1	20
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>







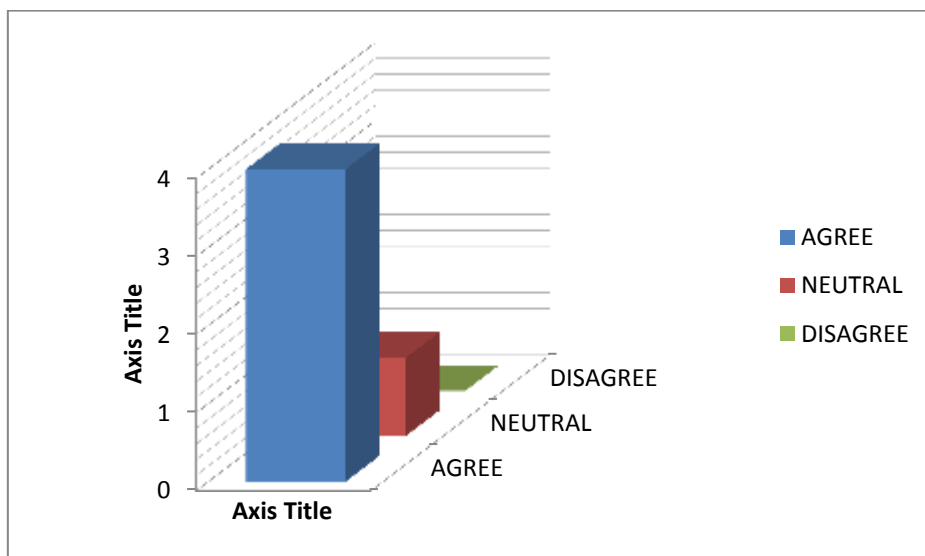
**Interpretation**

From the above graph, we can clearly say that 80% of HR employee respondents (4 HR employees) agreed that a person’s character is more important compared to their job skills, when it comes to being a good employee in their company. 20% of HR employee respondents (1 HR

employees) did not agree that a person’s character is more important compared to their job skills, when it comes to being a good employee in their company. From the above graph we can say that a person’s character is more important compared to their job skills, when it comes to being a good employee at Dolphin Elevators.

**8. Do you believe that transfer, demotion, suspension and dismissal are based on performance appraisals?**

Parameter	Response	% of response
a) Agree	4	80
b) Disagree	1	20
c) Neutral	0	0
<b>Total</b>	<b>50</b>	<b>100</b>



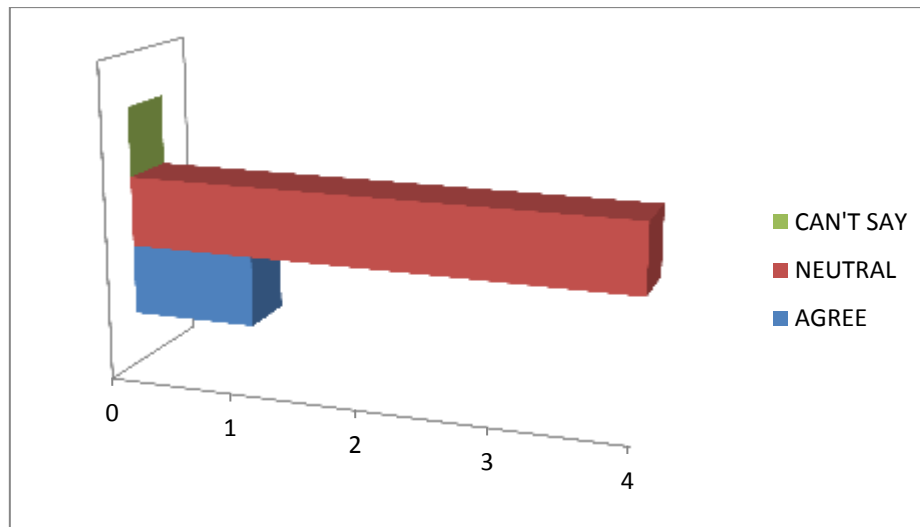
**Interpretation**

From the above graph, we can clearly say that 80% of HR employee respondents (4 HR employees) agreed that transfer, demotion, suspension and dismissal are based on performance appraisals. 20% of HR employee respondents (1 HR

employees) did not agree that transfer, demotion, suspension and dismissal are based on performance appraisals. From the above graph we can say that transfer, demotion, suspension and dismissal are based on performance appraisals at Dolphin Elevators.

**9. Does salary factor attract most of the potential employees than career growth and development?**

Parameter	Response	% of response
a) Agree		
b) Disagree		
c) Neutral		
<b>Total</b>	<b>50</b>	<b>100</b>



### Interpretation

From the above graph, we can clearly say that 80% of HR employee respondents (4 HR employees) neither agreed nor disagreed that salary factor attracts most of the potential employees than career growth and development. 20% of HR employee respondents (1 HR employees) agree that salary factor attracts most of the potential employees than career growth and development. From the above graph we can say that salary factor attracts most of the potential employees than career growth and developments.

## 1.8 FINDINGS SUGGESTIONS & CONCLUSIONS

### Objective based findings

#### Objective 1 : To understand the talent acquisition process at dolphin elevators.

The organization practicing well defined talent acquisition process by the following essentials.

- Lead generation
- Recruiting and attracting top candidates
- Interview and assessment
- Evaluating references
- Selecting the best candidates
- Hiring and on boarding

The above process is excellently implemented in acquiring the best talent from the world.

#### Objective 2: To understand how the organization (Dolphin Elevators) identifies the talent of employees.

The organization is following well defined practices in acquiring a new talent in four ways.

- Organization is aligning acquisition strategy with business goals to meet the objectives for upcoming 5 years.
- Using data and marketing to create better acquisition of people to join organization i.e., to ensure that the candidates meet the job requirements.
- Organization is expanding sourcing strategies by spending a lot of time on social media to acquire a pool of potential candidates.

- Organisation is focusing on better employer branding to create a best pool of talent.

#### Objective 3: To analyse how organisation embraces the employees who attended for the interview.

- The interviewees are so much satisfied that 82% interviewees agreed that the interview was properly conducted and co- ordinate.
- 30% of the respondents felt that arrangements, courtesy of security and front office were excellent and none of them reported very poor.
- It was found that 66% respondents waited for 1-3 hours for interview process.
- It was observed that 80 % of the respondents felt the questions which were asked in the interview are relevant enough.
- It was found that 44% & 42% of respondents felt highly satisfied and satisfied with the overall interview process.

#### Objective 4: To know the more acceptable source of recruitment for dolphin elevators.

- It was found that the best recruitment sources for the organization are job portals followed by advertisements, consultancies then referrals and websites.

#### Objective 5: To analyse the recruiters' policies and procedures.

- It was found that transfer, demotion, suspensions are purely based on performance of the employees
- It was found that employee's character is more important when compared to skills.

### Suggestions

1. Organisation should concentrate and must give priority in selection of women employees because there is a clear gender parity
2. Organisation should maintain retention policies so that experience employees not leave the organisation



because very few percentage of employees with 5 plus years of experience in the organisation

3. Organisation should focus more on social media than the traditional talent acquisition process which saves money and time
4. Organisation should focus on to improve better prospects to employees
5. Organisation can still improve in proper co-ordination and conduct of interview
6. .Organisation should focus in decreasing waiting time for the interview
7. .H.R personnel should also make a choice to get more talent employee applicants through consultancies, referrals and companys website
8. .H.R personnel must focus on 360 degree performance appraisal for transfers, promotions and demotions.

### Conclusion

It is known to all that reality is very different from what we have learnt from our theory books. A person can only understand and get the idea of the world when he/she actually tries to get involved in the processes. Here in the internship, the situation is same. After getting involved with the processes and people of the organization, I could visualize many things which were not possible only reading books. In the report both the general recruitment guideline along with the structured recruitment process at Dolphin elevators has been elaborated. While preparing the report, I personally could understand where the differences and similarities lie.

Recruiting and hiring the right people is by far the most important part of any organization's business plan. People are the largest investment any company will make into its future. Talent acquisition is not only about filling open positions; it's about taking a long-term strategic view for filling future positions as well. It's about collecting relevant data and keeping in touch with candidates until the right positions open up. It's more about building relationship with top talent in the industry than it is about simply recruiting for current job opportunities. On a concluding note it can be mentioned that the talent acquisition process at Dolphin elevators' is quite effective and efficient. Almost all the needed steps of the process are done in a systematic manner maintaining some structured methods. The Talent Acquisition team is continuously working on the process to improve it as much as they can. The Organization has a target to make their recruitment process the best among all the existing organizations in that industry.

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# A STUDY ON ACCOUNTING PRINCIPLES AND CONCEPTS

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## ABSTRACT

Accounting is the base of any kind of organisation, without accounting any business enterprise cannot achieve its target or the pre defined goals. Accounting provides a path of success to the enterprise. With the help of accounting a business makes its stand in the competitive environment. Each type of accounting need some rules and principles to make the accounting effective and useful, and for that purpose accounting system is depend on the basic principles and concepts. Accounting principles, standards and concepts always makes the accountant one step ahead because with the help of accounting principles and concepts the accountant easily make all kind of posting in the books of account with the guidance and help of basic principles and concepts of accounting. Without accounting principles and concepts it is very difficult to maintain the accounting data and make it in that form in which any stakeholder can get that information which is required to him.

**KEY WORDS:** Accounting, Accounting Principles, Accounting Concepts

## MAIN TEXT

### I. Accounting Principles

If the accounting goes nicely, the employers' assessment is based totally on honesty, soundness of mind, and reasonableness. For up to date, accounting follows an entire set of guidelines referred to as accounting necessities or famous accounting opinions. GAAP is based totally on effortless assumption that contains the premise of money, and it is not the aim of unexpected territory, trendy disclosure, ongoing concern, monetary commercial enterprise, savings, charge and honesty. GAAP, however, not stands together. It includes variety of the utmost complicated necessities issued for positive complicated tasks. GAAP additionally added accounting strategies as wonderful from positive industries, like utilization in the sector of banking and insurance. These practices frequently reply to corrections inside neighborhood authorities guidelines. GAAP has followed a statement approach as issued via way of means of the Financial Reporting Standards Board (FASB, referred to as "fas- bee"). The FASB are often a non-governmental association that researches present day amusement sports and modifies accounting guidelines to achieve those necessities.

### 1.1 Principle of Cost Schedule

Cost bases (price announcement) within the way wherein the accountant will document the transaction (or equal quantity) on the time of the transaction. As a result, property of the organization's extreme fee aren't recorded or reported. Examples include commercial enterprise's trademarks, and a group of gifted researchers, neighbors' names, utilization prices, etc. aside from the favored sale, the recorded asset charge won't exceed the direction of inflation or marketplace volatility.

### 1.2 Principle of Full Disclosure

The whole disclosure system involves the commercial enterprise to supply enough facts to allow a perceptive character to form a knowledgeable decision. As a really last outcome of this process, the enterprise's economic statements will contains extra disclosures and schedules in respect of the notes to the economic statements.

### 1.3 Principle of Sales Reputation

Revenue need to be viewed (stated) in respect of the sales document on the time of receipt. Therefore, the organization will upload a sure quantity to the assertion of sale before the purchaser pays for the products or donations received. In respect of the case of deal, the returns are often special at an equivalent time because the purchaser pays for the sale. If customer's pay beforehand, the deals are often notified upon receipt of the payment. In any case, if a cowl enterprise receives \$ 12,000 on December 28, 2020 to cowl insurance via way of means of 2021, the duvet enterprise will invest \$ 1,000 in earnings in 12 months to 2021.

### 1.4 Principle of Matching or Reputation of expenses

An accurate manner to spot (document) expenses in an earnings document relies upon at the intentions and effect of the cooling off, for instance, if an employer sells 5,000 Product X gadgets, it need to document an entire of 5,000 gadgets in respect of the sales document as sales. (Since the fee is already 60% of the tax, it's miles crucial that the fee of the asset is calculated accurately), throughout the accounting length that the expenses are charged, and in a case, a \$ 120,000 10- 12 months antique system are often charged \$ 1,000 keep with month. Within the absence of any of the above, instances are raised for the duration of the accounting length at which the fees are committed. Examples are



advertising and advertising expenses, training fees, earnings expenses, and much more.

## II. ACCOUNTING CONSIDERATIONS

### 2.1 Business commercial enterprise considerations

A commercial enterprise-to-commercial enterprise inquiry allows an accountant to take care of 1 unique proprietorship commercial enterprise video games from any man or woman makes deal. In addition the financial statements could also be organized for the gathering of diverse jail systems controlled in respect of the equal organizational manner. This company is usually regulated as an economic business. The set of monetary statements that document the on the whole performance of a corporation is mentioned because the mixed financial statements.

### 2.2 Finance unit estimates

In U.S. companies, the economic unit asks whether or not it allows accountants to supply an enormous sort of commercial enterprise stuff alongside dollar prices. Moreover, it's miles a far-fetched concept that the American dollar now loses its shopping electricity over time. As a really last result, the accountant includes \$ 10,000 spent across the planet in 1960 and \$ 300,000 spent after the equal area on the brink of the year 2020.

### 2.3 Persistent tension perception

In continuation of the speculation of the task approach for any of the accountant who believes that a billboard venture's challenge will not be blocked along in a scene conclusion. In some words, a billboard enterprise challenge can maintain us operating longer to satisfy its needs. As a return, the accountant also will be capable of reserve extra belongings for his or her beyond transactions and might postpone extra fees at selected times. If a billboard enterprise entity is neglected for an ongoing problem (that means the entity won't be capable of hold it and therefore the entity), it need to be disclosed, and therefore the termination expenses want to be at honest value.

### 2.4 Time period (or periodicity) assumption

Accountants calculate that complicated commercial enterprise operations and economic results could also be divided into unique durations concerning months, quarters and years. To file commercial enterprise income on a month-to-month foundation, the commercial enterprise will convert the adjusted entries to encompass the month-to-month quantity of depreciation, assets taxes, insurance, etc. It offers invoices for costs incurred. Examples encompass adjustments, interest, resources, etc.

## III. ACCOUNTING CONCEPTS

The standards of Accounting that shape the premise of accounting are:

### 3.1 Accrual idea

An accounting could also be finished on a personal or economic foundation. Accrual foundation has been changed and broadly accepted. The corporation can also use your aggregate of both. The accounting of accounting involves that

transactions are extraordinarily documented whilst transactions end in coins flow. However, below the gathering foundation, transactions are recorded whilst the occasions are taking area and therefore the cash are known. Once any corporation has chosen a way like exchange or extra exchange, then it desires touse the equal.

### 3.2 The idea of monetary commercial enterprise

The idea of a billboard enterprise assumes that monetary statements and distinct accounting information fall below a specific entity this is often distinct from its owners. For this reason, an evaluation of a billboard enterprise transaction that has expenses and income is indicated through adjustment terms in the concern of the monetary position of the agency. Similarly, property and liabilities granted to a billboard enterprise entity are commercial enterprise property and liabilities. Business transactions could also be termed as objections in the concern of the form of economic enterprise ownership. This view, therefore, allows the accountant to differentiate among personal and business transactions. And the thought applies to company governance, company, company, and little and large businesses. It's going away to additionally suits for the agency component, which incorporates a division, or several corporations, along-side merged companies

### 3.3 The idea of alignment

An equitable idea in accounting is that the system of comparing (related) to what has been performed or sold (as measured in the concern of the form of income and merchandise shipping methods) of any fee devices respect to the given accounting length. That is, expenses incurred) in the concern of the attempt or fee (as measured in the concern of the form of commodity costs and consumables used) over a period of time whilst the fee is set. This view emphasizes the fee charged in the concern of the accounting length whilst returns are charged on the topic of expenses alone, and for instance, whilst the marketing fee of some equipments are mentioned as annual income, the fee of these gadgets could also be said as the fee in respect of the equal year.

The precept of compliance involves a totally easy success after the concept of crowning has been finished with the assist of an accountant: the preliminary quantity is based totally mainly on assumptions and therefore the expenses associated with that investment. Costs are associated with income, now there is no different manner around.

An equitable approach, therefore, involves the allocation of giant sums of money inside historic accounting. Old (old) currencies are audited and internalized during a way the usage of which economic gadgets had been recognized as out of date administrative possibilities allotted or as compared to coins flows.

The previous fee annexure, in use into consideration as a continuation of the supplier's capacity to offer up are similarly evolved in the concern of the historic consolidation and labeled as property. Therefore, balance isn't an object along a document of additional than unallocated values that expires on a provider's pre-planned diploma degree as compared to the authentic value.



### 3.4 Materiality Concept

Legally there are often doctrines known de minimis non curate, due to this, the deal area docket will now not bear in mind trivial topics. Similarly, the accountant is now not seeking to write down trivial articles thanks to the very fact, and the venture of recording them now not excuses the assist of the results.

In the belief of a fabrication method that periodic transactions with tangible or insignificant consequences are now not to be recorded and mentioned as inside monetary statements. And it stated that the recording of unimportant moments is unforgivable in terms of its misuse associated with users.

For example, during a sense, a gift day pad may be a trade asset. Whenever someone writes on the pad, the zone of the asset expires, and therefore the financial savings lower equally. Theoretically, its miles paintings via way of means of deciding the size of used pipes owned via way of means of a billboard enterprise in respect of the role of the accounting period and see this value as an asset. And the worth of such an undertaking has become bent be unnecessary, and no investor got to attempt to do this. Organizational Accountants take the only, before indirect approach of action, and deal with used items (called) on the time of the acquisition of the pipelines or on the time in their elimination relying absolutely on the products to the person.

Unfortunately, there is often, no rate wherein it approaches cloth with a quick line that separates cloth instances into invisible instances. Selection is based totally absolutely on judgment and trade. And it's thanks to debt education to interpret what's and what isn't belongings in any respect instances.

Perhaps attendance at an event or occasion could also be decided supported its monetary impact, typical overall performance results, changes inside the organization's monetary feature and person comments or preferences.

### 3.5 Conservatism

This insertion is usually defined as "now you are doing not consider the earnings, and you're giving away all of the losses of electricity." This characteristic could also be taken into contemplation as a valuable version of the mini-max manipulates philosophy, i.e., the discount has the potential for immoderate loss.

The idea of accounting conservatism shows that after the danger and publicity to danger is permitted, accounting takes a degree of caution and remark till similarly proof is out there. And Accounting conservatism now can't shows intentionally putting coins and belongings; we are the best drawings in conditions wherein there could also be cheaper doubts. In case, inventories are measured at the extent of coins flows or marketplace value.

Using the earnings statement, conservatism complements the recognition of all viable or unexpected losses however at the present no advantages till it is really available. The primary discount on intangible belongings and policies for the recording of actual property also, at least, to a couple of extent, become advocated thru conservatism. Failure to only accept cash till the sale replaces all different

manifestations of conservatism.

### 3.6 Anxiety Concern Concept

The commercial enterprise is held to account for the absence of proof. As the effect of the everlasting live of the commercial enterprise, the accounting is accomplished to expect that the commercial enterprise will finally perform indefinitely within the future.

The idea of an ongoing hassle measures the size of an asset of unemployment and involves the usage of historic price range at better rates. Also, constant and intangible belongings are prominent via way of means of their moneymaking life rather than short-time period expectancies in anticipation of early closure.

The idea of non-stop complexity ends within the concept that monetary statements of the characters are a neighborhood of a sequence of non-stop, coherent statements. it'll stay stated that the knowledge do now not follow which fresh statements got to replicate the change of the preceding year's statements supplied for contemporary developments.

### 3.7 Value Estimation Concept

A unit of alternate and length is required so on reply to inner commercial enterprise transactions in the concern of the equal way. And a part of the uncommon vicinity decided in accounting is that the unit of amount. Fees are totally extreme and now not the common neighborhood alternate of merchandise and services, additionally to labor, pharmaceutical items and money. The idea of monetary length concludes that accounting is that the usual of conversation of the entity's monetary overall performance. Clearly, monetary statements got to double the worth. The idea of monetary equality refers to 2 ranges of accounting. Firstly, accounting is constrained to the general performance of facts expressed in phrases of monetary units: it now can't register and transmits diverse relevant however non-monetary facts. Second, the thought of monetary length impacts the size of the unit of measurement itself as a unit of length. The key functions of any monetary center - power purchases, or the quantity of merchandise or gives which will be monetized - are worrying. Traditionally, accounting has addressed this problem via way of means of mentioning that the thought assumes that the shopping electricity of a part of measurement is powerful through the years or that monetary changes aren't necessary. While it is nonetheless broadly popular within today's monetary reporting, the sturdy idea of the unit of measurement may be a hassle of ongoing and unrelenting criticism.

### 3.8 Accounting Period Concept

Accounting offers the approximate information for enterprise finance video games in shorter intervals than enterprise lifestyles. Usually, the periods are the equal within the course of the simulation. Time is proven with-out financial statements. The periods are typically twelve months. Sometimes annual or annual statements are also issued. And this is often taken into consideration to be shorter and does now not fit the once a year statements. In the utilization of control, statements that collect quick intervals regarding a month or per week can also be adjusted.



### 3.9 Dual-Aspect Concept

The concept lies within the coronary heart of any of the entire accounting. Accountant statistics, directly affecting the belongings of any selected enterprise. The inquiry is what's the utmost essential class of wealth? Since the responding enterprise may be an innovative entity, it's miles very essential to see who owns its sources or what it really works for.

It is likewise essential to acknowledge what kind of sources you're on top of things of, instance cash, homes or land. Recording structures are consequently designed to mirror key elements:

- (a) The availability of wealth, and
- (b) The form it takes. Suppose Mr. X involves a choice to installation a enterprise and switch Rs. 1, 00,000 from his personal financial organization account to a separate enterprise account.

Obviously, the availability of wealth should be proportional to the value and type of wealth. As the miles only a special issue of the equal thing, that is concern to the form of an equation: S (sources) need to be same to F (forms).

In addition, any transaction or occasion affecting the enterprise finance should have a - dimensional document to carry the steadiness of every facets of the accounting figure.

9. American Institute of Certified Public Accountants, *Statement on Auditing Standards No. 78, Consideration of Internal Control in a Financial Statement Audit: An Amendment to Statement on Auditing Standards No. 55.*

## IV. FINANCIAL REPORTING

Financial reporting may be a broader idea than monetary statements. In addition to the monetary statements, the monetary statements incorporate the company's annual report for shareholders, its annual report back to the Securities and Exchange Commission (Form 10- K), its coordinator's assertion, and various monetary statistics introduced in the concern of the company's terms.

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# THE DISTINCTIVENESS OF LYRICS OF POETS WHICH CREATE IN THE UZBEK LANGUAGE LIVING IN KARAKALPAKSTAN

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## ABSTRACT

*The article analyzes the uniqueness of the lyrics of the poets living in Karakalpakstan and writing in the Uzbek language, including the works of such well-known artists as Guliston Matyokubova, Gulchehra Rahimova, Ahmad Okhnazarov, Yangiboy Kochkarov and Nazira Matyokubova as well.*

**KEYWORDS:** *Karakalpakstan, literary environment, poet, lyrics, traditions, customs, literature.*

## INTRODUCTION

It is known from history that Uzbeks and Karakalpaks are friendly peoples who have been living side by side and mixed in the land of Karakalpakstan since ancient times. Their social fate, history and literature are close to each other, and their languages are similar. There are many similarities in traditions and customs. We can give as many examples as we want to prove this point. Uzbek and Karakalpak peoples have similar destinies not only in life, but also in literature. He breathes from the same literary environment, shakes his pen in the same literary process, is a teacher and a student to each other. They work creatively together for the rise of Karakalpak literature. Based on this idea, it can be said that they are the creators who have been serving two literatures equally. Because among them there are writers who are known not only in Karakalpakstan, but also in Uzbekistan due to their works. Famous artists such as Guliston Matyokubova, Gulchehra Rahimova, Ahmad Okhnazarov, Yangiboy Kochkarov, Nazira Matyokubova are among them. Their books were published in the Karakalpak, Uzbek and Russian languages by publishing houses of Karakalpakstan and Uzbekistan and were successfully received by the scientific and literary community.

## RESEARCH METHODS

One of the talented people whose works are recognized in Uzbek and Karakalpak literature and literary studies is Gulistan Matyokubova, the People's Poet of the Republic of Karakalpakstan, laureate of the state award named after Berdak. We want to start our first words with this artist. G. Matyokubova is the leader of the Uzbek-speaking artists in Karakalpakstan, the most active and well-known writer. The high appreciation of the poet's work in their articles and reviews, and in their official speeches by famous wordsmiths, literary critics of Uzbekistan and Karakalpakstan is a proof of our opinion. If you familiarize yourself with the series of articles given at the end of the poet's book "I'm going to return"[1] under the column "Letters, reviews, interviews", you will once again admit the correctness of this statement. For example, Zulfia, Tolepbergan Kaypberganov, Ibrayim Yusupov, Amon Matjon, Qutlibeka Rahimboeva, Norboy Khudoyberganov, Bakhtiyor Nazarov, Qabil Maqsetov, Kamal Mambetov, etc. in articles, reviews and interviews of G. Matyokubova's artistic skills, work for the development of Uzbek and Karakalpak literature highly rated. If a poet or writer does not have a great talent and the power to enchant the reader in his works, no matter who and what kind of famous writer is praised, he will remain out of the



scientific and literary public's view. The positive opinions about G. Matyokubova's poetic and prose works are well-founded and well-grounded. The reason is that she is really a talented poet.

## RESULTS AND DISCUSSIONS

G. Matyokubova is a prolific and versatile writer she has the ability to write works in several genres of literature. So far, he has published more than twenty books in Uzbek, Karakalpak and Russian languages. The poetess's poetry collections "Oydin Astana", "Hayajon's Seven Colors", "Let her fall in love", "Yurak bilan Yuzma Yuz", "I live for you" delight the reader with the breadth of the topic, the vitality and depth of thoughts, the natural and exciting richness of emotions, calms the heart. The author's collection "I searched for"[2] created by the author during the years of independence and especially the epics "Sun sinking into the river" and "River sinking into loss"[3] are mature examples of the poet's work. Both epics serve as one of the spiritual sources in conveying the socio-historical spirit, color, modern picture, the secrets of the layers of history, the heart cries of our great ancestors to today's readers.

G. Matyokubova is a child of Karakalpakstan. He grew up and matured on this land. His first creations started from this environment, developed, formed and reached the present level. One of the strong roots of the poet's work is being "fed" from this literary and artistic environment. We would like to say that in the poetry of G. Matyokubova, in general, in all her works, artistic illumination of the Karakalpak life and the fate of the people is in the main place. Regardless of the genre, whether he writes a work on a historical topic or addresses a contemporary topic, he does not forget to describe any page of the Karakalpak life. His series of poems about the island, the epic "Oy Baldoq", the opera libretto "Guloyim", the drama "Katorda Naring Bolsa", the famous sculptor Joldasbek Kuttimuradov's artistic journalism "I'm going back" or "A rich tree growing on the banks of Jayhun" [4] are articles imagine the complex. They are artistic reflections of the spiritual-educational, social-political life of the Karakalpak people. The works give the impression that they were written by the pen of the Karakalpak artist. It is probably very difficult for any other Uzbek artist to create such colorful works about the land, socio-political

environment, people, and nature of Karakalpakstan. G. Matyokubova's work, especially her poetry, is unique in that it realistically describes the priority of the local-national color, feeling the spirit of the concrete time and land from the heart.

Gulchehra Rahimova, the People's Poet of the Republic of Karakalpakstan, is another poetess who has been consistently connecting her life and creative activity with Karakalpakstan and writing art works. For more than thirty years, he has been living in Karakalpakstan and writing in the Uzbek language. Poetry and prose books "Trust", "Yupanch", "Merhibonlik", "Tortkol Bahori", "Jon Fido" were published in publishing houses of Uzbekistan and Karakalpakstan. The collection of poems "Jon fido"[5], published during the years of independence, is one of the creative achievements of the poetess. His poems are sincere, his feelings are colorful the attitude of the lyrical hero to the environment, his mood is alive. Although there is no series of works devoted to the theme of the karakalpak in his work, one can feel the color of the earth in the general spirit of his lyrics. The author's poems such as "Tutash Taqdirlar", "Arol", "For the Island" raise some issues related to the destiny of two peoples, the problem of the Island, which is also a manifestation of loyalty to the Motherland.

Yangiboy Kochkarov is known not only in Karakalpakstan, but also in Uzbekistan as a poet and reporter. He is one of Karakalpakstan's writers who has been productive in the Uzbek language. As a creator, this penman differs from others in that he tries to choose the topic from Karakalpakstan, to praise the people of this country, to paint realistic images, regardless of the genre of literature. That's probably why you can feel the breath of Karakalpak soil from the small and large images, poetic expressions, and the smallest details in Ya. Kochkarov's works. This feature is especially well reflected in the inner observations of the lyrical characters in the author's poems, in the interpretation of poetic images. Poems from Ya. Kochkarov's collections "Asrlar Armon", "Father's Golden Song" [6], in particular, the epic dedicated to Otajon Khudoyshukurov, one of the leaders of Uzbek classical singing, became a novelty in creating the image of famous people from Karakalpak land. Especially the epic "Call" [7] is a creative step forward in the poet's



lyrics. The story tells about the activities of famous people in the long and recent history of Kungirat, and the exciting events. The author also looks at the life of Kungirat during the years of independence, and writes with inspiration about the selfless people who contributed and are contributing to its development. The reader who reads “Kongirotnama” can get enough information about the history and present of Kongirotna, one of the ancient fortresses of Karakalpakstan. The study of the famous fortresses that have left a mark in the history of Karakalpakstan has become one of the leading themes of Kochkarov’s artistic and journalistic work in recent years. He has been dealing with the history of some fortresses in the territory of Karakalpakstan for several years. For example, he studied the history of Tortkol, Beruniy, Ellikkala districts and dedicated separate artistic and publicistic books to each district, in other words, he created a scientific and artistic chronicle of the districts. If we take into account that no significant works of art have been written in this direction in the work of poets living in Karakalpakstan and writing in the Uzbek language, you know how scientific and practical the efforts and creative work of Ya. Kochkarov in this field are. This is also a unique manifestation of the artist’s service and loyalty to his Motherland. The next artistic expression of such love and loyalty to the Motherland is his “Epic of Nineteen Passes” [8] (2010), published by the publishing house “Yangi asr Avlodi” in Tashkent. The fact that the work was recognized as the winner in the competition dedicated to the 19th anniversary of our independence and was awarded shows the level of artistic potential and importance of the epic. This work was another new step forward for the author in poetry.

Continuing the thoughts about the Uzbek artists from Karakalpakstan, it was possible to comment on the work of a number of other poets. For example, A. Okhnazarov, N. Matyokubova [9], 3. Ishmanova, M. Yusupova [10], G. Yaqubov, M. Ahmedov, Kh. Abdusadiq, J. Shamuratov, 3. Nurumbetova, Sh. Yoldosheva, Z. Davlatova, K. Yunusova and other writers who live in Karakalpakstan and write in Uzbek language (some in both Uzbek and Karakalpak languages). His poems are regularly published in newspapers and magazines of Uzbekistan and Karakalpakstan, some of them in Tashkent, and some of

them in Nukus publishing houses. Most of the mentioned artists are members of the Union of Writers of Uzbekistan and Karakalpakstan. Although all the works and books published by them are not examples of high art, each of them reflects the reality of Karakalpakstan, some pages of Karakalpak life, so we consider this process to be a positive event.

The above-mentioned comments on the works of poets living in Karakalpakstan and writing in Uzbek language give grounds for drawing some conclusions about the uniqueness of their lyrics. In our opinion, the works of poets and writers from Karakalpakstan who write in Uzbek language differ from the works of writers living in other regions of Uzbekistan in the following aspects:

1. Every artist who lives in Karakalpakstan and writes in Uzbek language, first of all, tries to choose the subject from the life of this land. Whether he refers to historical material or plans to write on a modern topic, he often takes the life of the Karakalpak as the object of his image, whether he writes about nature.

2. In the works written from the life of Karakalpak, the color of this land, national uniqueness, traditions, the spiritual world of its people, character traits, unique colors characteristic of its nature are expressed in a form and content that is not similar to any Uzbek artist from other regions.

3. Uzbek and Karakalpak artists in Karakalpakstan breathe and are nourished by the same literary environment and create by enjoying each other's experiences. The tradition of master-apprenticeship has a positive effect on the training and formation of artistic skills.

4. Uzbek-speaking artists from Karakalpakstan know the Karakalpak language well. This allows them to read rare works of Karakalpak literature in their original form. Some characteristic of the artistic form or content of the works he reads is more or less embedded in his worldview. Sometimes the creator may not even realize that he has added an artistic component to his work, which he remembered while writing a work.

5. The good knowledge of two languages - Uzbek and Karakalpak languages - is a good opportunity for artists to engage in literary translation from Uzbek literature into Karakalpak language and from Karakalpak literature into Uzbek language. It is known from



experience that literary translation is a school of skills for every artist, in the sense of studying, learning, training his talent. This process fulfills the same task for Uzbek artists from Karakalpakstan.

6. The works of Uzbek-speaking creators on the subject of Karakalpakstan, created artistic images, series of poems and epics, made translations are a contribution to the development of Karakalpak-Uzbek, Uzbek-Karakalpak literary relations. It is a positive phenomenon that the aspirations of creators in this process, shoulder to shoulder with Karakalpak poets and writers, contribute to the faster development of Karakalpak literature. Of course, the unique features of the works of the authors who wrote in Uzbek while living in Karakalpakstan do not consist only of the above-mentioned criteria. This process cannot be limited, it is very diverse, it is natural that it manifests itself in different forms and contents in every creator. The variety of the writer's style causes the variety of artistic components in the work. But no matter what art style, what expression method is used, the spirit of the object of the image, the breath of life, signs of the local and national conditions specific to the people of the Karakalpak region should be felt in that work. Uzbek-speaking artists from Karakalpakstan successfully fulfill this responsible task.

## CONCLUSION

It is necessary to mention that the issue of studying the works of poets and writers who live in Karakalpakstan and write works in Uzbek language in various literary genres has been left out of the attention of our literary studies. After all, the poets and writers who work in Uzbek in Karakalpakstan work equally hard for the development and growth of the national literature of Karakalpakstan, and write their creative destiny in connection with this literature. They consider themselves responsible for the reputation of Karakalpak literature, are happy with their achievements, if there are shortcomings in artistic research, in any direction of the literary process, they take great care to eliminate them, and strive to participate together in solving their problems.

Therefore, there is a need to study the activities of Uzbek-speaking artists in Karakalpakstan as a component of Karakalpak literature, in connection with

its general development flow, and to create special scientific researches. If this issue is studied in a scientific aspect, views are summarized, important opinions are expressed, researches and books are created, the level of development of Karakalpak literature will be determined, and the international character will be demonstrated.

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## KARAKALPAK WEDDING TRADITIONAL SONGS (on the example of Bet Ashar song)

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### ABSTRACT

*The article tells about the tradition of "bet ashar", which has long been used by the Karakalpak people as the main wedding ceremony, its order, internal composition and features in order to restore the national values inherited from our ancestors and deeply study our traditions*

**KEY WORDS:** *tradition, family, wedding, custom, rite, instruction, composition, national characteristics, artistic means.*

The tradition of celebrating their happiest days with a wedding has been formed in human life since ancient times. Every wedding has its own order and traditions. One of them is bet ashar, which is used as the main symbol of the bride's wedding. Betashar is a tradition of unveiling the bride's face, which is considered to be the oldest wedding ceremony. Doctor of Philology, folklorist K.Aimbetov said: Bet Ashar has a great place in the oral literature, in the life of the people, introduces the people to the new bride and encourages her to be polite" [1,36]. And also well-known scientists N.Japakov, N.Daukarayev, K.Maksetov, A.Tajhimuratov, K.Mambetov, S.Kazakbayev and other scientists gave brief information about bet ashar. It is known in Central Asia that "bet ashar" is mostly spoken genre by Karakalpaks and Kazakhs.. For example, the Kazakh scientist B. Akatov writes: "Poems similar to Kazakh can be found in Uzbek and Uyghur, Kyrgyz and Karakalpak, Tatar and Bashkir, and Altai and Buryat. And in betashar and jar-jar is not so. Betashar is spoken only in Kazakh and Karakalpak" [2,51]. And folklorists K.Maksetov, A.Tajimuratov in the book "Karakalpak folklore" (1979) gave their opinions about one of the wedding traditions bet ashar: "Bet ashar associated with the wedding is the type of the traditional songs. It is said as a conclusive part of the wedding. The beginning of the wedding begins with the announcement of the arrival of the bride, all the stages of the wedding are over, and the last ends with the song of opening of the bride's face. Therefore, the people called it "Bet Ashar" [3,117].

The Karakalpak people have two types of wedding traditions devoted to the bride, the first: the type of visual utterance meant that the bride comes to the country. As the bridegroom approached the house the wedding manager says and informs about bride's coming "Look, the bride has come, give her vision". In Karakalpakstan, a bride comes to every family, and a wedding is held for her. The wedding may be small, but the second type of tradition, the "bet ashar", will certainly take place. Therefore, the saying "the face of the bride who bends down at the door should be opened" is not said in vain..

The opening of the bride's face is a wedding day, and people are looking forward to it. There is joy and laughter on the faces of the crowd which come to bet ashar. In weddings some impatient people ask the householder "Didn't they tell us on bet ashar". This is because a reporter visiting the house informs about the beginning of bet ashar. The tradition of bet ashar carried out by an eloquent, pious person. The new family, in the sense of "germination," ties the wrapped money in a scarf or material to the top of the desired poplar branch and ties one end of it to a white cloth over the bride's face.



The inner composition of bet ashar which is a folklore components of Karakalpak traditional poetry can be divided into three parts. In the first, in the introductory part, the narrator begins with a greeting and informs the bride that he will start the presentation to the people with describing the bride:

*Tıñlañızlar xalayıq!..  
 Azı-kem tınıshlanayıq!  
 Sözlerge qulaq salayıq,  
 Jaña túsken kelindi,*

*Dástúrimizge ılayıq,  
 Múnásip kútip alayıq.  
 ...Búgin birinshi qádemniñ,  
 Bir Allamız bolǵay yar [4,1].*

According to him, the narrator turned the people to him and said on behalf of the people that the bride, along with the joy of coming to the village, would be blessed, worthy of the village, with a white face

*...Búgin kelin bolıpsız,*

*Qutlı bolsın kelinshek,* he wished happiness to the bride, who came to our country in the sense of "welcome".

The second part is the main part, the main idea of which is in the didactic form, that is, to show the young bride the way, to explain the new order, to give advice, to explain the ways of moral decency.

*Kelinshekti bánelep,  
 Aytaman sizge kelinler,  
 Ibrat alıp sózimnen,  
 Salmaqlı bolsın jeñiller.  
 ...Miyrimli bol shıraǵım,  
 Ata menen anaǵa,  
 Qayırılı bol qaraǵım,  
 Iniler menen aǵaǵa.*

*Orınsız jerde otırıp,  
 Sóyleme sózdi eselep,  
 Qáyinata menen eneñniñ,  
 Aldınan ótpe keselep,  
 ...Tatımsız bolıp turmasın,  
 Tayarlaǵan tamaǵıñ,  
 Jabılıñqı bolmasın,  
 Qasıñ menen qabaǵıñ.[5,2-3].*

The sermon section of the betashar tradition applies not only to the newlyweds, but also to all the young women gathered there. They are performed in a didactic form to listen to these sermons and learn from them.

*Jaqsı bolsañ usı úydiñ,  
 Oñınan tuwǵan kúniseñ,  
 Jaman bolsañ qaraǵım,  
 Bir sheñgeldiñ güliseñ,  
 Jaqsı bolsañ usı úydiñ,*

*Hám kelini hám qızısañ,  
 Násiyatım óziñe,  
 Qarayǵórmе tiklenip,  
 Jas úlkenniñ júzine [5,5].*

The bride is told by her father-in-law to respect her mother-in-law, to be an example to others with her good qualities, to cook delicious food, and to have a happy home. Now, if you are a member of this family, you should know your place, do not look down on your parents, and respect the elderly.

“If you are good, you will be a bride, and a daughter of this house, it’s all up to you, if you know the duties of a bride, if you get long with your family, you will become a part of this family” – gives a wisdom advices.

If you deeply feel the national mentality of the Karakalpak people during the bet ashar ceremony. On both sides of the bride, two sisters –in-law of the groom's side bend together to show the young bride the way..

At the end of each couplet, the bride bows twice. Bet ashar begins with a greeting to the people, to the leader of the country, to the bowed threshold. The gathered people look at the bride's face every time she bends down.

Today it is a task to study the national values and traditions of our people.. In the national tradition of the Karakalpak people, the bride and groom are preceded by a god father and a god mother.. This tradition is not found in other nations.



Murindiq ata (god father) and murindiq ene (god mother) are chosen from a long-lost relatives (in order not to break relatives) in order gives advice to two young people and to guide the revival of a new family.

As soon as murindiq ene (god mother) puts a white cloth on the bride's face, meaning "Let your heart be white, let your happiness be revealed.

Thirdly, the narrator goes to the greeting stage after giving advice to the bride. With the respect she bows in honor of the ancestors, and then begins to introduce the names of father-in-law, mother-in-law, family members, relatives, neighbors, peers and others.

Almost all of the presentation consists of humorous and satirical series. For example:

*Qara tawdın tasınday,  
 Júweriniń kúyik basınday,  
 \_\_\_\_\_ degen qaynaǵań,  
 Buǵan da ber bir sálem.  
 Atızdaǵı mákkedey,*

*Shıqlıqlaǵan hákkedey,  
 \_\_\_\_\_ degen qurdasıń,  
 Buǵan da ber bir sálem.[6,38],  
 – people are lauhed by him.*

The main feature is during the introducing, he makes people laugh for the pleasantness, criticizes some rude people, as well as jokes with his uncles and friends.

When he introduces each person gives the personal characteristics to each person. It describes the person's behavior, habits, and place in society.

*Aǵzında azıw tisi joq,  
 Qolnan keler isi joq,  
 Jumısı ónbes jezdeńiz,  
 ...Jezdeńizge sálem ber [5,6].*

While keeping the traditional form of the bet ashar, it is constantly updated and given a new color. In recent times:

*Zat túsirse magazinge,  
 Ottay janar kózleri,  
 Ótimlirek zat tússe,  
 Bólisip alǵan ózleri,  
 Sawdada islep bılıqtı,  
 Shıǵarıp túrli qılıqtı,  
 Ózinshe koyǵan nırıqta,  
 -----dúkanshı abısıńıń,*

*Oǵan berıń bir sálem [5],* – criticizes the image of people who are close to the world, cunning, unscrupulous.

In this type of traditional poetry, the means of expression are also widely used and enriched depending on the skill of the narrator. Collocations are the most commonly used type of literary features.

For example, *Tawda qalǵan taslaqtay, Jetim qalǵan baspaqtay, ... Hawada ushqan buldırıqtay, Eki beti judırıqtay, Arqadan esken dawılday, Túbı ayırıq qawınday, Qaqıladaǵan tawıqtay, Kópshikke salǵan ǵawıqtay...* enhances the beauty of the bet ashar song with the help of suffixes "dai-dei, tai-tei"

Bet Ashar is said to be similar to the genre of terme.

The improvisers performs the poetic mastery of the unique text.. In this genre, the ups and downs of the narrator attracts the attention of the people with the interaction and effectiveness of the sounds.

*... Toqsan jıl kiyse tozbastay,  
 Buringı sının buzbastay,  
 Torqaday bol kelinshek,  
 Torqaday bol kelinshe-e-e-e-e-ek!*



The repetition of the next line reinforces the content, as well as the high and prolonged pronunciation of the word "bride" as "bride-e-e-e-e", creates a pleasant rhythm for the attention and attention of the person. The main thing here is to explain his message to the bride. In the genre of betashar, the softening band does not follow a certain norm 2, 4, 6, 8 are more than ten, depending on the skill of the narrator.

In the lines of songs there are rhymes, and in most cases there are redifs.

For example, from simple forms:

Abisinga adiraymay, (a) 8

Qaynagaña badiraymay, (a) 8

Kuyewiñe sodraymay, (a) 8

Jatıq bol kelinshek. (b) 6 [6,45].

A professional improviser, with his skill and talent, can carry it on a large scale, while maintaining the unlimited volume of the bet ashar, the shape of the reins. The main function of this genre, that is, the purpose of the bride's bowing, is that the young bride, forgetting her virginity, now obeys the customs of the country, respects the young and the old, and takes on the responsibilities of the bride. The genre of Bet Ashar differs from other genres by introducing the bride to the country, as well as introducing the members of the same shanarak, her brothers and sisters to the village. Bet ashar is a poetic tradition that reflects the unique mentality, culture and conditions of existence of the Karakalpak people, the ethnographic values of our ancestors, preserved over the centuries.

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# DEVELOPMENT OF MASSIVE OPEN ONLINE COURSES (MOOCS) IN INDIA

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## ABSTRACT

*Since ancient times, education has undergone an unprecedented change. Today, technology is playing a vital role in changing the entire delivery of education. As a latest development, MOOCs (Massive Open Online Courses) are emerging all over the world. MOOCs have been flourished massively in the last few years to sharpen the various skills of youths. MOOCs consists a web-based platform which provides distance education to unlimited number of learners worldwide. The learners from diverse geographical areas, academic backgrounds and profession pursuits get benefit of it. Today, after US, India is the second largest user country of MOOCs. Latest, NEP 2020 set target of achieving 50% GER (Gross Enrolment Ratio) in Higher Education by the year 2035 with the help of MOOCs offered by SWAYAM. UGC Regulation 2021, aims to facilitate multidisciplinary institutions to offer 40% of their courses in a semester through online mode of learning.*

**KEY WORDS** - Education, Online Courses, Internet, Digital, Students, Universities, Technology, MOOC, Platform, Govt., Mobile App, Teaching, Content, SWAYAM, NPTEL, e-Pathshala, etc.

## INTRODUCTION

Dave Dormier, an educational activist, researcher, online community activist working at the University of Prince Edward Island, Canada coined the term MOOC in 2008 for the first time. He worked on open education, MOOCs and the impact of technology on the future of education. Later on, the term MOOC was coined to refer to course developed by online learning and media specialists Stephen Downes and George Siemens. They launched a MOOC entitled 'Connectivism and Connectivity Knowledge' in 2008. They developed a theory for the digital age, called 'Connectivism' denouncing boundaries of behaviorism, cognitivism and constructivism. This theory forced educators to apply digital education. Their intension was to start interaction between wide varieties of participants in online tools so as to provide a richer learning environment than traditional tools.

On the campus of University of Manitoba, Canada, at the beginning, 25 students attended the course and a further 2300 students from around the world participated online. These MOOCs are focused on interaction and connectivity.

In 2011, Stanford University, California, US offered free online courses. Then, Peter Narvig and Sebastien Thrun offered a course entitled 'Introduction to Artificial Intelligence' which received overwhelming response of over 20,000 students. These

MOOCs are focused less on interaction between students and more on exploiting the possibilities of reaching a massive audience.

Sebastien Thrun, with Mike Sokolsky, founded a company called 'Udacity' in Feb. 2012, which developed and offered free MOOCs. Then, in April 2012, two other Stanford professors, named Andrew Ng and Daphne Koller, started a company called 'Coursera' which partnered with many universities in preparing and offering MOOCs.

MIT (Massachusetts Institute of Technology) developed MITX, a Massive Open Online Program at MIT platform for offering MOOCs, which was renamed edX, a Massive Open Online Course Provider. In collaboration with Harvard University, it hosts online university level courses in a wide range of disciplines to worldwide students.

The non-profit edX consortium now develops and offers more than 2500 MOOCs from more than 140 topmost institutions. The consortium has made available an open source version of the platform used and developed by other institutions and individuals. The consortium carries out research into learning by using new technologies. Presently, more than 20 million students have enrolled for these MOOCs.

Getting into the track, the Govt. of India has also decided to use technological resources in helping its mission to make



higher education accessible to all deserving students. In 2009, Govt. of India has launched its 'The National Mission on Education through Information and Communication Technology' (NMEICT). The aim is to provide the opportunity to all the teachers and experts in the country to utilize their collective wisdom for the benefit of every Indian learner and thereby, reducing the digital divides. Through it, the Indian Govt. tries to achieve access, equity and quality, the three cardinal principles of its education policy in order to join the main stream of knowledge economy.

In this regard, MHRD (Ministry of Human Resource Development, Govt. of India), on 9<sup>th</sup> July 2017 has launched National MOOC platform named SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) to offer online courses from 9<sup>th</sup> class till Post-Graduation. SWAYAM is assessable to anyone, anywhere at any time. All the SWAYAM courses are interactive, prepared by the best teachers in the country and are available on Internet free of cost to any learner, however fees are levied for certification. Thousands of specially chosen faculty and teachers from across the country have participated in preparing these courses. All courses hosted on SWAYAM are in divided in four quadrants – (1) Video Lecture, (2) Reading Material that can be downloaded or printed, (3) Self-Assessment Tests and quizzes and (4) Online Discussion Forum for clearing doubts. Steps are taken to enrich the learning experience by using Audio-Video and Multi-Media and state of the art pedagogy or technology. SWAYAM is getting overwhelming response from all levels of education. More than 1 crore students have enrolled for its various MOOCs for March/April-2020 semester. Its biggest impact lies in its potential to increase the quality of education in India. UGC Credit Framework for Online Learning Courses through SWAYAM Regulation 2016 allows enrolled students in higher education in India to earn up to 20% credits via SWAYAM courses in their regular syllabi. Each credit is equivalent to 13-15 hours of online learning activities.

In order to ensure the best quality content production and delivery of all disciplines, 9 National Co-ordinators have been appointed by MHRD which are - AICTE (All India Council for Technical Education) for self-paced and international courses, NPTEL (National Programme on Technology Enhanced Learning) for Engineering, UGC (University Grants Commission) for non-technical post-graduation education, CEC (Consortium for Educational Communication) for undergraduate education, NCERT (National Council of Educational Research and Training) for school education, NIOS (National Institute of Open Schooling) for school education,

IGNOU (Indira Gandhi National Open University) for out-of-school students, IIMB (Indian Institute of Management, Bangalore) for management studies and NITTTR (National Institute of Technical Teachers Training and Research) for Teacher Training programme.

Much of the SWAYAM contents are already created by seven Indian institutes (IITs). NPTEL (National Programme on Technology Enhanced Learning), a group of seven Indian Institutes of Technology (IITs) and Indian Institutes of Science (IISc) are contributing about half of the courses. NPTEL has already put its courses online on YouTube, and it also hosts its own MOOC platform. All the videos created for SWAYAM are also available on a platform called e-Acharya. E-Acharya is developed by INFLIBNET (Information and Library Network). It hosts educational video content created by the MHRD. These videos are also available on its YouTube channel. Apart, e-Pathshala is a portal initiated by MHRD AND NCERT (National Council of Educational Research and Training) in 2015. It has launched free assessing of e-books from 1<sup>st</sup> to 12<sup>th</sup> standard. All these portals are available in the form of Mobile Apps for instant and user friendly usage for learners.

The Govt. of India launched The Consortium for Educational Communication (CEC), a premier institution for the development and dissemination of educational e-content in order to transform education through new technologies with emphasis on learner-centric pedagogy. CEC has become one of the largest repositories of digital education content in India. MHRD also established SWAYAM Prabha, DHT (Direct To Home) channels offering a bouquet of 11 educational channels in various disciplines. CEC is equipped with web-based LMS (Learning Management System) with its self-paced learning taxonomy. It also has a rich web repository on the form of e-courseware and Short Learning Object (SLO), re-introduced in a new format to facilitate conceptual clarity. CEC has produced digital content in 87 subjects as per model syllabi of UGC under National Mission of Education through ICT (NME-ICT). It makes the acquisition of knowledge and skill-sets more efficient and effective. CEC also takes education to the remotest learners.

## CONCLUSION

The great Indian philosopher Swami Vivekananda aptly said, 'If the mountain does not come to Mohammed, Mohammed must go to the mountain. If the poor cannot come to education, education must reach them at the plough, in the factory, everywhere'. Similarly, online education is knocking to the doorsteps of the common Indian students, today. They are developing skills and knowledge for the economic growth and



social development of India. Now a days, millions of people around the world use MOOCs to learn for different reasons like career development, changing careers, college/school preparations, supplemental learning, lifelong learning, corporate learning, training and so on. The newly coming 5G mobile networks will certainly boost MOOC education in India. Taking into account the development of MOOCs all around the world since 2008, Indian government has established different digital channels. These digital contents are easily accessible to the vast population of students and academic faculty overcoming the geographical barriers of time and space. Students can watch online video lectures, participate in online discussions forum or carry out research at home while engaging concepts in the classroom with the guidance of a mentor. It saves their time, money and energy. Therefore, the government has promoted the stakeholders namely policy makers, academicians, collaborators and students to fulfill the current educational needs to empower people with the power of knowledge.

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# ANALYSIS OF FINANCIAL PERFORMANCE OF POWER DISCOMS USING DUPONT MODEL: A CASE STUDY OF GUJARAT DISCOMS

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## ABSTRACT

Power distribution in India is the weakest link in the entire chain of energy sector of the country and it burdens the other sub sectors which include generation and transmission and which in turn affect the overall economy. The present study attempts to measure the financial performance of the four state owned Gujarat distribution companies (discoms) using DuPont model for the period of five years. The data collected from the published annual financial statements of the companies was analysed using statistical tools using SPSS. The study found that the liquidity position of all the four discoms is satisfactory during the period of the study, it was also found that very low receivable days was maintained for the five years as compared to the national average. Being state owned companies serving the public profit margin was found to be low compared to the other components of ROE which are asset turnover and financial leverage. Correlation analysis shows that ROE has significant relationship with all the variables and ROE shares similar financial characteristics with ROA and ROCE. It is seen from the study that ROE is driven by low debt, high management efficiency and high asset turnover.

**KEYWORDS:** DuPont analysis, ROE, ROCE, ROA, discoms, financial performance

## INTRODUCTION

Electricity is one of the most important components of infrastructure for the growth of a country's economy and more so if the country is still in the developing stage like India (Varghese & Eapen, 2016). In the Indian Constitution, electricity is included in the concurrent list of subjects. Planning for the sector is done by the Central Electricity Authority, an agency of the Government of India (Veluchamy, Sunder, Tripathi, & Nafi, 2018). It carries out various functions including the preparation of a National Electricity Plan for the country once in 5 years as per the National Electricity Policy. Every five years, the Government of India constitutes an "Electric Power Survey Committee" to forecast the State-wise electricity demand of the country. The electricity sector in India can be segmented into its different functions namely generation, transmission and distribution functions and most erstwhile state electricity boards and electricity departments have unbundled their operations into different companies each performing a specific function of generation, transmission or distribution (Singh, Credit ratings of power distribution utilities in northern region of India, 2020).

Among all these sub sectors, the distribution of power is the most important link in the value chain of the power sector as it is the primary source of cash inflow for the sector. The distribution sector consists of Power Distribution Companies (Discoms) responsible for the supply and distribution of energy to the consumers. However it is also the weakest link in the entire chain. Most power distribution companies incur losses every year—the total loss is estimated

to be ₹ 90,000 crore in FY 2021. Discoms have taken on significant commercial debt to finance their operation, which has led to concerns about poor power sector performance spilling over into the financial sector and the broader economy like dominoes (Ernst & Young LLP, 2015). Ailing state-owned power distribution companies continue to hamper the efficient functioning of the generation and transmission sectors. The absence of competition, unsustainable cross-subsidies, economically inefficient tariff setting processes, expensive thermal power purchase agreements (PPAs), and a lack of modern technology and infrastructure development are adding to discoms' losses (Nirula, 2019).

The Government of India has initiated many reforms to improve the distribution sector's operational and commercial performance but all these reforms have not made a sustained impact yet. To help state distribution utilities cut their mounting losses, the government has introduced various financial packages most notably UDAY (Ujwal Discom Assurance Yojana) to bail out besieged state discoms from time to time. However there has not been much success. The financial health of distribution sector is important for the country to achieve its ambitious renewable energy targets and attain its economic growth goals (Garg & Shah, 2020). The discoms' poor financial health means these companies struggle to make payments to energy generators and often fail to honour their contracts, undermining their ability to invest in technology and modernisation of the grid.

However the state discoms of Gujarat are an exception to the above narrative of the performance of state power distribution companies in general. The performance of power



sector of Gujarat like most other sectors of economy in Gujarat is exemplary and is considered a model among all the discoms of the country (Palit, 2020). This paper focuses on the financial parameters of the Gujarat discoms to analyse their financial performance and to identify the areas of strengths and weakness. Some of the important financial parameters include liquidity ratios like current ratio and quick ratio, activity ratios like total asset turnover ratio, interest coverage ratio and debt collection period, leverage ratio which include debt to net worth ratio, equity multiplier and the profitability ratios including return on equity, return on assets and return on capital employed.

### Gujarat discoms

The electricity distribution sector of the Indian state of Gujarat is considered the best compared to all the other Indian states. Gujarat discoms have some of the lowest AT&C losses, provides 24/7 reliable power supply throughout the energy surplus state and is among the few state distribution utilities which have positive net worth. All the four state Gujarat discoms have been awarded A+(highest) and ranked in the top 5 consistently for nine year in a row by the Power Finance Corporation in its Annual Integrated Rating Exercise (ICRA Analytics Limited; CARE Advisory Research, 2021). Therefore experts have called the Gujarat state distribution utilities as the model utilities which other states should emulate.

In this context, this study analyses the financial statements and tariff petitions of the four Gujarat state discoms which are UGVCL (Uttar Gujarat Vij Company Limited), PGVCL (Paschim Gujarat Vij Company Limited), MGVCCL (Madhya Gujarat Vij Company Limited) and DGVCL (Dakshin Gujarat Vij Company Limited) to find their financial performance for five years 2016-2017 to 2020-2021 using DuPont analysis.

### DUPONT MODEL CONCEPT

There are various models to find out the performance of a company. One of these models is the DuPont model which was created in the 1900s by Donaldson Brown for the DuPont corporation while doing an internal analysis for the said corporation (Sheela & Karthikeyan, 2012). Though created a century before, it is still very relevant and widely used by financial managers, market analysts and academicians alike. This model breaks down the Return on Equity into components or drivers which are the net profit margin (operating efficiency), total asset turnover (asset use efficiency) and equity multiplier (financial leverage) and analyses these individual parts to see how much each driver impact the profitability and whether the management effectively uses the resources at hand.

$$ROE = NPM * TAT * EM$$

Where, ROE= return on equity

NPM= net profit margin = net profit/revenue from operations

TAT= total asset turnover = Revenue from operations/average total assets

EM= equity multiplier = Average total assets/ shareholders' equity

The decomposition of the ROE allows users to determine what financial activities are contributing to the

changes in ROE and it can be used to compare the operational efficiency of two similar firms. Moreover it can be used by managers to identify strengths and weaknesses that should be addressed (Kim, 2016).

### LITERATURE REVIEW

(K, Abhilas, & Farhad, 2021) evaluated the efficiency of 45 electric discoms from 21 Indian states for the year 2018-2019 using 2 stage analysis. Significant findings include that only few discoms from the select set are technically efficient and the analysis showed that huge losses could be reduced by working only on improving efficiency of these electricity distribution firms.

(Das & Srikanth, 2020) studied the challenges faced by the Indian power sector and the financial distress of discoms which included supply demand mismatch due to over ambitious demand projections by looking at the GDP. The study found that power procurement which forms more than 80% of total expenditure of the discoms is very high.

(K & S, 2019) in their study evaluated financial performance of select automobile companies using DuPont analysis. This study also considered ROE, ROI and ROCE as most comprehensive measure of profitability. The paper identified strong relationship among the variables namely Net Profit Margin, Return on Assets, Return on Equity and Return on Capital Employed in the automobile industry using correlation and negative relation between Equity Multiplier and ROA, ROE, ROCE.

(Kim, 2016) measured the financial performance of food distribution industry in South Korea taking a sample of seven companies for a period of three years and studying their various ratios including liquidity, leverage, activity and profitability ratios. By applying DuPont analysis and correlation among the financial variables found strong relationship among Profit Margin, ROA and ROE from which can be interpreted that profit margin is directly proportional to management effectiveness and efficiency of investor's money.

(Sheela & Karthikeyan, 2012) measured the financial performance of pharmaceutical industry by taking three companies using DuPont analysis. The study concluded that ROE and ROI is the most comprehensive measure of the firm's profitability and found out that absolute amounts shown in the financial statements is not much helpful to investors or creditors or management. Instead ROE and ROI should be broken down to its components and studied to make better decisions.

(Srinivas, 2012) analysed the financial statements of Karnataka Power Corporation Limited for five years and found that KPCL liquidity position is satisfactory by analysing its current and quick ratio, its solvency position or its ability to pay off its long term obligations is also satisfactory and suggested that company should use its retained earnings to reduce burden on interest payments. The study also emphasised the need for revising the tariff to increase their profitability and to minimize the operating expenses.

### OBJECTIVES

1. To study and compare the financial parameters of the selected power distribution companies.



- To analyse the performance of the Gujarat discoms by decomposing Return on Equity and see which of the components drive the profitability ratios.
- To examine the correlation between ROE, ROA, ROCE, NPM, EM and TAT.

financial statements of the respective companies and also from the Report on performance of power utilities which is published annually by Power Finance Corporation. The data so collected was classified, edited and fed into excel for calculation of the financial ratios and correlation analysis of the DuPont components was done using SPSS software. Descriptive statistics was used in terms of mean and standard deviation.

### RESEARCH METHODOLOGY

For the present study, the data of the four Gujarat power distribution companies is collected for a period of five years between 2016-2017 to 2020-2021. The data was secondary in nature and was collected from published annual

**Table 1. DGVCL FINANCIAL PARAMETERS**

Year	Current Ratio	Quick Ratio	Receivable Days	Debt equity ratio	Interest coverage ratio
2016-17	1.96	1.60	26	0.02	4.43
2017-18	2.34	1.99	12	0.02	4.93
2018-19	2.65	2.15	9	0.01	4.35
2019-20	2.89	2.44	19	0.01	4.89
2020-21	3.41	2.99	12	0.01	5.92
Mean	2.64	2.23	16	0.014	4.90
std. dev	0.55	0.52	7	0.005	0.63

Current ratio has increased over the five years gradually from 1.96 to 3.41 and debt equity ratio has decreased from 0.02 to 0.01 indicating excellent liquidity and solvency position of the

firm. The interest coverage ratio has also maintained an upward trend. The debt collection period is lowest among the four discoms with mean of 16

**Table 2. DGVCL DUPONT COMPOSITION**

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	0.82	15.05	2.12	26.19	1.74	4.961
2017-18	0.80	15.23	2.04	24.88	1.63	4.01
2018-19	0.30	15.36	2.07	9.58	0.62	2.49
2019-20	0.81	15.84	2.04	26.03	1.64	3.89
2020-21	1.02	16.21	1.64	27.09	1.67	3.54
Mean	0.75	15.54	1.98	22.75	1.46	3.78
std. dev	0.27	0.48	0.19	7.41	0.47	0.892

There is a sudden decrease in the NPM during the year 2018-2019 (0.3%). EM remains consistent over the 5 years of study with mean 15.54 and standard deviation of only 0.48. NPM and net profit went down considerably for the year 2018-2019.

The mean for ROE is 26.03, ROA is 1.46 and ROCE is 3.78. From the above table it can be seen that the ROE and ROA for the years other 2018-2019 remains somewhat consistent

**Table 3. MGVCL FINANCIAL PARAMETERS**

Year	Current Ratio	Quick Ratio	Receivable Days	Debt equity Ratio	Interest Coverage Ratio
2016-17	2.22	1.83	20	0.04	5.53
2017-18	2.92	2.55	22	0.04	6.52
2018-19	3.06	2.66	21	0.03	5.81
2019-20	3.16	2.76	25	0.02	6.03
2020-21	3.62	3.15	23	0.02	7.06
mean	3.00	2.59	22	0.03	6.19
std. dev	0.51	0.48	2	0.01	0.61



Liquidity has improved over the 5 years as shown by the current ratio and quick ratio from 2.22 to 3.62 and from 1.83 to 3.15 respectively. Mean of receivable days is 22 days with

standard deviation of 2 days. The debt equity ratio has also decreased from 0.04 to 0.02 in the 5 years.

**Table 4. MGVCL DUPONT COMPOSITION**

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	1.53	11.08	1.25	21.34	1.93	4.73
2017-18	1.66	11.74	1.19	23.22	1.98	3.92
2018-19	0.54	11.83	1.22	7.79	0.66	2.70
2019-20	0.91	12.09	1.19	13.09	1.08	3.72
2020-21	0.87	12.41	1.12	12.06	0.97	3.47
Mean	1.10	11.83	1.19	15.50	1.32	3.71
std. dev	0.48	0.49	0.05	6.54	0.59	0.74

Total asset turnover has a mean of 1.19 and standard deviation 0.05. ROE has gone down over the years from 21.34 to 12.06 with mean 15.5 and standard deviation 6.54. ROA and ROCE

has also worsened during the study period from 1.93 to 0.97 and 4.73 to 3.47 respectively.

**Table 5. PGVCL FINANCIAL PARAMETERS**

Year	Current Ratio	Quick Ratio	Receivable Days	Debt equity ratio	Interest coverage ratio
2016-17	0.90	0.67	40	0.05	4.22
2017-18	1.25	0.92	40	0.04	5.84
2018-19	1.36	1.05	36	0.02	6.85
2019-20	2.05	1.51	39	0.01	6.85
2020-21	2.37	1.99	42	0.01	9.08
mean	1.59	1.23	39	0.03	6.57
std. dev	0.60	0.53	3	0.02	1.77

In pgvcl also, current ratio and quick ratio significantly increased from 0.9 to 2.37 and 0.67 to 1.99 respectively.

Interest coverage ratio jumped considerably in the year 2020-2021 from 6.85 to 9.08.

**Table 6. PGVCL DUPONT COMPOSITION**

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	0.29	3.03	1.10	0.96	0.32	3.67
2017-18	0.95	2.55	1.11	2.70	1.06	3.05
2018-19	0.44	2.34	1.16	1.18	0.51	1.63
2019-20	0.47	2.23	1.08	1.13	0.51	2.01
2020-21	1.10	2.36	0.94	2.45	1.04	2.31
Mean	0.65	2.50	1.08	1.68	0.68	2.54
std. dev	0.35	0.32	0.08	0.82	0.34	0.82

TAT had shown an upward trend till 2018-2019 and come down in the final two years. As EM (mean 2.5) is very low compared to the other three discoms (DGVCL mean 15.54,

MGVCL mean 11.83 and UGVCL mean 12.76), ROE (mean 1.68) is the lowest among the 4 distribution utilities.

**Table 7. UGVCL FINANCIAL PARAMETERS**

Year	Current Ratio	Quick Ratio	Receivable days	Debt equity Ratio	Interest coverage ratio
2016-17	1.73	1.37	26	0.02	3.48
2017-18	1.93	1.73	27	0.01	5.12
2018-19	2.21	2.07	25	0.01	4.74
2019-20	2.43	2.20	24	0.01	4.86
2020-21	2.36	2.22	26	0.01	6.29
mean	2.13	1.92	26	0.01	4.90
std. dev	0.30	0.36	2	0.006	1.00

Similar to the other 3 discoms, the liquidity position of ugvcl has increased in the 5 years of study from 1.73 to 2.36 and 1.37 to 2.22. However the age of receivables did not change

much with a mean of 26 days and standard deviation of 2 days. The solvency position is also excellent with Debt to equity or borrowings to net worth ratio having mean of 0.01.



**Table 8. UGVCL DUPONT COMPOSITION**

Year	NPM	EM	TAT	ROE	ROA	ROCE
2016-17	0.73	12.43	1.62	14.62	1.18	4.85
2017-18	1.00	12.29	1.59	19.54	1.59	3.86
2018-19	0.30	12.54	1.75	6.58	0.53	2.35
2019-20	0.45	12.83	1.70	9.80	0.76	3.52
2020-21	0.58	13.72	1.49	11.85	0.86	3.00
Mean	0.61	12.76	1.63	12.48	0.98	3.51
std. dev	0.27	0.57	0.10	4.92	0.42	0.94

NPM shows no predictable trend with mean 0.61 and standard deviation 0.27, EM and TAT remain consistent with mean 12.76 and 1.6 and low standard deviation of 0.57 and 0.1

respectively. ROE shows a wavy trend with the year 2018-2019 being lowest (6.58%).

**Table 9. CORRELATION ANALYSIS**

		NPM	EM	TAT	ROE	ROA	ROCE
NPM	Pearson Correlation	1	.111	-.225	.551*	.840**	.491*
	Sig. (2-tailed)		.640	.340	.012	.000	.028
	N	20	20	20	20	20	20
EM	Pearson Correlation	.111	1	.758**	.787**	.489*	.515*
	Sig. (2-tailed)	.640		.000	.000	.029	.020
	N	20	20	20	20	20	20
TAT	Pearson Correlation	-.225	.758**	1	.598**	.302	.357
	Sig. (2-tailed)	.340	.000		.005	.196	.123
	N	20	20	20	20	20	20
ROE	Pearson Correlation	.551*	.787**	.598**	1	.890**	.733**
	Sig. (2-tailed)	.012	.000	.005		.000	.000
	N	20	20	20	20	20	20
ROA	Pearson Correlation	.840**	.489*	.302	.890**	1	.717**
	Sig. (2-tailed)	.000	.029	.196	.000		.000
	N	20	20	20	20	20	20
ROCE	Pearson Correlation	.491*	.515*	.357	.733**	.717**	1
	Sig. (2-tailed)	.028	.020	.123	.000	.000	
	N	20	20	20	20	20	20
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

NPM shows positive association with ROE(0.551) and ROA(0.84). Financial leverage EM has strong relationship with TAT(0.758) and ROE(0.787). ROE shows significant relationship with all the variables NPM(0.551), EM(0.787), TAT(0.598), ROA(0.89) and ROCE(0.733). ROE shares similar financial characteristics with ROE and ROCE as can be seen from the high correlation coefficients.

**CONCLUSION**

The present study attempts to focus on measuring the financial performance of the four Gujarat state discoms using DuPont analysis. For this purpose, the study has analysed the

financial parameters of the select discoms for five years 2017 to 2021 which include liquidity ratios, solvency, activity and profitability ratios like ROE, ROA and ROCE. ROE has been decomposed into its three components namely NPM, TAT and EM as given in the tables and analysed the trends and relationship among the variables. The liquidity of the four discoms during the study period is satisfactory meaning that all the four discoms can comfortably meet their short term obligations. The debt collection period is also very low compared to the national average of 142 days. The highest receivable days is of PGVCL(39 days) and lowest is of DGVCL(16 days). In terms of the companies' ability to





honour its debt payments which is measured by ICR, the discoms under study have shown exemplary results with even the lowest ratio of DGVCL and UGVCL (4.9) being much higher than the critical national average of 0.5. NPM is expectedly low as the select discoms are state owned serving the public with subsidised tariff. However ROE is driven by a high leverage with DGVCL having the highest EM(15.54) along with highest ROE(22.75) and PGVCL have the lowest leverage 2.5 along with lowest ROE(1.68). The other profitability ratios of all the four discoms is satisfactory with overall mean of ROA(1.11) and ROCE(3.86).

The correlation analysis of the DuPont components and the profitability ratios show that all the profitability ratios of ROE, ROA and ROCE share similar financial characteristics with each other. ROE also has significant relationship with NPM, TAT and EM. Interestingly, the study shows that EM has high correlation with TAT. It is also found that for the four companies ROE is driven by high leverage, high asset turnover and high management efficiency. The discoms in future should try to increase the profit margin, DGVCL should decrease the leverage and PGVCL should try to improve the leverage and all the four discoms should maintain the low receivable days.

#### FUTURE DIRECTION OF STUDY

In future, the scope of the study can be expanded to include more discoms or all the discoms of the country. The performance between the private discoms and state owned discoms can be compared. The findings may have been different if larger sample was included. The study period could also be extended to 10 years or more. Another direction would be comparing the performance of the discoms having different categories of rank (A+ to C) awarded in the report released by the Ministry of Power. The results of this study of financial performance of top ranked discoms could be used in the study of financial performance of MSPDCL(Manipur State Power Distribution Company Limited) the lone power discom of the state of Manipur and one of the worst performing discoms of the country in comparing both and to understand where MSPDCL should make changes.

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## MULTIPLE SCLEROSIS. A SCIENTIFIC REVIEW FROM 2016 TO 2022

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### ABSTRACT

Multiple sclerosis is a disease that is characterized by the nervous system injury. The pathophysiology is unknown, but it is supposed that it is caused by an increase of the immune response to the myelin sheath, which causes damage in the nervous system. Actually, there are a lot of immunomodulatory drugs to control this pathology. One of the most important aspects of this disease is the fact that it is irreversible; therefore, the use of drugs for this illness is just for the control of the symptoms; nevertheless, some review has shown the free-recurrency of multiple sclerosis. Nowadays, there is information that defines the effectiveness of Rituximab, Alemtuzumab, Fingolimod, and many more drugs. In the non-pharmacological aspects, there is information about the diet and its non-action in the progression of Multiple Sclerosis. When a patient presents fatigue, there are many alternatives for the control of this. Finally, activities which stimulate social interactions have shown little effectiveness in these patients.

**KEYWORDS:** Multiple Sclerosis, Nervous System, Immune System

### 1. INTRODUCTION

As is well known, multiple sclerosis is a chronic pathology that affects the nervous system and is most prevalent in young and middle-aged adults. To understand its action, it has been determined that recurrent damage to

the myelin results in severe disability. An aspect of the pathophysiology of this disease is its relationship to the immune system and the origin of this pathology; therefore, all immunomodulatory therapies are the main therapeutic pillar. Now, the fundamental element of the physician is the



communication to the patient so that the patient knows in a complete and precise way about his pathology and the most appropriate decisions are taken.<sup>(1)(2)</sup>

### Multiple Sclerosis Drug Analysis

The use of a biologic drug called Alemtuzumab was analysed and studied in comparison to other drugs (interferon beta 1a) to determine its effectiveness. It was determined that the use of Alemtuzumab in annual doses reduces the recurrence of multiple sclerosis, in addition to reducing the risk of new or larger lesions (evidence detected by MRI), especially with doses of 24 mg.<sup>(2)(3)</sup>

Fingolimod is another drug used for multiple sclerosis because of its immunomodulatory actions. It was studied in 5152 patients with recurrent-relapsing multiple sclerosis, where it was administered 0.5 mg daily. In the end, it was shown to increase the likelihood of being recurrence-free for 2 years (effect confirmed by MRI) and in being free of inflammatory lesions.<sup>(4)</sup>

One drug that has been used as an effective treatment for this pathology, considering its immune pathophysiology, is Rituximab. For this reason, 15 studies of a total of 16,000 patients were analysed in which Rituximab was administered to establish its efficacy. It was determined that:

- In recurrent multiple sclerosis, it reduces the number of relapses, compared to natalizumab, dimethyl fumarate, glatiramer acetate or interferon beta. In the case of use as an alternative therapy, there was a slight increase in common infections.
- In progressive multiple sclerosis, there is no difference in worsening disability over 2 years.
- In recurrent multiple sclerosis (used as an alternative), it reduced relapses.<sup>(5)</sup>

The administration of Siponimod in patients with multiple sclerosis has also been studied. The drug binds to lymphocytes (responsible for attacking the central nervous system) to prevent them from migrating to the brain and reduces the immune system's attack. 2 studies of 1948 patients given 2 mg daily showed:

- Small reduction in relapses for up to 6 months to 1 year.
- Reduction of brain lesions at 6 months to 2 years follow-up.
- Decrease in disability assessed for 6 months after the start of treatment.

Nevertheless, headache, low back pain, asthenia, lymphopenia and suspected liver damage were reported as adverse events associated with this drug.<sup>(6)</sup>

Studies show that early treatment reduces the likelihood of a second episode in the first 2 years. For example, in patients on teriflunomide, 32 patients out of 100 were found to have recurrences. For glatiramer acetate, interferon beta 1b, or interferon beta 1a, 64 patients out of 100 had a recurrence in up to 5 years with early use of these drugs. An additional finding was that there were fewer dropouts with the use of interferon beta 1a and teriflunomide.<sup>(7)</sup> Within the comparison between interferon

beta and glatiramer acetate and which of the two had a greater benefit, it was concluded that they have a similar effect and small differences related to progression or recurrences.<sup>(8)</sup> In relation to Teriflunomide, a dose of 7 to 14 mg daily reduces recurrences for up to 2 years with its use. The use of 14 mg daily, on the other hand, reduced progression to disability.<sup>(9)</sup>

A condition called chronic cerebrospinal venous insufficiency is a condition that restricts cerebral and spinal cord venous flow, caused by venous obstruction or stenosis of the head and neck. The disease is mentioned because it is assumed to be a key player in the development of multiple sclerosis. However, when cerebrospinal venous insufficiency was treated with catheter phlebography or percutaneous transluminal angioplasty, it was found that there was no benefit in terms of function (cognitive or physical), quality of life or relapse. Therefore, in patients with chronic cerebrospinal venous insufficiency, percutaneous transluminal angioplasty is not recommended.<sup>(10)</sup>

An interesting aspect studied was breathing. This is important because patients who have progressed in relation to the severity of this pathology have developed a decrease in respiratory muscle strength and endurance, leading to weakness of the respiratory muscles. Therefore, in these patients (195 patients) we analysed whether the use of a threshold device (respiratory device that increases resistance to inspiratory flow) had any benefit in these patients. It was found to be effective in improving peak inspiratory pressure.<sup>(11)</sup>

An ever-present symptom in these patients is fatigue. Fatigue can affect daily life and quality of life. An analysis of 4696 patients looked at the use of medications such as amantadine, donepezil, pemoline, carnitine and modafinil. Overall, modafinil, pemoline and amantadine have an effect on reducing fatigue in patients with multiple sclerosis. In patients with multiple sclerosis and cancer, donepezil, methylphenidate and carnitine were shown to have a beneficial effect in reducing fatigue. In patients with multiple sclerosis and HIV/AIDS who experience fatigue, the administration of pemoline or methylphenidate has a benefit in reducing this symptom.<sup>(12)</sup>

Rehabilitation in all patients with multiple sclerosis aims to improve the functionality, well-being and quality of life of these patients. Now, there is a clear need to analyse how beneficial rehabilitation (physical activity, hyperbaric oxygen therapy, cognitive, psychological and spasticity management interventions) was. Therefore, 168 trials of a total of 10396 patients were analysed, showing a great benefit in relation to activities of daily living, quality of life and functionality.<sup>(13)</sup> In addition, the application of palliative care in these patients was analysed and compared with their usual care. However, no benefit was found.<sup>(16)</sup> In relation to patients with chronic pain and the use of non-pharmacological therapies, attempts were made to provide them with therapies such as reflexology, hydrotherapy, transcranial stimulation for pain management; however, none of these therapies have benefits in relation to chronic



pain.<sup>(14)</sup> The use of social activities, cognitive activities, physical activities, board games and music in patients with multiple sclerosis allows them to improve psychological well-being and coping.<sup>(15)</sup>

Although this may be a controversial topic, we examined whether dietary interventions (monounsaturated fatty acids, vitamins, antioxidants, etc.) have any benefit. Against this background, we decided to analyse 30 trials related to this topic. In the end, little or no difference was demonstrated in relation to the consumption of monounsaturated fatty acids or antioxidant supplements.<sup>(17)(18)</sup>

For their fall-related conditions, they are provided with exercise counselling, meditation, nutritional therapy, psychological interventions, among others, to prevent these events. An analysis of 13 studies of a total of 839 patients found improved mobility and balance with exercise-related interventions.<sup>(19)</sup>

In relation to memory-related interventions (activities necessary to improve patient independence and performance of daily activities), 44 studies of a total of 2714 patients found that memory rehabilitation improved functioning and quality of life, although there was no effect in relation to improvement in activities of daily living or decreased anxiety.<sup>(20)</sup>

## 2. CONCLUSION

Multiple Sclerosis is a nervous system affection that is caused likely for the interaction between myelin sheath and the immune system, which causes a destruction of this coat and, for instance, the affection of areas related to the nervous system. Actually, there are a lot of medications that are able to maintain in control the immunological effects and avoid the progressive injury of the nervous system; that means all drugs are used to avoid the symptomatology and its effects in the patient, but it's not a curative disease. Nevertheless, it's necessary to keep investigating to achieve an effective cure for this disabling illness.

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# COMPARATIVE STUDY ON REAL-TIME TRAFFIC STATE ESTIMATION

Akhil Sahukaru

## ABSTRACT

*When traffic demand exceeds available network capacity, traffic congestion develops.*

*Lower vehicle speeds, longer journey times, unreliable arrival timings, and lengthier vehicular queueing are all symptoms. Congestion may have a detrimental influence on society by lowering quality of life and increasing pollution, particularly in metropolitan areas. To alleviate traffic congestion, traffic engineers and scientists require high-quality, comprehensive, and precise data to forecast traffic flow. The advantages and disadvantages of various data collecting systems, as well as data attributes such as accuracy, sample frequency, and geographic coverage, vary.*

*Multisource data fusion improves accuracy and delivers a more complete picture of traffic flow performance on a road network. This study provides a review of the literature on congestion estimation and prediction based on data obtained from numerous sources. An overview of data fusion approaches and congestion indicators that have been employed in the literature to estimate traffic condition and congestion is provided. The outcomes of various strategies are examined, and a disseminative analysis of the benefits and drawbacks of the methods reviewed is offered.*

**KEYWORDS:** *traffic congestion; multi source data fusion; traffic state estimation; data collection*

## 1. INTRODUCTION

Many Intelligent Transportation Systems (ITS) applications require real-time traffic information, such as incident detection, vehicle routing, traffic signal management, and traffic monitoring. For example, Google has been integrating real-time traffic data with its mapping service since 2007. The data is gathered from a variety of sources, including road sensors, autos, taxi fleets, and, more recently, smartphone users.

However, lack of or incorrect information about the traffic situation might jeopardize drivers' safety, since it is well known that the impacts of congestion on safety are dependent on how shocked drivers are by the congestion. This is especially true if the autonomous road traffic monitoring system believes the road is clear while it is actually crowded, which might result in a rear-end collision owing to the speed disparity between the oncoming vehicle and the anticipated mean traffic speed.

To address these issues, one approach recommended is to rely on systems based on efficient traffic prediction algorithms. The estimation of traffic characteristics (speed, density, and flows) based on a restricted set of traffic variables detected by one or more detectors is known as traffic estimation.

Since the early 1970s, a lot of work has gone into developing methods for predicting road traffic conditions (Knapp, 1972; Nahi and Trivedi, 1973; Grewal and Payne, 1976). The majority of current research on this topic has suggested estimating techniques based on nonlinear Kalman filter extensions (Seo et al., 2017).

The extended Kalman filter (EKF) has been widely employed in traffic estimate systems and over large road traffic

networks (Wang and Papageorgiou, 2003, 2005; Wang et al., 2008; Yuan et al., 2014). However, the main disadvantage is the possibility of divergence due to the linearization technique. For road traffic estimates, Pueboobpaphan and Nakatsuji (2006) employed the unscented Kalman filter (UKF) as an alternative to the EKF filter. The performance of the UKF was compared to that of Mihaylova and Boel's particle filter, and the authors concluded that the UKF is a viable approach for traffic flow prediction with a low computing cost (Mihaylova et al., 2006). Hegyi et al. (2006), on the other hand, presented a comparison of several configurations of the UKF filter and its classic competitor, the EKF filter, for freeway traffic state estimation. This comparison is based on state estimation, parameter estimation, joint estimation, and dual estimation performance. The primary results are that the extended Kalman filter and the unscented Kalman filter have virtually identical performance. Work et al. (2008) and Seo et al. (2015) presented the ensemble Kalman filter (EnKF) for predicting the velocity field on a roadway; this filter employs Monte Carlo simulations to address the EKF drawbacks. Thai and Bayen (2015) investigated the difficulty of the EKF and EnKF traffic density estimate filters. With 100 samples, the EKF was determined to be substantially quicker than the EnKF.

In this work, we analyse all of the aforementioned approaches and applications for free real-time traffic status estimate and come up with a research that determines which is more efficient, less expensive, and appropriate for today's reality.



## 2. PREVIOUS WORK IN THE DOMAIN

### 2.1 Review Methodology

As previously indicated, all material released in the last twenty to twenty-five years, from 1997 to 2021, was thoroughly investigated. The study was carried out utilising the most frequently utilised scientific databases, which featured research on the review's area of interest.

Key word-based searches were used to locate and filter relevant articles based on a carefully chosen keyword (traffic congestion; multisource data fusion; traffic flow modeling; congestion estimation; traffic state estimation). [3]

The main purpose of the study article is to look at about 30 papers that are thoroughly evaluated and then analysed, with their methods defined. [3]

### 2.2 Definition of Congestion

Traffic congestion is a condition in which vehicles travel at slower speeds, have longer experience times, and queue for longer periods of time. Since the 1950s, traffic congestion on city avenue networks has increased significantly.

Congestion occurs when traffic demand is high enough that the interaction between cars reduces the pace of the traffic stream.

Extreme traffic congestion occurs when demand exceeds a road's capacity (or the capacity of the junctions along the road). A traffic jam or (informally) a traffic snarl-up occurs when cars are completely halted for long periods of time. Drivers might become upset and engage in road rage as a result of traffic congestion.

Traffic is treated mathematically as a flow past a given point on the route, similar to fluid dynamics.

Some traffic engineers have sought to apply fluid dynamics principles to traffic flow, comparing it to the passage of a fluid through a conduit. Congestion models and real-time observations have revealed that amid heavy yet moving traffic, traffic jams can form spontaneously, prompted by tiny occurrences ("butterfly effects") such as a single motorist's sudden steering action. A circumstance like this is compared to the rapid freezing of supercooled fluid by traffic experts.

Unlike a fluid, however, traffic flow is frequently altered by signals or other occurrences at intersections that disrupt the smooth flow of traffic. Boris Kerner's three-phase traffic theory is an example of an alternative mathematical theory (see also spatiotemporal reconstruction of traffic congestion).

Because theoretical models have a weak association with real observed traffic flows, transportation planners and highway engineers utilise empirical models to anticipate traffic flow. By "platooning" groups of cars and randomising flow patterns inside particular segments of the network, their operational traffic models often employ a combination of macro-, micro-, and mesoscopic characteristics, and may incorporate matrix entropy effects. These models are often

calibrated by monitoring real traffic flows on network connections and adjusting the baseline flows accordingly.

A group of MIT mathematicians has created a model that predicts the genesis of "phantom jams," in which little traffic disruptions (such as a motorist slamming on the brakes too hard or going too near to another car) may be magnified into a full-fledged, self-sustaining traffic bottleneck. According to Aslan Kasimov, a lecturer at MIT's Department of Mathematics, "the mathematics of such jams, which the researchers name "jamitons," are startlingly similar to the equations that explain detonation waves produced by explosions." The team was able to solve traffic-jam equations that had been theorised since the 1950s thanks to this discovery.

### 2.3 Issues Related to Congestion

Many traffic experts and businesses throughout the world deal with traffic congestion and strive to discover various ways to alleviate the situation. Congestion is a major problem in most cities across the world, limiting population movement. In 2019, the top five most congested cities, according to INRIX Research, were (1) Moscow, (2) Istanbul, (3) Bogota, (4) Mexico City, and (5) So Paulo, where three of the five cities coincide with HERE's rating of the top five most congested cities. The congestion effect rank was established by INRIX Research based on a city's population and the time spent stuck in traffic. [3]

Traffic congestion has a number of negative effects:

- Wasting time of motorists and passengers ("opportunity cost"). As a non-productive activity for most people, congestion reduces regional economic health.
- Delays, which may result in late arrival for employment, meetings, and education, resulting in lost business, disciplinary action or other personal losses.
- Inability to forecast travel time accurately, leading to drivers allocating more time to travel "just in case", and less time on productive activities.
- Wasted fuel increasing air pollution and carbon dioxide emissions owing to increased idling, acceleration and braking.
- Wear and tear on vehicles as a result of idling in traffic and frequent acceleration and braking, leading to more frequent repairs and replacements.
- Stressed and frustrated motorists, encouraging road rage and reduced health of motorists
- Emergencies: blocked traffic may interfere with the passage of emergency vehicles traveling to their destinations where they are urgently needed.
- Spillover effect from congested main arteries to secondary roads and side streets as alternative routes are attempted ('rat running'), which may



affect neighborhood amenity and real estate prices.

- Higher chance of collisions due to tight spacing and constant stopping-and-going.

#### 2.4 Data Fusion in Information Technology Sector

Intelligent transportation systems, bioinformatics, cheminformatics, geographic information systems, oceanography, and wireless sensor networks are all examples of where data fusion is used. There are several papers giving a review of DF in ITS. El Faouzi surveyed how DF is utilized in many ITS sectors, including Automatic Terminal Information Service, Automatic Incident Detection, Advanced Driver Assistance, Network Control, Crash Analysis and Prevention, Traffic Demand Estimation, Traffic Forecasting, and Monitoring in [4]. Pattern recognition using adaptive neural networks and clustering methods, as well as identify fusion using Bayesian Decision Theory and Dempster–Schafer evidential reasoning, are among the methods used in the second level to deliver meaningful information from raw data to guide human decision-making. [4] El Faouzi et al. in [5] made a review of the state of practice and prospects for DF in the management of the travel demand which later on came very handy and helpful in future research sectors.

### 3. TRAFFIC STATE INDICATORS & METHODS

Unique procedures are used by traffic engineers to provide and explain the state of visitors on the road and to estimate the degree of congestion.

The most frequent method is to use traffic flow parameters and Greenshield's fundamental diagram to characterise the status of traffic flow. [6] Another option is to use the Lighthill–Whitham–Richards (LWR) models, which were initially developed in 1955 by Lighthill and Whitham [7], then separately by Richards in 1956. B. Kerner proposed the three-phase traffic theory between 1996 and 2002 [9, 10, 11], which divides congested traffic into two distinct phases: synchronised flow and wide moving jam.

As quantitative congestion indicators, various traffic flow metrics or combinations of parameters can be employed. According to [11], the fundamental traffic characteristics are flow rate  $q$  (veh/h), density (veh/km), and speed  $v$  (km/h), with the essential relationship  $q = v$ . Table 1 lists the other metrics used to define the condition of traffic flow. [6, 12]

The authors of [3, 13] state that delay, density, and Level of Service are the important performance metrics for urban roadways (LOS). LOS is a quality indicator of road network service that is often assessed by speed, density, and volume/capacity ratio [3, 14].

Parameter	Definition	Units	
Time Mean Speed	$v_t$	The arithmetic mean of instantaneous speeds for $N$ vehicles passing an observed road section within a time period $T$	$\frac{m}{s}$
Space Mean Speed	$v_s$	The arithmetic mean of the instantaneous speeds of the $N$ vehicles, which are at the observed road section $d$ , at instant time $t$ (near zero)	$\frac{m}{s}$
Flow Rate	$q$	The number of vehicles passing through a given road section, at a given time interval	$\frac{veh}{h}$
Density	$\rho$	The number of vehicles occupying a given length of a lane or road at an instant time $t$ (near zero)	$\frac{veh}{km}$
Throughput	$t_v$	The throughput is the number of vehicle-kilometers driven for a given length of a road and for a given time period	$\frac{veh \times km}{h}$
Time headway	$h_t$	Time spacing between the front or back surfaces of the running vehicles in the traffic flow	$s$
Space headway	$h_s$	Spatial spacing between the front or back surfaces of the running vehicles in the traffic flow	$m$
Occupancy	$O$	The percentage of time at observed road section occupied by vehicles or a total vehicle's dwell time in detection zone at observed interval $T$	%
Queue Length	$L_q$	Number of vehicles in the queue (intersection, ramp, etc.)	Number of vehicles or km
Travel Time	$T$	Time needed for a vehicle to drive from one observed point to another in the traffic network	$s$

Table 1





To compute the link density and identify the form of the Macroscopic Fundamental Diagram, the authors in [3, 15] coupled flow, which was detected using loop detectors, with journey time, which was measured using GNSS probe taxi cars (MFD).

Other GNSS probe data indications that may be used to determine the condition of traffic flow include Proportion Stopped Time (PST) and Acceleration Noise (AN). The authors of [3, 16, 17, 18] employed a variety of indices to estimate

congestion on the connection or network, including the journey time index, space mean speed index, acceleration noise index, buffer index, and planning time index. The survey also mentions indexes for a transport connection and network congestion estimation [3, 13]. A brief summary of congestion indexes is presented in Table 2 [3, 19]. Congestion can also be described using hybrid indicators that combine two or more characteristics.

Parameter	Definition	Equation
Delay	$d$ The additional travel time experienced by a driver, difference between actual travel time $TT$ and free-flow travel time $TT_0$	$d = TT - TT_0$
Travel Time Index	$TTI$ The ratio between delay $d$ and free-flow travel time $TT_0$	$TTI = \frac{d}{TT_0}$
Speed Reduction Index	$SRI$ The ratio between free flow speed $v_0$ and actual speed $v$ difference over free flow speed $v_0$	$SRI = \frac{v_0 - v}{v_0}$
Buffer Index	$BI$ The extra time that travelers must add to their average travel time when planning trips to ensure on-time arrival	$BI = \frac{d}{TT_{max}}$
Travel Rate Index	$TRI$ The additional time that is required to make a trip because of congested conditions on the roadway.	$TRI = \frac{TT_{peak-hour}}{TT_{non-peak}}$
Proportion Stopped Time	$PST$ The ratio of stopped time $T_s$ to the total journey time $T_r$ (running time)	$PST = \frac{T_s}{T_s + T_r}$
Acceleration Noise	$AN$ Induce fluctuation in speed where $\Delta t_i$ is the time interval taken for a speed change $\Delta v_i$ and $T_r$ is vehicle running time	$AN = \sqrt{\frac{1}{T_r} \sum_{i=1}^N \frac{\Delta v_i^2}{\Delta t_i}}$
Acceleration Noise Index	$ANI$ The ratio between actual acceleration noise and acceleration noise in a free flow condition	$ANI = \frac{AN}{AN_0}$

Table 2

#### 4. DATA COLLECTION METHODS AND TECHNOLOGIES

[3, 20] classifies traffic data gathering devices into three categories depending on functionality: point sensors, point-to-point sensors, and area-wide sensors. The term "sensor" here refers to a traffic flow sensor, which is a device or system that may gather data on traffic flow. Inductive loops, piezoelectric sensors, video image sensors, radars, infrared sensors, acoustic sensors, pneumatic road tubes, and magnetic sensors are examples of point sensors. These sensors are used to measure traffic volume, speed, occupancy, and other traffic flow characteristics and are often restricted in spatial coverage [3, 21–23].

Point-to-point sensors, also known as automatic vehicle identification sensors, identify cars at several places throughout the network (AVI). Bluetooth, Wi-Fi, RFID, and Automatic License Plate Recognition are some of the most common

technologies used for point-to-point detection (ALPR). These technologies may be used to calculate journey durations, route choice fractions, and origin-destination (O-D) flows [24–26]. Some technologies do not have to fit into one of these categories and can be employed as point or point-to-point sensors. Researchers have used inductive loops for vehicle reidentification and journey time estimate in various articles [3]. As point and point-to-point sensors, cameras and video- and image processing are employed to collect traffic data [3].

Area Wide Sensors are that cover a big area include data collecting systems that allow vehicles to be tracked over a large region. Floating Car Data (FCD) and Cellular Floating Car Data (CFCD) are the most promising (CFCD). FCD data, also known as GNSS probe data, is generated by cellphones or vehicles equipped with GNSS receivers.



A detailed study of all the methods and technologies is given below –

	Technologies	Advantages	Disadvantages
Point sensors	Inductive loops	<ul style="list-style-type: none"> <li>- provide basic traffic parameters (e.g., volume, occupancy, speed, presence, headway)</li> <li>- well-defined detection zone</li> <li>- well-known technology</li> <li>- accurate and reliable traffic data</li> <li>- negligible influence of weather conditions</li> </ul>	<ul style="list-style-type: none"> <li>- installation requires pavement cut and lane closure</li> <li>- spatial coverage is limited</li> <li>- implementation and maintenance costs are high</li> <li>- lifetime depends on pavement quality</li> </ul>
	Video detection	<ul style="list-style-type: none"> <li>- can provide the largest set of data</li> <li>- feasible integration of traffic collection and traffic supervision</li> <li>- can replace several loops</li> <li>- non-intrusive sensor—no pavement cut needed</li> </ul>	<ul style="list-style-type: none"> <li>- affected by weather conditions</li> <li>- calibration issue</li> <li>- cover occurrence</li> </ul>
	Radar sensors	<ul style="list-style-type: none"> <li>- provide speed, vehicle counts, vehicle classification</li> <li>- is not affected by weather conditions</li> <li>- multiple detection zone</li> </ul>	<ul style="list-style-type: none"> <li>- susceptibility to electromagnetic interferences</li> <li>- cover occurrence</li> </ul>
	Acoustic sensors	<ul style="list-style-type: none"> <li>- multiple lane operation available</li> <li>- passive detection</li> <li>- record vehicle's passage, presence, and speed</li> </ul>	<ul style="list-style-type: none"> <li>- spatial coverage is limited</li> <li>- high costs for setting up and maintaining</li> <li>- unsuitable for urban areas with dense traffic</li> </ul>



	Technologies	Advantages	Disadvantages
	Infrared sensors	<ul style="list-style-type: none"> <li>- multiple detection zone</li> <li>- small impact of weather conditions</li> </ul>	<ul style="list-style-type: none"> <li>- spatial coverage is limited (depends on sensor type)</li> </ul>
	Magnetic sensors	<ul style="list-style-type: none"> <li>- not affected by weather conditions</li> <li>- can be used where loops are not feasible (e.g., bridge decks)</li> </ul>	<ul style="list-style-type: none"> <li>- spatial coverage is limited</li> </ul>
	Piezoelectric sensors	<ul style="list-style-type: none"> <li>- some models and configurations provide weight in motion and speed</li> </ul>	<ul style="list-style-type: none"> <li>- placed in groove along roadway surface</li> <li>- high costs for setting up and maintaining</li> </ul>
Point-to-points sensors	Bluetooth detectors	<ul style="list-style-type: none"> <li>- can provide travel time, O-D matrices</li> <li>- easy mounting</li> <li>- far greater privacy than ALPR</li> <li>- low energy consumption</li> </ul>	<ul style="list-style-type: none"> <li>- cannot provide volume and vehicle count</li> <li>- low detection accuracy</li> </ul>
	Wi-Fi detectors	<ul style="list-style-type: none"> <li>- easy mounting</li> <li>- suitable for passenger detection</li> <li>- low-cost components</li> </ul>	<ul style="list-style-type: none"> <li>- cannot provide accurate basics traffic parameters</li> </ul>
	RFID detectors	<ul style="list-style-type: none"> <li>- low-cost components</li> <li>- high detection accuracy</li> </ul>	<ul style="list-style-type: none"> <li>- cannot provide volume and vehicle count</li> <li>- small detection zone</li> </ul>
	ALPR detectors	<ul style="list-style-type: none"> <li>- can provide volume, O-D matrices and travel time</li> <li>- high detection accuracy</li> </ul>	<ul style="list-style-type: none"> <li>- privacy issue problematic data protection</li> </ul>
		FCD	<ul style="list-style-type: none"> <li>- potential for real-time monitoring</li> <li>- large-scale spatial coverage</li> <li>- location precision is high (10 m)</li> <li>- cost-effective source of data</li> </ul>
Area-wide sensors	CFCD	<ul style="list-style-type: none"> <li>- no additional device is needed</li> <li>- large number of potential probes cost-effective source of data</li> </ul>	<ul style="list-style-type: none"> <li>- for extract data sophisticated algorithms are needed</li> <li>- location precision is low (depends on used location methods and size of mobile network cells)</li> <li>- limited and imprecise spatial coverage</li> </ul>
	Airborne imagery	<ul style="list-style-type: none"> <li>- mobile multifunctional detection device</li> <li>- can provide density</li> </ul>	<ul style="list-style-type: none"> <li>- limited recording time</li> <li>- affected by weather conditions</li> <li>- high costs</li> </ul>
	Social media data	<ul style="list-style-type: none"> <li>- cheapest data in terms of data availability</li> <li>- potential for real-time data</li> </ul>	<ul style="list-style-type: none"> <li>- low reliability caused by human factor</li> </ul>

Table 3



## 5. METHODS USED IN DATA FUSION (FOR PREDICTION, CLASSIFICATION & ESTIMATION)

The authors presented TCE R, a linked matrix and tensor factorization approach for combining multisource data. A method termed search tree-based pattern mining is offered for quickly determining which road segments are likely to face traffic congestion when they are geographically adjacent to each other. Approaches based on recursive Kalman filters give a solution for traffic state estimate and DF. Equations, on the other hand, become computationally costly when data cannot be easily aligned throughout space and time. As a result, the authors present three different DF techniques to handle this challenge, each of which is designed to fuse various traffic sensor data.

Multiple data sources can be fused using the PISCIT, FlowResTD, and Treiber–Helbing filter (EGTF), as long as it is reasonable to determine under which traffic circumstances each of these was gathered (congested or free flow). [3]

### 5.1. Statistic Methods

Research was conducted on how to use social media as an auxiliary data source and combine it with GNSS probe data to improve traffic congestion estimation. The writers gathered a large number of tweets on various traffic occurrences, such as traffic jams, accidents, and road construction. The researchers then suggested an enhanced Coupled Hidden Markov Model that can successfully integrate GNSS probe data with traffic-related tweets to better precisely estimate traffic conditions in an arterial network. In compared to earlier methodologies, the experimental findings showed that the model performed better.

Zhu et al. [27] integrated data from three sources: bus-based GPS data, inductive loop detector data, and mobile phone network data, using three distinct DF algorithms. To fuse different data resources and provide more accurate trip times, the hybrid technique surpasses the weighted mean approach and artificial neural networks. The findings show that combining several data sources does not always improve the accuracy of journey time prediction. The accuracy of separate data sources affects travel time estimation. When highly connected data

sources are combined, the consequence might be disastrous. The findings also indicate that, even in densely populated locations, GPS data paired with inductive loop detector data may offer accurate trip time estimates for broad traffic streams under a variety of traffic conditions. [3]

### 5.1. Deep Neural Network

An examination of the impact of meteorological conditions on traffic speed in metropolitan areas was conducted. The authors employed the Long Short-Term Memory Neural Network to do this (LSTM-NN). LSTM-*Appl. Sci.* 2021, 11, 2306 13 is capable of "forgetting" or storing knowledge for a longer length of time. Because of this characteristic, LSTM-NN models outperformed SVM, Kalman Filter, and ARIMA models in forecasting speed. The researchers used data from inductive loops as well as meteorological data such as rainfall and temperature. They used an urban arterial route in Greater Manchester for the testing scenario, and the model, which included meteorological data with inductive loops, produced the best forecast results in terms of lowest absolute error. ARIMA was surpassed by this approach by several orders of magnitude. [3]

Then there was a proposal for Deep Ensemble layered Long Short-Term Memory, a deep learning-based framework that integrated road network, weather, and traffic data to anticipate long-term traffic time (DE-SLSTM). They use the "cost sensitive" technique in the suggested framework to increase forecast accuracy during rush hours due to the difficulty of estimating traffic time during congestion. The suggested framework performs well and matches the ground truth better than Google maps.

There is a detailed study of all the methods in Data Fusion – (Representation of Methods for Data Fusion (DF) (MF, TF—Matrix and Tensor Factorization; STAT—Statistical; ANN—Artificial Neural Network; MM—Markov Model; KF—Kalman Filter; IP—Image Processing; DNN—Deep Neural Network; CLUS—Clustering; OPT—Optimization; FUZ—Fuzzy; CLA—Classification).



	TF	MF	STAT	ANN	MM	KF	IP	DNN	CLUS	OPT	FUZ	CLA
Wang et al. [71,97]	X 2017	X 2016										
Zhu et al. [91]			X 2018	X 2018								
Wang et al. [79]			X 2016		X 2016							
Ji et al. [37], Ambühl et al. [82], Bhaskar [83], Li et al. [85], Havyarimana et al. [101]			X 2018, 2016, 2010, 2016, 2020									
Patire et al. [80], Kong et al. [72]			X 2015, 2009			X 2015, 2009						
Jiang et al. [81]			X 2017				X 2017					
Essien et al. [75], Yuan et al. [46], Chou et al. [95], Rodrigues et al. [96], Gu et al. [102], Liang et al. [103]								X 2019				
Zheng et al. [84]			X 2018						X 2018			
Wu et al. [78]									X 2015			
Choi et al. [92]			X 2002								X 2002	
Sohn et al. [91]			X 2003	X 2003					X 2003			X
Mil et al. [93]			X 2018									X 2018
Li et al. [96]			X 2019				X 2019					
Luo et al. [100], Guo et al. [104]			X 2019					X 2019	X 2019			
Ke et al. [97], Hu et al. [98]							X 2019	X 2019				
Guan et al. [99]								X 2019				X 2019
Usage of method	2, 4%	2, 4%	17, 34%	2, 4%	1, 2%	2, 2%	4, 8%	11, 22%	4, 8%	1, 2%	1, 2%	3, 6%

Table 4



## 6. YOUR CONTRIBUTION

- A comprehensive literature review was conducted using a keyword-based search of academic research databases and the systematic selection of highly relevant publications from the search results based on their influence on the scientific community.
- Data fusion from numerous sensors is used to cover traffic congestion estimate studies in metropolitan networks.
- Analyze the goals of congestion estimation and data fusion, such as increasing efficiency or accuracy, as well as the various data fusion approaches employed and their performance.

## 7. CONCLUSION

Because one knowledge collection technique can contribute traffic data while others are absent, inaccurate, or ineffective, research presented throughout this study demonstrates that utilising multisource DF will boost estimation reliability and hardness.

Several prospective research avenues to overcome the shortcomings of existing approaches were highlighted as a result of the survey conducted on the selected studies. Two dominant approaches in estimation of congestion that were mostly used lately are statistical and deep learning methods:

- When dealing with complicated and highly nonlinear data, statistical approaches can give insights into traffic flow conditions, but they fail when dealing with complex and highly nonlinear data. A statistical approach is utilised to provide insights into the data's linkages and structure, or to construct a model that may forecast future traffic conditions. Statistical approaches have more "understandable" mathematical underpinnings than certain deep learning methods since they are based on strong and widely acknowledged mathematical foundations.
- Deep learning algorithms, which have been widely used, develop "intelligent" models that employ a significant quantity of data to get meaningful insights about traffic flow and recognise distinct patterns. Although deep learning is more flexible than statistics, there isn't necessarily a mathematical reason for why one method performs better than another. There are two techniques to employing deep neural network (DNN) methods: (i) a mix of image processing-related approaches that make use of convolutional neural networks, and (ii) time-series analysis that makes use of the long-short term memory network. DNNs have been widely used to solve a variety of transportation issues, owing to the fact that they are extremely versatile, accurate, and convenient mathematical models that can readily replicate numerical model components. Because of their capacity to cope with huge volumes of multidimensional and multisource

data, they have mostly been employed as a data analysis approach.

- DNN approaches are more flexible than statistical methods since the functional form is approximated through learning rather than assumed a priori as in statistics. DNN-based models, on the other hand, might be computationally and memory intensive.

Statistical analysis is the most prominent data fusion strategy from 2010 to 2020, while DNNs are the most dominant in recent approaches. It may be inferred that, in general, traffic flow prediction should be done utilizing data from numerous diverse sources to avoid biases introduced by particular data gathering systems. A standardized testing dataset from multiple multisource data, which would provide real numerical proof of how successful a technique is, given the available data, would be another useful tool in the development of prediction approaches, such as data mining use.

### 7.1 Future Work / Potential Research

This study did not have non-CV data (Connected Vehicle), such as data from social media and/or news feed.

Machine learning algorithms and recommendation engines using social media data from sites like twitter and fakebook, can be incorporating data for traffic estimation.

Data from news or audio signals can also be incorporated and be taken into consideration.

[28] The following directions should be considered in future data homogeneity analysis research:

- Expanding the correlation analysis selection range by increasing the data categories used for missing traffic volume estimation;
- Investigating some correlation analysis methods that take into account both data distribution variance and time fluctuation differences;
- Developing reasonable correlation judgement criteria based on different missing volume scenarios. [28]

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# INDIA'S COMMERCE GROWTH IN THE ECONOMY AT THE EVE OF INDIAN INDEPENDENCE (IN THE PERSPECTIVE OF INDIA BEFORE 1950)

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## ABSTRACT

India under the British rule can be called as “Drain of Wealth” according to Dada “Bai Nehru-ji”, because they restricted the Indian people to produce only the raw materials and made Indians to import the final goods from Britain, so it is termed as “Drain of Wealth”. British colonial rule made India's Commerce growth, exports and imports to be restricted to some goods and its economic value was benefiting more for colonial Britishers expenditure. The British rule lasted for two centuries before India won its independence in 1947. The sole purpose of the British Commerce, economic policy was to reduce India into a feeder economy for expansion of Britain's own modern industrial base. Pre independence India had a flourishing economy based on agriculture and handicrafts. The quality of workmanship in field on textiles and precious stones was high leading to a worldwide base for Indian products. The British policy was to turn India into an exporter of raw materials and consumer of finished goods. This led to disruption of Indian economy. The British never made any attempt to calculate the national or per capita income. Amongst Indian economists V.K.R.V Rao was first to do so. Some Economists, Chartered accountants predicted that there was surplus production in Indian Commerce growth, agricultural output, but due to heavy taxes and pests attack on crops, made small and marginal farmers to suffer more.

**KEY WORDS:** Indian Commerce Economy Before Independence. Indian Exports and Imports at the Eve of Independence, Economic and the Commerce Growth.

## ➤ INDIAS COMMERCE AND AGRICULTURE SECTOR, BEFORE INDEPENDENCE



The Indian economy was highly agrarian as 85% of Indians depended on it. But the sector remained stagnant as the British focused on extracting maximum revenue from it without any capital development. The revenue collection system further aggravated woes. The poor productivity, lack

of irrigation and other factors led to ruin of this sector. Although a few areas that grew cash crops were seen to prosper but here to rural indebtedness increased as food crops were neglected. Finally after partition the fertile and irrigated



jute growing areas went to Pakistan and India lost its monopoly

### ➤ THE INDIAN COMMERCE AND THE INDUSTRIAL GROWTH

The Indian industry which was mainly handicraft based was destroyed by British. The reason being to support the industrial base of Britain. The export of finished machine made goods flooded India and the artisans couldn't compete with them. The second half of the 19<sup>th</sup> century saw jute industry dominated by foreigner in east India and cotton mills dominated by Indians in western India. Iron and steel plants were started around the beginning of 20<sup>th</sup> century and after the Second World War the cement, sugar, paper industry started. But the contribution of these to GDP remained small.

Moreover these remained confined to railways, ports, communications and other departmental undertakings.

### ➤ FOREIGN TRADE OF INDIA BEFORE INDEPENDENCE

The foreign trade was an export surplus but the trade surplus went mostly in fuelling the expenses of the colonial administration in India. The common people never got the benefit of this trade. The trade also led to acute shortage of commodity for domestic demands. The British capital investment in railways was to benefit its own industrial base as the markets expanded. The communication facilities too were for the purpose of law and order and the Indians never derived any benefit out of it.

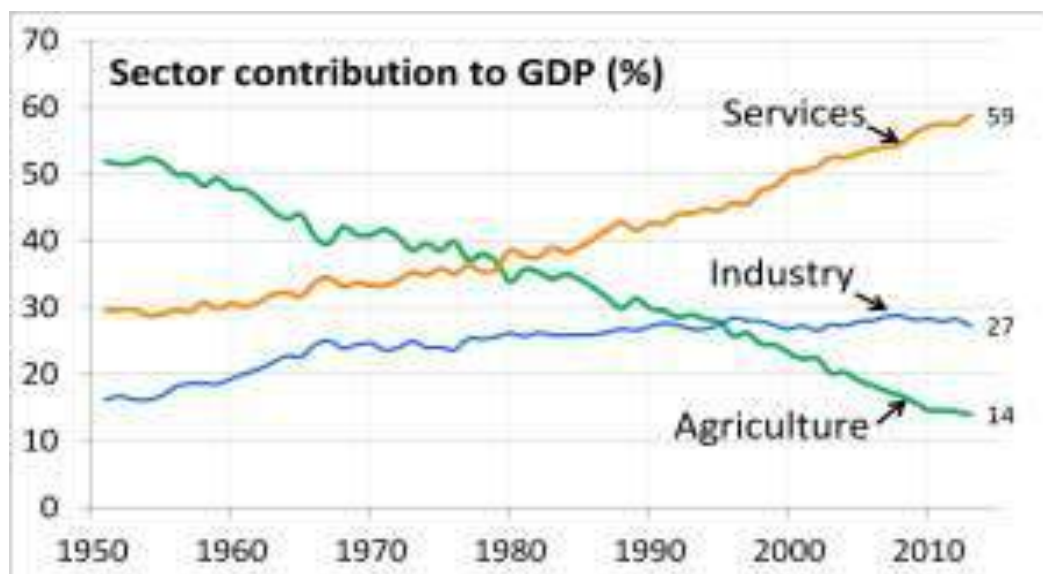


Fig 2: COMMERCE AND THE ECONOMY

In all the British domination was seen in all aspects of the Indian Commerce economy and was the main reason it remained stagnant for two centuries.

### ➤ The structure and organization of Villages and Towns

- The village community was based on a simple division of labour. There existed classes of people called farmers, weavers, goldsmiths, carpenters, potters, oil pressers, washermen, cobblers, barber-surgeons, etc. All these occupations were hereditary and passed by tradition from father to son. These craftsmen were paid a stipend out of the crops at the harvest time in lieu of the services performed
- Most of the food produced in the village was consumed by the village population itself. The raw materials produced from primary industries were the feed for the handicrafts. Thus the interdependence of agriculture and hand industry provided the basis of the small village republics to function independently of the outside world.

- The villages although were self sufficient but they did acknowledge some outside authority, may be that of a local princeling, who in turn may be under a Muslim Nawab or a Hindu king, by paying a portion of the agricultural produce varying between one-sixth to one-third or even in some periods one-half as land revenue. The land revenue sustained the government.
- The villages also had panchayats for dispute resolution and money lenders who lent at exorbitant rates to farmers. The villages existed in peace but still were affected by wars and aggression. But lack of transportation and a central government helped their survival.
- The Indian industries "not only supplied all local wants but also enabled India to export its finished products to foreign countries."
- Thus, Indian exports consisted chiefly of manufactures like cotton and silk fabrics, calicos, artistic wares, silk and woollen cloth. Besides, there were other articles of commerce like pepper, cinnamon, opium, indigo, etc.



- In this way, Europe was a customer of Indian manufactures during the 17th and 18th centuries. It was this superior industrial status of India in the pre-British period that prompted the Industrial Commission (1918) to record :
- "At a time when the West of Europe, the birth place of modern industrial system, was inhabited by uncivilised tribes, India was famous for the wealth of her rulers and for high artistic skill of her craftsmen. And even at a much later period, when the merchant adventurers from the West made their first appearance in India, the industrial development of this country was, at any rate, not inferior to that of the more advanced European nations".

#### ➤ **INDIA'S FOREIGN TRADE and COMMERCE DURING COLONIAL RULE**

As a part of the British strategy, India had to export more than its imports prior to World War II, so as to meet the unilateral transfer of payments to Britain by way of the salaries and pensions of the British officers, both military and civil, dividends on British capital invested in India, and interest on sterling loans.

This helped India to achieve a favourable trade balance. In April 1946, India was able to build a huge sterling balance of Rs. 17.33 billion, even after paying of the sterling debt. However, the share of raw materials in India's exports declined from 45 per cent in 1938-39 to 31 per cent in 1947-48 whereas the share of manufactured goods increased from 30 per cent in 1938-39 to 49 per cent in 1947-48.

It was only after independence that India's trade patterns began to change in view of its developmental needs. India, as a newly independent country, had to import equipment and machinery that could not be manufactured domestically, in order to create new production capacity and build infrastructure, known as developmental imports.

#### **CONCLUSION**

- India had an independent Commerce and economy before British rule. Agriculture was the main source of livelihood for the majority of the population, even though the country's economy was characterised by various kinds of manufacturing activities. India had the great repute of its handicraft industries in the fields of cotton and silk textiles, metal and precious stone works etc. due to fine quality of material used and the high standards of craftsmanship, Even LOW LEVEL OF COMMERCE and ECONOMIC DEVELOPMENT UNDER THE COLONIAL RULE, due to economic policies and commercial rules persuaded by the colonial government in India were concerned more with the protection and promotion of the economic interest of their home country than with the development of the Indian commerce economy. Such policies brought about a fundamental change in the structure of the Indian economy-transforming India into supplier of raw materials and consumer of finished industrial products from Britain. The colonial government never made any sincere attempts

to estimate India's national and Per capita income. Some notable estimators-Dadabhai Naoroji, William Digby, Findlay Shiras, V.K.R.V. Rao and R.C. Desai attempted to measure these income yielding inconsistent results low Growth rate during the colonial period. The country's growth of aggregate real output during the first half of the twentieth century was less than 2% coupled with a meagre 0.5% growth in per capita output per year

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# CONCEPTUAL STUDY ON ANTI-POISONOUS EFFECT OF RSABHA AGADA: A REVIEW

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## ABSTRACT

Agadatantra (~Toxicology) is one amongst the eight clinical branches of Ayurveda which deals with identification, prevention, diagnosis and treatment of various Visha (~poison) conditions. Use of Agada (~Antidote) is one of the treatment protocol to counter poisons by means of internal and external application. Various Acharya have mentioned many Agada yogas in the management of Visha. Among these few Agadas are having the property of Rakshana karma. Rsabha Agada is one amongst them mentioned in 5<sup>th</sup> chapter of Sushruta Samhita Kalpasthana which describes that when it is kept in the house of the king, wards off the poison of wild boar, iguana lizard, peacock, porcupine, cat, leopard and mongoose. In its presence snakes and insects shed their power and poison, drums and kettle drums smeared with this and beaten destroys Visha (~poison), flags which have been smeared with poison become detoxicated soon, which highlights the Rakshana karma of Rsabha Agada. Owing to its statement regarding antipoisonous action mentioned in samhita, this study is focused on review of Rsabha Agada for its contents and their individual qualities as well as compound effect of this Agada as a whole.

**KEYWORDS** : Agadatantra ; Anti-poisonous effect; Rsabha Agada; Rakshana karma ; Visha

## INTRODUCTION

Agadatantra one among the specialized branches of Ayurveda deals with Visha (~poison) and its management. Mentions, number of Agada Yoga's (~formulations) which helps in counteracting the deleterious actions of Visha (~poison) on living being as they inherit the potent ingredients which are faster in action. Agada Yogas possessing the vishagna gana drugs as the major ingredients helps in nullifying the effect of Visha. Administration of these Yogas may be both external and internal. Few Agadas are responsible for its Rakshana karma.

Among these Agada Yogas (~formulations) Rsabha Agada is one amongst them mentioned in 5<sup>th</sup> chapter of Sushruta Samhita Kalpasthana which describes that when it is kept in the house of the king, wards off the poison of wild boar, iguana lizard, peacock, porcupine, cat, leopard and mongoose. In its presence snakes and insects shed their power and poison, drums and kettle drums smeared with this and beaten destroys Visha (~poison), flags which have been smeared with poison become detoxicated soon.

This is a conceptual study where the descriptions related to Rsabha Agada were collected from Sushruta Samhita. Relevant textual literature and scientific publications were referred.

## Why the name Rsabha Agada?

- Strength** : Relating with the strength of "bull" [According to Vedic literature Rsabha means "bull"]
- Position** : chief/ supreme
- As per Acharya Sushruta** : Rsabha means "King"

## METHOD OF PREPARATION

Number of Ingredients : 27

Mamsi, Harenu, Triphala, Murangi (Shobhanjanaka), Raktalata (Manjista), Yasti, Padmaka, Vidanga, Talisa, Sugandhika (Sarpagandhika), Ela, Twak, Kusta, Patra, Chandana, Bhargi, Patola, Kinihi (Katabhi), Patha, Mrgadhini, Karkatika, Pura (Guggulu), Palindi (Trivrut), Ashoka, Kramuka (poogaphala), Surasa, prasuna (tulasipushpa), Arushkara.



All these drugs are taken in equal quantity and finely powdered triturated along with *Madhu* and *Gopitta*. Preserved in horn of cow and used accordingly as per the indications.

### INDICATION

1. This Agada (~formulation) when kept in house of king, wards off the poison of Wild boar, lizard, peacock,

porcupine, cat, leopard, mongoose. In its presence snakes and insects shed their power and poison.

2. When Poison is in the surroundings - Drums, kettles are smeared with this formulation and beaten which destroys poison from surroundings.
3. When Flags are been smeared with poison become detoxicated soon.

**Table 1 : RASAPANCHAKAS OF INGREDIENTS:**

NO	Drugs	Rasa	Guna	Veerya	Vipaka	Karma	Indication
1.	Mamsi	Tikta, kashaya, madhura	Laghu, snigdha	Sheeta	Katu	Tridosahara, kustaghna	Kusta, visarpa, kandu
2.	Harenu	Katu, tikta	Laghu, ruksha	Ushna	Katu	Vatakaphahara, krimighna, vranaropana	Visaroga, visarpa, sotha
3.	Triphala Haritaki Vibhitaki amalaki	Pancarasa kashaya (lavana) Kashaya Pancharasa amla(lavana)	Laghu, ruksha Ruksha, laghu	Ushna Ushna Sheeta	Madhura Madhura madhura	Tridosahara, anulomana Kaphapittahara tridosahara	Kusta, vrana, krimi Atisara, trsna Prameha, kusta
4.	Murangi	Katu, tikta	Laghu, ruksha, tikshna	Ushna	Katu	Kaphavatahara, krimighna	Krimi, kandu, shohta
5.	Raktalata	Madhura tikta	Guru ruksha	Usna	Katu	Kaphavatahara, varnya vishagna	Kusta, visarpa, mutrakrucchra
6.	Yasti	Madhura	Guru, snigdha	Sheeta	Madhura	Tridosahara, Rasayana	Visha, daha, raktapitta
7.	Padmaka	Kashaya, tikta	Laghu, snigdha	Sheeta	Katu	Kaphapittahara	Kusta, raktapitta
8.	Vidanga	Katu, kashaya	Laghu, ruksha, tikshna	Ushna	Katu	Krimighna, vishagna	Krimi, adhmana kusta
9.	talisa	Tikta, madhura	Laghu, tikshna	Ushna	Katu	Kaphavatahara, Dipana, hradya	Kasa, kshaya, hikka
10.	Sugandhika	Tikta	ruksha	Ushna	Katu	kaphavataroga	Visa roga, apasmara, andira
11.	Ela	Katu, madhura	Laghu, ruksha	Sheeta	katu	kaphavatahara, hradya	Hdroga, kasa, svasa
12.	Twak	Katu, tikta, madura	Laghu	Ushna	Katu	Vatapittahara, Sukrala, varnya	Peenasa, aruchi, arshas, kandu, krimi
13.	kusta	Tikta, katu, kashaya	Laghu, ruksha, tikshna	Ushna	Katu	Vatakaphahara, Vrsya, lekshana	visarpa, kusta, kandu
14.	patra	Madhura, katu	Tikshna, laghu, picchila	Ushna	katu	Kaphavatahara	Prameha, arshas
15.	Candana	Tikta, madhura	Laghu, rooksha	Sita	Katu	Kaphapittahara, dahaprasamana	Kusta, visarpa, kandu
16.	Bharangi	Tikta, katu	Laghu, rooksha	Ushna	katu	kaphavatahara	Krimi, daha, shohta
17.	Patola	Tikta, katu	Laghu, rooksha	Ushna	Katu	Kaphapittahara	Kusta, kandu, daha
18.	Kinihi	Katu, Tikta	Tikshna	Ushna	Katu	Kapha pittahara Deepana	Kushta Gulma, Udara Vata vyadhi



						<i>Medhya rasayana</i>	
19	<i>Patha</i>	<i>tikta</i>	<i>Laghu, teeskna</i>	<i>ushna</i>	<i>katu</i>	<i>vatakaphahara, vishagna</i>	<i>Kusta, kandu, krimi</i>
20	<i>Mrgadini</i>	<i>Tikta</i>	<i>Laghu, ruksha, tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphapittahara, garbhapataka</i>	<i>Indralupta, khalitya, kusta</i>
21	<i>Karkatika</i>	<i>Kashaya, tikta</i>	<i>Laghu, ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavatahara</i>	<i>Aruchi, trishna</i>
22	<i>Pura</i>	<i>Tikta, katu</i>	<i>Laghu, ruksha, vishada</i>	<i>Ushna</i>	<i>Katu</i>	<i>Tridosahara, lekha</i>	<i>Kusta, shotha</i>
23	<i>Palindi</i>	<i>Tikta, katu</i>	<i>Laghu, ruksha, tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphapittahara, rechana</i>	<i>Krimi, shotha</i>
24	<i>Ashoka</i>	<i>Kashaya, tikta</i>	<i>Laghu, ruksha</i>	<i>Sheeta</i>	<i>katu</i>	<i>pittahara</i>	<i>Visaroga, trishna, daha</i>
25	<i>Kramuka</i>	<i>Kashaya, madhura</i>	<i>Guru, rooksha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kaphapittahara</i>	<i>Krimi, prameha</i>
26	<i>Surasa prasuna</i>	<i>katu, tikta</i>	<i>Laghu, ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavatahara, Krimighna</i>	<i>Visaroga, krimi</i>
27	<i>aruskara</i>	<i>Katu, tikta, kashaya</i>	<i>Laghu, tikshna, snigdha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Kaphavatahara, medhya</i>	<i>Kusta, krimi, kapha rogas</i>

## DISCUSSION

*Rsabha Agada* contains 27 drugs. Most of these are predominant with *tikta* (75.86%) *katu* (48.27%), *rasa*, *laghu* (79.31%) and *rooksha guna* (65.51%), *katu vipaka* (82.75%) and *ushna veerya* (72.41%) *Doshagnata* as *Kaphavatahara* (44.82%). *Makshika* with *Karma* as *Kapha pittahara*, *lekha*, *varnya*, *yogavahi*, *vrana shodana*, *vrana ropana*, *dahaghna*, *kushtaghna*. Formulation ingredients gives the indication in *Visha*, *trushna*, *atisara*, *kushta*, *krimi*, *chardi*, *shwasa*, *kasa*. These drugs are reported to have actions such as anti-poisonous, anti-oxidant, anti-inflammatory, anti-bacterial, anti-helmenthic.

## CONCLUSION

This *Agada* is explained under the aspect of *Rakshana karma*. As considering the inherit properties of the formulation and *Vishagna gana* drugs mentioned in the formulation like *Manjista*, *Tulsi*, *Ela*, *Palindi*, *Chandana*, *Sinduvara* [apart from *kathaka*, *shirisha*, *haridra*, *shleshmataka*] This *Agada* may exhibit the action of reducing the potency of *Visha*. Application of this *Agada* to drums, kettles, flags seems to be quite unique way of detoxification.

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# BLOCKCHAIN TECHNOLOGY-BASED VOTING SYSTEM

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## ABSTRACT

*In a democracy, the ruler of a nation is determined by the elections. The general public use elections to express their views through a vote. For this reason, elections are very important. A faulty voting system causes most of the problems in democratic countries like Bangladesh. The existing voting systems in Bangladesh face many problems such as vote rigging, election manipulation, and polling booth capturing, and hacking of electronic voting machines. To eliminate these problems, this paper proposes a decentralized electronic voting application based on blockchain. When the voting system first began there was a concept of secret voting. In the recent past, there have been several examples where it was noted that the voting process was not completely hygienic and faced several issues including transparency and fairness, and the will of the people was not observed to be effectively quantified and translated in terms of formation of the governments. The data and the application code of a decentralized architecture are immutable. The data or the code can not be unilaterally changed by any of the blockchain nodes. Here the blocks are used to arrange the votes and a hash function is used to chain the blocks together to form a public record. Then smart contracts are used for the application function codes. In this way, the code and the data are more secure and are tamper-proof. We therefore believe that a blockchain technology-based voting system will be more suitable for the deployment of e-voting applications in Bangladesh.*

**KEYWORDS:** Blockchain, Decentralized, Ethereum, Democracy, Non-party Caretaker Government

## 1.1 INTRODUCTION

In our research voter confidentiality, voter anonymity, and end-to-end verification type key issues are given focus to investigate. When a vote transaction occurs, a strong cryptographic hash is generated by the system. This process protects the integrity and anonymity of a vote. The hash that the system generates is based on specific information of a voter. The voter uses the hash to facilitate verification [5]. Usually, a central authority manages, counts, and checks votes. In a Blockchain technology-based voting system, each voter holds a copy of the voting records. So the voters will do those tasks themselves. No one will be able to change the voting records because the other voters will immediately find out about the changes [4]. There will be no third party in the blockchain to verify transactions because it is decentralized [6]. Blockchain has a predefined set of rules. By using those rules transactions can be verified independently by anyone [5]. In this paper, we have tried to implement a voting app to explore the use of blockchain technology.

## 1.2 MOTIVATION

Blockchain offers peer-to-peer processes where any transaction can be performed peer-to-peer and the system can not come to validate it. So we can reduce the server cost in this process and also the performances can be moderated that causing a blockage at the main server. In the blockchain, there is no main authority that maintains the voter's private information. The privacy of the transactions is helped by this mechanism to maintain up to a certain limit. In blockchain the falsification detection is easy. Because after spreading every

transaction in the network the broadcasted block will be verified by other nodes. Thus every transaction will be checked. In Bitcoin, we can find every transaction that is done so far and this helps in increasing the accessibility and transparency of any of the transactions recorded in the blockchain [13].

## 1.3 CHALLENGES

For this paper, we can assume that the insights for some of the challenges described below can be offered by blockchain technology [14].

**1.3.1 Privacy:** Cryptographic properties are leveraged by the system to ensure the privacy of voters. After the registration of a voter, the blockchain generates a voter hash that can uniquely identify a voter. The voter is protected because the cryptographic hash has the collision resistance property [5].

**1.3.2 Convenience:** A web-based interface is used for the implementation of the system. HTML, CSS, and JAVASCRIPT are used for the implementation of the web app. No one should delete, modify and forge the votes [5].

**1.3.3 Verifiability:** For casting votes, a transaction ID is given to the voters which is a hash and have cryptographic properties. This ID can be used to track votes. Unauthorized modification of the voting results should supposedly not be allowed in the system. Every vote should be counted correctly and this should be ensured by the system [5].



**1.3.4 Immutability:** The voters or the blockchain admins can not edit or delete data after it is written to the blockchain ledger. This is called immutability [8].

## 2. LITERATURE REVIEW AND HYPOTHESIS/ES DEVELOPMENT

### 2.1 Blockchain

Blockchain technology was designed by Satoshi Nakamoto in 2008. In his paper, he explained mining, proof-of-work, the role of hashing, and incentives. To verify the transfers a mechanism was also provided by him [7]. All transactions that are executed from the genesis block are replicated in the blockchain. The users who want to connect to the network are allowed by the blockchain. Then new transactions are sent by them. Blockchain then verifies those transactions and creates new blocks. Blockchain is a distributed decentralized public ledger. It has a complete list of constantly growing data records that are secured from revision, tempering, and unauthorized manipulation [5].

A cryptographic hash is assigned to each of the blocks that can be viewed as a fingerprint of the block. The hash remains valid if anyone does not alter the data of the block. If anyone does change some properties in the block, the hash also changes immediately. This type of data change can be seen as malicious activity. Blockchain has strong foundations in cryptography. For this unauthorized transactions can be mitigated. In a block, there are lots of transaction data. Each block has a hash value of the previous block and using this hash value the blocks are connected and form a valid transaction chain [8].

### 2.2 Miners

New blocks are created by miners after the transactions are validated using a consensus mechanism called Proof of Work (POW). If anyone has the required computing power to calculate the hashes he can create valid blocks for the blockchain. The transactions are grouped by POW and after grouping, POW broadcasts transactions to different parties [9].

### 2.3 Digital signature

For the verification of the integrity and authenticity of a digital message, a digital signature is used. In a cryptographic system, there are two keys: a public key and a

private key. The public key is shared widely. The owner of the private key only knows the key and he uses it to encrypt and decrypt messages.

The hash of any document can be encrypted by using a private key. Thus a digital signature is created. The signature can be decrypted by using a public key by the recipient. The result will match the hash of the document. If anyone changes the document after creating the signature the signature is invalidated. Because there will be a difference between the hash of the document and the decrypted signature. Counterfeiting a digital signature is nearly impossible because the private key can not be faked [8].

### 2.4 Smart Contract

A smart contract is a self-executing computer code. It can be also called an agreement and the execution of this agreement is enforceable and automated. This type of agreement can be run on a distributed ledger. For, handling common contractual conditions Smart contracts are used. The automated part is that computer code expresses through and independently executes the actual transactions among parties. No party can block this execution process. The enforceable part is that the obligations and legally binding rights of the parties that are involved are constituted by it.

The computer code and the legal prose both make smart contracts. Programmable transaction protocols are defined as computer code. The legal prose reflects that the computer code constitutes part of the binding legal agreement between the parties, and is therefore also legally binding [11].

### 2.5 Blockchain-based works

The evolution of blockchain-based systems largely affects business and financial services. A large number of software companies including IBM, and Microsoft introduced blockchain-based services. For improving the privacy of the Internet of Things applications blockchain is also going to use in IoT. Blockchain-based Autonomous Decentralized Peer-to-peer Telemetry has been used by IBM to construct a circulated set-up of devices. Blockchain-based apps are also used in public services to register the lands. In a reputation system, the blockchain-based apps play a significant where reputed employees are honored by some reputation currency [12].

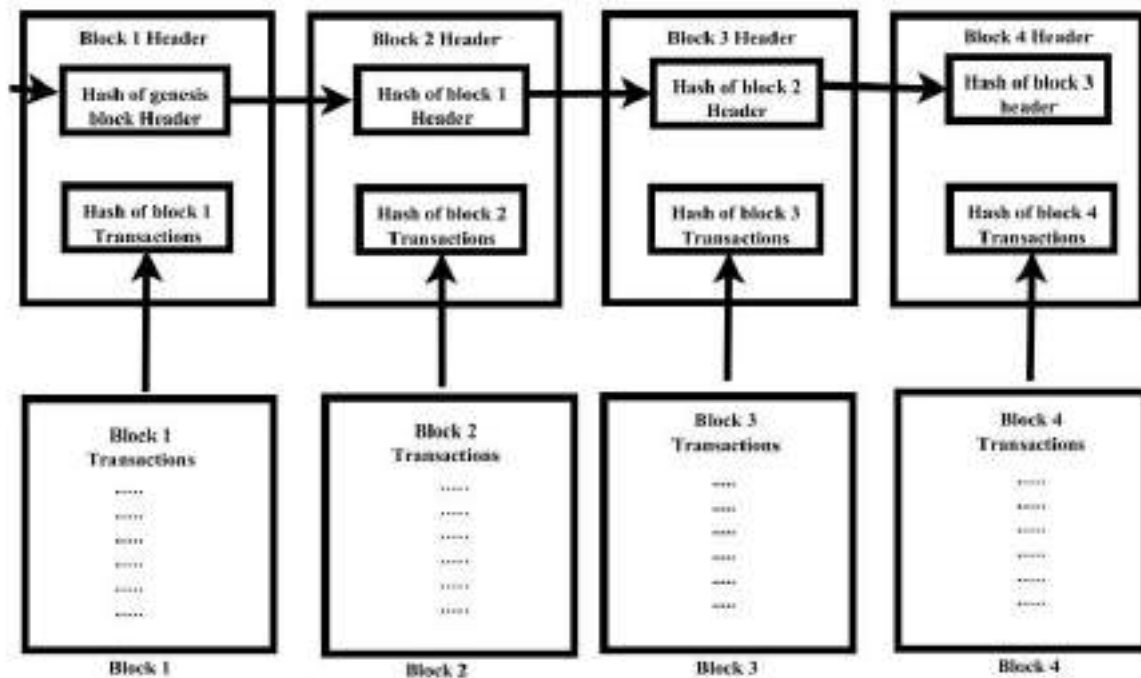


Figure-a: Blockchain

### 3. METHODOLOGY

A decentralized web application is presented here. This application is made for a referendum where most of the political parties of Bangladesh will participate in this referendum to choose a Non-party Caretaker Government for the upcoming 12<sup>th</sup> National Election for saving democracy.

#### 3.1 Entities Of The system

**3.1.1 Voters:** Most of the political parties of Bangladesh will be the voters for this referendum.

**3.1.2 Proposal:** A single proposal for the referendum is, "Bangladesh needs a Non-party Caretaker Government for the 12<sup>th</sup> national election."

**3.1.3 Blockchain Network:** A trusted peer-to-peer network that maintains records that are accessible to all of the nodes.

**3.1.4 Blockchain Admins:** A team of system administrators who will start the referendum.

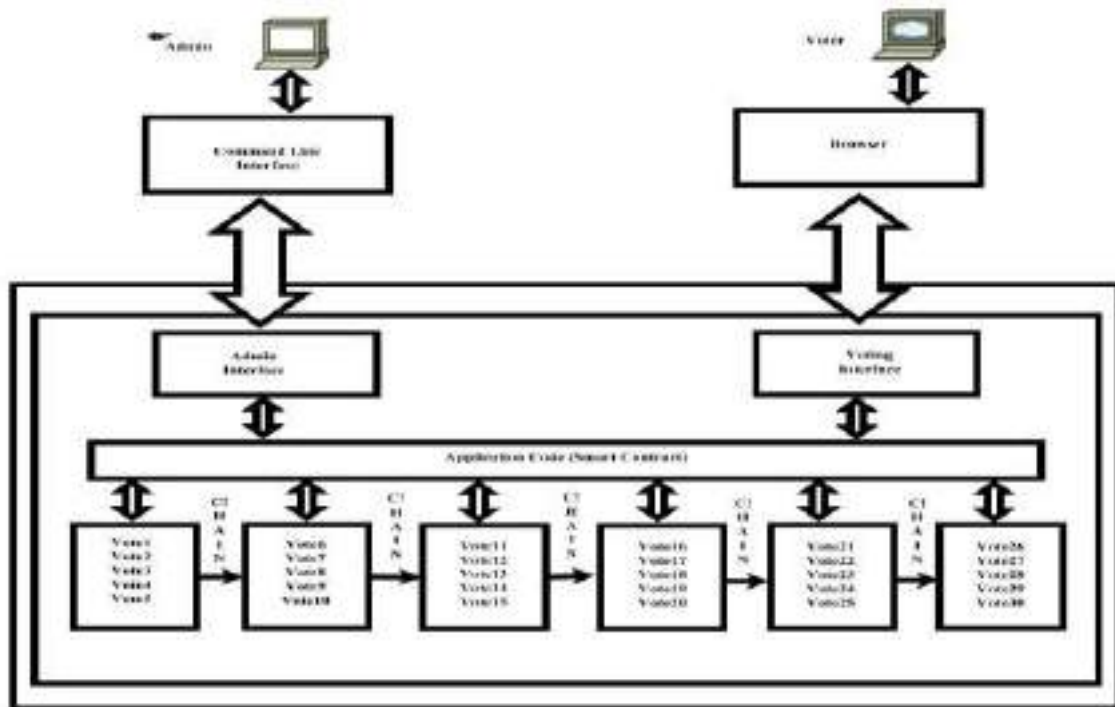
**3.1.5 Nodes for mining:** some nodes are used here for observing and verifying all referendum transactions.

**3.1.6 Smart Contracts:** Software codes that manage the referendum [3].

#### 3.2 System Design

An architecture for a Blockchain-based voting application is presented here. A ledger record, smart contracts, and the user interface together make this architecture. Here blocks are used to store the votes. Then a hash function is used to chain together the blocks one after another. Thus they form a ledger. The voter interface and the admin interface together make the user interface in this architecture.





**Figura-b: Architecture of the Voting Application**

The same application code is run by all peer-to-peer nodes as a smart contract. We then distribute the smart contracts between the voter interface and admin interface. Remote Procedure Call is used by those interfaces to communicate with the backend. The smart contract, the ledger

record, and the user interfaces are some of the nodes of the network from the application server. Then two separate websites are used for the two interfaces [3].

### 3.3 Voting Algorithm

#### 3.3.1 Admin

Step-1: Initialize the poll

Step-2: Int Total\_Voter, Yes\_Votes, No\_Votes

Step-3: String Voter\_ID, Voter\_Name

Step-4: Function Add\_Voters (Voter\_ID, Voter\_Name)

Step-5: For Loop : (I <= Total\_Voter)

Step-6: Enter the Private Key of the Voter account and type the Voter name.

Step-7: Register Voter

Step-8: End For loop

Step-9: Start Voting

Step-10: Function Count\_Votes (Yes\_Votes, No\_Votes)

Step-11: For Loop : (I <= Total\_Voter)

Step-12: Count Yes\_Votes and No\_Votes

Step-13: End For loop

Step-14: End Voting

Step-15: Print Yes\_Votes

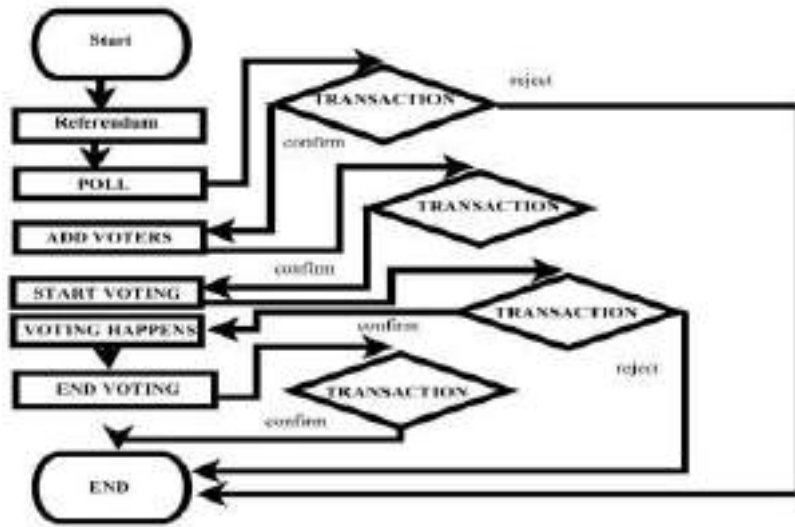


Figure-c: Flowchart For The Admin

### 3.3.2 Voter

Step-1: Initialize the poll

Step-2: Enter the system-generated referendum address

Step-3: Start Poll

Step-4: Enter Your Vote

Step-5: If you want the proposal

Step-6: Enter Yes

Step-7: Else Enter No

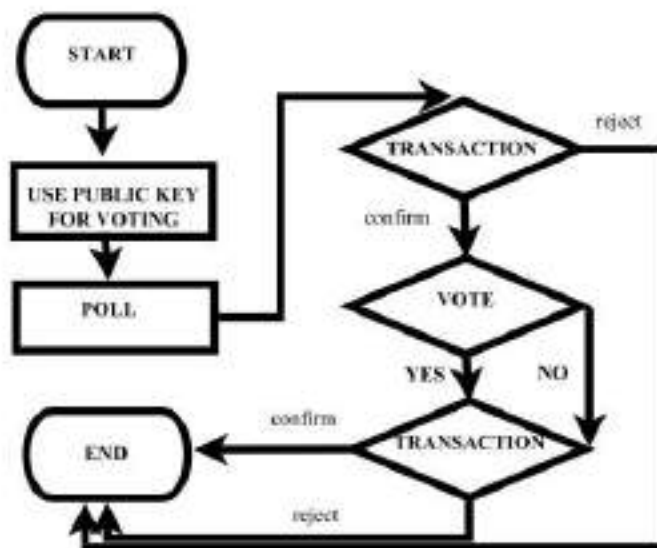


Figure-d: Flowchart For The Voters



### 3.4 Implementation procedure

Ethereum is an open-source blockchain that is decentralized and has smart contract functionality.[17] This platform uses Ether(ETH) for cryptocurrency. For

implementation, Ethereum Ganache is used here which is a virtual testing environment. Ganache provides us with 100 virtual blockchain nodes for testing our app. Metamask is also used here which is a browser plugin for the Ethereum wallet.

## Blockchain Technology Based Voting System

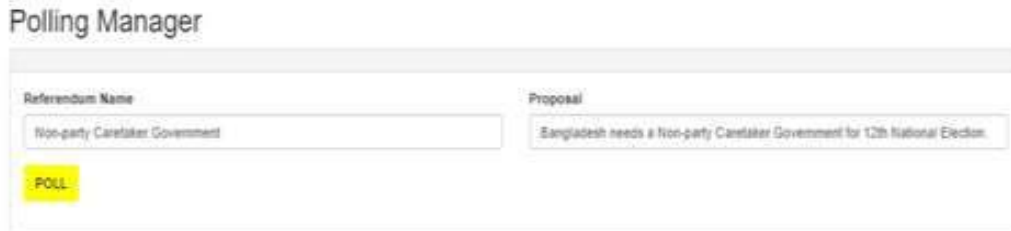


Figure-e: Admin Webpage Part-1



Figure-f: Admin Webpage Part-2 (Voter Registration)

Using Ganache we can set our local blockchain network. After that, the ganache needs to be connected with the Metamask. For every successful transaction, some gas fees

need to be paid. So for testing every smart contract we need to always pay transaction fees.

Address	Name	Status
0x0AF94941D1427a8E1a3914510D15b1D5c9eAC25	Islami Andolon Bangladesh	Unlink
0x175b2a16a00766E30Ac1ba3B9968906723D51755	Bangladesh National Awami Party	Unlink
0x23809ee5e41315a778FE80d000e445AC7e5e726	Jatiya Samajtantrik Dal	Not linked
0x2C738B646B033E4850030C8FF82808754e02a4	Bangladesh Jamaat-e-Islami	Unlink
0x4e839c475989579C733749D439Dc2857a86C8F	Islami Oikya Jote	Unlink
0x3AD8E90C102Ca4B53379E7148c28DA5e070E3383	Bangladesh Awami League	Unlink
0x80318a3780e03603485A2c872CB80140E0c34	Gano Forum	Unlink
0x88D40188Dcb48E4ba4a8078133a04358F883C18	Revolutionary Womens Party of Bangladesh	Unlink
0x800E28bd2c9D4819c9D199fa5A5778cd1573cd8	Jatiya Party	Not linked
0x70e5C86AC73F82E38F4ccF2089D0ee4Eee85D8	Workers Party	Not linked
0x714aD0e32CwFe02F02a48C043483329D961E885A	Nagorik Oikya	Unlink
0x94e55A837902239c529c84a08a9A55c9641EA1	Ganasamhati Andolon	Unlink
0xAS22C4a7EE9885F22CF29411c9e8181DA80DB2f	Bangladeshar Samajtantrik Dal	Unlink
0xa9898BA9990210e4893e78a8Dc7C79C9CE19b	National Democratic Party	Unlink
0xade71A8473de1cF23ae50250c88727a793cC8e	Kishak Shramik Janata League	Unlink
0xC992ED2D99930C8A8881F8b285D0FA4428dD101	Bangladesh Samyabadi Dal	Unlink
0xD5884075A50CA308a52455e4891D173009f11g	Jatiya Samajtantrik Dal	Unlink
0xc9843231882E99481495c02318A0D95F78E3abd	Islamic Front Bangladesh	Unlink
0xe55c935132baad2989CC0EEe4E4E42B5DF84aa7	Bikrpa Chars Bangladesh	Unlink
0xE729C55044417Dd210A480192d9B813E56e0128	Liberal Democratic Party	Unlink
0x5bP34199589AaCF44c2a5781890Cef852a0E	Communist Party of Bangladesh	Unlink
0x5F291cDc09a40086eF087508934358A016318	Bangladesh Nationalist Party	Unlink

Figure-g: Admin Webpage Part-3 (Parties who have participated in this referendum)



Here different political parties such as Gano Forum, Communist Party of Bangladesh, Bangladesh Nationalist Party, Revolutionary Workers Party of Bangladesh, Nagorik Oikya, Ganasamhati Andolon, Bangladesh Jamaat-e-Islami, Islami Oikya Jote, Islamic Front Bangladesh, Islami Andolon Bangladesh, Krishak Sramik Janata League, Liberal Democratic Party, Bikalpa Dhara Bangladesh, National Democratic Party, Bangladesh National Awami Party, Bangladesh Samyabadi Dal, Jatiya Samajtantrik Dal, Bangladesher Samajtantrik Dal, Bangladesh Awami League, Jatiya Samajtantrik Dal, Workers Party, Jatiya Party are used as blockchain nodes who are the voters for this referendum. We use the private keys from ganache to import these voter accounts into MetaMask. There is a single proposal for this referendum and that is “Bangladesh needs a Non-party Caretaker Government for the 12th National Election.” Two separate web pages have been created one for the blockchain admin and the other for the voters. The admin goes to the specific website (<https://btbvs.000webhostapp.com/>) built for voting to start. There the blockchain admin starts the poll for

this referendum. This referendum is written in a smart contract. When the admin starts this poll a transaction needs to be confirmed for the payment of the gas fees. After the confirmation of the transaction, a new smart contract is created. In this contract, the system generates a public key for the referendum address. Every voter uses this public key for the voting process. Now the admin registers the voters using their ganache accounts public key and name. With every registration, a transaction occurs and the admin has to pay some of the gas fees. After the successful completion of the registration process, the admin starts the voting. The voters go to a specific web address

(<https://btbvs.000webhostapp.com/vote.html>) that has been given to them. There they use the public key of the referendum. The voters log in to their Ethereum account via MetaMask. Then with the help of the public key of the referendum, the voters give their votes. For every vote, a transaction occurs and a voter needs to pay some of the gas fees. After the successful completion of the referendum, the admin ends the voting. Then the results are published.

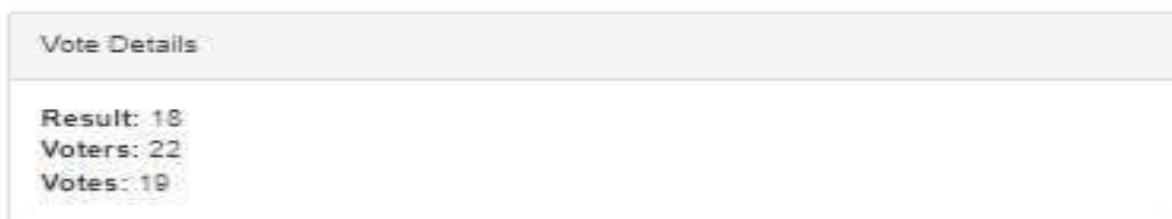


**Figure-h: Admin Webpage Part-4 (The voting has ended)**

## 4. RESULTS AND DISCUSSION

### 4.1 Result

In this web-based blockchain voting system, a scenario is presented where 22 political parties have participated as voters.



**Figure-i: Admin Webpage Part-5 (Only Yes votes are displayed)**



**Figure-j: Voter Webpage Part-1 (Voters will put the referendum address here for voting to start)**



Figure-k: Voter Webpage Part-2 (Voters will give Yes or No Vote for the referendum)

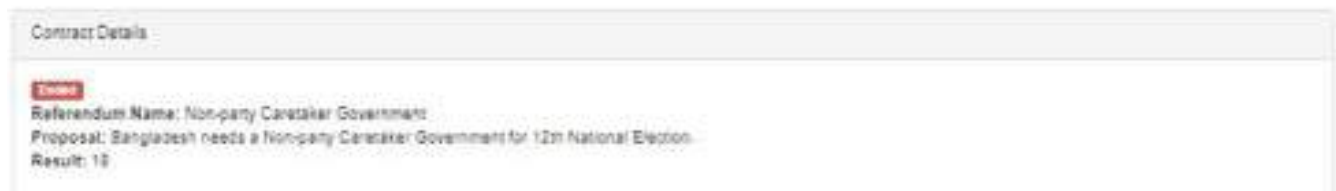


Figure-l: Voter Webpage Part-3 (Results from the Voter webpage)

Of the 22 parties, 19 political parties participate in this referendum, and from them, 18 political parties give “YES” votes for the proposal, “Bangladesh needs a Nonparty Caretaker Government for the 12th National Election.” Three political parties do not participate in this election. Only one political party “Bangladesh Awami League” gives a “No” vote for the proposal. So the result is that 18 political parties want a Non-party Caretaker Government for the upcoming 12<sup>th</sup> general election in Bangladesh.

#### 4.2 DISCUSSION

An important question that can arise is why most of the political parties (18 parties from 19) of Bangladesh want a Non-party Caretaker Government so badly. Because in the parliamentary framework, after the dissolution of the existing ministry, the practice of establishing a Non-party Caretaker Government for organizing general elections has been observed. During the period, the Non-party Caretaker Government maintains neutral status for ensuring free, fair, genuine, and internationally acceptable general elections. Non-party Caretaker Government conducted general elections in 1996, 2001, and 2008 that were mostly seen as free, fair, and genuine by international observers. But the Non-party Caretaker Government was abolished from Bangladesh by the ruling Bangladesh Awami League through the 15<sup>th</sup> amendment of the constitution, passed by the National Parliament. After that, all parliamentary elections were held under the existing parliament. The 11<sup>th</sup> National Parliamentary election of Bangladesh was held under the ruling government Bangladesh Awami League [16]. Bangladesh Awami League secured power for the third consecutive term while most of the parties boycotted the elections demanding elections under a Non-party Caretaker Government. Because the elections were highly controversial. Most of the opposition parties not taking part in an election have obvious effects on upholding a

democracy. For this reason, the 18 political parties gave “Yes” votes for the referendum.

For saving democracy for the upcoming 12<sup>th</sup> general election in Bangladesh most of the political parties participated in this referendum and the, 18 political parties presented their eagerness to a Non-party Caretaker Government for a free, fair, genuine, and internationally acceptable election. It is a successful implementation of a blockchain-based app.

#### 5. CONCLUSION

Here blockchain technology-based voting system has been implemented in a limited area. The blockchain-based voting system will be more secure than existing voting systems. The implementation of this kind of system in our national election will reduce the election cost dramatically. Vote rigging, hacking of electronic machines, and election manipulation can also be eliminated. Numerous experts believe that blockchain may be one of the best solutions for a decentralized electronic voting system.

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# THEORETICAL FOUNDATIONS OF COOPERATION WITH PARENTS IN EDUCATING PHYSICAL AND ECOLOGICAL CULTURE AT SCHOOL

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## ABSTRACT

*The article describes the interests, and motivations in shaping the physical culture of young students. The article deals with common problems of physical education are solved by affecting the physical qualities and abilities of the person. In the article, it is stated that physical culture is a part of the general culture of man and society. In the article, the author emphasizes that it is always important to direct physical education to universal, national and personal abilities, to form a need-motivational sphere, and to master and direct basic and specific knowledge, which is written in the state educational standard on the subject of "Physical education".*

**KEYWORDS:** *physical education, parents, physical and mental health, general education, pedagogical and psychological education, factors, natural environment.*

## INTRODUCTION

According to some educators and parents about the active development of hypodynamia in their children are observed in connection with the development of various diseases. This makes it necessary to attract children to the process of physical education, to use all the mechanisms and stimuli of physical growth, activating the cooperation of pedagogues and parents. In such conditions, a child's natural desire to develop his physical strength, mobility, and activity is created, which is best implemented in socially important forms of physical education and sports. Strengthening the physical and moral health of children, adolescents and young people, as well as the ability to work physically, is a strategic task in the Republic of Uzbekistan at the present time. Socio-cultural realities of modern society determine the need to develop innovative approaches to the design of educational systems at various levels.

In the process of scientific substantiation of the need to implement and create conditions for its effective implementation and mastering by students, in order to implement as a basis the decree of the President of January 24, 2020 on measures to further improve and popularize physical education and sports in the Republic of Uzbekistan on physical education It covers the pedagogical conditions. It shows that the variety of technologies (software and innovative), taking into account the personal characteristics of each learner ensures the growth of creative potential, knowledge motives, enriches the forms and methods of interaction with peers and adults. A graduate of a standard primary school is directed to the formation of personal qualities. "Portrait of a primary school graduate" covers the following qualities: respect and love for one's people, one's

country and one's homeland; acceptance of family and community values; intelligence, activity and interest in knowing the world; positive motivation for study and independent education, ability to organize oneself, independence in accepting one or another solution; kindness, communication with the interlocutor, healthy lifestyle. The formation of positive motivation in the preparation of physical education classes of junior school teachers, a healthy lifestyle, and a productive attitude to health depends, first of all, on the well-organized cooperation of the family and the school, on the activation of their educational potential, and on the purposefully organized cooperation of parents and elementary school students. The following should be reflected in the personal results of mastering the basic educational program of primary education: mastering the skills of co-operation between adults and peers in life situations, the methods of joining conflicts and finding ways out of controversial situations; caring attitude to social and cultural values; finding the ability to set goals and methods of achieving them; Adequate assessment of personal behavior and behavior of others. Compliance with the standard at the stage of primary education is carried out by strengthening the physical and mental health of students [1]. The result of mastering the basic educational program on physical education is the following concrete achievements:

- Formation and improvement of vital skills and abilities;
- Formation of necessary knowledge in the field of physical education and sports;
- Conditions and rules of physical training;
- The effect of physical training on the main systems of the body;



- Rules for independent training of motor skills;
- Basic methods of self-control during physical training;
- The role of physical culture in the family.

## LITERATURE REVIEW

According to scientists, the main concept of "Physical education" means that it is characterized by all general features of the pedagogical process in the process of solving certain education-educational issues, and is primarily directed to the formation of movement skills and the development of physical qualities, strengthening health [2]. Children themselves, however, it is more effective in the conscious attitude of children to physical training, in their motivation to do sports, in developing their activity and initiative. Practice shows that the cooperative actions of pedagogues and parents (collective discussion of sports achievements in the life of our nation and some athletes, excitement at watching television sports shows, sports-themed smurfs), close emotional communication of children and adults in various situations ensure these things.

Furthermore, there are different interpretations of the concepts of "physical education" and "physical culture" in scientific-pedagogical research. Accordingly, we believe that it is necessary to determine their content-fundamental basis. Also, researchers note that physical education consists of a process aimed at forming knowledge related to the competent and effective use of physical training. The specific content of physical education consists of education with actions, education of physical qualities, mastering of special physical knowledge and formation of conscious need in physical lessons. Physical education is the active part of physical culture, which allows turn its material and spiritual abilities into human happiness [3]. Human health and harmonious overall development are seen as the most important wealth in this situation.

Currently, the basis of the physical education process of students is the State educational standard, and within its framework, the "Comprehensive curriculum for physical culture" has been prepared [4]. This program determines the goals and objectives of physical education, as well as the content and forms of work. According to this program, physical education at school primarily performs the following main tasks:

- Formation of students' knowledge about physical activity, caring attitude towards their own health;
- strengthening of physical fitness, overall development of physical and mental qualities;
- Creative use of physical culture tools in organizing a healthy lifestyle [5, 6].

The effectiveness of educational efforts is largely determined by the character of the actions of pedagogues in cooperation with the family. Involvement of parents in solving educational tasks, socially important cooperative pedagogical activities should be regular and systematic, have a sequential and complex character, and be based on the current regulatory legal framework. Today, educational institutions have accumulated a lot of experience in cooperation with parents and their substitutes and social participation, as well as conditions have been created for expanding family

participation in the organization of educational and educational activities, because the family is the main social institution and is important for all-round physical development and upbringing of children and natural environment. Thus, in our understanding, physical education in the "family-school" system consists of a purposeful and sequential pedagogical process of active use of physical culture factors by subjects of the educational process (pedagogues, parents) in the direction of harmonious physical development of children. The researchers emphasize that it is in the family and at school that regular, mandatory engagement in physical education and healthy lifestyle habits should be developed [6]. For this reason, sports and physical culture activity in cooperation between pedagogues and parents is one of the effective means of strengthening the relationship between pedagogues and parents, and it should be considered as a pedagogical tool to activate family and school cooperation. In addition, physical culture training is one of the types of cooperative activities, the main element of which is mutual understanding and influence. Kulik and Berestov believe that the physical education of students in the family predpolagaet s odnoy storony, on the one hand, determines the organization of special physical activities, and on the other hand, the creation of certain conditions by parents that affect the health of the child's body and ensure its general physical development.

Scientists also emphasize that "systematic engagement with physical training simultaneously solves the issues of increasing work efficiency and educating the efficient and purposeful distribution of one's own strength, ensures the development of internal discipline and concentration" [5]. Therefore, at the same time, "in order for the child to grow up healthy, strong and energetic, first of all, it is necessary to develop the activity and dexterity of the child" which requires the involvement of every family in this process: "cooperation of parents and children in the process of physical education - this is the creation of the cohesion of the family, the strengthening of the moral environment, human traditions, common interests. In family activities in cooperation with physical culture and sports, increasing the educational potential of the family, strengthening the relationship of parents with their children is hidden.

However, according to Simon, parents spend less time with children due to difficulties, and when they do have time they often lack the knowledge and experience to properly raise a child. If parents avoid their children from physical loads, they hide them from the influence of the environment, therefore, they make big mistakes, reducing the child's adaptation to life conditions, which slows down his physical and mental development. Limitation of the child's movement, the desire to avoid physical loads is a direct way to the deterioration of his health, because it stops the development of the organism, and forms a positive motivation for young students to engage in physical culture activities, to cultivate a productive attitude to a healthy lifestyle and health, first of all, it depends on the proper cooperation of the school and the family, on the purposefully organized cooperation of parents and elementary school students. In the active interaction of the family and the school, the effectiveness of physical culture-health activities aimed at forming a healthy lifestyle and strength the physical health of young students increases.





## RESULTS AND DISCUSSION

The essence of the concept of "cooperation" consists of individual actions resulting from each other in a cyclical causal relationship the behavior of each participant turns out to be both a stimulus and a reaction to the behavior of others. From the point of view of general philosophy, cooperation is defined as "a category that reflects the process of interaction of objects with each other, the echo of the origin and mutual support of one object from another". Based on this, the pedagogical cooperation of the school and the family will consist of creating positive conditions for the personal development and growth of children, organizing the active life of students. According to Shukaev, the main task of pedagogy in organizing cooperation with parents is to activate the pedagogical and educational activities of the family, to give it a purposeful, socially important character. According to Bystritskaya, the main condition for the interaction between school and family is to have a full idea of the functions and content of each other's actions. These subjects can understand each other and imagine the image of educational possibilities, define realistic actions of mutual assistance, report to oneself, why it is done and clearly imagine educational tasks, means and final result. Parents should be able to analyze their children's activities and behavior in order for school and family cooperation to be successful in education. Children's physical education is based on the joint cooperation of family and school, which allows students to have a healthy lifestyle, physical culture and sports, more effectively formed. Pedagogical cooperation is a type of social cooperation process to implement targeted prognostic change by influencing the object. Taking into account the above, the pedagogical cooperation of the school and the family consists of a specially organized system of influences, connections, relationships, coordinated actions and contacts of pedagogues and parents, and is directed to the activation of cooperative activities of pedagogues and parents in the course of physical education of children of small school age. Physical education of a child is the main social task, and it is solved successfully by society and family. And the family is a small social group, which is connected by kinship ties and performs the following functions depending on regular interests and abilities:

- 1) Reproductive (biological restoration of life, ensuring continuity in physical education and upbringing of children);
- 2) Social (the next generation must be more numerous than the previous one);
- 3) The function of initial socialization of children (constant introduction of the child from the family to the society);
- 4) Educational;
- 5) Economic and household (consists of ensuring the biological existence of the family);
- 6) Medical (supporting the physical health of family members).

The conditions of cooperation between the school and the family in physical education ensure the systematic and complex formation of actions and skills aimed at the development of the child's physical qualities. Researchers note that the development of physical culture in children of primary

school age is primarily carried out in the family. Physical education is one of the main meaningful components of physical culture. In this regard, we use the concept of "culture" as a basis for defining the main terms of the research, firstly, the totality of the achievements of human society in production, social and spiritual life, and secondly, knowledge, education.

Based on this, we understand physical culture as a component of general culture, which consists of a set of spiritual and material abilities for the physical improvement of people by society. This confirms that physical culture is one of the main products of the national culture and the organizer of the spiritual abilities of the society. In recent years, an understandable trend has been formed in the field of pedagogy, full of practical interpretation of classical definitions of concepts from the field of physical culture. Undoubtedly, this ensures a conscious individual choice of the goal in a broad sense, for example, learning in classes with physical training, in addition - creating individual technologies of self-improvement in acquiring and increasing the abilities of physical culture. Physical culture in the narrow, abstract sense is a component of a person's culture, the specification of which consists of clearly organized movement activity, through which the general physical, mental and psychological condition of his organism is optimized.

Each person is a carrier and owner of physical culture abilities. In relation to this plan, the essence of the concept is that "the physical culture of a person rests on material and spiritual foundations and is based on the unity of movement and intellectual components and the fact that they give rise to each other". As an axiom, we accept the theoretical plan about the interdependence of biological and social, movement and intellectual components, which, first of all, is related to the formation of the movement component affecting the physical condition of a person, and the development of its physical properties through the systematic acquisition of physical training and the correct application of technology is carried out by; secondly, to create an intellectual organizer of culture, the essence of which is to master special knowledge, the technologies of its application, and to organize the process of self-improvement. Here, it is important to pay special attention to the fact that the formation of movement and intellectual components of a person's physical culture is limited to physical (bodily) and educational (theoretical-methodical) self-improvement ability.

The ecological and hygienic physiological pedagogical basic concepts of physical culture are physical culture education, which requires knowledge acquisition and knowledge methods in the field of physical culture. In relation to this, we give another definition in our report. Education in the field of physical culture is the process and result of the formation of knowledge, ways of knowing, the use of certain tools and methods aimed at the physical improvement of a person's physical culture, and the development of the ability to spread such acquired knowledge to others based on personal experience. Thus, what has been described allows us to confirm that all concepts related to the physical culture of a person (physical education, physical education, etc.) are interrelated and interdependent. Physical education and training is carried out in preschool, secondary and higher



educational institutions within the framework of curriculum implementation, and it includes educational subjects called "physical education" or "physical culture". We emphasize that physical culture is one of the main and mandatory subjects of the general school curriculum. It is aimed at improving the vitality of the organism in order to improve physical and intellectual self-improvement of physical culture. In the process of teaching the subject "Physical culture" at school and preschool educational institution, children are given the opportunity to acquire theoretical knowledge (as much as possible), practical knowledge and skills, and methods of applying them in life. Training of the mentioned subjects is aimed at the formation of ideas about the capabilities of one's organism, control of the level of health, and the independent and competent creation of a self-improvement program at a much older age. From all of the above, it is necessary to emphasize the origin of a very important aspect of teaching subjects related to physical culture.

In today's school, physical education classes usually require active movement recreation or movement training aimed at sports results. Therefore, at the same time, it should be noted that the curriculum has a chapter on the theory of theoretical knowledge that students need to acquire in the field of physical culture. In fact, physical training classes cannot fulfill their function in full due to a number of objective and subjective reasons. The effect of physical education depends on a flexible system of cooperation between family and school. Accordingly, one of the pedagogical tasks will be to organize effective pedagogical cooperation in the physical education of elementary school students of the school and the family in the following areas:

- joint traditional and innovative sports-health activities of pedagogues, students and parents, public holidays, important social and educational actions (Health Day, "Father, Mother and I - sports family", Little Olympic Games, spartaki, etc.) improvement based on organization;

- acquiring the culture of students' parents in the process of holding open-door days, pedagogical councils on various topics, organizing meetings of parents, publishing information materials and reports on the end of educational work during the year;

- to involve parents in active physical culture and sports activities by organizing and activating the activities of the school council, the school parents' committee and the students' class community, holding joint actions at the school, family and micro-district level. Every family is obliged to surround children with care and attention, because children have the right to a happy childhood.

On the other hand, in many cases, the "blind" love of parents has a negative effect: they are hyper-caring and strive to provide their child with everything he wants, without realizing that this is the reason for the creation of difficulties both for himself and for those around him. Family and school are two educational phenomena that give a child a unique social experience, form social connections and relationships [5, 6]. They only provide optimal conditions for the harmonious interaction and cooperative activity of a small person in the larger world, where a healthy lifestyle should be manifested as a common ability. Therefore, the physical education of the child in the family is an important part of the

formation of the personality from an early age, which provides parents with special requirements necessary to lay the foundation of the child's physical and spiritual development in time. Studies of the last decade can show that modern physical education classes are not always effective in terms of their content, form, students' achievement of physical condition, and health formation. However, it is the responsibility of pedagogues and educators to develop the technology for implementing this direction as a functional obligation [7, 8].

## CONCLUSION

Thus, the concept of "physical education" is part of the general concepts of "physical culture", "physical education" and "education". It could organize the solution of certain educational tasks, such as education, is characterized by all the general features of the pedagogical process. In the process of physical education, the student acquires the following theoretical knowledge in the field of physical education and sports: the conditions and rules of physical training, the effect of physical training classes on the main systems of the body, independent training of movement skills, the main methods of self-control during physical training classes, the role of physical culture in the family.

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# SACREDNESS, LIVINGNESS AND CULTURAL HARMONY DESTROYED BY THE HEGEMONIC HERITAGE CONSERVATION; A CASE STUDY RELATED TO KŪRAGALA ARCHAEOLOGICAL FIELD, SRI LANKA

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## ABSTRACT

*A country's heritage is a factor that directly or indirectly affects all sub-fields of that country, such as social, economic, political and cultural. Since something is considered heritage by a person or group, the definition of heritage is influenced by the opinion of that person or group. Therefore, defining something as heritage is a matter of caution. This is because if heritage is not carefully defined, it affects all of the areas mentioned above. This study also focuses on the Kūrāgala archaeological site, a heritage area that has created problems and conflicts due to ideological and functional weaknesses in the definition of such heritage. This site can be identified as an area that that initiated a racial conflict due to the unilateral intervention in the conservation of a heritage area with remains belonging to both Buddhist and Muslim communities. This study aims to identify the problem that has developed in Kūrāgala, investigate the factors that have influenced the creation of such a problem and suggest effective solutions that can be used to solve the problem. Also getting an idea of a suitable model for an approach that does not cause problems in heritage conservation is also done here.*

**KEYWORDS:** *Buddhist community, Conflicts, Heritage Conservation, Muslim community*

## INTRODUCTION

The word heritage has been defined in different ways at different times and in different spaces. Here, William Logan's idea of heritage as tangible and intangible as a legacy is important for defining heritage. He further states that not everything inherited from past generations is inherited. In his view, heritage is a product of society's interpretation of heritage as something belonging to the past by certain forces in society. Political authority, religious institutions, educational structures as well as new media interpret heritage today. There they use different forms and concepts to define heritage. An examination of the history of heritage conservation in Sri Lanka reveals the crisis created by the conceptual approaches to defining and conserving heritage. This inquiry is an analysis of the racial approaches commonly used in Sri Lanka for heritage conservation as a conceptual approach and the crisis situations that have arisen through it.

The main objective of this research is to identify weaknesses in the ethnic approach to heritage conservation that lead to the formation of ethnic conflicts and to make appropriate proposals for its management. The remaining objective of the research is to identify an appropriate approach to heritage conservation.

Various researches have been done on the above proposition both nationally and internationally. There have been a number of studies involving such research, but only a few have been used for further study in this review. "Heritage

and Nationalism: An Unreachable Couple?" By Tim Winter at the Institute for Culture and Society, Occasional Paper Series, Volume 3, Number 4. The article was important for the theoretical focus of this study, and was published by Salvijus Kulevičius in Historical and Cultural Studies, Vol. 2. The research paper "Nature and Mission of Heritage in Modernity: Impacts of Nationalism" published in journal 1 contributed conceptually to this study. Several Sri Lankan researchers have also conducted studies with the above objective, and this research is primarily based on Nirmal Ranjith Devasiri's New Buddhist Extremism and the Challenges to Ethno-Religious Coexistence in Sri Lanka. KB Wickramasinghe's co-authored book "Religious Interface and Contestations between Buddhists and Muslims in Sri Lanka" is also used as central pre-research. Apart from the above foreign research used for the conceptual approach, Sri Lankan research has focused on marginalized communities and not on the problematic nature of the use of a racial approach in the conservation of the heritage on which this inquiry is based. This study fills in the blanks in the field of research by focusing on marginalized communities living in heritage areas but not entitled to inheritance and the problematic situation that arises as a result.

## RESEARCH METHODOLOGY

The research focused primarily on national and international approaches to heritage conservation through a literary study, as well as research on ethnic conflict and



heritage conservation, followed by a field case study. The Kūrāgala Archaeological Site, especially in the Sabaragamuwa Province, was also identified as a Crisis Heritage Site, and case studies were carried out. A basic understanding of the field's built environment before and after the crisis was created, followed by random interviews with residents in the field study, followed by a short questionnaire shared on social media. This inquiry was also based on the views expressed on social media as ethnic conflicts are frequently discussed on social media. The data provided in several of the above ways led to the analysis, which provided a qualitative assessment of the field situation as well as the prevailing social attitude towards heritage conservation. The next step in methodology was theoretical analysis, which oriented the basic theoretical analysis of the three concepts of power, nationalism, and heritage conservation. Theoretical queries of data from the field and the social media will ultimately lead to conclusions as well as a hypothesis about the impact of the use of an ethnic approach to heritage conservation and its impact on the continuation of heritage conservation.

## RESULTS AND DISCUSSION

From the very act of defining heritage, all the functions of declaring and preserving it are controversial. Inheritance also interacts with the three dimensions of definition, preservation, and expression. In some cases, heritage conservation takes place even at the very step of defining heritage. But it should be emphasized here that in the above three cases, the probability of various crises not only ideologically but also physically is high. It is important to note here that there are a number of issues that can lead to crises in all three of the above steps in relation to heritage. They are,

- Who owns this heritage?
- Who are the parties to this legacy?
- Are there any mixed cultural features or influences in this heritage?
- Should this heritage be preserved?
- If so, what is the approach to conservation?
- For whom is this heritage preserved?

It should be noted that the above-mentioned issues are creating heritage-related crises. The Kūrāgala Archaeological Survey, which is used as a case study for this discussion, focuses on the above issues conceptually and understands its real crisis when inquiring about the crisis that has arisen in it. It identifies the real crisis, inquiries into the factors that influenced the construction of that crisis, studies the factors contributing to the existence of the crisis, and identifies an appropriate methodology for resolving the crisis. The final step in the research is to identify the appropriate conservation approach to utilize the case study as a whole for heritage conservation.

## CASE STUDY RELATED TO KŪRĀGALA ARCHAEOLOGICAL FIELD

Kūrāgala Archaeological Site is located in the Balangoda Divisional Secretariat area in the Ratnapura District of the Sabaragamuwa Province and the Kūrāgala

Archaeological Site is located about 24 km from Balangoda on the Balangoda - Kaltota Road. There are various stories about the historicity of the Kūrāgala archaeological site and it is important to focus on the archaeological finds.

Inquiry into the historicity of Kūrāgala reveals that the earliest history of the Kūrāgala field dates back to prehistoric times. Stone tools, fossils, and oysters have been found in Kūrāgala dating back to the Middle Stone Age, about 8000 years ago.

Kūrāgala, a human settlement in prehistoric times, is said to have continued to be inhabited by BCs. This is confirmed by the inscriptions dating back to the 3rd century. These inscriptions found in the vicinity of the Kūrāgala cave date back to BC. 3 - AD. It is written in the original Brahmi script of the period between 1 AD and mentions the offering of caves for the residence of the monks (Collins 1932; Paranavitana 1970).

In addition, Archaeological finds such as a stupa dating back to the 7th century A.D. confirm the existence of a settlement around Kūrāgala and that Kūrāgala was an early Buddhist monastery.

In the recent history of Kūrāgala, which was an early Buddhist monastery, an Islamic mosque has been built and various sources have been cited to confirm the historicity of the mosque.

As mentioned above, it seems that there are relics belonging to two religions in the field of archaeology at Kūrāgala. Whether they have the ability to be confirmed archaeologically or not, there have been constructions here that represent some time.

There is a need for some sort of identification of the origin of the Kūrāgala crisis and its trajectory. In compiling information on this crisis, it is important to study the facts on both sides of the controversy over Kūrāgala.

## KŪRĀGALA: TODAY

The approach road from the village was repaired and resurfaced in 2013 during a major reorganization of the site and ends in the valley in a car park. From here, pilgrims walk up the hill. There is a beautiful staircase carved into the rock, resembling rock-cut staircases in other ancient Buddhist complexes, such as Mihintale and Anurādhapura. Its 'unusual' feature is that access to the steps, recently inscribed with Muslim names, is through a large white entrance arch with green minarets on either side. This flamboyant arch, with Islamic motifs, was constructed in 1982 (Aboosally 2002). Some local residents identify this new construction as a "Muslim Torana", the latter being a specific religious emphasis and designation usually associated with Buddhist sites.

After climbing the steps to a plateau, the way turns downwards through a line of shops on either side. The plateau also hosts several buildings, including offices and quarters for the employees of Daftar Gilānī or 'Jungle Rock Cave Gilānī'. There are temporary constructions in this area used during the annual Kanturi, or Kandoori, festival as well as a temporary police post. These new buildings were relocated here following the reorganization of the site in 2013. Before that,



poorly constructed and unplanned buildings covered much of the area around the mosque. The remodeling, under the supervision of the Defense Secretary, was a government response to growing communal and religious tensions over competing claims to the site from the two communities. Specifically, it followed demands for immediate action from activist groups, such as the Bodu Bala Sena (The Army of Buddhist Power) and the Sinhala Ravaya (The Sinhala Roar), and the Jatika Hela Urumaya (National Sinhala Heritage), a political party who only fielded Buddhist monks in the 2004 elections. In terms of legal jurisdiction, it would have been better if the Director-General of Archaeology had stepped in to take conciliatory measures to manage the emerging crises rather than the Defense Secretary. In the event, the Defense Secretary had discussions with the mosque trustees, resulting in the relocations. This intervention also enabled the Department of Archaeology to conduct exploratory excavations which discovered a prehistoric skeleton, as well as Prof. Raj Somadeva's survey (2015). Prior to 2013, the sacred site and the entire valley was dotted with buildings such as shops, kitchens, rest rooms and living spaces. This was in contrast to Kūragala's setting, a scenic place with the aesthetics and atmosphere of an ancient forest cave monastery, offering splendid views of the plains stretching all the way to the borders of Monarāgala District and the east coast beyond. The view of the ancient temple at Budugala, close to Kūragala, and the surrounding paddy fields is breathtaking. To the south, on a clear day, one can see Hambantota and the new Mattala Airport. Kūragala contains abundantly rich features of a religious sanctuary of bygone era, still ideal for contemplation and meditation practice.

When one goes down the steps, passing into the valley, the first feature encountered is a Muslim tomb near the bottom. Another second tomb is visible about 100 metres along the path to the mosque. They are the first of the five tombs within the site and appear to belong to a more recent period, as pilgrims, mystics or patrons were interred there once the Kūragala pilgrimage became popular among Sri Lankan Muslims in the second quarter of the twentieth century. To the visitor, the tombs give the impression that this ancient archaeological site has now been fully taken up by Muslims of the twentieth century and one could argue that this has occurred without little regard for the cultural heritage, history, archaeology or monuments of Kuragala. The Daftar Gīlānī mosque itself is located on the rock outcrop close to a rock shelter to the south. This outcrop is called Hiṭuvangala, or 'standing rock' in Sinhala, but in Tamil, it is known as the Kappal Malai or 'ship mountain'. To the southwest is a peak called jin malai or 'spirit mountain' in Tamil, with further five-rock shelters, widely believed to have been used for meditation by Buddhist monks as well as Sufi mystics. To the east is the peak with the rock shelter called Kūragala or in Tamil *curankam malai* or 'cave mountain', in which the Persian Sufi mystic Muḥyīuddīn 'Abdul Qādir al-Gīlānī spent time on his way to Śrī Pāda. It is alleged that this rock shelter contains a secret passageway to a building located in the plains far below. The peak also houses a half-built stūpa in an ancient style, which was repaired in the early 1970s by the

Department of Archaeology, leading to controversy. This historical and archaeological site of Buddhist origin becomes vibrant annually during the Kanturi festival of the Sri Lankan and Indian Muslim community. This festival emerged to commemorate the death of Gīlānī. Large crowds of Muslims of various persuasions gather at Kūragala and this tranquil location, suddenly becomes crowded with pilgrims.

There were a number of legal battles among Muslims themselves concerning the affairs of the mosque as early as 1922. However, it was only in the late 1960s that Buddhists got involved significantly in religiously and politically motivated activities at the site. Legal battles followed in such involvements, including a case in which the Government filed a lawsuit against a mendicant, Trinco Bawa, for constructing a building in defiance of the Antiquities Ordinance (Aboosally 2002).

The twenty-first century has witnessed increased tension in the area, as well as in Sri Lanka more widely, on the issue of the legitimacy of a Muslim group controlling the affairs of ancient Buddhist Kūragala. The Bodu Bala Sēnā and Sinhala Rāvaya pressed the Mahinda Rajapakse Government to address the issue and resolve potential threats it may have for peace and harmony. As a result of the pressure, Gotabhaya Rajapaksa, the Defense Secretary (later Sri Lankan president), visited the site in April 2013 and ordered all 'illegal' structures, such as the shops and resting places that had grown around the immediate vicinity of the mosque, to be relocated (McGilvray 2016). As a result, many facilities, including the police station, shops, and pilgrim rest houses were been relocated along the road leading to the sacred premises.

Wathurakumbure Aththadassi Thero, the chief Sangha of the Nelligala Vihara, built a Buddhist temple complex over the past two years on the religious creations of the Muslims who were completely destroyed. Kūragala has been attracting a large number of Buddhists from all over Sri Lanka in the last few months. The use of social media shows that the lion statue that makes sense of the Sinhala nation that has been built there has gained more popularity among the people. Although the disputes created by the Buddhists over Kūragala in the last decade have been centered on religion, more recently the disputes have been centered on the Sinhala nation. Although it started with the slogan that Buddhist heritage should be preserved, field observation shows the extent to which its present constructions have damaged the ancient monastic landscape.

### **SACREDNESS; LIVINGNESS; CULTURAL HARMONY**

The field of archaeology at Kūragala clearly embodies both sacredness and livingness. The problem, however, is that there are two religions. This is the root cause of the conflict between religions and races. Officials should pay special attention to any kind of conservation work carried out at such a sensitive archaeological site to preserve it in a manner that creates unity among nations. But it has been avoided by conservationists. If such a place was preserved with the right vision, it would be a place where peace and coexistence would flourish without conflict. We have two prime examples of



interracial and intercultural coexistence occurring in the same place. Namely, Sri Pada and Kataragama. The opportunity to make Kūragala such a place has been destroyed by the hegemonic heritage conservation. In the end, much of its true Buddhist face, archaeological value, and national unity has been destroyed. Therefore, we can identify Kūragala as an archaeological site which was destroyed its sacredness and livingness due to conservation strategies.

## CONCLUSION

Summarizing the above it is clear from the recent conservation that the Kūragala area has been a human settlement since prehistoric times and was once a Buddhist religious center and at another time a Muslim religious center and later problems arose as to who the real owners were. It has created an ethnic conflict by destroying its Muslim remnants and turning it into a full-fledged Buddhist center.

This conservation cannot be termed as just archaeological conservation as it has destroyed the sanctity of one religion. Conservation in such sensitive areas not only adheres to solutions that are mutually agreeable, but racist conservation threatens even the very principles of conservation. Therefore, it is the role of conservationists to take sensible action in such field conservation without resorting to hasty and racist solutions.

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# STUDY AND DESIGN OF DUAL UTILITY SPACE: STUDIO APARTMENT IN INDIAN CONTEXT

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## ABSTRACT

*A multi-functional space can be described as a true integration of different functions in time and space. Indian cities face problems with continuous population growth, while human needs remain the same or increase. Urbanization growth and marketing prices force citizens to adapt themselves in smaller space. Compact living has always been proclaimed as a way of the future, but the future is now here and the cities are plagued by inadequate, uninviting city- living environments. The need of urban single - person households can be rectified by the introduction of studio apartments.*

*The paper focuses on the three features as study of studio apartment, dual utility space and multifunctional furniture in Indian context. The aim and objectives of the study is to understand the scope of dual utility in small spaces like studio apartment with the help multifunctional furniture. The methodology of the study involves collection of primary and secondary data, primary data mainly focusing on the selection of two case studies in metro cities of India. Primary data deals with the relevance of standards and literature review. The study is concluded by designing a live space conceptualizing a studio apartment as a dual utility space and multifunctional furniture. Multifunctional space/multifunctional furniture forming space ,the chosen topic defines in this case is multipurpose usage of a particular area with different forms of multifunctional furniture used ,to justify or help the given area to achieve the purpose of ease and satisfy the demands required to be fulfilled.*

**KEY WORDS:** *India, Urbanization, Dual utility, Multifunctional, Compact*

## 1. INTRODUCTION

In India majority of population is living in small apartments this is mostly because of their affordability as well as the lack of space availability for living. Most societies are struggling with the growing population and urbanization, due to more desire for housing in the cities that lead to the appearance of small apartments (Urist & Beriot, <http://TuEngr.com> Page 2 2013). The definition of what constitutes a small apartment has changed. Almost 20 years ago a small apartment needed a floor space of about 70 square meters. Today we have some apartments with a floor space of 20-30 square meters (Kilman, 2016). Though the spaces have become compact the human needs are still the same or greater than before. This has resulted in to multifunctional usage of space. Multifunctional furniture solutions give full advantage of these reduced spaces while still achieving greater comfort, usability, and order in these spaces. Multifunctional furniture as a flexible method can increase space sustainability and improve the quality of living by serving several functions at once. These types of flexible furniture can balance spaces in terms of beauty and efficiency. The main goal of this study is to investigate the impacts of multifunctional

furniture on the space efficiency of small apartments to improve human well-being taking an example of Studio Apartment.

### 1.1 Studio Apartment

Studio apartments, also known as a bachelor-style apartment, efficiency apartment or a studio flat are small and self-contained. A studio apartment is a small apartment which contains a bedroom, kitchen, and living area in a single room. A studio apartment typically consists of one large room that serves as the combined living, dining, and bedroom. This concept is popular among single individuals such as students and working professionals living away from home. Sometimes, even couples looking for an affordable place to live in temporarily, might opt for studio apartments.

### 1.2 Dual Utility Space

A dual utility space can be described as a true integration of different functions in time and space. Dual utility spaces are designed in order to satisfy different demands at less area. Also in contemporary era, inner city congestion is an increased



problem and the preference of dual utility spaces is an ideal approach in order to improve the situation.

With the increase in population, rise in birth rates, better medical facilities and reduction in death rate has led to overcrowding in urban areas leading to less space for every individual. With the reduction of per person space and increase in number of human activities, dual utility space is the only solution to accommodate multiple activities in smaller spaces. Dual utility is not only about saving space but to increase to the level of convenience and comfort for the user. It not only takes up small spaces but also helps in performing various functions in a given space which leads to reduction in movement thereby less energy consumption which eventually leads to more productivity in other aspects. Various combinations of dual utility spaces are Home office and residence, dining and Kitchen, storage and Study and Bedroom and Study.

### 1.3 Multifunctional Furniture

Furniture may be a necessity and not a luxury, everybody needs it. Furniture covers about 50 per cent of usual floor space (Kandalkar, 2020). Hence, to preserve human well-being, living during a small space therefore requires smart and space-saving furniture solutions (Kandalkar, 2020). Multifunctional furniture bolsters the “less is more” attitude of the tiny-house and minimalist movements. Multifunctional furniture is space-saving furniture that can serve more than one function. There are many types of multifunctional furniture for living areas including space-saving beds and tables as they have more functional properties than other multipurpose furniture because they are among the most-frequently-used piece of furniture (Husein, 2020). Multifunctional furniture is a revolution for furniture design as their designs do not only make them a smart solution for small spaces but also make them look more pleasing aesthetically. It is an approach to space sustainability that, at the same time, serves all kinds of functions. Multifunctional furniture denotes pieces of furniture that adjust with different applications by transforming spatial relationships of their pieces. Multifunctional items like foldable, stackable, and transformable furniture are great solutions for maximizing small spaces. Figure 1 depicts multipurpose furniture that can work as a table, chair, bookshelf, and a wardrobe at the same time. Figure 2 depicts a regular space saving bed might be a shelf, desk, or combined bed and desk, in which the desk portion is capable of being transformed into a bed.



Figure 1 Multipurpose Table



Figure 2 Multipurpose Bed

### 1.4 Aim

To study and design dual utility small spaces like studio apartment with application of multifunctional furniture.

### 1.5 Objectives

- To function multiple activities in restrictive spaces.
- To study multifunctional furniture that can transform a living space based on the needs and time of the day.
- To understand various mechanisms of multifunctional furniture.

## 2. METHODS

The method adopted here is collection of secondary data and Literature review, primary data in the form of case studies as one of Indian origin and other of International category. Based on the comparative analysis a design programme is framed. A site is selected for final design with site analysis, conceptual analysis, functional correlation and final design. The site selected is existing Studio apartment in a metro city considering a hypothetical case of family structure and profession. Design output involves the features of dual utility space and multifunctional furniture.

### 2.1 Case Study 1

The case study 1, Figure 3 is selected from Bandra, Mumbai, India with an area of 470.00 Sq. Ft. owned by K.V. Bala, Chairman, BVK group, his second home. It needed to be a self-sufficient, comfortable apartment that he could use on his frequent business trips to the city. The architects, kept the 470-square-foot linear space as open as possible. The brief was to

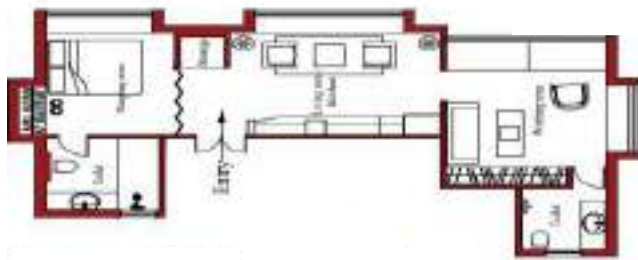




create a stylish, modern space that was minimal in decor but high on function. Mainly the false ceiling, small windows and unnecessary walls were removed. The activities included are Living area sharing Space with kitchenette, a bedroom and a toilet. A small study / TV room which gets converted in to a guest room is at other corner. The doors are folding and furniture multifunctional for better spatial quality. Each room changes seamlessly to accommodate various needs.

**2.2 Case Study 2**

Figure 4 showcases Hong Kong designer Gary Chang sets us a good example- he innovated his apartment into a space that could be transformed into 24 different rooms. His key to success is movable wall, space dividers and foldable furniture. He used this space as his experiment studio and started to customize all the components, from the wall construction to curtain setting. This apartment space is a simple rectangle, but after the renovation, it gets divided into a lot of sections that maintain varieties of function- kitchen, spa area, bedtime space and dining room. This apartment got renovated for four times in total and finally got 24 different layouts. There are 13 tracks hiding in between the architecture substantive ceiling and a mirror ceiling to hold all the movable walls



**Figure 3 Case Study 1**



**Figure 4 Case studies 2**

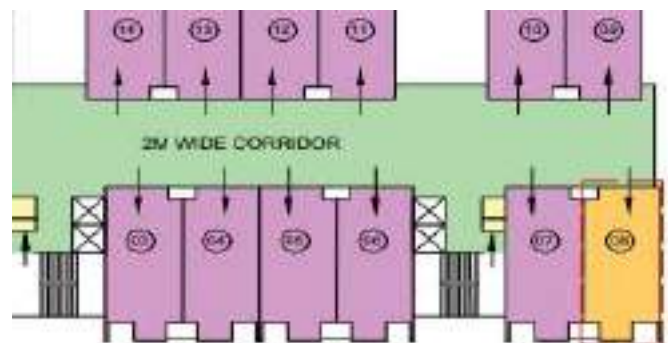
with truckles. The mirror ceiling not only effectively covers the busy tracks on the top, but also extends the top space and visually enlarges the room.

**3. PROPOSED DESIGN**



**Figure 5 Proposed Site**

The proposed site is a small apartment in L&T Realty Raintree Boulevard, Bangalore, India, Figure 5. The site is close to the user’s office which makes it more convenient. The site is located in a residential building in a commercial area making allessential service easier to access. L&T Realty Raintree Boulevard is a 65-acre mixed-use development centered on the philosophy of Live, Work, and Play. Located in the serene locales of Hebbel, the project offers its residents luxury flats in Bangalore, with the opportunity to live a well-rounded life together with seamless connectivity to the city, as the airport is only a stone's throw away. The presence of many IT parks in and around the area like the Manyata Tech Park, Brigade Magnum add to its attractiveness. Some of the offices nearby include Coca Cola, ABB, IBM, HP, Cognizant and more. Bangalore has a tropical savanna climate with distinct wet and dry seasons. Due to its high elevation, Bangalore usually enjoys a more moderate climate throughout the year. Bangalore receives rainfall from both the northeast and the southwest monsoons and the wettest months are September, October and August, in that order. Among these 17 towers one of the towers is named as "MERAKI TOWER". L&T Meraki Tower is offering fully furnished Studio Apartments.



**Figure 6 Plan Meraki Tower**



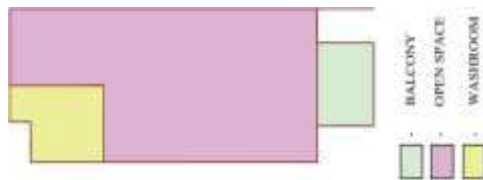
The front elevation of building is facing north west and the flat is situated on the rear of the building with the balcony facing south east that's why it get more sunlight, Figure 6.

**3.1 Design Program**

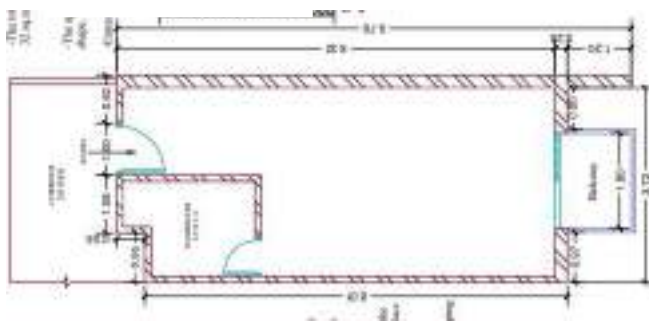
The space is used by a chartered accountant and his wife in a new town. He is working as an Audit Manager at Avalinte and associates. The users are two in number as Husband and wife. The age group of the users is 23 years to 25 years. Both are Chartered Accountants by profession. User's needs: A work friendly space with proper levels of illumination, a working desk with a comfortable chair, along with space for laptop and stationery items. The client needed a well-equipped sleeping space with wardrobe and dresser along with a kitchen and a seating area in the balcony.

**3.2 Space Requirements**

The total area of the apartment is 32 Sq.M. (Carpet area). The apartment is rectangular in shape. Entrance is on the shorter side. The Total height of the apartment is 3.0 meters.



**Figure 7 Plan of Apartment**



**Figure 8 Measured Plan of Apartment**

The design concept is 'Minimalism'. Minimalist interior design is very similar to modern interior design and involves using the bare essentials to create a simple and uncluttered space. It's characterized by simplicity, clean lines, and a monochromatic palette with color used as an accent. It usually combines open floor plan, sufficient light, and functional furniture, and it focuses on the shape, color and texture of just a handful of essential elements. "Less is more," defines the essence of minimalist design. Minimalism is "a style in art, design, and theatre that uses the smallest range of materials and colors possible, and only very simple shapes or forms". Multifunctionality is a key feature of minimalism. Multifunctional

furniture can be incorporated in design as it facilities more than one activity using a singular structure. Sleek furniture is used as it makes the space look larger and is easy to fold and store or convert into furniture as multifunctional furniture.

**3.3 Design Proposal**

A couch with side table and storage is provided at the entrance as creating a welcoming space which also acts like an official meeting area for the CA separated by the rest of the space by a curtain closure. The table and working space is provided on the other side of the curtain to connect the working area with the meeting area at the entrance. The work area can then be converted into sleeping area and the bed being closer to the entrance also acts as a security aspect for the user. The T.V unit is placed opposite to the bed to making watching T.V convenient.

Along with the T.V unit the wardrobe is attached which being close to the washroom makes it easier to use. The T.V unit can be converted into dining area opposite to the work area for maximum comfort in use. A sofa cum bed is provided besides the T.V separated by a partition. The sofa cum bed acts as a rest space while in the working setting arrangement.

The kitchen is provided opposite to the sofa with a two side storage acting as a partition between work area and kitchen maintaining maximum privacy and giving clean space appearance, Figure 9.

**3.4. Activities**

**Table 1**

Day time activities	Evening /Night time activities
Converting sofa in to sofa cum bed	Watching T.V.
Converting console into Dining table	Converting Console in to Dining Table
Getting ready, Wardrobe and Dresser	Cooking: Kitchen
Cooking: Kitchen	Winding up work area: Storage
Converting sofa cum bed in to sofa	Converting sofa in to sofa cum bed
Getting ready: Wardrobe and dresser	Cooking: Kitchen
Washroom	Seating: Balcony



Figure 9 Day time and night time plan

4. <http://www.architecture-student.com/tag/concept-of-studio-apartment/>
5. (Husein, 2020)
6. Husein, H. A. (2020). Multifunctional Furniture as a Smart Solution for small spaces for the case of Zaniary Towers Apartments in Erbil city, Iraq. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*, 1-11.
7. <https://www.studioosmosis.com/project/minimalistic-space-saving-home>

#### 4. CONCLUSION

With the population rising at a constant level and limited resources, Studio apartments are the future of accommodation in metropolitan cities. Studio Apartment not only solve the problem of space division but help use the space in the best possible manner, thereby letting a user perform multiple activities within a given spaces. Studio apartment is an ideal space for students moving out of town to study, for Youngers working away from home and for small families. Small spaces are not only the future but also time saving and economical, with minimal maintenance charges, easier to clean, etc. Multifunctional furniture and small spaces go hand in hand as both promote less wastage of space and more usability. Multifunctional furniture like studio apartments takes less space and enables dual functionality. Multifunctional furniture are not only dual purpose but easy to maintain and use and are made taking user's convenience and comfort into consideration Hence multifunctional furniture and small space living such as studio apartment is an ideal combination.

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# URBAN PEOPLE IMPACT ON INDIAN SOCIETY

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## INTRODUCTION

The world population is becoming predominantly urban. As per the United Nation's revised estimates world's urban population now exceeds 2.9 billion and today, more than 47 percent of the world's population lives in cities. Besides most of the population of more developed regions already dwelling in urban areas, while in less developed countries the process of urbanization is still acute. Urbanization refers to the movement of people permanently or temporarily from village to the city. It refers to village manners of city habits. Urbanization is a socio-economic phenomenon. It plays a significant and dynamic role in changing the ways of life of the people. It transforms, civilized as well as modernized the human societies. It serves as a significant agent in patterning and organizing the social processes in space. The growth of any urban center are of two types - natural growth and migration. The consequences of rapid urbanization are numerous and varied. Apart from the problems of poverty, unemployment, food supply and nutrition, water supply, sewage and solid waste disposal, transport and communication, power supply, pollution control, fiscal problems resulting from financing of public services such as health and education. Further, rapid urban growth has created serious shortages of shelter and thereby led to proliferation of slums and squatter settlements.

## URBANIZATION: CONCEPT AND BACKGROUND

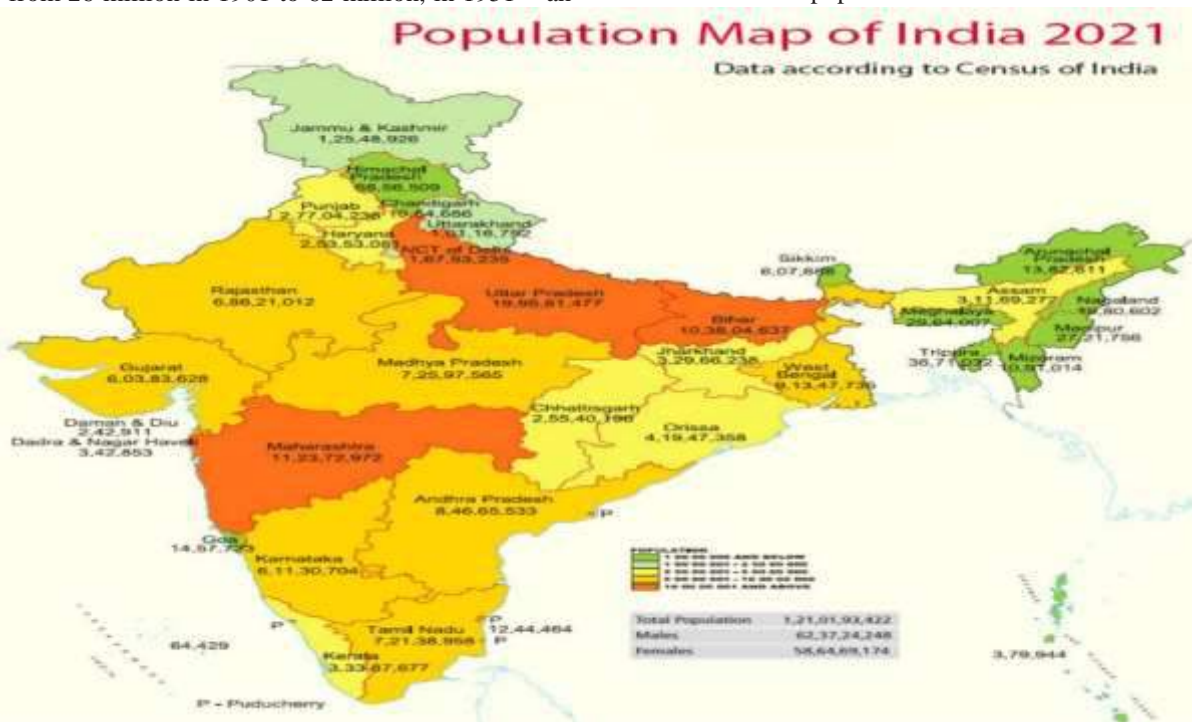
The term urbanisation is mostly used as a demographic indicator or in the demographic sense in whereby there is one increase in the proportion of urban population to total population over a period of time. Urbanisation is the process by which a society becomes urban in terms of occupations, land use, population density etc., graduating from primary sector (agriculture, animal husbandry, hunting etc.) to secondary sector economic activities (manufacturing) to tertiary sector occupation supporting them (provision of services such as trade, banking, transport etc.) urbanisation is expressed as the percentage of the total population of a large area such as a country or one of its divisions, living in urban areas. India's urban population was 285 million as per 2001 census. The urban population lives in 5,161 towns and cities. The Indian urban population equals the combined urban population of USA, UK, and France. In absolute terms the urban population in India exceeds the total population of Brazil, Britain, Canada, Germany, Indonesia, Japan, Pakistan and Bangladesh. India's urbanization followed by population explosion, rural urban migration, industrialization has placed great strain on the country's natural resources, infrastructure and environment.



## URBANIZATION IN INDIA

Urbanization is the most significant phenomenon of 20th century which has almost affected all aspects of national life in India. Being the second most populous country in the world, after China, India's growing urbanization has a regional as well as world wide impact. India's urban population constitutes a sizeable proportion of world's urban population. This can be well corroborated from the fact that every 12<sup>th</sup> city dweller of the world and every 7<sup>th</sup> of the developing countries in India. From the data provided in table no.1, it is evident that the process of industrialization, though initiated during the second plan could make little impact on the economy in terms of population shift to urban areas till 1961, although the second and third plans emphasized the developed of heavy and basic industries. The employment potential of these industries being limited, their growth did not lead to an absorption of labour from rural to urban areas to such an extent as to have a marked impact on the economy. The breakout of hostilities with China in 1962 and with Pakistan in 1965 and the short recession accompanied by brought by during 1967, acted as obstacles to the progress of industrialization. One can, there fore, observe that the process of industrialization through started during the sixties could not marked. Urbanization could hardly absorb a little more than the natural increase in urban population. As a result, a serious dent in terms of the shift of population from rural to urban areas could not made. Urban population increased from 26 million in 1901 to 62 million, in 1951 – an

increase of only 36 in 50 years. But thereafter, the absolute increase during the next three decades was of the order of 94 millions (1951-81). This indicates that programmes of industrialization did make an impact in terms of population absorption in urban areas, though this impact is very discernible. During the last decade (1981-91) alone, urban population in absolute terms reached the figure of 285 million accounting for 27.8 per cent of total population, 2001. In the present paper, an attempt is made to highlight the growth of urban population and its impact and implications on the social milieu. Degree of urbanization varies widely among the States of the country. Goa is the most urbanized State in India with 49.77 per cent urban population followed by Mizoram, Tamil Nadu and Maharashtra. All Union Territories are highly urbanized except Dadra and Nagar Haveli and Andaman and Nicobar Islands. The Degree of urbanization is high in southern, western and north eastern states whereas low urbanization level is found in northern and central states. Maximum concentration of the country's urban population found in Maharashtra, Uttar Pradesh, Tamil Nadu, West Bengal and Andhra Pradesh. It is important to mention that Uttar Pradesh urban population is large (34.5 million), next five states namely Gujarat, Karnataka, Madhya Pradesh, Rajasthan, Bihar and Union Territory of Delhi together account for 30.7 per cent of urban population. Remaining eighteen States and six Union Territories contain only 18.2 per cent of the urban population of India.



## EFFECTS OF URBANIZATION CHANGES IN THE LAND USE PATTERN

When the city grows in size, it expands both horizontally and vertically. The horizontal expansion engulfed the nearby fringe villages and converts the agricultural lands and the concrete structures do not allow the water to percolate

into the soil, so there is decrease of water level. And the dwellings are so close by that the sanitary tanks so there is decrease of water wells. So there are chances of contamination of drinking water because of leakage of pipes. Another thing is land value is appreciated because of scarcity of land in the growing urban centres. So there is mushroom growth of



apartments and in busy centres, the apartments are given permission without checking the way of sewage facilities.

### SLUMS AND ASSOCIATED PROBLEMS

The acute shortage of housing facilities is one of the most serious problem plaguing the Indian cities, whether it is a metropolitan city or a small town. The reason for this is that the availability and development of housing facility has not expanded fast enough to meet growing demand for rapid urbanization process. The acute shortage of housing facilities compels the poor to live in slums. Slums have developed in almost all the Indian cities. Slums are called by the names of Bustees in Calcutta, Jhuggis in Delhi, Chawl in Mumbai and Cheri in Chennai. The slums or Bustees have been defined by the government of India's slum area (Improvement and clearance) Act of 1954 as predominantly a residential area, where dwellings by reason of dilapidation, overcrowding, faulty arrangement and lack of ventilation, light or sanitary facilities or any combination of these factors detrimental to safety, health and morals. It is estimated that 40 per cent of people in Mega-cities like Calcutta, Mumbai and Delhi live in slums. These slums have extremely unhygienic conditions. They have impoverished lavatories made by digging a shallow pit in between three to four huts and with sackcloth "curtain" hanging in front. The children, of course, are used to defecate anywhere around the huts. All such areas have several cesspools and puddles. These are invariably dug in the middle of a state dirty pool. People wash their clothes and utensils under the hand pumps. This causes diseases like blood dysentery, diarrhea, malaria, typhoid, jaundice and conjunctivitis, which stalk them all the year around. Children with bloated bellies or famished skeletons, many suffer from polio and common sight. Human development is also adversely affected by the environmental degrading. Access to safe drinking water and separation are closely linked with life expectancy and infant mortality which are very important indicators of Human Development. So the poor take fertility decisions to compensate for these factors and to avoid risks. Larger population leads to more poverty and worsens the environment creating a vicious circle.

### TRANSPORT SYSTEM

There are 300 million cars, trucks and buses all over the world. During peak hours, there will be huge traffic jams in the main junctions. Because of traffic jams more petroleum products are wasted which results in fuel problem. During peak seasons the vehicles are parked and over loaded and there are more chances of occurring accidents. If the State provides good transport system, there will be less number of two or three wheeler on which most people depend.

The combustion of petroleum products, diesel leads to increase of carbon dioxide which helps in increasing of Global Warming, air pollution and noise pollution, besides carbon dioxide, carbon monoxide which release by automobile, is very harmful to those persons exposed to congested high way to a level of about 100 ppm. The noise pollution affects both auditory and non-auditory. The auditory effects are fatigue and deafness. The non-auditory effects are interference in

speed, communication, annoyance, loss of working efficiency and psycho-physiological disorders. The transportation picture in all Indian cities is unhappy while Mumbai is still having the best city transport system and Chennai, Ahmedabad and Pune being reasonably well – served by city buses. Everywhere else if one does not have one's own transport, great hardship would be experienced in moving about in the city. One reason why we are in this mess is that, whilst planning city expansion we have still tender to follow the western concept of commuting time and distance being the determinants of the location of activities this has resulted in compartmentalized zoning of cities, which necessitates extensive travel. At the same time the level of incomes and affordability being low, our citizens are unable to pay an economic fare for the use of a public transport system. Therefore, all city bus services sustain such heavy annual losses that they cannot really expand or maintain a fleet adequacy to meet city needs.

### PROBLEM OF GARBAGE

Urban solid waste consists of building materials, plastic containers, hospital wastes, kitchen waste etc. The building materials and household solid wastes are dumped on the public places. The hospital wastes do not have covers which transporting. The stringent smell contaminates the air. The Urban sewage does not proper let out facility. As Indian society prospers, it trash mainly hazardous plastics, metals and packing is growing exponentially. In the last decade, garbage was produced at nearly twice the rate of population growth. Only eight out of 3,119 towns and cities in India have full wastewater collection and treatment facilities. Another 209 have partial treatment facilities, the rest none at all, says World Bank Study. A third of India's population has no access to sanitation services. It becomes much worse in smaller cities and provincial towns.

### SEWERAGE PROBLEMS

The urban areas in India are plagued with inefficient and insufficient civic amenities. Not a single city in India is fully seweraged. The reason for this is that the unauthorized constructions in and around the city lie outside the purview of the main systems. It has been estimated that only 38 per cent of the urban population have a sewerage system. As sewage, an abysmal lack of planning has led to a situation where most sewer lines date back to colonial times. Mumbai's crumbling sewer network is a century old, put in place by farsighted British planners when city was no more than a series of fishing villages. Today, it breaks down frequently with waste about eight million more people than it was designed for. The sewer lines lead to drains, which take the sewage – 93 percent of it untreated – directly into the sea, killing virtually all marine life along Mumbai's coast. Delhi's Yamuna has turned into a giant sewer, chiefly from raw sewage; 40 per cent of Delhi's sewage is untreated.

### WATER SUPPLY

India reached a stage where no city has water supply around the clock. Intermittent supply results in a vacuum being created in empty water lines which often suck in pollutions



through leaking joints. Chennai, Hyderabad, Rajkot and Wadhwan get water from municipal sources for less than half an hour every alternative day. Many small towns have no main water supply and depend on such sources as individual wells, household open wells or even the rivers which have some storage water in pools during summer. The condition of drainage system is equally bad. Within the city, the drainage system hardly exists and the annual flooding of large areas, even in Delhi, is now a regular phenomenon in many urban centres. Mumbai is located in a keel line depression, which also happens to be the main railway artery. With every monsoon showers, it gets flooded choking the communication. The problem is particularly acute in the cities of Indo-Gangetic plain. Most of the cities so efficiently. This is the case with Varanasi and Patna. The situation is worse in the eastern part of Patna, which remains waterlogged throughout the monsoonal period. The terminal case is that of Katihar (Bihar) where, because of the peculiar bowl-like configuration of the city and the nonexistence of a drainage system. Large pools of stagnant water can be seen even in the month of May and June. In Srinagar, whole colonies have become sewage to be forced back by hydraulic pressure into the sub-soil, rendering the whole land unfit for human habitation. The drains, which are open, serve as depositors for road sweepings and also human wastes. In rainy season, water over flows and spreads into streets presenting a dingy view, promoting unhygienic conditions and causing outbreak of numerous diseases.

### ENVIRONMENTAL PROBLEMS

Environmental pollution is the causing concern and affecting human health today than yester decades. It has been reported by the World Bank that 40,000 persons die in India every year because of air pollution. Recent studies also revealed that a large number of people have been suffering from respiratory diseases and allergies and cough. It has been doubled since 1990's. Further, it has been noticed that 23 Indian Cities have crossed the dangerous limits because of auto exhausts and industrial emission. Therefore, it is not of the task of Central Pollution (Control) Board that has to take control but it is the duty of the institutions, individuals to initiate possible care and measures to bounded prevent the pollution uniting works. Hence, it should initiate in the form of a social movement. This, indeed, prevents problems arising out of pollution especially in urban areas.

### CONCLUSION

Urbanization, is one of the causing concerns to the modern man. It is witnessed that population and its impact is found to be more in urban than rural areas. Alarming growth of urbanization, use of vehicles, industrialization, adoption of modern culture and host of factors have been affecting the health of modern man. Hence, causes and consequences urbanization, of late, have become a prime agenda for all the policy - makers, voluntary organizations, Government agencies to find out the ways to minimize and preventive measures to overcome the perils of urbanization. Therefore, it is the high and right time to identify causes of urbanisation

and initiate to avoid and manage it at all levels – Government, Non-Government, Institutions and individual households.

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# THE IMPACT OF SERVICE QUALITY ON CUSTOMER SATISFACTION IN PUBLIC SECTOR BANKS

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## ABSTRACT

*The significance of this study is to measure the quality of service offered by public sector banks. The five dimensions of Servqual model i.e Reliability, Responsiveness, Empathy, Assurance and Tangibility were used to measure the quality of service offered by the banks. The primary data is collected from 252 respondents using convenience sampling method. Correlation and Regression analysis were used to investigate the relationship between the dependent and independent variables. The Correlation and Regression results indicate that there is a positive relationship between the service quality dimensions and customer satisfaction. The Regression test results show that offering quality service has a positive influence on customer satisfaction as a whole. It is proven from the results that Empathy and Reliability are the two most dominant service qualities which is followed by Responsiveness, Assurance and Tangibility. The present survey also implied that offering high quality service enhances customer satisfaction.*

## INTRODUCTION

Service quality is an abstract and elusive concept. It is a tangible, variable and inseparable characteristic and is unique to services (Zeithaml, Berry, & Parasuraman, 1996) (Alshurideh, Al-Hawary, Mohammad, Mohammad, & Kurdi, 2017). Service quality is a recent, decisive issue in the marketing thought. In today's world of global competition, rendering quality service is a key for success (Al-Hawary & Metabis, 2012) (Muhammad Turki Alshurideh et al., 2017). Therefore, it is important for commercial banks to ensure maximum satisfaction. The products and services offered by the banks are more or less similar in the industry, but the only thing that differentiates it is the level of service quality and the perception of the customers. Perceived service quality is the customers overall impression of the relative inferiority or superiority of the organization and its services. The present competitive business environment enables customers to switch banks effortlessly seeking better choices, which is a major challenge to the banks. (Silva, 2009) (H.M.G.Y.J. Hennayake, 2017).

Customer satisfaction is a mental state, which compares the results of customer expectations, prior to purchase with performance perceptions and after a purchase. Customers are satisfied when they are happy with their purchase outcome, achieve their goals and experience no hassle. It is believed that satisfied customers maintain contact with the company and purchase more products or services more frequently than dissatisfied customers (Paul, Mittal & Srivastav 2016). Customer satisfaction is an evaluation by the customer after he/she buys

goods and services. It is one of the most significant factors for the profitability of banking sector in India. It requires the retention of customers for the long term which is more cost saving than attracting new customers (Parvez Khan & Rajesh Chouksey, 2012) (Reichheld & Kenny, 1990).

Banks need to attract and establish a customer market, and would need it to retain through customer satisfaction, which is the key to its business performance. In order to attain this goal, banks should achieve a high rate of satisfaction from its clients. Measurement of the rate of customer satisfaction is also a measurement of how products and services supplied by a company meet or exceed customer expectations (Parvesh Khan & Rajesh Chouksey, 2012). The financial services are the backbone of service sector. This is important not only for the banking sector but for the economy as a whole. The rapid transformation of services in the banking system has led to the evolution of a highly competitive and complex market, where there is continuous innovation and creation of services, the customer has become the focal point either to develop or maintain stability in the business. The banks are looking for new ways not only to attract, but also to retain the customers by providing them quality services which suit or match their needs and wants (Agarwal 2012).

The banking industry in India has undergone a sea of change post-independence, more recently liberalization, the opening up of the economy in the 1990s and the government's decision to privatize banks. Like any other financial services, the banking industry too is facing a market that is changing rapidly.





New technologies being introduced and there is always a fear of economic uncertainties. Fierce competition, more demanding customers and the changing climate have presented an unprecedented set of challenges (lovelock 2001) (Ayushi gupts & Santosh Dev 2021). This has resulted in the banking industry to experience tough times. In such challenging times of fierce and intense competition, it is of utmost importance to create and maintain loyal base of customers by banks. To achieve this goal, banks should formulate plans and policies which will serve the customers to attain satisfaction (Ayushi Gupta and Santosh Dev 2012).

With the entry of new generation tech-savvy banks and the expansion of operations of foreign banks, the concept of service quality has emerged as a principal competitive instrument in retail banking. The competitive innovations have made the customers of the bank more anxious about their money value. In fact, customer expectations rise with the use of latest technology, such as online services or e-banking, inspiring them to explore the alternatives available to them (Parasuraman & Grewak,2000) (kaur et al, 2012). In order to survive in this stiff and strong competitive environment and to provide uninterrupted satisfaction to customers, the providers of banking services are now required to persistently improve the quality of services (Singh & Arora, 2011) (Kaur,,Sharma & Kapoor, 2012)

With the above insights and information, the present study is focused on service quality and customer satisfaction of banks.

## REVIEW OF LITERATURE

(Gupta & Dev, 2012) in their study claimed that, client satisfaction depends on service quality, ambience/ hygiene, involvement, accessibility and financial factors of the bank.

Nguyen et al. (2020) concluded in their study that all five determinants of service quality namely responsiveness, tangibility, assurance, empathy and reliability have positive correlation with customer satisfaction ,which means that commercial banks can increase their customer satisfaction by improving service quality.

(Srinivas & Rao, 2018) positioned service quality as the gap between the customer's expected quality and the actual service quality.

(Agarwal, 2012) described that the relationships are mostly viewed from the perspectives of the firms providing services. Building strong relationship is a must for fulfilling customer satisfaction through improvement of service quality.

(Sharma, Singh & Singh, 2020) in their study suggests that service providers should identify the relevant dimensions affecting service quality. The banks or service providers can identify the loopholes in the offered services and focus on that to rectify the flaws.

kaur et al., (2012) studied and found that with regard to gap analysis of customers' expectations and perceptions, the dimension of responsiveness accounted for the highest gap score

among the five dimensions which depicts that bank employees are less responsive to customers' needs.

(Shanka, 2012) defined that improvement of service quality should be conducted on all the five service quality dimensions, especially the dimensions of responsiveness and empathy.

(Azad, Mohazerani & Noursersesh,2016) the most crucial and significant result that can be derived from this cause and effect relationship analysis would be the plan to advance the goals and divisions of duties and obligations in internet banking system to boost customer satisfaction.

Renganathan et al., (2012) this study found and extracted an instrument of service quality in the context of banking industry and examines the relationship among banking service quality, banks staff conduct, credibility, communication and customer accessibility.

Ariff et al.,(2012) they are of the opinion that website aesthetic and guide, efficiency system availability and contact responsiveness were found to have positive and significant impacts on e-satisfaction.

(Jyoti Agarwal, 2012) described that the relationships are mostly viewed from the perspectives of the firms providing services. Building strong relationship is a must for fulfilling customer satisfaction through improvement of service quality.

(Paul, Mittal & Srivastav, 2016) expressed that in case of private sector banks, knowledge of product, response of need, solving queries, instant service, swift connection to the right person, and efforts to lessen queuing time were found to be the factors that are closely associated with customer satisfaction. On the other hand in case of public sector banks, knowledge of the product and instant service are the factors which are positively associated to customer satisfaction.

(Alshurideh , 2017) concluded in this study that service quality can be used to predict customer loyalty. Empathy has the greatest impact and responsiveness has the least impact on customer loyalty among all the dimensions of service quality.

(parasuraman, zeithml & berry, 1988) extracted that SERVQUAL has a variety of potential applications. It can be useful for a wide range of services and retailing organizations in assessing consumers' expectations and perceptions of service quality. It can also help in spotting areas requiring managerial attention and appropriate action to improve service quality.

(Kumbhar , 2011) in his study expressed that there was no difference in the perception of service quality, perceived value and overall satisfaction of male and female, but it does differ based on age group, profession, educational qualification and income level.

(Singh, 2011) opined that the analysis of customer responses indicates that the ICT (Information and Communication Technology) channels have positive impact on customer satisfaction. Facilities such as availability of cash, location or proximity of ATM, process request time have a very high impact on customer satisfaction across both private as well as public sector banks.



(Leninkumar,2017) revealed that customer loyalty is highly influenced by customer satisfaction, and it is identified that customer satisfaction is an important predictor of customer trust.

(Syapsan ,2019) the service quality has an influence on marketing mix strategies which means that the application of service quality to the needs of customer results in satisfaction. In addition, the quality of service has a direct influence on creating a sustainable local economy which enhances growth and competitive advantage.

Suryamurthi et al., (2012) it is believed that enhancing individual customer relationships is significantly important for future competitive success. The very crucial factor in this study knows how the customers would want to be treated.

( Cherukur & Ruby, 2020) electronic banking has a positive impact on reducing time for availing bank services by the customers, improving customer satisfaction, understanding the customers knowledge about the services and utilizing it towards electronic banking.

(Hennayake,2017) the findings of this study showed that the human related factors service quality (reliability, responsiveness, assurance and empathy) have a greater influence on customer satisfaction than that of the non-human related factors of perceived service quality (tangibles) on customer satisfaction.

( Bei & shang , 2006) comparing and assessing the effectiveness of public service organizations and private competitors, it can be concluded that overall satisfaction of public service organizations are much lesser than that of private enterprises although the perceived price fairness of public and private banks are similar.

Madan et al. (2015) relationship marketing needs to be maintained with care and attention in order to create, enhance and develop a long term relationship between businesses and customers. Trust, commitment and well bonding hold crucial roles in building a strong relationship which is beneficial economically and socially.

Alshurideh et al., (2017) service quality is a significant determinant of customer loyalty. Therefore, high quality service is an important instrument to survive- the better the service quality, the higher is the loyalty of the customer.

(Cronin & Taylor, 1992) this study suggested that service quality should be measured as an attitude, supported by empirical and literature. The performance based scale developed (SERVPERF) is efficient in comparison with the SERVQUAL scale, thereby reducing the items by 50% of the total number of items.

(Singh, 2019) the study found a three factor solution to the e-service quality of internet banking. The finding suggest that responsiveness, efficiency and perceived credibility influenced overall service quality. Responsiveness is being the most significant predictor.

Samuel et al., (2017) the present study revealed the need for employees to be reliable by dealing with complaints directly, showing reliable behavior, advise customers well and provide

error free services as this was identified as the single most important factor.

(Khan & chouxsey, 2012) major findings of this study is the provision of an approach for the managers to identify the factors of customer satisfaction and customer relationship management in banking sector in India. Customer Relationship Management( CRM) in banking is concerned with attracting, maintaining and enhancing customer relationship.

(Rao & Budde ,2015) regardless of their size, profitability and growth demand of banks, they all focus on serving customers at the right time, with the right level of service and at the right cost.

Pattanayak et al., (2017) it can be positioned that total quality management contributes significantly and positively to service quality, market orientation, customer satisfaction and finally leads to customer loyalty. By ensuring Total Quality Management (TQM) implementation, it is inevitable and obvious that customer satisfaction would definitely improve in the organization.

(Sitorius & Yustisia,2018) the study revealed that service quality directly has positive influence on customer loyalty but in an insignificant manner, therefore, the service quality should be mediated by customer satisfaction to establish customer loyalty.

(Kant & Jaiswal,2017) the findings resulted in expressing that the dimensions of perceived service quality namely tangibility, assurance, responsiveness, empathy and image have a positive relationship with customer satisfaction in the selected public sector banks in India.

## STATEMENT OF THE PROBLEM

Financial services, particularly banking services, are facing rapid changes in information technology, intensive competition among public, private and foreign sector banks. Tech-savvy customers and their ever increasing needs and wants compel the banks to change their strategies of serving the customers. The significant contribution of this study is to identify and analyze the electronic service quality aspects and their influence on customer satisfaction ( k. Madavan, Vethirajan 2020).

The arrival of technologically driven private banks makes the banking sector highly competitive. In order to deal with the current scenario in the banking sector, the management of banks must come out of the old strategies, change and improve the service delivery systems which would bring forth customer satisfaction and be more innovative in their approach to meet the various issues and challenges ahead.

## MEASURING SERVICE QUALITY

The most widely used models in measuring service quality in the banking sector are the SERVQUAL and SERVPERF models. According to the SERVQUAL model ( parasuraman et al., 1988), service quality can be measured by identifying the gaps between customers' expectations of the



service to be rendered and their expectations of the actual performance of the service.

SERVQUAL is based on five dimensions of service quality (parasuraman et al., 1988):

- **Tangibles:** the physical surroundings represented by objects (for instance, interior design) and subjects (for instance, the appearance of employees).
- **Reliability:** the service provider's ability to provide accurate and dependable services.
- **Responsiveness:** A firm's willingness to assist its customers by providing quick and efficient service performances.
- **Assurance:** varied features that provide confidence to customers (such as the firm's specific service knowledge, polite and trustworthy behavior of employees).
- **Empathy:** the service provider's firm willingness to provide each customer personal care and attention.

Each dimension is measured by four to five items. Each of these combined 21 items is measured in two ways: the expectations of customers concerning a service and the perceived levels of service actually provided in making these measurements respondents are asked to indicate their degree of

agreement or disagreement with certain statements on Likert type scale.

The SERVPERF model was carved out of SERVQUAL by Cronin and Taylor in 1992. SERVPERF measures service quality by using the perceptions of customers. They argued that only perception was sufficient for measuring service quality. The SERVPERF scale is found to be superior not only as the efficient scale, but also more efficient in reducing the number of items to be measured by 50%.

### OBJECTIVES

1. To study the perception of banking services among customers.
2. To evaluate the impact of services quality on customer satisfaction.
3. To examine the impact of services quality on customer satisfaction.

### HYPOTHESES

- H1: Reliability has a positive impact on customer satisfaction.  
 H2: Responsiveness has a positive impact on customer satisfaction.  
 H3: Assurance has a positive impact on customer satisfaction.  
 H4: Empathy has a positive impact on customer satisfaction.  
 H5: Tangibility has a positive impact on customer satisfaction.

## DATA ANALYSIS AND INTERPRETATION

**Table 1: Cross tab of Gender and Education**  
Crosstab

		Gender		Total	
		Male	Female		
Educational Qualification	Secondary	Count	3	13	16
		% with in Educational Qualification	18.8%	81.3%	100.0%
		% within Gender	2.6%	9.6%	6.3%
	Undergraduate	Count	69	69	138
		% within Educational Qualification	50.0%	50.0%	100.0%
		% within Gender	59.5%	50.7%	54.8%
	Graduate	Count	44	54	98
		% within Educational Qualification	44.9%	55.1%	100.0%
		% within Gender	37.9%	39.7%	38.9%



Total	Count	116	136	252
	% within Educational Qualification	46.0%	54.0%	100.0%
	% within Gender	100.0%	100.0%	100.0%

Source: Primary Data

Table 1 shows the gender and educational qualification level of the respondents. The study reveals that majority of the respondents are undergraduates i.e., 138 respondents, and there are 98 graduate respondents.

**Table 2: Cross-tab of Gender and Occupation****Crosstab**

		Gender		Total	
		Male	Female		
Occupation	Government employee	Count	28	22	50
		% within Occupation	56.0%	44.0%	100.0%
		% within Gender	24.1%	16.2%	19.8%
	Private employee	Count	30	30	60
		% within Occupation	50.0%	50.0%	100.0%
		% within Gender	25.9%	22.1%	23.8%
	Business	Count	10	6	16
		% within Occupation	62.5%	37.5%	100.0%
		% within Gender	8.6%	4.4%	6.3%
	Student	Count	44	61	105
		% within Occupation	41.9%	58.1%	100.0%
		% within Gender	37.9%	44.9%	41.7%
	Pensioner	Count	1	0	1
		% within Occupation	100.0%	0.0%	100.0%
		% within Gender	0.9%	0.0%	0.4%
	Housewife	Count	0	16	16
		% within Occupation	0.0%	100.0%	100.0%
		% within Gender	0.0%	11.8%	6.3%
Professional	Count	3	1	4	
	% within Occupation	75.0%	25.0%	100.0%	
	% within Gender	2.6%	0.7%	1.6%	
Total	Count	116	136	252	
	% within Occupation	46.0%	54.0%	100.0%	
	% within Gender	100.0%	100.0%	100.0%	

Source: Primary Data



Table 2 depicts the gender and occupation of the respondents. The figure of the study shows a closer population size of the data is being collected from both male and female with no much difference. Male respondents constitute 116 of the

sample and female stand at 136. The study shows that majority of the respondents are students and the rest of the population are mostly engaged in both government and private sectorial occupations.

**Table 3: Correlation**

**Correlations**

		Tangibility	Reliability	Empathy	Assurance	Responsiveness	Customer Satisfaction
Tangibility	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	252					
Reliability	Pearson Correlation	.633**	1				
	Sig. (2-tailed)	.000					
	N	252	252				
Empathy	Pearson Correlation	.568**	.860**	1			
	Sig. (2-tailed)	.000	.000				
	N	252	252	252			
Assurance	Pearson Correlation	.531**	.748**	.823**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	252	252	252	252		
Responsiveness	Pearson Correlation	.552**	.816**	.866**	.795**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	252	252	252	252	252	
Customer Satisfaction	Pearson Correlation	.579**	.812**	.824**	.759**	.805**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	252	252	252	252	252	252

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data

Table 3 depicts the correlation relation which measures the association between the variables of the study. Correlation coefficients can range from -1 (perfect negative) to +1 (perfect positive). The number 0 means there is no correlation. A correlation is stronger the closer it is to 1 or -1. So a correlation

of 0.7 is stronger than 0.3. Similarly, a correlation of -0.7 is stronger than -0.3. The above table shows that there exists a moderate positive correlation between Tangibility and Reliability, Tangibility and Empathy, Tangibility and Assurance, Tangibility and Responsiveness, Tangibility and



Customer Satisfaction. There also exists a strong positive correlation between Reliability, Empathy, Assurance, Responsiveness and Customer Satisfaction.

**Table 4: Model Summary of Regression Analysis**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.865 <sup>a</sup>	.748	.743	1.82431	.748	145.791	5	246	.000	2.021

a. Predictors: (Constant), TOTAL RESPONSIVENESS, TOTAL TANGIBILITY, TOTAL ASSURANCE, TOTAL RELIABILITY, TOTAL EMPATHY

b. Dependent Variable: TOTAL CUSTOMER SATISFACTION

Source: Primary Data

Table 4 depicts the Model Summary which reveals a strong positive correlation coefficient ( $R=0.865$ ) between all the predictors and dependent variable (Customer Satisfaction). The value of R-Square (0.748) indicates that 74% of variance in the dependent variable (Customer Satisfaction) is explained by all five predictors in the model. The difference between R-Square (0.748) and Adjusted R-Square (0.743) is only 0.005, indicating a greater accuracy of the model for generalizing the results of

the target population. Thus, the difference of 0.005 or 0.05% indicates that it will explain 0.05% less variance in the dependent variable (Customer Satisfaction) if the model is derived from the population. Durbin-Watson statistics examines the auto-correlation in the data. The value of Durbin-Watson statistics (2.021) is closer to 2.0 which indicates the lack of auto-correlation in the data as good for model fit (Hair et al. 2011).

**Table 5: ANOVA of Regression Analysis**

**ANOVA<sup>a</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2426.032	5	485.206	145.791	.000 <sup>b</sup>
Residual	818.714	246	3.328		
Total	3244.746	251			

a. Dependent Variable: TOTAL CUSTOMER SATISFACTION

b. Predictors: (Constant), TOTAL RESPONSIVENESS, TOTAL TANGIBILITY, TOTAL ASSURANCE, TOTAL RELIABILITY, TOTAL EMPATHY

Source: Primary Data

Table 5 presents F-Statistic in the form of an ANOVA table. The total sum of square ( $SS_{total}$ ) is 3244.746 and it indicates the total differences in the observed values ( $y$ ) derived from the overall mean. The F-Statistic is computed by the ratio of  $SS_M$  to  $SS_{residual}$  ( $F=485.206/3.328=145.791$ ). The model fit in the regression confirms whether all the independent variables

explain the variation in the outcome variable based on the F-statistic and p-value. As the p-value associated with F-statistic is less than 0.05 [ $F(1,246)=0.000$ ,  $p<0.01$ ] at 5% level of significance, we reject the null hypothesis. Thus, the ANOVA statistics indicates that at least one independent variable predicts the outcome variable; hence, we confirm the model fit.



**Table 6: Coefficients of Regression Analysis  
Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Beta	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance
(Constant)	.515	.722		.713	.476	-.908	1.938					
Total Tangibility	.094	.055	.072	1.722	.086	-.014	.202	.579	.109	.055	.591	1.692
Total Reliability	.216	.054	.276	3.997	.000	.110	.323	.812	.247	.128	.216	4.637
Total Empathy	.187	.064	.236	2.913	.004	.061	.313	.824	.183	.093	.156	6.408
Total Assurance	.197	.079	.147	2.485	.014	.041	.353	.759	.156	.080	.292	3.421
Total Responsiveness	.217	.069	.218	3.157	.002	.082	.352	.805	.197	.101	.214	4.670

a. Dependent Variable: TOTAL CUSTOMER SATISFACTION  
Source: Primary Data

The statistics revealed in Table 6 are least square estimates of the model parameters. The value of the test statistic of Tangibility  $t = 1.722$  falls in the acceptance region. Hence, we accept the null hypothesis and conclude that the linear correlation coefficient between tangibility and customer satisfaction is zero. The value of the test statistic of Reliability ( $t=3.997$ ), Empathy ( $t=2.913$ ), Assurance ( $t=2.485$ ) and Responsiveness ( $t=3.157$ ) falls in the rejection region; hence, we reject the null hypotheses and accept the alternative hypotheses, and conclude that 1 unit change in independent variables leads to increase in dependent variable (customer satisfaction).

## FINDINGS AND CONCLUSION

The results of this study shows that all service quality dimensions are positively correlated with customer satisfaction.

The main aim of the study was to assess the service quality of public sector Banks on customer satisfaction. In this work, the items used in the survey questionnaire were adapted and expanded from the previously validated servqual scale developed by parasuraman et al(1988).

In this study five dimensions of perceived service quality were identified as determinants of customer satisfaction in the banking context namely tangibility, assurance, empathy, reliability and responsiveness. Therefore the empirical findings



support the proposed hypothesis which was found to be consistent with the theoretical framework.

Among all the factors of service quality, Empathy has the strongest impact on customer satisfaction followed by reliability and tangibility has the least impact.

The correlation and Regression results indicate that there is a positive relationship between the service quality dimensions and customer satisfaction. The regression test results show that offering quality service has a positive influence on customer satisfaction as a whole

## LIMITATIONS OF THE STUDY

This study has got its own limitations since it was confined to only the public sector banks/ undertaking in India. In addition the study focuses only on banking sector, so generalizing across all industries or sectors may not be advisable. Without any expression of opinion discrimination by customers of various branches of public sector banks spread across Manipur, India as a whole. Further studies can be carried out in the banking industry which can provide more useful insightful information if possible in the globalized environment from the perspective of different indicators of service quality which will facilitate to increase the quality of service and customer satisfaction.

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# CHALLENGES RANDOM ACCESS MECHANISM FOR LTE/5G RAN

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## ABSTRACT

The 5th generation (5G) technology's objective is to provide improve users' experience by increasing data rate, improving coverage and supporting Quality of Service (QoS) to various service classes. And variety of usage scenarios such as enhanced mobile broadband, massive machine-type communications and ultra-reliable low-latency communications. Due to the mounting increase in the user equipment (UE) devices of wireless communication technologies, 5G and beyond networks expect to support far higher user density and far lower latency than currently deployed cellular technologies. Random access channel (RACH) is a mandatory procedure for the UEs to connect with the Node (gNB). The performance of the RACH directly affects the performance of the whole network. Currently, RACH uses a uniform distribution-based (UD) random access to prevent a possible network collision among multiple UEs attempting to access channel resources. However, in a UD-based channel access, every UE has an equal chance to choose a similar contention preamble close to the expected value, which causes an increase in the collision between the UEs.

Therefore, we propose a Poisson process-based RACH (2PRACH). A Poisson based distribution, such as exponential distribution, disperses the random preambles between two bounds in a Poisson point method, where random variables occur continuously and independently with a constant parametric rate. In this way, our proposed 2PRACH approach distributes the UEs in a probability distribution of a parametric collection. Simulation results show that the shift of RACH from UD-based channel access to a Poisson process-based distribution enhances the reliability and lowers the network's latency.

**KEYWORDS:** 5G, random access, channel access, beyond 5G, resource allocation, Machine-to-Machine communications.

## I. INTRODUCTION

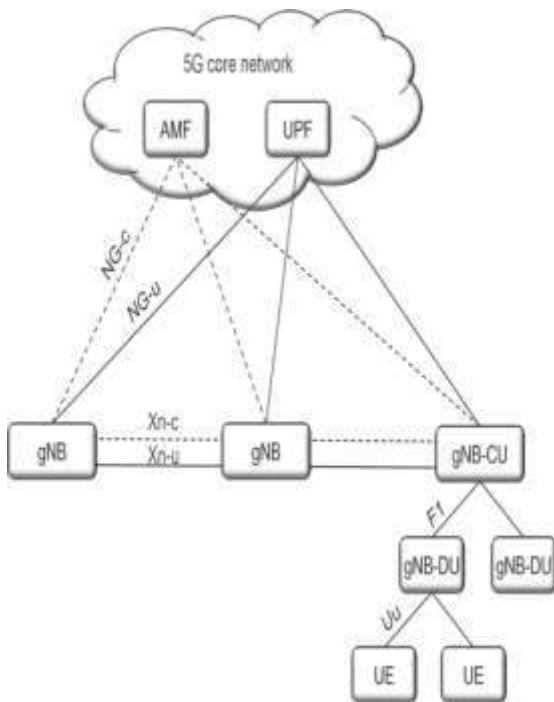
A large increase in the demand for capacity in mobile communication devices has shown wireless communication industries to prepare to support up to a thousand-times increase in total internet traffic [1–3]. The 3rd Generation Partnership Project (3GPP) recommend that connecting the user equipment (UE) to an existing cellular network, such as Long-Term Evolution-Advanced (LTE-A), 5th generation (5G) networks [4], requires the higher layer connections between the UEs. Generally, a significant amount of data needs to be distributed from many UEs on a 5G network. In this way, the UEs perform a random access (RA) mechanism for transmitting resource requests to the base station, known as evolved Node B (eNB) [5]. The UEs execute RA using the physical random-access channel (RACH) through a four-step handshake process. Many UEs attempt to communicate over the same channel resources in a dense UE deployment. The UEs contend to control the common radio resources, which makes a massive collision problem. Due to simultaneous UE channel access,

preamble collisions can block the RA process. The problem of successful RA is crucial due to the increasingly growing number of connected UEs in the network [6]. A standard 5G network consists of two parts: the enhanced packet core (EPC) network and the radio access network (RAN) [7]. A high-level architecture of a typical 5G network with linked UEs' connectivity is shown in Figure 1, where the UEs are linked to the eNBs. The EPC is responsible for the optimum regulation of mobile devices and creating an Internet Protocol (IP) packet transmission path. The RAN is responsible for wireless networking and radio resource usage. The RAN, which provides the requisite protocols for the user and control plane to communicate with mobile devices (UEs) in 5G network, is composed of eNBs. The eNBs are interconnected through the X2 interface. And eNB is connected to the EPC using an S1 interface [8]. In a standard 5G network, the minimal resource scheduling unit for downlink (DL) and uplink (UL) transmission is referred to as a resource block (RB). An RB consists of 12



subcarriers in the frequency domain (FD), each size of 180kHz and one sub frame in the time domain (TD), length of 1 ms. This time-frequency resource is called RACH, and it is the RB on which RA is performed. RA helps UEs initialize an association, known as a contention-based RA (CB-RA) method [9]. In a CB-RA, UEs utilize preambles to launch the RA transmission attempt. There is a total of 64 preambles divided into two categories; preambles of contention-free RA (CF-RA) and preambles of CB-RA. For CF-RA, the eNB incorporates a few preambles and designates specific preambles for various UEs. Remaining preambles are used for CB-RA, where every UE randomly chooses one preamble from a set of predefined uniform random variables (RV) [7].

Figure.1



## II. PRINCIPLE OF RACH

In order to connect a UE to 5G network, it has to synchronize in downlink as well as in uplink. Downlink synchronization is obtained after successfully decoding SSB, For establishing uplink synchronization and RRC connection, UE has to perform RACH random access procedure.

### Types of RACH Procedure

- Contention Based Random Access (CBRA)
- Non Contention or Contention Free Random Access (CFRA)

#### • Contention-based Random Access (CBRA):

In contention based Random access, UE selects a Preamble randomly from a pool of preambles shared with other UE. This means that the UE has a potential risks of selecting the same preamble as another UE and subsequently may experience conflict or contention. The NodeB uses a contention resolution mechanism to handle this type access requests. In this procedure, the result is random and not all Random Access succeeds. CBRA is also known as four step RACH Procedure.

#### • Contention Free Random Access (CFRA):

In non-contentions based Random Access, The Preamble is allocated by the NodeB and such preambles are known as dedicated random access preamble. The dedicated preamble is provided to UE either via RRC signaling (allocating preamble can be specified within an RRC message) or PHY Layer signaling ( DCI on the PDCCH). There is no preamble conflict. When dedicated resources are insufficient, the NodeB instructs UEs to initiate contention-based RA. CFRA is also known as three step RACH procedure.

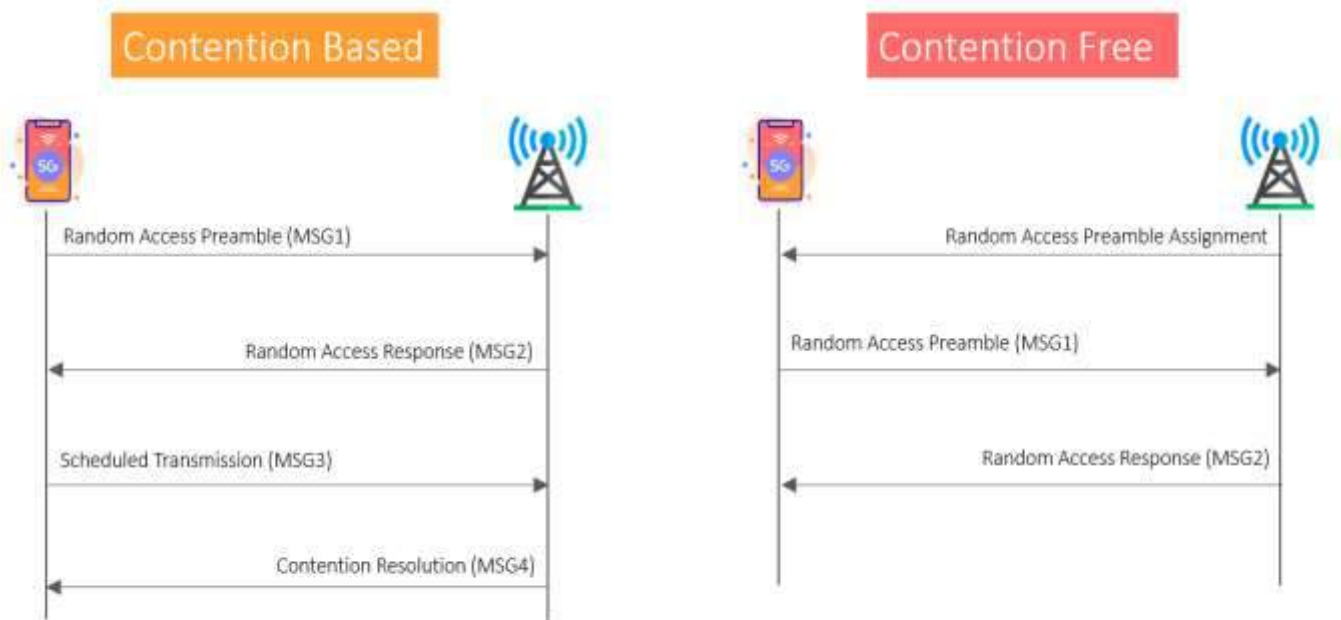


Figure. 2

### III. CONTRIBUTION OF PAPER

The parametric distribution approach allows the system to disperse RVs exponentially. That's why, in this paper, we suggest using RVs with Poisson distribution, such as a continuous exponential distribution (ED). The proposed mechanism is named as Poisson process-based RACH (2PRACH). The contributions of this paper are twofold:

- This paper assesses the strengths of Poisson distribution RVs as compared to the uniform distribution RVs.
- We propose a 2PRACH mechanism, which suggests replacing UD with ED in random access mechanism for LTE/5G networks.

In the rest of the paper, we present related work on enhancing the existing RACH procedure in 5G cellular networks.

### IV. METHODOLOGY

In related research contributions, many researchers have proposed mechanisms to decrease the delay at the RACH procedure. One of the proposals from 3GPP is an early data transmission (EDT) as a feature of the Release 15 specification [8]. According to EDT, data transmission services from the UL channel are sent sooner, enabling data packet transmission to be piggybacked with the RACH system. In Reference [9], authors gave some underlying findings on the execution of EDT, showing that it shows improvements at the edge of the network in-data packet

latency by 85 ms. [10] conducted performance studies to show that a two-way handshake RACH mechanism is based on an exceptionally structured RA preamble that guarantees a 10–50% delay reduction for 5G macro-cell networks and 50–70% femto cell 5G networks compared to the standard RACH method. A specific RACH resource method for ultra-reliable low-latency communications (URLLC)-related traffic is proposed in Reference [11], designated as resource allocation priorities. Authors propose that by reserving RA preambles twice the amount of URLLC-based UE requests, a channel access latency of less than 10 ms can be [18] Proposed a contention-resolution-based RACH (CRB-RACH) system that dynamically adapts backoff times to allow further improvements compared to a fixed-back-off scheme. [19] propose a random-access scheme for multi-radio access technologies (RAT), named Multi-RAT RA, which uses traffic offloading configuration parameters utilizing the licensed and unlicensed bands. Although the authors achieve a higher average success probability with their proposed Multi-RAT RA scheme, the use of dual or multiple RATs is required to complete this efficiency. [20] enhanced the RACH procedure by obtaining the approximate characterization of UEs' interference in a wireless system. Their derived analytical expression of success probability helps to consider the channel collision and the preamble transmission. The authors further extend their proposed RACH success probability analysis for multiple time slots by modeling the queue evolution. In Reference [21], the authors address excessive congestion and



channel collision in the RACH due to massive users' access. They propose a dynamic adjustment of the backoff parameters based on the number of contending devices. The vibrant use of backoff parameters in a RACH scheme achieves the enhanced channel access success probability for static access and random access with a slight increase in the access delay. Another work in Reference [22] proposes a Timing Advance-based Preamble Resource Expansion (TAPRE) scheme for RACH procedure, which adjusts time slot for preamble transmission to reduce the collision probability effectively. The authors achieved this with a Resource Allocation Wait (RAW) protocol, which efficiently reduces RA failures. However, these works considered enhancing the existing uniform distribution-based RACH mechanism.

## V. EXISTING CONTENTION BASED RANDOM ACCESS MECHANISM

When a UE is switched on or awakens, it initially synchronizes with the DL channels by reading the primary synchronization signal (PSS) and secondary synchronization signal (SSS) from the eNB. The UE separates the Master Information Block (MIB) at that point, which contains data on the DL and UL carriers' configuration so that the eNB receives data from the Sender Information Block (SIB). All RA parameters are included in this SIB, such as the number of available RA slots, RA preamble classes, and preamble setup. Subsequently, UEs generate CB-RA transmission attempts in order to decode the SIB. For association initialization in a 5G network, the CB-RA conducts four main phases. Figure 2 & 3 shows a CB-RA procedure in a 5G network.

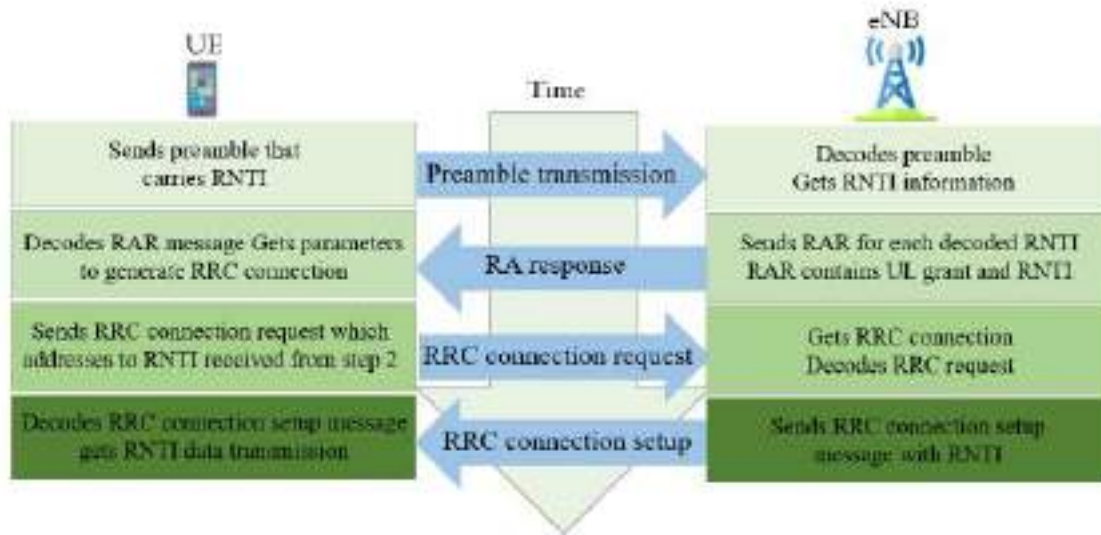
## VI. PERFORMANCE EVOLUTION

The proposed 2PRACH approach decreases the collision incidence and improves the performance rate of the existing RA of the UE association without altering the 3GPP recommended RA procedure. We conducted simulations in a discrete-event network simulator release 3.30.1 (ns-3.30.1) [23] to evaluate the performance of the 2PRACH approach. The network topology used in simulations includes a radio access network part of a typical

UE communication, as shown in Figure 1. The proposed approach's efficiency is measured in terms of network stability (reliability) and end-to-end latency. These two evaluation parameters are tested for three different scenarios. First, we conducted simulations with increasing number of UEs in the network, that is  $N = \{2, 4, 8, 16, 32, 64\}$ . Later, we assess the efficiency with varying data packet sizes and inter arrival packet speeds. The objective of conducting simulations of various packet sizes and rates of inter arrival is to evaluate the impact on the proposed mechanism's real data transmissions. We observe that the users' distribution tends towards the similar density function as of a uniform distribution. Therefore, one can choose the average rate parameter ( $l$ ) according to the conditions and requirements. In this paper, we use  $l = 8$  as our rate parameter, which distributes the users near the initial channel access slots. Detailed simulation parameters and their used values are described in Table 1.

**Table 1. Simulation parameters and their values.**

Parameter	Value(s)
Simulation time	100 s
Simulation model	LTE-EPC model
Number of eNBs	2
Number of UEs	2, 4, 8, 16, 32, 64
Distance between UE and eNB	60 m
Data payload (packet) sizes	32, 64, 128, 256, 512, 1024 Bytes
Packet Inter arrival rates	5, 10, 20, 40, 80, 160, 1000 ms
Total number of RA preambles	8
CB-RA preambles	52
Rate parameter ( $l$ )	8



**Figure 3. Contention-based random access (RA) procedure in a 5G network.**

Figure 4 compares the efficiency of our proposed 2PRACH mechanism with the existing uniform distribution-based RACH procedure, and the CRB-RACH mechanism [18], where the number of contending UEs varies. In Figure 4a, we show that the 2PRACH mechanism achieves higher reliability than existing RACH and CRB-RACH procedures, also in dense UEs deployments, which is 64 UEs. Similarly, the network's end-to-end latency is also reduced for the proposed 2PRACH mechanism, as shown in Figure 4b. In the 2PRACH scheme, improved reliability and reduced latency are evident that for a denser UE environment, choosing earlier RA preambles with a constant parametric rate decreases collision among the UEs. The improved efficiency is because a Poisson process-based distribution manages the number of events in a fixed time frame and the time between occurrences of those successive events. It fits our RACH scheme's settings because it is one of the distributions with the "lack-of-memory" property. It means that, after waiting to access the channel without successful transmission, the probability of a UE to access the channel in the next contention is the same as was the probability (in previous transmission attempt) of accessing the channel in the following two transmission attempts. Thus, as a UE in the system continues to wait, the chance of successful transmission neither increases nor decreases based on the parameter selected.

Although the CRB-RACH procedure improves the efficiency compared to the existing RACH with the use of dynamic backoff adjustment, due to the use of uniformly distributed backoff parameters, it achieves lesser reliability and higher latency as compared to 2PRACH. The efficiency of the proposed 2PRACH mechanism is also measured with various data packet sizes. The motivation to evaluate an RA process with different data frame sizes is that the UEs' channel capital occupancy time very much depends upon the data frame size to transmit. Figure 5a,b show the effect on the network's stability and latency of various data frame sizes. The figures reveal that the 2PRACH procedure works well for both; reliability and end-to-end latency relative to existing UD-based RACH when considering the different types of data frame sizes. However, the influence of data frame inter arrival rate has fewer effects on the network's stability and latency efficiency, as seen in Figure 6a,b, respectively. Collisions. The importance of using a Poisson process-based distribution is evident from the figures (that is, Figures 4–6).

The main purpose of the proposed 2PRACH for the RA procedure is to enable the UEs in the network to carry out their initialization of the association more effectively, where reliability is accomplished by reducing network.

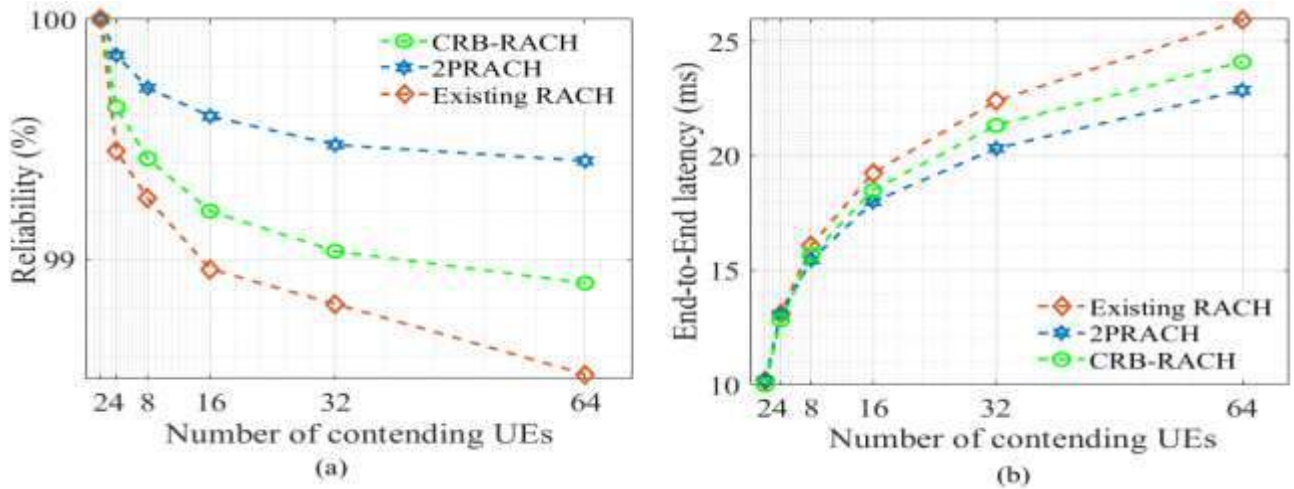


Figure 4. Performance comparison of process-based random-access channel (2PRACH) with existing random-access channel (RACH) and contention-resolution-based RACH (CRB-RACH) procedures with the varying number of contending UEs, where (a) network reliability (%), and (b) end-to-end latency (ms).

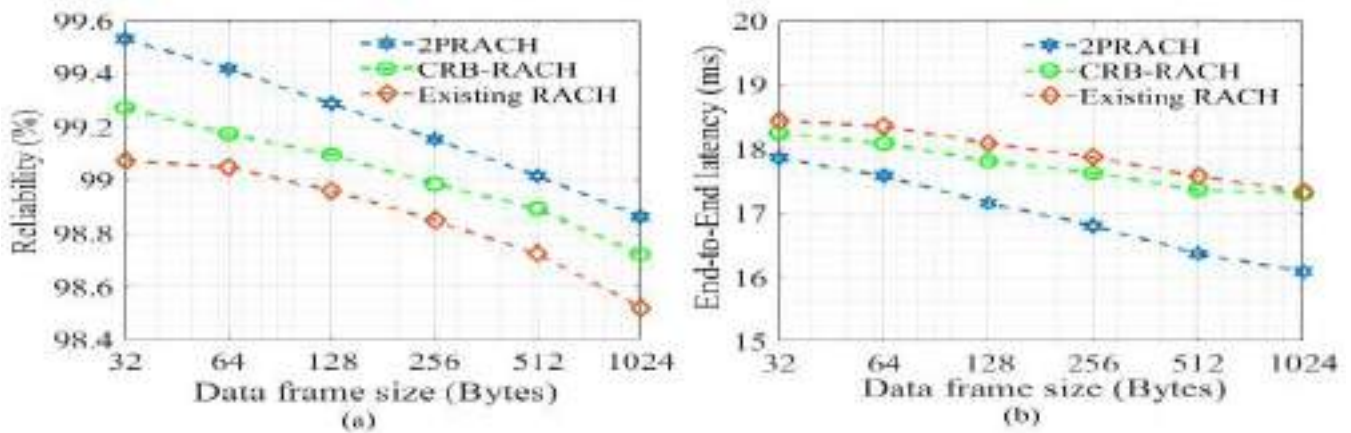


Figure 5. Performance comparison of 2PRACH with existing RACH and CRB-RACH procedures with varying data frame sizes, where (a) network reliability (%), and (b) end-to-end latency (ms).

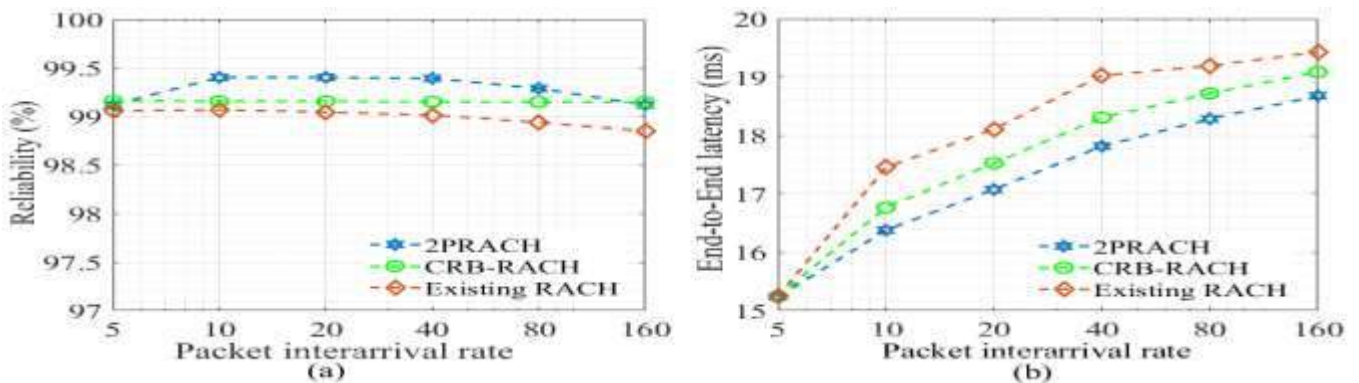


Figure 6. Performance comparison of 2PRACH with existing RACH and CRB-RACH procedures with varying packet inter arrival rate, where (a) network reliability (%), and (b) end-to-end latency (ms).





## VII. CONCLUSION & FUTURE SCOPE

One of the challenges for 5G cellular communication networks is to provide effective channel connectivity, especially for denser UE scenarios. In a 5G network, the random access channel (RACH) procedure is the core channel access mechanism to set up the wireless communication association between a UE and eNB. However, the efficiency of the currently deployed RACH system is greatly affected by the rise in the number of contending UEs in a network. It is due to the limited available channel contention preamble set. The selection of contention preambles based on the uniformly distributed random access mechanism of the RACH system is one reason for this efficiency loss. In a uniform distribution, each UE has an equal opportunity to select identical contention preambles close to the mean value of the distribution, creating a rise in collisions among the UEs. Since there is only a single contention stage for the UEs to access the channel, we may consider alternate solutions to allow the UEs to access the channel as early as possible. For this purpose, we propose a Poisson process-based RACH, named 2PRACH, which is based on continuous exponential distribution. The proposed 2PRACH distributes contention preambles between two bounds in a Poisson point method, in which random variables exist continuously and independently with a constant average rate allowing UEs to access the channel resources at their earliest slots. In this way, the 2PRACH mechanism distributes the UEs in a parametric collection of the probability distribution. The performance evaluation results of simulation experiments show that 2PRACH significantly improves the reliability of the network. The increased reliability is achieved due to the enhanced capacity of the UEs to transmit their data packets. At the same time, the long waiting period of the uniformly distributed preamble is eliminated to achieve reduced latency, as well. In the future, we plan to apply a reinforcement learning-enabled framework to improve the efficiency of 2PRACH. The behaviourist appraisal feature of reinforcement learning models is the incentive to incorporate reinforcement learning to refine the RA procedure in 5G networks. Besides, we are also working to develop a novel analytical model for Poisson process-based channel access mechanisms.

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## THE EXISTING LANDSCAPE OF DEPRESSION. REVIEW

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### ABSTRACT

**Introduction:** Depression is a global health problem that has been increasing in recent years, but it is still underdiagnosed and it's not taken seriously enough. For this reason, it is vital for health workers to know their correct diagnosis and treatment to prevent patients from reaching their worst outcome, which is suicide.

**Objective:** To examine how these patients have been approached and managed, and the effectiveness of both pharmacological and non-pharmacological therapies, based on review articles from the last five years.

**Methodology:** a total of 43 original and review articles, collected from the Cochrane Library, PubMed and Google Scholar databases, were searched for the term "Depression". The documents were found in Spanish and English. Some articles were excluded due to lack of updated information and lack of relevance for our literature review.

**Results:** there is a fundamental pillar for the treatment of depression, based on psychological therapies (primary and fundamental element), pharmacotherapy and, as a last line, electroconvulsive therapy. The drugs generally used are serotonin reuptake inhibitors and serotonin and noradrenaline reuptake inhibitors. There are other therapies such as acupuncture, music therapy, which have shown some benefit.

**Conclusions:** throughout this time, it has been determined that current diagnostic modalities have made it possible to diagnose early and a greater number of people suffering from depression, starting with psychotherapy, and administering antidepressant drugs in the absence of response to psychotherapy.

**KEY WORDS:** depression, dysthymia, psychotherapy, Serotonin Uptake Inhibitors, Serotonin and Norepinephrine Reuptake Inhibitors.



## INTRODUCTION

This review seeks to improve the knowledge of general physicians regarding depression, since it has become a global health problem that grows day by day. It is vitally important to master strategies in the correct diagnosis and treatment of this disease from the primary care health level.

According to the world health organization, depression is a disease characterized by persistent sadness and lack of interest or pleasure in activities that were previously rewarding and pleasurable. It is quite common throughout the world and is estimated to affect 3.8% of the global population, including 5% of adults and 5.7% of adults over 60 years old.

Depression has been become a serious health problem, especially when it is recurrent and has a moderate to severe intensity, affecting and altering the life quality of patients and in the worst case, it can trigger in suicide, which is the fourth cause of death in the age group 15 to 29 years.

Nowadays, we can find treatments for this disease, but they are hampered by a lack of resources and qualification in healthcare providers. That is why, the WHO is developing programs and strategies that serve to mitigate the barriers that exist in the prevention, diagnosis and treatment of this disease, which already constitutes a pandemic (WHO, 2021).

## METHODOLOGY

This review focused on summarizing the most relevant aspects of the diagnosis and treatment of depression in the last 5 years. A total of 43 articles were analyzed, including reviews and original articles. Only 30 of the total bibliographies were used, because the remaining 13 were not relevant. Resources such as PubMed, Google Scholar, Elsevier, ScienceDirect and Cochrane were used as support; the keywords for the research were: "depression", "depressive symptoms" and "new trends in the treatment of depression".

## RESULTS AND DISCUSSION

In the past it was believed that depression occurred only in older adults; however, over the years it has been shown that the prevalence in people over 65 years of age is only 1 to 4%, a similar or even lower prevalence than other groups. It is necessary to clarify that some groups of older adults have high rates of depressive symptoms; such is the case of those with chronic diseases at 25%; even older adults in nursing homes have a prevalence from 25 to 50% (Casey, 2017).

It would be important to talk about minor depression, which is a subsyndromal depression, which is characterized by presenting one of two main depressive symptoms plus one of three additional symptoms and it is associated with levels of disability similar to major depression. Another relevant concept to take into consideration is Dysthymia (previously known as Persistent Depressive Disorder in the DSM-5); this is a chronic form that is less severe than major depression that lasts two or more years and tends to start early in life, persisting into old age (Wilkinson et al, 2018)(Haigh, 2018).

Depression incidents per year is around 15%, varying between countries. As examples we can mention: Sweden presents an incidence of 16.4%, Beijing 10.5%, Mexico

between 26 and 66%, Peru with 9.8%, Colombia with 11.5% in women and 4% in men and Chile, between 7.6 and 16.3 %. In a 2018 report, Ecuador presented a prevalence of 39%, considering age over 65 years, presence of other diseases, social situation, marital status, among others, as risk factors (Calderón, 2018).

Other situations where the prevalence of depression increases, is the absence of a partner, living in foster care institutions and the lack of physical independence. About marriage and depression, they are associated depending on the social support and the type of relationship that the couple has. (Sjöberg et al, 2017).

A Singapore study in 2016 showed that this pathology was greater in patients between 75 and 84 years old; and there was an association with the presence of comorbidities, lack of life satisfaction and the presence of disability (Subramaniam et al, 2016).

A Colombian study from 2012 mentioned that the factors that can lead to depression are: being over 90 years old, living alone, being a woman, presenting dependency, loss of self-control and not having social resources. (Segura, 2015).

A Mexican study in 2017, showed that depression was prevalent in the female sex, in a ratio of three to one with men and within the triggers there was the absence of social support, isolation, absence of family coexistence and dependency to perform activities of daily living. It was also observed that hospitalized patients have a higher risk of presenting early depression, due to the presence of chronic degenerative diseases, such as: diabetes, Parkinson's, Alzheimer's, arterial hypertension, hypothyroidism and arthritis (Martínez, 2007).

A 2008 study found that depression increased the risk of cancer, arthritis, cardiovascular diseases and neurological diseases (an effect produced by a decrease in the immune response); moreover, cardiac mortality is three times higher in patients with depression. Another effect caused by this pathology is the increased risk of suicide or the occurrence of violent acts, which are exacerbated by the presence of problems related to drug abuse, social isolation and lack of employment (Bousoño, 2022).

In another study conducted in 2019, it was shown that hearing loss doubles the risk of developing depression and increases the risk of anxiety and other mental disorders. Along with impaired vision, hearing loss is a determinant with a significant effect on communication and well-being, which can lead to isolation, reduced independence, cognitive impairment and even death in older adults (Leverton, 2019). Therefore, the presence of hearing and visual impairment leads to a reduced quality of life, which subsequently develops into depression.

Now, there are several elements that are taken into account when mentioning influential factors in the progression of depression. In previous chapters we mentioned that the presence of isolation leads to depression; however, a study carried out in 2017 showed that loneliness, by affecting the patient socially and emotionally, has a different impact. Being female, 50-65 years old, separated or divorced, unemployed,



with low education and insufficient family income was also found to be associated with depression (Zhang et al, 2018). This study confirms the arguments mentioned in the 2012 study conducted in Colombia, which mentioned that these same factors were the elements that, when present, produced a higher probability of developing depression.

#### *What happens in relation to risk factors?*

- Biological: Depression and cardiovascular disease have been shown to be related, with depression manifesting first and increasing the incidence of hypertension. Some other studies have shown that positive emotions can reduce the 10-year incidence of cardiovascular disease. Another important element is cerebrovascular disease, which is referred to as Vascular Depression (depressive manifestations following a cerebrovascular event) (Sassarini, 2016).
- Functional aspect: One of the determinants is impaired mobility and gait. In a study conducted in Mexico, this effect was demonstrated, considering that a percentage of patients who were dependent due to some type of dysfunction (62 %) were depressed. There are 10 % of older adults who show symptoms of frailty (decreased muscle mass, strength, decreased energy and decreased physiological reserves) (Sassarini, 2016).
- Cognitive aspect: There is difficulty in social integration; and a link between Alzheimer's and depression has been identified (Sassarini, 2016).
- Sleep: It is not clear whether insomnia is a factor or a consequence, so those who suffer from insomnia are at greater risk of depression and aggravation of insomnia.
- Social aspects: Isolation and low socioeconomic status are strongly associated with depression (Sassarini, 2016).
- Economic aspects: Low income and decreased social cohesion (Sassarini, 2016).
- Demographics: Depression is higher in older women, the poor, those in nursing homes and in rural areas. Women are twice as likely to suffer a depressive episode, with higher risk in the peri- and post-menopausal state. Predictors of depression include vasomotor symptoms and smoking; however, their greatest risk factor is some past history. Treatment

includes antidepressants, hormone replacement therapy, psychotherapy and lifestyle modification (Zis et al, 2017).

- Anatomical aspects: The size of the hippocampus, parahippocampus, amygdala and prefrontal cortex have been hypothesized. Another theory is the presence of altered secretion and action of neurotransmitters, such as serotonin; however, this theory has merit when affecting vulnerable individuals, such as those with chronic pain, where the pathogenesis of depression and pain is caused by neuroinflammation (Malhi et al, 2018).

#### *What happens in relation to the diagnosis?*

The importance of diagnosis is based on the use of diagnostic tests and the presence of symptoms; logically, it is necessary to have some expertise and intuition to be able to detect patients who do not have such obvious symptomatology. It should be mentioned that none of the symptoms are pathognomonic and are therefore found in other psychiatric pathologies. However, there are some symptoms that are more specific to psychiatric disorders, such as: anhedonia (decrease in pleasurable sensations) (the most important symptom for diagnosis), symptoms that are more evident at certain waking hours, feelings of guilt, fatigue, weight loss or gain and insomnia. Diagnosis should be made after an episode that has lasted two weeks or more. If this episode has not resolved and has extended over time, it is called Chronic Depression. If depressive symptoms are present for at least two years, without a period of remission, the condition is called Persistent Depressive Disorder or Dysthymia (Baader et al 2012).

Depression can manifest itself in various forms with a combination of symptoms, leading to difficulty in detection, especially in the presence of other illnesses. Being aware of the symptoms increases the likelihood of diagnosis, as there is a considerable proportion of people who are not detected. For this process, there is a questionnaire called the Patient Health Questionnaire (PHQ-9), with brief questions that are generally accepted by patients and help medical personnel to detect them; it is determined that the presence of 5 or more positive items determines the presence of major depression. Routinely, the patient should be asked about their feelings and the presence of symptoms (Baader et al 2012). The questionnaire is presented in table 1.



**Tabla 1. Patient Health Questionnaire (PHQ-9) (Sadler et al, 2018)**

During the last 2 weeks, how often have you been bothered by the following problems?	Never	Several Days	More than half of the days	Almost every day
1. Having little interest or pleasure in doing things	0	1	2	3
2. Feeling discouraged, depressed, or hopeless	0	1	2	3
3. Problems falling or staying asleep, sleeping too much, sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Having a poor appetite or overeating	0	1	2	3
6. Feeling a lack of self-esteem, or that you are a failure or that you will disappoint yourself or your family	0	1	2	3
7. Having difficulty concentrating on things such as reading a newspaper or watching TV	0	1	2	3
8. Moving or talking so slowly that other people might notice, or otherwise being so agitated or restless that you move around a lot more than usual	0	1	2	3
9. Thoughts have occurred to you that you would be better off dead or that you would do harm in some way	0	1	2	3
If you identified yourself with any of the problems in this questionnaire, how difficult have you found it to do your job, take care of your home, or relate to other people because of these problems?				
Nothing at all	Somewhat difficult	Very difficult	Extremely difficult	

Source: BAADER M, Tomas et al. Validación y utilidad de la encuesta PHQ-9 (Patient Health Questionnaire) en el diagnóstico de depresión en pacientes usuarios de atención primaria en Chile. *Rev. chil. neuro-psiquiatr.*

**What variations exist in relation to treatment?**

**Psychotherapy:**

Psychotherapy has been identified as the first-line intervention for mild to moderate depression. A response efficacy of 48% has been demonstrated. A 2019 study mentions that among the different techniques for non-pharmacological treatment of depression are: cognitive behavioral therapy, with 66% efficacy (identifying and modifying negative thoughts that affect emotions and behavior), behavioral activation, with 74% efficacy (managing positive activities and increasing positive interactions), and interpersonal psychotherapy (addressing interpersonal

problems in a structured way). Whichever techniques are used, they should be used according to the patient's situation. Another 2018 study has shown that interpersonal psychotherapy helps when interpersonal problems are prominent; behavioral activation increases motivation and initiative, and cognitive behavioral therapy helps to modify distorted thoughts that lead to depression; in addition, improvements in sleep hygiene, significantly reducing insomnia, and promoting relaxation have been shown (Cuijpers et al, 2019). If there is no improvement after six weeks, pharmacotherapy should be initiated or referral to psychiatry.



Problem-solving therapy, the patient learns to solve problems, based on the solutions found by the patient himself; the patient chooses the best one, a scheme is drawn up to carry it out and implement it to solve the problem. If it is not solved, the patient performs this procedure again (Azariah et al, 2019).

Another therapy used is Problem Solving Therapy delivered by non-professional counselors, and these professionals teach strategies about better self-care and increased performance of pleasurable activities. This served to relieve interpersonal tensions (Gitlin et al, 2017) (Navas et al, 2016) (Park et al, 2019).

Study conducted in older adults in the parish of Sangolquí, Quito - Ecuador. 2015(Sailema & Mayorga, 2021).

<b>Recommended activities for older adults with Depression</b>	
<i>The Lizards</i>	The patient is given a box with a number of clamps, and is asked to place the pieces around the box using only the right hand; and then asked to switch hands.
<i>Following the line</i>	Defined strokes are placed, and the patient is asked to follow with coloured pencils.
<i>Paint the figure</i>	Paint the figure
<i>Assemble the puzzle</i>	Assemble the puzzle
<i>Join the dots</i>	It is an incomplete figure with dots, the aim of which is to join the dots with paints.
<i>Tangram</i>	It is about putting together new figures, using your creativity.
<i>"Let's make balls"</i>	Paper is used to form paper balls of various sizes.
<i>"Make your favorite figure".</i>	Plastiline is used to form various shapes
<i>Draw your hand on paper</i>	Draw the outline of your hand on the paper.
<i>Pass the ball</i>	A ball is handed out and passed to the other older adults without dropping it. Gradually increase the number of balls.
<i>Repeat the figure</i>	The patient has to replicate the figure in the air using only his or her lower limbs.
<i>Step on the ball</i>	Seated, the adults step on a ball with one foot and are told what movements to perform.
<i>Assemble a pyramid</i>	Patients are given ice cream sticks to form a pyramid.
<i>" Classify them".</i>	The patient is asked to sort a mixture of seeds, depending on whether it is peas, corn or beans.
<i>"Cover the sheep".</i>	A company sheep is handed out, and patients are asked to fill it with cotton wool.
<i>Remember the figure</i>	The patients are given cards with different models, and they have to look for the pairs among the cards.
<i>Jenga</i>	Remove pieces from the different levels and place them on top.
<i>Cross the maze</i>	They are given several mazes and must solve them.
<i>"Who does your balloon look like?"</i>	Each senior is given a balloon and asked to draw the faces of their classmates.
<i>Origami</i>	They are given sheets of paper on which they have to make origami figures.



Consequences of doing these activities
<ul style="list-style-type: none"> <li>- Positive changes in mood</li> <li>- Decrease in anxiety and tension levels.</li> <li>- Decrease in melancholy</li> <li>- Decrease in hostility and anger</li> <li>- Increased self-esteem</li> <li>- Decrease in depression</li> </ul>

Source: Mencías JX, Ortega DM, Zuleta CW, Calero S. Mejoramiento del estado de ánimo del adulto mayor a través de actividades recreativas. *Lecturas: educación física y deportes*. 2015. Enero;20(212):1-13.

**What are the pharmacological therapies currently being studied?**

First of all, antidepressants have side effects, which are manifested based on severity; side effects are lower in mild depression and higher in moderate to severe depression. In a STAR\*D trial treatment initiation was based on a four-level algorithm. Citalopram is prescribed in the first step. If treatment was unsatisfactory, alternative therapies are added as maintained at level one. At level two, a decision is made to switch from Citalopram to more commonly used medications (Sertraline, Venlafaxine or Bupropion); if this does not improve, another medication is added or cognitive-behavioral therapy is added. A multicentre study compared the efficacy of amitriptyline, mirtazapine, paroxetine, sertraline, venlafaxine and escitalopram, finding no significant differences over 8 weeks. For moderate to severe depression, first-line medication includes selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, bupropion and mirtazapine. There are three medications approved by the FDA for the management of depression: Vilazodone, Levomilnacipran and Vortioxetine. The Canadian Network for Mood and Anxiety Treatments guidelines include Vortioxetine and milnacipran as a first-line option and Vilazodone as a second-line option. Older classes of antidepressants, such as tricyclic antidepressants and monoamine oxidase inhibitors, have a higher risk profile than newer agents, so these newer drugs are usually used only if other agents are ineffective. Antidepressants should always be chosen based on the presence of adverse effects (the main goal is to minimize adverse effects), as well as the presence of other psychiatric disorders or specific symptoms. Therefore,

drugs such as Paroxetine and Mirtazapine are not administered during the day in patients with daytime fatigue. Instead, if there is difficulty sleeping, sedative medications should be administered at night to promote sleep. When a medication is started, the lowest dose is always used, with adjustment every two weeks. Although improvement is not evident for up to two weeks, complete relief of symptoms is not evident for up to eight to twelve weeks. If substantial improvement is not evident, antidepressant medication should be rotated. If partial improvement is evident with the maximum tolerated dose of one medication, an antidepressant of another class should be added. Psychotherapy should be used in conjunction with antidepressant medication, as there is much clearer evidence of effectiveness than the use of medication alone. Once remission is evident, antidepressant treatment should be continued for at least another six months. If there is a high risk of recurrence (two or more past episodes, residual symptoms or the presence of severe symptoms), treatment should be maintained for two years or more. Recurrence of symptoms is common after an episode. In general, first-line antidepressants have manageable adverse effects. Serotonin reuptake inhibitors or noradrenaline and serotonin reuptake inhibitors should not be used with monoamine oxidase inhibitors, tricyclic antidepressants, tramadol, triptans, ondansetron or metoclopramide, because Serotonergic Syndrome (presence of agitation, confusion, fever, which can progress to seizures, coma and death) may occur (Jiang et al, 2021). The different types of antidepressant medications and their dosage are described in table 3. As a guide, an outline showing the general form of treatment of depression is presented in table 4.

**Table 3. General scheme of drugs used and dosage**

Drug	Doses
<b>Selective serotonin reuptake inhibitors (SSRIs)</b>	
Fluoxetine	20 - 80 mg/day
Sertraline	50 - 200 mg/day
Paroxetine	10 - 60 mg/day
Fluvoxamine	50 - 300 mg/day
Citalopram	10 - 40 mg/day





Escitalopram	5 - 20 mg/day
<b>Serotonin and noradrenaline reuptake inhibitors</b>	
Venlafaxine	37.5 - 225 mg/day
Desvenlafaxine	50 - 100 mg/day
Duloxetine	60 mg/day
<b>Other drugs</b>	
Levomilnacipran	20 - 120 mg/day
Bupropion	50 - 450 mg/day
Mirtazapine	15 - 45 mg/day
Vilazodone	10 - 40 mg/day
Vortioxetine	10 - 20 mg/day
Agomelatine	25 - 50 mg/day

Source: Park LT, Zarate CA Jr. Depression in the Primary Care Setting. *N Engl J Med.* 2019;380(6):559-568. doi:10.1056/NEJMc1712493

**Table 4. General outline of treatment of depression**

<b>Objective</b>			
The main goal of treatment is to complete remission of depression with full functional recovery and development of resilience.			
<b>General Management</b>			
<ul style="list-style-type: none"> <li>- Discontinue any medications that potentially reduce mood.</li> <li>- Instilling good sleep hygiene and teaching the correct use of the medications you use</li> <li>- Implement appropriate lifestyle changes</li> </ul>			
<b>Interventions</b>			
<i>Genetics</i>	<i>Psychological Therapies</i>	<i>Pharmacotherapy</i>	<i>Electroconvulsive therapy</i>
<ul style="list-style-type: none"> <li>- Psycho education</li> <li>- Low intensity interventions</li> <li>- Support groups</li> <li>- Employment</li> <li>- Adequate accommodation</li> </ul>	<ul style="list-style-type: none"> <li>- Cognitive Behavioral Therapy</li> <li>- Interpersonal therapy</li> <li>- Mindfulness based cognitive therapy</li> </ul>	First line <ul style="list-style-type: none"> <li>- Selective serotonin reuptake inhibitors, serotonin and noradrenaline reuptake inhibitors, noradrenaline and dopamine reuptake inhibitors.</li> <li>- Melatonin agonist</li> </ul> Second line <ul style="list-style-type: none"> <li>- Tricyclic antidepressants</li> <li>- MAOis</li> </ul>	Unilateral <ul style="list-style-type: none"> <li>- Unilateral right</li> </ul> Bilateral <ul style="list-style-type: none"> <li>- Bitemporal</li> <li>- Bifrontal</li> </ul>



### Strategies

- Combined pharmacotherapy and psychological therapy
- Increasing the dose of antidepressants if warranted
- Addition of other antidepressant medication with lithium or antipsychotic medication
- Combined antidepressants

Source: Malhi GS, Mann JJ. Depression. *Lancet*. 2018;392(10161):2299-2312. doi:10.1016/S0140-6736(18)31948-2

### Depression in older adults in times of COVID-19

In a study carried out in Ambato - Ecuador in 2021, it evaluated how the COVID-19 pandemic affected 5374 older adults with depression; it was found that the average age was 71 years, with a higher prevalence in women, 51%. Predisposing factors for the development of this disease were confinement, fear of contracting the disease and loss of independence. The consequences of the pandemic were difficulty in falling asleep, sadness and decreased appetite. Finally, it was found that 1365 patients had severe depression, 1657 had moderate depression, 847 had mild depression and 1505 had no depression (Uphoff et al, 2020).

### Outlooks to consider in the management of depression

People are sometimes resistant to treatment, which is a limiting element for the quality of life of those suffering from depression. However, a trial conducted in 2021 implemented the use of electroconvulsive therapies (despite presenting memory loss as an adverse effect) as an alternative for the treatment of depression; however, there is no evidence to date to support their use (Aalberts et al, 2017). In this same scenario, a trial conducted in 2020 also proposed the use of behavioral activation therapy, a therapy based on the performance of activities that seem pleasant to the patient, for symptom improvement, demonstrating considerably beneficial results (Smith et al, 2018). An interesting technique that was studied in a 2017 trial and has been used is music therapy; this therapy, when added to conventional medical treatment, decreases anxiety levels, decreases symptoms and increases functionality (Barbato et al, 2018). Also, it has been found that the use of acupuncture tends to decrease the severity of anxiety (Nieuwenhuijsen et al, 2020). Importantly, psychological therapy should not only be limited to the depressed patient, but also to the partner and family. This effect was found in a study in 2018, where it was shown to reduce symptoms and improve relationships (Wilkinson & Izmeth, 2016). Another important aspect is the presence of problems in the field of work. In this type of patients, a combination of clinical therapy and a work-oriented intervention is preferred, because it leads to a decrease in the number of days of absence due to depression; an additional effect is the increase of functionality at work (Van Leeuwen et al, 2021). Finally, it is of vital interest that medical therapy should always be maintained for at least 1 year to reduce the risk of a recurrence(30); in addition, caution should be exercised when discontinuing the antidepressant, as abrupt discontinuation may lead to a relapse (recurrence after improvement) (Moriarty et al, 2021). Finally, in those with psychotic depression, it is recommended that an antidepressant

be given together with an antipsychotic, as it has been shown to be effective (Kruizinga et al, 2021).

### CONCLUSIONS

- Depression is an illness that limits the quality of life of those who suffer from it, so its early diagnosis and treatment are of vital importance.
- The most beneficial initial therapeutic modality is psychotherapy, which can be complemented by group activities. In cases where psychotherapy is not sufficient, drugs such as selective serotonin reuptake inhibitors, noradrenaline and serotonin reuptake inhibitors, whose effectiveness has been well demonstrated when combined with psychotherapy, can be administered. Other therapies, such as acupuncture, music therapy, are used as an adjunct to the basic therapy.
- Therefore, depression can nowadays be diagnosed and managed appropriately if the resources available to us are used and we know how to take advantage of them.
- It is important that strategies and programmes continue to be developed worldwide to prevent, diagnose and treat this disease so that its cases do not continue to increase and also serve to generate a social focus of awareness regarding this major health problem.

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# A STUDY ON CUSTOMER SATISFACTION TOWARDS LEGAL OPTIONS OF E-PAYMENT IN PUTTUR LOCALITY

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## ABSTRACT

Nowadays technology is developing rapidly in the economy. As a result, usage of internet and E-commerce also increases, which encourages people to use the e-payment modes in the transactions. E-payment enables easy, convenience, and security in the time of payment. And it avoids the carrying huge amount of hard cash while travelling or purchasing something. It also reduces the fear of theft, lost etc. of the money. People can make payment even by using mobile phone. And nowadays almost every sector adopts the e-payment system in their transactions. Therefore, this study is to identify the customer satisfaction towards different legal options of e-payment in Puttur locality. To understand the result of the study, previous research papers were analyzed and different research methodology is used. Finally, the paper has identified the pattern of previous researchers with regard to these contents. The present study states that majority customer is satisfied with using E-payment and some people are very satisfied. The satisfaction level shows that E-payment is not so difficult to understand. It can be easily understood, and can be adopted as one of the part of payment mode by everyone in upcoming years.

**KEY WORDS:** E-payment, transactions, Customer Satisfaction, easy understand,

## INTRODUCTION

In modern era, everyone is aware of the e payment transactions. E payment is nothing but an electronic way of transferring the fund instead of cold cash. When we are talking the concept of legal options of e payment, there are many options are available for customers for make e-payment. he/she may be use card payment, UPI, BHIM, NEFT, RTGS etc. but it is the responsibility of an individual to select the best suitable legal options of e-payment while making his/her transactions. And each legal option have its own feature, benefits and limitation, ultimately all these e payment modes will help an individual for easy, quick and transparent payment system in day today transactions.

### Objective of the Study

- To Understand the different e-payment modes
- To analyze the customer satisfaction on E-payment system
- Identify the benefits to customers for using E payment mode

### Statement of Problem

Nowadays customers have plenty of options in E payment system. They can use cards, UPI, NEFT, IMPS or other modes for making the payment. But in most of the cases all these legal options are not everywhere accepted. i.e., NEFT RTGS were not usually accepted in retail stores but instead

card payment or UPI platforms were readily accepted. But legal option is also having some limitations. Hence this research is conducted for identifying the customer satisfaction on using the different legal options of e-payment.

## RESEARCH METHODOLOGY

This study is analytical in nature. For the purpose of the study both primary data and secondary data has been collected. The present study is the combination of both quantitative and qualitative data. The qualitative data is collected through sampling from the customer. The study collects information related to the satisfaction of customers on legal options of E-payments. The sample of individual are collected from different age group, gender and occupation. The different group of people including students, Employees, own Business holders, agriculturist and house wife & retired workers etc. are considered as sample for the study.

**Sample Size:** For this study, 150 respondents are randomly selected by a questionnaire method in which 125 Respondents of Puttur locality are responded for the questions.

### Limitations

1. Only questionnaire method was used to measure the customer satisfaction towards legal options of E-payment.
2. The present study period is too short and also inherent limitation of the



## REVIEW LITERATURE

- Komal Dhanda, Usha Arora (2018);** Researchers made an analysis on satisfaction off customers who are using the E-wallets. So, they took sample of 228 customers of nationalized banks. And they found that there is a positive and significant relationship between usefulness and satisfaction level of customers towards e-wallet.
- Win San Wailu (2019);** He took a survey on satisfaction of customers, who are using MPU cards and he concluded that there was a significant relationship between easiness, trust and customers satisfaction on using the bank card ATM etc.
- Yu YuKhaing (2019);** He took random sample of 150 customers for the survey. and he concluded that information content, easy of use and transaction speed get the highest mean scores and ATM cards reduces the risk of carrying money each time and these cards were provide service according to their need
- Bjin Philip (2019);** He concluded that payment system in India have undergone rapid changes in the past few years. Adoption of mobile and card payment are two main key initiations. And this study revealed that there is a positive impact by customers towards UPI transactions.
- Neelu Tiwari, Naveen Kumar Singh (2019);** They took a sample of 200 respondents and concluded that BHIM were most secure platform as compared to Paytm because BHIM is a government owned platform. And provides a good service still it has some disadvantages.
- Dr V Josephine Lourdes De Rose (2017);** As the technology developed and the Knowledge of the peoples increased, it has become a one step forward for the development of online delivery, processing channels and payment modes as well as more innovative products and services in market and their needs & expectations have continually changed. So customers can purchase any product from one corner of the world and can make payment using different E-Payment modes which has made their approach easier.
- Jean Marielle A Lopez (2021);** from a sample survey he got a result that; many of the respondent choose card payment only because it is easy to use in all transaction. Further they came to a conclusion that E-payment is very handy in case of paying bills or other transactions from where they are. This E-payment has become more familiar during the time of Covid-19 pandemic because of the fear of contamination accelerated the advancement of contactless payment.
- Chinho Lin, Conghoang Nguyen (2011);** They took a sample survey of 676 respondents and come up with a conclusion that the effect of the factors such as Perceived ease of use, Perceived usefulness (from the technology acceptance model), Perceived risk and information which impact E-payment use, and the adopter's personal innovativeness in technology.
- Nancy Sahni (2018);** the digital payment is a platform which makes the customers to create their purchase transaction very handy. By this a customer can get a moderate perception of E-payment and their socio-economic status will vary considerably. In the study of 300 respondents, they came to know that, customers like E-payment due to the technology and service quality. Not only that, the crucial promoting element for cashless transaction by customers was of reduced time followed by ease of use

## ANALYSIS AND INTERPRETATION

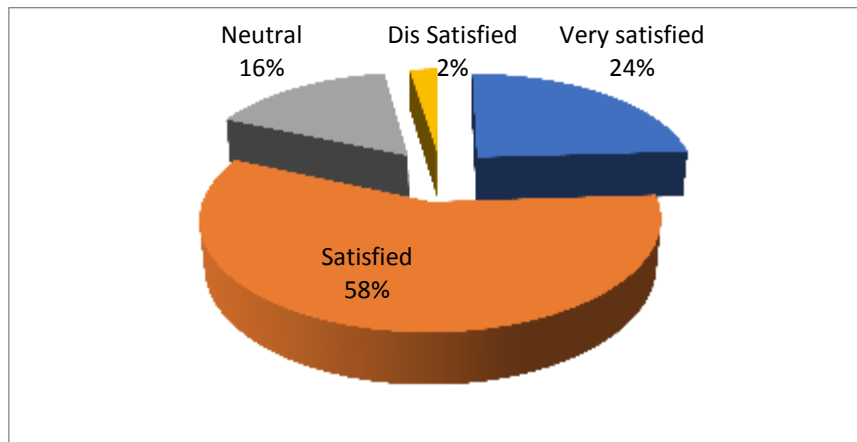
### 1. Awareness of E-payment options

Awareness	Respondents	Percentage
Yes	120	96%
No	5	4%

#### Interpretation

From the table, 120 respondents (96%) have aware of E-payment system, and rest 4% is not aware of E-payment system.

## 2. Satisfaction level of using E-Payment



### Interpretation

Here we can observe that 57.6% of respondent are satisfied with the E-payment service, 24% are very satisfied,

16% are in neutral condition and only 2.4% are not satisfied with E-payment service

## 3. Challenges Faced in E-payment

Challenges	Respondents	Percentage
Lack of knowledge	34	27.2%
Issue in bank server	83	66.4%
Fraud/Hacking	9	7.2%
Other	20	16%

### Interpretation

Around 66.4% of respondents are facing Issue in bank server, then 27.2% of respondents face problems due to

lack of knowledge, 16% have faces other challenges and only 7.2% are fear of fraud and hacking issues is shown in the table

## 4. Do you suggest E-payment to others?

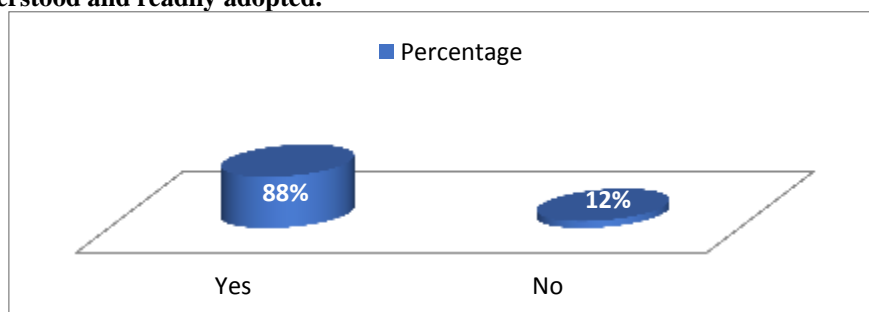
Suggestion	Respondents	Percentage
Yes	114	91.2%
No	11	8.8%

### Interpretation

The above chart shows that around 91.2% of people are like to suggest E-payment for others and only 8.8% of

people are not liked to suggest it for others because of lack of knowledge

## 5. E-payment easily understood and readily adopted.



### Interpretation

Around 88% of respondents accept that E-payment can be easily understood and readily adopted, and only 12% of respondents do not accept this statement which is mentioned above.



## MAJOR FINDINGS, SUGGESTION AND CONCLUSION

### Major Findings

- Majority of people in puttur locality are aware of E-payment service.
- In the survey we found that majority of people are satisfied with using E-payment, and some people are very satisfied.
- The people who are neutral in satisfaction level is because of some challenges which they have faced i.e., issue in bank server.
- The satisfaction level shows that E-payment is not so difficult to understand. It can be easily understood, and can be adopted as one of the part of payment mode by everyone in upcoming years

### Suggestions

1. Each and every legal option has its importance, therefore people should use those options which is suitable for them in their transaction.
2. Customers are ready to accept and adopt the E-payment services, but the major issue which blocks customers for using E-payment was the issues in bank server. Therefore, the bank should come over these issues.

### Conclusion

Here by we conclude that, as the technologies are developing rapidly, on the other hand E-payment has become a part of people's day to day transaction. Here customers have getting plenty of legal options like Card, UPI, NEFT, IMPS, RTGS and many more for making payments and transfer of money. Nowadays customers are satisfied with E-payment still they are facing some issues or complications like Network issue, issue in bank servers which has to be improved by the respective authorities and they should not take it as granted the customer's present opinion regarding legal option of E-payments.

Finally, our present study states that customers accepting and adopting the E-payment options and now it's the responsibility of every customer who is aware of E-payment to guide and teach the technology to those who are not aware of it.

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# THE DIVERGENT AFTERLIVES OF *PRIDE AND PREJUDICE* IN POST MODERN BRITAIN AND IN POST-LIBERALIZED INDIA

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## ABSTRACT

In this proposed paper I shall be engaged in a comparative study of the endings of Jane Austen's *Pride and Prejudice* (1813) and two of its early 21<sup>st</sup> century film adaptations. The first of these is *Pride and Prejudice*, a British film directed by Joe Wright, and released in 2005. The other one is *Bride and Prejudice*, a British-Indian, Bollywood-style, musical adaptation of the novel, directed by Gurinder Chadha and released in 2004.

*Pride and Prejudice* by far is the most well-known work of Jane Austen and therefore, many researchers and scholars have done a lot of research works regarding various aspects of the novel. But in this paper, I would like to argue how the desperation for marriage in Regency Era has gradually reduced in 21<sup>st</sup> century and the consent of a couple, and not their parents, has come to attain much significantly greater importance in a 21<sup>st</sup> century marriage.

In *Pride and Prejudice* Austen reflects the social realities of the English society at late eighteenth and early nineteenth century. She wrote this novel at a time when women were still regarded as the inferior sex and her novel was in a way mirroring her contemporary society. At the same time, the film adaptations of *Pride and Prejudice* reflect the particular societies which produce them. Therefore, the films depict the changing attitude towards women's position in 21<sup>st</sup> century, while the basic story remains same. Although having certain significant departures from the novel, the British version of *Pride and Prejudice* remains faithful to the novel. On the other hand, *Bride and Prejudice* takes only inspiration from the basic storyline of the novel, while transforming the entire scenario by setting it in 21<sup>st</sup> century India.

In this proposed paper I intend to deal with the elopement episode of Lydia with Wickham and propose to compare the intensity of this episode in Austen's novel in 19<sup>th</sup> century and in the 21<sup>st</sup> century film versions to show how this same scene has presented differently in two different timeframe. Another episode is of asking for Mr. Bennet's consent to Darcy's marriage proposal. Therefore, I proposed to compare, in this paper, their representations in the films of 21<sup>st</sup> century vis-a-vis Jane Austen's novel in context.

But most importantly, the objective of this paper is to focus on the position of women in the changing society. As the settings of these two films are completely different, I shall be drawing on two predominant features of these two nations, India and England, in early 21<sup>st</sup> century, to get an idea of the particular society, which itself undergoes certain changes over the years. For India, I shall count post-liberalisation as an important event, which inaugurates the way to the betterment of women's position in Indian society. And in England twentieth century was marked by several feminist movements, especially the post-modernist feminists were struggling a lot to smoothen the way of gender equality, which eventually resulted as a considerable development of women's situation in every sphere of life in English society. Therefore, in this paper, I shall consider select aspects of post-liberalisation in India and post-modernism in Britain as the major factors which lead to the improvement of women's situation in society.

**KEY WORDS:** *PRIDE and Prejudice*, women's position, 21<sup>st</sup> century, social conditions.

## Research Method

I will be drawing on select aspects of qualitative analysis as a methodology. In this paper, I shall be using two kinds of materials----- primary and secondary. The primary materials are the two types of primary texts. The first text is Jane Austen's novel, *Pride and Prejudice* (1813). The other one is the two film texts, *Pride and Prejudice* (2005) and *Bride and Prejudice* (2004). And the secondary materials are used as references such as critical writings, historical writings, theoretical writings, film reviews etc.

## INTRODUCTION

*Pride and Prejudice* (1813) is by far the most popular novel of Jane Austen. The novel as an art form reflects the society of which the writer is a part. Similarly, Austen uses

her novels to show the subordinate position of women in English society in late 18<sup>th</sup> and early 19<sup>th</sup> century. The novel, *Pride and Prejudice*, explores the conditions of women in Austen's contemporary society. What Austen is showing us with her characters' behaviour, is how the 19<sup>th</sup> century expects people to behave. Although Elizabeth may seem to be a strong-willed, independent and spirited woman, it is still within the confines of her social position as a woman. In late 18<sup>th</sup> century and early 19<sup>th</sup> century, women had to follow certain strict rules of conduct to maintain their dignity in society. Austen represents the dire situation of women and their subservient social position in her novel, *Pride and Prejudice*, through the Bennet family. We can understand the desperation for marriage in Regency England when we consider the Bennet daughters, where their family home will



be lost to them on their father's death. Austen shows us how certain social conditions affected many people in her contemporary social system. What this reveals is that a literary work of fiction always reflects the society which produces it. Therefore, in her novel, *Pride and Prejudice*, Austen clearly displays the predominant patriarchal social norms of that time, and women's helpless subjection to those patriarchal standards.

*Pride and Prejudice*, the 2005 film version, features Keira Knightley and Matthew Macfadyen as Elizabeth Bennet and Mr. Fitzwilliam Darcy. Although this version remains comparatively authentic to Austen's novel, there are subtle significant distinctions from the novel which reflects certain characteristics of English society in 21<sup>st</sup> century.

In *Bride and Prejudice* (2005), the director Gurinder Chadha, keeping the basic story same, transforms it into something completely new by setting it in Amritsar, India in 21<sup>st</sup> century. Accordingly, Elizabeth here becomes Lalita, Jane-Jaya, Lydia-Lucky and Mary-Maya and the Bennet family becomes Bakshi family of Amritsar. The director very beautifully puts Indian elements in Austen's story and transforms the English society of 19<sup>th</sup> century into Indian society in 21<sup>st</sup> century. Here, Aishwarya Rai plays the role of Lalita and Martin Henderson acts as Darcy. Director, Gurinder Chadha, also intertwines two societies and two completely different cultures at the same time in one frame by making Darcy an American and Lalita an Indian.

As women have become more assertive in recent years, the film makers provide the audience with the kind of film adaptations they want to see, which focus on strong, independent woman of 21<sup>st</sup> century. What this reveals is even though the story of *Pride and Prejudice* remains the same, the film versions echo the social standards of that particular society which produces them. The growth of feminism in the twentieth century in England helps women to gain some sort of significance in the male-dominated world. Similarly, in post-liberalised India women are comparatively in a more respectable position. Therefore, it is natural that film adaptations of *Pride and Prejudice* in 21<sup>st</sup> century would definitely depict this changing attitude towards women.

Researcher Axioma Dany Imamasari, have done a research on a comparative study between the novel and the 2005 film version of the novel. She compared the novel and the movie and pointed out the similarities and dissimilarities between the two. However, the objective of this paper is entirely different. This paper is going to analyze the different endings of the films and the novel, and attempts to investigate what socio-economic setting made these desirable changes possible. Therefore, this is not a mere comparison between the film versions of *Pride and Prejudice* and the novel itself; the purpose of this paper is to examine the social aspects which shape the changing position of women in the society of 21<sup>st</sup> century.

The novel, *Pride and Prejudice*, ends in a complete happy note with Elizabeth getting married with Darcy. Many twenty-first century readers seem to be opposed to the novel because of its trivial storyline; they think that this fairy-tale kind of ending in a way dismisses the tensions initially created by the author in the novel. But in order to understand Austen's

works we need to consider her contemporary society within which she wrote all her novels. Throughout history across culture women have always occupied a secondary position in relation to men. Especially, in eighteenth century fiction women were represented merely as the angel in the house. The position of women in society was to ensure the welfare of her husband. Women were positioned only in the private sphere of home and family and they didn't have access to public spheres. Therefore, *Pride and Prejudice* explores the conditions and position of women in English society of nineteenth century and **"Austen does challenge the prescriptive order and constructs a female protagonist who continues the tradition and marries the hero, but only as her equal and only when he can recognise her value as a partner, not just a wife."** (SH, 14).

According to W.L. Cross the marriage of Elizabeth and Darcy is the most logical conclusion of the novel. He comments: **"The marriage of Elizabeth and Darcy is not merely a possible solution of the plot, it is as inevitable as the conclusion of a syllogism or geometrical demonstration."** (qtd. in Introduction, 19). Therefore, this conclusion to the novel seems to be unavoidable in order to satisfy Austen's contemporary readers of English Society. Although remaining single herself, all of Austen's protagonists happily marry, as expected of women in nineteenth century. Thus, Austen in *Pride and Prejudice* portrays the importance of marriage in 19<sup>th</sup> century English society. Now, considering Austen's contemporary society, we can easily comprehend that marriage of Lydia and Wickham was the only solution, one could think of, after their reprehensible elopement. The unimaginable disgrace would have unleashed on Bennet family if Lydia would not get married with Wickham and it would be impossible for Bennet family to be even called respectable in their society. Moreover, nobody would marry the other four Bennet daughters with a 'fallen' sister and we can easily imagine their dire situation in near future after their father's death with no home and no money to support them. Therefore, we cannot cast doubt on the process in which Darcy persuaded Wickham to marry Lydia by providing him with a handsome amount of inducement.

By comparing Austen's writing with the script of 2005 version of *Pride and Prejudice*, we can determine whether this scene is effectively established in the film or not. In the film the representation of Elizabeth's behaviour on receiving Jane's letter is not dramatic enough. We can see that she is upset and crying, but it becomes slightly comic, as she appears and disappears time to time and with Darcy acting like a fool every time she appears. **"It is as though the effect of Lydia's behaviour has not the sense of doom in the twenty-first century as it did in the eighteenth, so perhaps the screenwriters decide to add a comic element to this scene."** (SH, 90). Austen in her novel, *Pride and Prejudice*, represented this scene more intensely as Elizabeth was well aware of the consequences of Lydia's actions. She knows how this situation will disgrace all the Bennets: **"Lydia---- the humiliation, the misery she was bringing on them all, soon swallowed up every private care; ... Elizabeth was soon lost to everything else;"** (Austen, 239).



The significance of this particular event has been diminished by the director in the film version as the society that originally produces the film is early 21<sup>st</sup> century. After many feminist movements in twentieth century women in Western society manage to get a better position in the society. Therefore, the director wittily adds a comic element to this elopement scene in order to trivialize the matter in 21<sup>st</sup> century.

However, as the film (2005) actually sets in 18<sup>th</sup> century, the director portrays the consequence of Lydia's actions just as we can observe in the novel but with a little bit of comical approach in order to denigrate the situation. As soon as Mrs. Bennet comes to know about Lydia's marriage, she almost springs out of her bed with pure triumphant joy and rushes to Mrs. Lucas to tell her that one of her daughters gets married only at 15. In this scene of the film, Mrs. Bennet's mannerisms are portrayed by the director quite hilariously:

**[Lizzie looks her mother in perfect astonishment as she gets out of bed]**

**Mrs. Bennet: A daughter married!**

**Lizzie: Is that all you think about?**

**Mrs. Bennet: When you have five daughters, Lizzie, tell me what else will occupy your thoughts and the perhaps you will understand. (IMSDb).**

Though the director presents this scene comically in the film to trivialize its effect in 21<sup>st</sup> century, we can assume the pressure of women to get married in Austen's contemporary society. Though Mrs. Bennet appears to be a woman of 'mean understanding' (Austen, 7), through her character Austen presents women's desperation for a prudent marriage in Regency England: **"The business of her [Mrs. Bennet] life was to get her daughters married;" (Austen, 7).** Both in the novel and in the 2005 version film, Elizabeth, in spite of knowing Wickham's real character, cannot afford to oppose the marriage in order to maintain the social status of her family. She is able to understand that they would have lost all their reputations in the respectable English society if Lydia and Wickham would not get married. Thus, the film emphasizes on the unfortunate conditions of women in 19<sup>th</sup> century, previously presented by Austen in her novel.

In *Bride and Prejudice* (2004), the director treats the elopement scene of Lucky (Lydia) in a complete different manner. As this film sets in 21<sup>st</sup> century India, it was easy for the director to conclude the scene in a way which will satisfy the audience of 21<sup>st</sup> century. After understanding her own fault, Lucky returns with Lalita and Darcy, who come to rescue her. Lucky never wishes to marry Wickham after knowing his disagreeable character and vicious intention. She is heartily accepted by her parents as soon as she comes back with Lalita and Darcy. Lucky did not have to bear a loveless relationship throughout her life as Lydia had to do in Austen's novel. It is because the society of 21<sup>st</sup> century permits it. No forceful union occurs in this film version. Director, Gurinder Chadha, affords to skip the imprudent marriage between Lydia and Wickham because his film sets in the early 21<sup>st</sup> century India. And this becomes possible because women have gained some sort of importance in post-liberalized Indian society; at least to that extent where women are capable of thinking about their own interests and well-being apart from anything else. What is more fascinating is that women could achieve a position in the

society where they are able to choose whom to marry and to whom not. Dr. C. Thanavathi on her essay, 'Status of Modern Women in India', says: **"It is definitely after Independence that the Indian women gained considerable importance within their country in social and political spheres... They took many progressive decisions such as organizing themselves to fight for a new set of goals. The goals were getting equality based on gender, job opportunities, reforming the existing laws which gave women only partial justice, and creating a society which did not oppress women intellectually, physically and emotionally." (Introduction, 1)**

Therefore, the director, Gurinder Chadha, in early 21<sup>st</sup> century, not bound with typical social norms, has the privilege of not showing a forceful engagement between two people merely because they try to elope with each other. Thus this film clearly depicts the changing attitude towards women and their position in the society of 21<sup>st</sup> century.

Another striking difference between *Pride and Prejudice* (2005) and *Bride and Prejudice* (2004) is the very last scene of each film which reflects the 19<sup>th</sup> century qualities and 21<sup>st</sup> century characteristics of the society accordingly. The British version of *Pride and Prejudice* (2005) seems to have an abrupt ending. The film ends at a moment when Mr. Bennet gives his consent for Elizabeth and Darcy's marriage. This ending forces the audience to think the marriage will take place because Elizabeth's parents permit it and no ceremony regarding the marriage is shown in the film, which definitely signifies the importance of parental consent in a marriage in 18<sup>th</sup> and 19<sup>th</sup> century.

In contrast to that, there is no scene in *Bride and Prejudice* (2004) where Lalita and Darcy ask for their parents' consent for their marriage. They simply get married when they realize their love for each other. Again this reflects the society of 21<sup>st</sup> century where a woman can choose her life partner freely without her parents' approval.

There is another fascinating distinction between the U.K. and U.S.A. version of the *Pride and Prejudice* film (2005). The British producers released a decidedly different ending for American audience. The British version ended with Elizabeth's father consenting to Darcy's marriage request. The American version of the film is 8 minutes longer and there is one last scene at Darcy's estate, Pemberley. In this swoony moonlit scene we see a romantic and intimate scene between Elizabeth and Darcy and we witness the only kiss in the film. The director of the film, Joe Wright, chose to cut the final kiss for the domestic market after test audiences in England complained, but kept it for the American market, figuring, not wrongly that it would impress the Americans as they were satisfied with a lighter allegiance to literary accuracy. Some Americans were happier as they thought it was more realistic that two lovers might actually kiss on screen, but the British found it to be downright silly. The British were not ready to accept something that they had not read in the novel. Similarly, Jane Austen's readers of North America are less than impressed and they express their dislike by claiming that it has nothing at all of Jane Austen in it. Therefore, it is clear that the actual readers of Jane Austen, irrespective of British or American, found the American



ending of *Pride and Prejudice* displeasing as they do not probably wish to see anything actually not written in the novel by Austen.

## CONCLUSION

This paper has briefly examined and compared the novel, *Pride and Prejudice*, and two of its early 21<sup>st</sup> century film adaptations to show how the attitude towards women has changed in the society from late 18<sup>th</sup> century and early 19<sup>th</sup> century to early 21<sup>st</sup> century. The novel, by Austen, shows how women were treated in Regency England and when it comes to marriage their appalling situation was unthinkable as they always had to search for a wealthy partner to secure their future and wanting a marriage out of love was undreamt of. They were incapable of doing anything in the patriarchal society and were dependent on either their husbands or their fathers. This helpless situation of women in English society has slightly changed with the interventions of many feminist movements in twentieth century. Postmodern feminists seek to analyze any notions that have led to gender inequality in society and attempt to promote equality of gender. And in post-liberalisation period comparatively women are in a more respectable position in India. **“Development in the field of science and technology, universalisation of education, socio-political movements, modernisation and similar developments have changed the approach of people towards women to a certain extent.” (Thanavathi, 10)** Thus, the changing attitude of society towards women has reflected in the film adaptations of *Pride and Prejudice* in 21<sup>st</sup> century, more evidently in *Bride and Prejudice*. The films portray how patriarchal perceptions have changed throughout the years. Therefore, this paper has attempted to show that most of the artistic works, whether a novel or a film, echo the society and social standards of that particular time.

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## EXAMINING THE FACTORS LEADING TO INCREASE IN CONTENT CONSUMPTION ON SMARTPHONE APPS

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### ABSTRACT

*Today a Smartphone is one's best friend and especially among the youth, Smartphones have taken a special place in their lives, where they are not merely the communication devices, rather have an endearing bond with the users. The purpose of this study is to determine the factors leading to increasing engagement of the users with the Smartphone for media consumption, despite the availability of other media like television, laptop, and tablet etc. Smartphones are being intensely used in a personalized manner by the youngsters and this has many implications on the social and the personal lives of the users. Hence, it is important to analyze the change in the viewing patterns of the users. The researcher has been able to conclude that various factors such as technological convergence, time convenience, interactivity and user generated content etc. have made Smartphone as the first choice, over other media among the users.*

**KEYWORD** - Smartphone, Apps, Media, Video, Content, Engagement

### INTRODUCTION

Years ago when the first Smartphone was launched by IBM, it was called the fourth screen, and was considered only after the theatre screen, television screen and the laptop/personal computer screen. Today a Smartphone can fit in one's palm and is the forerunner, in the race to become the first screen among the other media.

The newspapers which made it to the breakfast table of the individuals, a few years ago are now feeble survivors, in the tech-savvy generation. The online media including the e-newspapers have given a huge jolt to the traditional print industry.

Television was considered as a source of family entertainment, which produced programs for general audience, conveniently delivering news, sports, soap operas, comedies all at one platform in the home of the viewer (Grolier, 2004). It was the medium of family integrity, where the members of the family used to sit together and watch the programs. Fixed time slots were booked from the busy schedule of every one's life to match the timing of the telecasted programs. This phenomenon of group viewing, mass viewing and viewing with the family members has been an important attribute associated with the medium of television. Today the television lies deserted in some

nook or corner of the house, sometimes unrepaired and at times without any satellite connection.

The accelerated technological innovations and their rapid diffusion in the world, has led to the evolution of media. The media **theory of domestication** states that the domestic household learns to integrate a new media/technology and then integrates it into their lifestyle [1]. A domesticated technology, once incorporated in one's life, is viewed a useful, reliable and trustworthy. The Smartphones have been well domesticated and have transformed the households and the public spheres. Although, each media demands unique attention from the users in respect to the time and attention spent, (Bogart, Leo) users are spending more time on Smartphone than on any other media (Howarth, J., 2022). The youngsters are anxious to develop an identity for themselves outside their immediate family (Walsh et al., 2006). In such a scenario relying on friends and peers for recommendation provides them a sense of connection and being a part of the community. Hence the recommendations by the friends on the type of the content to watch, gives them a feeling of belongingness and social identification. (Hogg & Abrams, 1988) in her study while discussing about the **social identity theory**, stated that the in-groups who possess a Smartphone are favorably perceived than the out-groups who did not own Smartphone.



## SCOPE OF THE STUDY

The engagement of the users with Smartphones has already been the subject of analysis by various research scholars. In the domain of communication studies it is very important to investigate the factors which engage the users with Smartphones. The enormous entertainment apps in the Smartphone, which vary from productivity to lifestyle and entertainment apps, keep the users hooked for hours, a phenomenon which can't be overlooked. In 2021, the data collected on the usage among the Indians showed that consumers spend more than 80% of their time on Smartphone apps (Perez, S. 2021). Smartphone is indeed the most used media among the respondents because of various favorable reasons and a profound analysis of the factors is the main objective of this study.

## LITERATURE REVIEW

Studies by (Muhammad Sarwar et. al, 2013) to find out the impact of Smartphone on society, investigated the positive and the negative impacts of Smartphone on the individuals.

(Krithika et.al, 2013) in their questionnaire survey method on higher secondary students inspected the probable threats among the young adults from the irresponsible use of Smartphone. (Archana T. et al, 2014) while studying about mobile addiction among students found that of the sample selected, 75% students were addicted to mobile phone. The mobile addiction in students was dependent on the education stream chosen by them and was independent of their gender. Examining the factors influencing the Smartphone addiction among students, the results in the study by Munasinge P.G (2016) confirmed that when children are taught to think rationally from very early years, it would help to reduce their levels of Smartphone addiction. The examination of the available literature indicates that Smartphones have many advantages as well as disadvantages. Though the Smartphones are making our lives easy, it is important to evaluate if excessive engagement with Smartphone apps can lead to negative impact on our lives.

## METHODOLOGY

The advent of Smartphone in 1992 by IBM, the internet connectivity with the Smartphone in 2000 and the launch of the iPhone in 2007 with advanced battery life and new features changed the lifestyle of people. The internet age has created global citizens living and connecting with each other beyond geographical boundaries. As it is being proven by various studies that youth are spending more and more time to be online on the electronic devices, the time spent by them on Smartphones apps was assessed. A mall intercept survey was conducted on the age group of 15 – 45 year olds. The growing popularity of Smartphone apps was evident as all the

respondents admitted to watch video content on Smartphone apps, sometime or other.

### *Assessing the factors for increase in content consumption on Smartphone Apps*

## CONVERGENCE AND SMARTPHONE

Converge which in simple terms means coming together, has deep implications in the media. According to media theorist Henry Jenkins, convergence can be identified as follows:

- Economic convergence; where a single company expands its interest across various media.
- Cultural convergence; where the readers/users can talk back to culture by using the interactive features of like, comment, and share the stories/content that flows across various media platforms.
- Technological convergence; where the blending and integration of independent technologies take place into one device for diversified services.

He states that the result of all the convergence is organic convergence; a diverse media world, where people are multitasking with multimedia. The medium of Smartphone is the apt example of convergence which is giving economic, cultural and technological benefits to the users, making their life convenient and comfortable.

## THE RISE OF THE ONLINE AND ON-DEMAND MEDIA CONTENT

Video cassette recorders (VCR) introduced for TV viewers in 1972, to record and view television programs later, introduced the feature of 'fast-forward' to skip the commercials (Dobrow, 1990). The plastic cassettes of VCR available in different shapes and sizes comprised of magnetic video tape (Calem, 2004). These VCRs introduced more control for the viewers over their television viewing experience, pertaining to entertainment (Alali & Conner, 1999). Later in 2005, a portable media player was introduced by Apple to play video content. Now with the advent of Smartphones apps, the option of watching the online content at time and place of one's choice, has given the control in the hands of the viewers instead of the program producers.

As the ways in which users consume media is undergoing a shift, the appointment viewing - a trend set by the television – to watch a show at the time it is broadcasted on the network, either live or recorded, is undergoing a major change[4]. The ease with which the on demand media is available to the audiences, and the substantial implications that it has on the viewers can't be overlooked (Holahan, 2006). The decline in popularity of watching television has been fulfilled by Smartphone which has made this possible for the consumers to watch the shows that they missed on television, at a time of their own convenience (Streisand, 2007).



It is indeed an engrossing area of research to probe the enigmatic features of Smartphone, in order to understand the factors which are engaging the users to view video content on Smartphone, despite the fact that the screen size of Smartphone is small as compared to other electronic devices like tablets and laptops.

### USER GENERATED CONTENT

The YouTube has emerged as the number one content platform preferred by the users. The online platform is streaming content which has revolutionized the viewing experience of the users. The users are involved in an active participation with the content. It has provided the users a novelty which no other platform had given them before; the facility to produce and upload their content. The content which can be uploaded from one's home and can be accessed by anyone sitting in any part of the world has created networked spaces of interests (Van Dijk, 2013). The content on YouTube is diverse, the duration of the content varies from short duration content to long duration content and the content can be easily found on the YouTube search bar. A lot of users are uploading their content and turning entrepreneurs (Ross, H, 2014). It is very convenient for the users to watch anything in YouTube on their Smartphone, by typing in the search bar of the YouTube app.

### INTERACTIVITY

The different definitions of Interactivity, as derived by researchers are - interactivity is a dialogue between the users, it is a two way communication, and it is the process of reciprocity (Johnson, Bruner, & Kumar, 2006).

According to (McMillian & Hwang, 2002) interactivity encompasses the subjective perceptions of the users. Yim, Chu, and Sauer (2017) stated that a technologically effective delivery process can enhance interactivity and motivate the individual to communicate. For the current study, on the adoption of Smartphone Apps for media consumption, the definition of interactivity used, has been coined by (Liu & Shrum, 2002, p. 54) as

“The degree to which two or more communication parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized”

An interesting observation is that they are not merely viewing the content, they are involved in the multitasking with the content as well (minnesot) Unlink television which is meant of passively absorbing the information, the viewers are today interactively consuming the media on Smartphones. They like to send messages to friends during consuming the content, share the links of the content they liked on the social media platforms, write comments and give feedback of the episodes watched. The feature of interactivity has made it a medium to be enjoyed thoroughly by the users.

### CONCLUSION

Factors like organic convergence, availability of the on demand-online media at ease, popularity of the user generated content and the feature of interactivity have enabled the medium of Smartphone to be the primary choice among the users. Despite the limitations like small screen of the Smartphone compared to television and laptop, users prefer to consume media on Smartphone. The low cost of the data and high speed internet connectivity are also the facilitating factors due to which there has been an immense increase in the content consumption among the users.

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# COMPUTER SKILLS: A CRITICAL LITERATURE REVIEW AND ITS IMPLICATIONS

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## ABSTRACT

*This review summarizes the relevant research on the use of computer science textbooks to enhance computer skills in higher secondary school students. Specifically, it reviews studies that have touched upon the merits of computer skills in schools, barriers or challenges encountered in the use of computers, factors influencing successful ICT integration, in-service and pre-service teachers' attitudes, perceptions, and confidence in computer skills as well as the importance of computer science textbook in different boards at various school culture in the use of a computer. This review discusses gaps in the literature and the directions that future studies may take to address these gaps.*

**KEYWORDS:** *Technology Integration; computer skill; Teachers' attitudes; computer science textbook; higher secondary school students.*

## BACKGROUND

For several years, education authorities have responded to the importance of school students developing computer literacy by including it as part of the school curriculum, directly as a cross-curriculum capability, and by assessing the extent to which students are computer literate. Computer literacy and related concepts, such as ICT literacy, are defined to include both technological expertise and information literacy. Assessments of computer literacy, even though they vary, indicate that there are substantial variations in levels of computer literacy among students in the lower years of secondary school. In technologically developed countries, approximately one-half of Year 8 students demonstrate proficiency, or advanced proficiency, in computer literacy, but up to 10% have very limited computer literacy. Assessments of computer literacy can also provide the basis for progression maps that could be used to inform curriculum development. Those progression maps will be more valuable if the frameworks on which they are based become more strongly integrated.

In addition, computer literacy appears to be influenced by student background, including familiarity with computers, as well as the emphasis placed on it in classrooms and schools and the support provided by ICT in education systems. At present, there is less information about school and classroom influences on computer literacy than there is about student background influences. In the immediate future, the construct of computer literacy may need to accommodate increasingly changes in

software and hardware contexts in which it is manifested (Ainley, 2018).

In the past decade, several studies have measured ICT competencies from the perspective of ICT self-efficacy. Such indirect measurements tend to have validity problems, as they depend on the pupils' ability to judge their ICT competencies. This study outlines the development of a performance-based digital test and the validation of a direct measure of ICT competence through the use of item response theory (IRT). More specifically, the test and the developed measure focus on primary-school pupils' proficiency in digital information processing and communication (Aesaert, K., van Nijlen, D., Vanderlinde, R., & van Braak, J, 2014).

In search of factors that affect pupils' ICT competencies, research has developed and empirically validated several conceptual frameworks. Although these frameworks are valuable ways of initially identifying factors related to pupils' ICT competencies, they do not take into account the broader classroom and school context in which pupils are embedded. Moreover, most frameworks and their corresponding instruments focus on post-primary education. This study first presents a multilayered model that can be used to guide future studies that try to explain why some primary-school pupils are more effective in acquiring ICT competencies than others. Factors are situated on the pupil, classroom and school level. Second, this study provides future research with a range of reliable measurement instruments to identify factors related to primary school pupils' ICT competencies (Aesaert, K., van Braak, J., van Nijlen, D., & Vanderlinde, R. 2015).



The research field of digital competencies (also referred to as competencies), computer skills and information literacy is strongly connected with education, computers, information science and libraries. This is reflected in the mapping of papers in this field to the broader classification area of Education and Educational Research in the citation database Web of Science as well as Information Science and Library Science and Computer Science. Publications in these research areas are principal contributors to published research outcomes. However, cooperation and co-citation between different research groups, as reflected by the respective research areas, seems rather weak. Researchers remain confined in their particular professional and educational expertise without sufficient awareness of related research conducted in other areas. The scatter of research across the different areas and publications need to be elucidated to show potential for possible future synergy (Stopar, K., Bartol, T, 2019).

Ibrahim Usama and Alamro Abdulaziz (2021) investigated the effects of Infographics on Developing Computer Knowledge, Skills and Achievement Motivation among Hail University Students. The study aims to explore the difference between static infographics (SIs) and animated infographics (AIs) for developing e-learning and computer skills as well as increasing achievement motivation in students enrolled in e-learning and computer skills courses in the second term of 2018/2019 at the Preparatory Year Program at the University of Ha'il (UoH). Amer Mohammed and Elmetwali Mohammed (2020) studied the Impact of Distance Education on Learning Outcome in Computer Skills Course at Prince Sattam bin Abdulaziz University: An Experimental Study.

The present study aimed to explore the impact of distance education on the learning outcome of students in computer skills courses at Prince Sattam bin Abdulaziz University in Al-Sulail, Saudi Arabia. In this study, the learning outcome is represented in the student's academic achievement. Al Hashlamoun Nafeth and Daouk Lina (2020) examined the information Technology Teachers' Perceptions of the Benefits and Efficacy of Using Online Communities in Practice When Teaching Computer Skills Classes. This research explores how Information Technology (IT) teachers experience the use of online communities of practice (CoP) in teaching a computer course called Computer Skills 2 (WRCO2). This course is the second of two computer skills courses in the Work Readiness Program (WRP) running at a Higher Education Institution in the Middle East (HEIME). This course focuses on the use of prior foundational knowledge acquired in the first course to develop understanding and proficiency in the use and application of computer skills and concepts.

Hsu Ting-Chia (2016) studied the effects of a Peer Assessment System Based on a Grid-Based Knowledge Classification Approach on Computer Skills Training. In this study, a peer assessment system using the grid-based knowledge classification approach was developed to improve student's performance during computer skills training. Baker William

(2013) Empirically assessing the importance of computer skills. This research determines which computer skills are important for entry-level accountants and whether some skills are more important than others. Students participated before and after internships in public accounting. Ragin Tracey (2013) examined administrators' perceptions of community college students' computer literacy skills in beginner courses. Fundamental computer skills are vital in the current technology-driven society. The purpose of this study was to investigate the development needs of students at a rural community college in the Southeast who lacked the computer literacy skills required in a basic computer course. Chi, Tai-Yin (2016) studied computer Skill Acquisition and Retention: The Effects of Computer-Aided Self-Explanation. This research presents an experimental study to determine to what extent computer skill learners can benefit from generating self-explanation with the aid of different computer-based visualization technologies.

## METHODS

The abilities and attitudes of the fourth-year MUCHS medical students (MD4s) towards ICT were assessed using Questionnaire 1, an adapted version of a questionnaire developed by Jeannette Murphy j.murphy@chime.ucl.ac.uk at the Centre for Health Informatics and Multiprofessional Education (CHIME, <http://www.chime.ucl.ac.uk>) in London, UK, to assess ICT skills amongst first-year medical students (MD1s) attending University College London (UCL). The questionnaires were distributed to all MD4 students by Tanzanian student representatives, to be filled in independently, and were then collected by the representatives (Stopar, K., Bartol, T, 2019).

Amer Mohammed and Elmetwali Mohammed (2020) studied the Impact of Distance Education on Learning Outcome in Computer Skills Course at Prince Sattam bin Abdulaziz University: An Experimental Study. The researcher adopted an experimental approach. He selected a sample consisting of 80 male students from 4 sections of a computer skills course. Those students were divided equally into control and experimental groups. The members of the control group were taught by adopting a face-to-face instructional approach. They attended 4 face-to-face lectures. The members of the experimental group were taught online by using the Blackboard system. The researcher used a pre-test and a post-test for assessing students' academic achievement.

Al Hashlamoun Nafeth and Daouk Lina (2020) examined the information Technology Teachers' Perceptions of the Benefits and Efficacy of Using Online Communities in Practice When Teaching Computer Skills Classes. A phenomenological approach has been chosen to help understand and explore the qualitatively different ways in which particular teachers experience the use of online CoP as a social and collaborative learning system. Two specific questions were considered: How did teachers experience the use of online CoP in teaching the computer skills 2 classes? (2) What benefits, if



any, have been derived from using online CoP in teaching this course?.

Ragin Tracey (2013) examined administrators' perceptions of community college students' computer literacy skills in beginner courses. Guided by Greenwood's pragmatic approach as a reformative force in higher education, this action research study focused on understanding stakeholders' perceptions of students' computer skills, determining interventions to address deficiencies, and understanding the relationship between student's placement test scores and final course outcomes. Inquiry in this mixed method study included interview responses and correlational analysis of placement test scores, pretest scores, and final course outcomes in 4 beginning computer courses. Interviews with administrators and faculty provided perceptions concerning students' computer literacy skills, and data were coded to determine themes.

## RESULTS

Ibrahim Usama and Alamro Abdulaziz (2021) investigated the effects of Infographics on Developing Computer Knowledge, Skills and Achievement Motivation among Hail University Students. The independent variables in this research consisted of SIs and AIs embedded learning content while achievement of e-learning and computer skills and achievement motivation were the dependent variables being observed. Pre-tests and post-test results showed that the learning materials positively influenced the students' computer skills, e-learning, and achievement motivation. This study revealed that the use of SI had a greater effect on female student learning while AI was found more effective for male student learning.

Amer Mohammed and Elmetwali Mohammed's (2020) study found that both groups share similar levels of computer literacy. It was found that distance education has a significant positive impact on student's academic achievement in the computer skills course. The researcher recommends adding online instructional activities to the curricula used in Saudi universities. Hsu Ting-Chia (2016) studied the effects of a Peer Assessment System Based on a Grid-Based Knowledge Classification Approach on Computer Skills Training. The study results showed that the learning achievements of the students using the proposed system were significantly better than those of the other two groups. Therefore, integrating the knowledge engineering approach with the peer-assessment process can benefit students' learning, and help them attain computer skills certification. The dynamic peer assessment with a knowledge classification approach is not only useful but can also be repeatedly applied to different question sets of the certificate of computer software application. Findings revealed that participants believed students need basic computer skills before attempting a beginning computer class, and no significant correlation was found among the test scores. It was concluded that while the computer placement test assessed theoretical understanding, it did not assess skills (Ragin Tracey, 2013).

Chi, Tai-Yin (2016) studied computer Skill Acquisition and Retention: The Effects of Computer-Aided Self-

Explanation. The self-explanation condition without visualization did not attain statistical significance in comparison to the control condition. The study did not detect statistical differences between the three methods of stimulating self-explanation, although the pattern of results was as predicted. Qualitative data collected from a learning experience survey regarding the subjects' opinions about self-explanation prompts showed that subjects in different treatment groups gave similar responses about how they benefited from self-explanation prompts for learning HTML. The qualitative data also revealed the learners' challenges to perform self-explanation activities, which can be used to improve the design of self-explanation implementation and future studies.

## CONCLUSION

The data exploitation process (as defined and used by (Giorgi, 2009)) resulted in the identification of several themes. Similar themes were then grouped to form four central themes representing the essence of the original ones. The central themes were: (1) to promote student collaboration; (2) to redefine the teacher's role; (3) to encourage student engagement; and (4) to manage the teachers' increased workload. This was followed by a discussion of the benefits and challenges arising from using online CoP in teaching the course, as well as a description of the limitations of this study (Amer Mohammed and Elmetwali Mohammed, 2020). Baker William (2013) empirically assesses the importance of computer skills. The computer skills examined are accounting software, databases, e-mail or Internet, programming, spreadsheets, and word processing.

Students believe that grade point averages and all six computer skills are important. Faculty and recruiters believe all skills are important except programming skills. Differences exist based on audit versus tax and gender. Spreadsheet skills are by far the most important. Ragin Tracey (2013) study resulting recommendations promoted coaching and tutoring to assist students with low computer skills. With a focus on developing educational alternatives to better serve students, implementation of the recommendations may promote positive social change that benefits not only students needing support in developing computer skills but also the community as well. Interview and focus group data revealed recurring themes, such as the time allotted for the exam, the testing location, netbook computer problems, the testing software, the clarity of exam questions, and the overall purpose, i.e. critical thinking, of the exam. Conclusion: The value of using the exam for screening and assessment of information and computer skills for graduate students remains questionable. While the testing environment can be improved, the heart of the exam, i.e. critical thinking, can be demonstrated better with authentic assessments within the curriculum. Computer skills could then be addressed with an assessment checklist in the orientation and introductory courses (Krueger, J.M., and Ha, Y., 2012).



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## WORK LIFE BALANCES OF EMPLOYEES IN VARIOUS SECTORS”- A LITERATURE REVIEW

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### ABSTRACT

*A literature analysis contains different research papers, in order to understand the work life balance of employees working in various sectors. The author has analyzed related studies different journals, articles and research papers to get more understanding about work life balances of employees working in different sectors. Work life balance is a one of the challenging issue faced by employees in various sectors. There are various factors affecting work life balances of employees. Many researches had been conducted in the field of work life balance of employees in different sectors. In this paper researcher would like to find out the future scope on the topic work life balance of employees by analyzing related works.*

**KEY WORDS:** *Work Life Balance, Challenging Issue, Factors Affecting, Different Sectors.*

### 1. INTRODUCTION

Human resources are employed in various sectors like banking, insurance, IT, BPO, Health Care, educational institutions etc. While working employees must cope with high job expectation, office commitments, family life duties and responsibilities etc. Hence there may be chances of more work burn out at work place and also leads them to disturbed work life balance. It is important to all employees working in different sectors to maintain balanced work life. Various studies have been conducted about the topic work life balance of employees working in different sectors. Thus, in this review analysis study researcher would like to understand more about work life balance of employees working in various sectors and coping strategies.

### 2. OBJECTIVES

1. To understand about work life balance of employees working in different sectors.
2. To know about various strategies used to maintain work life balance.

### 3. RESEARCH METHODOLOGY

The study is based on the secondary data. Data are collected from various articles, journals, research papers

related to the topic on work life balance of employees working in various sectors.

### 4. RELATED WORKS

- (Kalliath T & Brough P 2015), the study was identified the two primary features of the work-life balance definitions and propose a new definition of this construct.
- (Mas Machuca, M., Berbegal Mirabent, J. and Alegre, I. 2016)
- The study reveals that supervisor work-life balance support and autonomy with employee work-life balance. Also indicates that employee work-life balance is positively related with organizational pride and job satisfaction.
- (Kristen M Shockley, Christine R, Eric A. Knudsen 2017), the study recognizes the theoretical association between work-life conflict and withdrawal-related attitudes. Specifically, meta-analytic estimates suggest a small positive relationship between both work-to-life and life-to-work conflict and turnover intentions, and a small negative relationship between both directions of conflict and organizational commitment.
- (Soomro, A.A., Breitenecker, R.J. and Shah, A.A.M. 2018), Work-life balance and work-family conflict have a positive effect on employee performance. Job satisfaction



has moderating effects on the relationships between work-life balance, work-family conflict, and family-work conflict with perceived employee performance.

- **(Deepak S Sharma, 2019)**, in order to create a healthy environment around an employee, it is more significant to make the employees to attain proper Work life balance, because the ultimate intention of human beings is well-being and life satisfaction.
- **(Swarna Latha V, Lalitha P, 2020)**, during starting time of pandemic really women working professional faced many problems because both has to manage in one place that to the situation is sudden and unexpected. So many women all over world faced stress, sleeping problem,

mood swing because of over burden and research also reported the same. But now things are habituated and women are coping with situation. women to improve mental and physical stability and also tips to improve work from home in this pandemic.

( **Balu L, Adrija Shivani,2022**), the study indicates that organizations should encourage people to perform their jobs efficiently and effectively through a variety of motivational techniques. This would help the employees to balance work life balance and attract potential candidates.

#### The list of scholarly publications related to work life balance of employees working in various sectors.

Table No.: 1

Sl. No	Area & focus of research	Outcome of the research	Reference
1	Work life balance of teachers.	The study indicates that majority of the female teachers were not spending enough time with their family due to long working hours and stress level.	Singal & Parvesh et al. , 2015
2	Work life balance of women working in IT sectors.	The study reveals that Work life balance of women working in IT sector is more affected by their personal factors than their professional factors.	Rashmi Bharti et al., 2015
3	Significance of work life balance of women employees.	work life balance of women employees are significant in order to bring about a good awareness about the problems of women face while balancing their personal and professional lives	Bharathi Vijayakumar,Mala, Bhattacharya Sonali et al., 2015
4	Work life balance strategies.	The study reveals that work-life Balance strategies can help organizations in generating stress free environment for working people & therefore by improved Work life balance.	Taruna Yadav, Sushma Rani, et al., 2015
5	Importance of work life balance	The study reveals the importance of work life balance are improvements in people management practices, especially work time and work location flexibility, and the development of supportive managers help to contribute increased work-life balance.	D.Babin Dhas et al., 2015
6	Relationship between occupational stress and work life imbalance.	Identified that a strong positive relationship between occupational stress and work life imbalance of female faculty in central universities of Delhi.	Zaheer et al.2016
7	Factors affect work life balance.	The study found that stress-free	Tressa & Manisha et al., 2016



		environment, obligations and responsibilities of work life balance for the teaching professionals. And also institution must have flexible working strategies and better working conditions.	
8	Causes of work life imbalance.	Continuous work causes imbalance in personal life and professional life.	Samuel & Mahalingam et al., 2016
9	Policies related to work life balance.	The study found that government organizations have provided very less policies of work life balance for the employees working in different sectors.	Sambit parida et al., 2016
10	Work life balance of BPO sector & IT sector employees.	The study indicates that employees working in BPO sector, followed by health care and IT sectors reported relatively more work-life conflict and the employees from education sector have least work-life conflict	Kumari K.Thriveni,Devi V.Rama et al., 2016
11	Factors affect work life balance.	The study found that personal factors are perceived to be more impacting than the professional ones in the work life balance of women.	Bharathi Vijayakumar S, Mala Padma E et al., 2016
12	Motivational factors of work life balance.	Work life balance can be achieved by factors responsible for job satisfaction i.e. Supportive colleagues, supportive working conditions, mentally challenging work, equitable rewards and employee oriented policies.	Dr. Renu parek and Nimmi Singh et al., 2016
13	Reasons of work life balance of women employees.	The study highlight that female employees are getting family support, support from their spouse which helped them to manage their work life balance. Most of the women employees are satisfied regarding the flexible working hours as well as holidays makes a good impact on work life balance.	Dr Shachi Gupta et al., 2016
14	Impact of work life balance.	The study has been found that work responsibilities negatively impact the personal life of employees. The factors like overtime, travelling to work, meetings and training after the working hours impact the work life balance of the employees.	Chaithra R, Ashok Kumar RS, TP Renuka Murthy et al., 2016
15	Factors affect work life balance of female employees.	The study found that female employees enjoy less at their work	Mansi Tiwari et al., 2017



		place due to the undue pressures of their work place. These pressures are making them more depressive in coping with the advancements in every field.	
16	Ways of achieving work life balance.	The study found that women employees are able to balance their work life and personal life. To achieve work life balance women should plan her professional and personal schedules well so that both are equally balanced and satisfied.	Dr. S. Kamalaveni, B. Suganya et al., 2017
17	Reason of women face work life imbalance	The study found that women face problems to maintain balance between work-life mainly because of professional challenges they face every day.	Tasnim, M. , Hossain, M. and Enam, F et al., 2017
18	Impact of work life balance.	The study indicates that there is a positive relationship with job satisfaction and teaching satisfaction. Work life balance affects organization commitment, employee loyalty and job satisfaction	Agha et al., 2017
19	Hindrances in work life balance	The study found that there are lots of hindrances in work life balance. For example, tug of war between time and work, stress, traveling problem, people's attitude towards their jobs, excessive responsibilities at home and workplace, lack of coordination at workplace and home, family's expectations etc. are hindrance of work life balance	Dr. Rupa Rathee, Ms. Renu Bhuntel et al., 2018
20	Work life balance of working women.	The study reveals that working women have worries about the job and getting tired due to work, so they are unable to spend quality time for their personal and family life.	R. Rangarajanraman, et al., 2018
21	Factors influence on Work Life Balance.	The study reveals that work life balance results much impact on employee job satisfaction. Factors of work life balance such as employee intention to leave job, work pressure and long working hours have negative relation with employee job satisfaction and work life balance programs and flexible working conditions have positive relation with employee	T. M. Hemalatha, Dr. K. Shumugasundaram, , et al., 2018





		job satisfaction. Employee should have a positive environment in the work place for leading a balance life with their family	
22	Association between age and work life balance.	The study highlights that there is association between age of working professionals and work life balance.	Dr Deepak S Sharma et al., 2019
23	Biggest threat to work life balance.	The study found that the biggest threat to work life balance are Work place distraction, wasting time and simply being inefficient to work	Jory Mackay et al., 2019
24	Occupational stress acts a powerful mediator of work- life imbalance.	The study indicates that occupational stress acts as a powerful mediator of the relationships among long working hours, work-life imbalance, and job dissatisfaction in employees in high-stress industries such as the high-tech and banking industries.	Gabriela Topa et al., 2019
25	Work life balance enhances employees' well- being.	The study mentioned that work life balance practices in organizations would support employees in order to ensure their well-being and thus, increase their engagement and retention.	Jaharuddin, Nor Siah and Zainol, Liyana Nadia et al., 2019
26	Factors positively and negatively related to work life balance.	The study found that work demands. The study found that work demands, hours worked and family demands were negatively related to work life balance, while job autonomy and supervisor support were positively related to work life balance.	Jarrod M. Haar, albert Sune, Marcello Russo & Ariane Ollier- Malaterre et al., 2019.
27	Impact of better work life balance on work and family.	The study found that better balance help to handle the both work and family because work life balance is very important. Women employees are also good in maintaining good work life balance.	Dr.K. Siva Nageswara Rao, Ms. Shaik Maseeha et al., 2019.
28	Work life balance positively related on employees' performance.	Majority of the employees feel that Work-life balance approach is positively associated with employees' performance in the organization.	Dr. K. Veenalatha et al., 2019.
29	Work life balance on women employees.	The study found that all women are balanced and they are satisfied with their jobs.	Dr. G. Balamurugan and M. Srelekha, et al., 2020
30	Impact of over work on work life balance.	The study indicates that overwork isn't good for employees or their companies and it can be hard to	Loana Lupu and Marya Ruiz-Castro, et al., 2021



		overcome unhealthy work habits and reach a more sustainable work-life balance	
31	Effect of work life balance.	The study found that there was an effect of work life balance on job satisfaction and employee retention.	Hana Silaban, Meily Margaretha, et al., 2021
32	Importance of maintaining the work life balance during covid-19 pandemic situation.	The study reveals challenges faced by the employees after the outbreak of the COVID-19 pandemic in maintaining the balance between work and personal life during remote working. Remote-oriented employees have responded with 20 scores that they have balanced the work-life and 14 scores of new employees have said that they are maintaining the work-life balance.	Sabanpreet Mann , Dr. Jaya Chitranshi, et al., 2021
33	Key issues of work-family balance.	The study finding established socio-cultural traditions, gendered stereotypes, tremendous pressure to manage multiple work-family commitments, and negative attitudes of both men and women towards working women are key challenges encountered by women in balancing work and family spheres.	Mahi Uddin, et al., 2021
34	Work life Challenges while work from home.	The study indicates that one needs to learn about how to restrict ourselves to office hours, find the ways to be for effective on the job while working from home and find out the means to connect with professional life and it should cause any overlap with personal life.	Sonal Gupta, et al., 2021
35	Factors associated with work life balance.	The study results indicate that psychological detachment (PD), sleep, stress, social support (SS), work life balance, and productivity declined during work from home. SEM showed that PD significantly influenced stress and sleep, subsequently affecting productivity. SS significantly helped the participants maintain work life balance.	Tejero LMS, Seva RR, Fadrihan-Camacho VFF, et al., 2021
36	Importance of work life balance.	The study noted that most companies realize the relevance of	Eureka Kashyap, Sarabjeet Kaur, et al., 2021



		work life balance within their framework. An employee centric open organization is more likely to integrate flexible solutions for the employees, which in turn can increase an individual's reliability and trust in the organization	
37	Major challenges for maintaining work life balance.	The study found that satisfaction and motivation are considered to be key factors that help to maintain work-life balance.	Devkota, N., Shakya, R. M., Parajuli, S., & Paudel, U. R. et al., 2022

**The list of scholarly publication related to various strategies for maintaining work life balance.**

**Table No.2:**

Sl. No	Area & focus of research	Outcome of the research	Reference
1	Challenges of corporate employees to maintain work life balance.	The study indicates that introducing employment policies that encourage a healthier work/life balance for your employees can bring real benefits to your business. Flexible working and work/life balance policies will also foster a more positive perception of you as an employer. This can lead to better relations with your employees and greater staff loyalty, commitment and motivation, reducing staff turnover and recruitment costs.	Bimaldeep Kaur, et al., 2014
2	Coping strategies of work life balance.	The study found that individuals with positive attitudes and life coping strategies were more capable of achieving overall well-being. Both monetary- and non-monetary-based organizational work life balance provision had no direct association with employee well-being, but had indirect effects via individual coping strategies to help employees achieve better well-being. Employee well-being was found to have a stronger association with individual effort than organizational. Deliberation in providing WLB programmes.	Connie Zheng, Kia Kashi, Di Fan, John Molineux & Mong Shan Ee, et al., 2015.
3	Modern trends and development strategies adopted by the BPOs to bringing employees work life balance.	The study reveals that BPOs started giving importance to Human sigma also i.e. importance to employees also to avoid absenteeism, conflict, employees exit etc. in this context work-life balance of the employees come to light. To overcome this problem both the employer and employee should contribute equally	P. Yogeshwaran, et al., 2016



		in avoiding or minimizing the factors raising stress in the work place.	
4	Work life balance strategies for coping stress.	The study results shows that diet, sleeping for long hours, exercise, yoga, art of living and meditation are some of the popular stress coping strategies adopted by the software professionals.	Sonia Gautam, Dr. Balgopal Singh, et al., 2017
5	Work life balance solution.	The study reveals the existence of negative effects of poor work life balance determined by high levels of work-family conflict on work satisfaction and psychological health. Negative impacts of family-work conflict on work satisfaction and psychological health were not supported.	Indu Gautam, Sameeksha Jain, et al., 2018
6	Motivation of employees to manage their work and family life.	The study found that one should have their own personality traits and personal motivation to manage, balance the Work-life. The organizations should identify that the employee welfare and satisfaction is the most vital things. Love and humanity is also important to be happy along with the work. Companies are implementing new programs and policies on how to balance both work and life.	Dr.K. Siva Nageswara Rao, Ms. Shaik Maseeha , et al., 2019.
7	Understanding of work life balance.	The study reveals that work life balance is an important area of research and suggests that there lot of scope for researchers' to do continuous investigation in this area.	Thilagavathy S. and Geetha S.N., et al., 2021
8	Area of work-life balance.	The study found that determinants of the work-life interface such as organizational domain predictors, dispositional (individual) predictors, life domain predictors, and demographic predictors are the prominent research areas in this field. The outcomes of the work-life interface identified in this field included work domain predictors and non-work domain predictors.	Kumari Rashmi, Aakanksha Kataria, Reeta Singh, et al., 2021.
9	Employees' opinion towards work life balance.	The study indicates that employees generally feel they are able balance work life due to policy for work life management helps to increases productivity of the organization.	Bhadrapa Haralayya, et al., 2021



## 5. DISCUSSION AND CONCLUSION

In the above study, researcher has reviewed various articles, journal and published papers to understand more about work life balance of employees working in various sectors. Researcher has understood that there are various factors which affect on work life balance of employees working in various sectors. Some studies mentioned that factors like age, marriage, job satisfaction, stress etc. having a strong relation between work life balances. Due to that employee face positive and negative impact in their work and family life. Work life balance is an important topic for the future researchers. There are various factors come under work life balance and lot of challenges employee may face due to work life balance which enhances the scope of studying this topic more widen.

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# A STUDY ON THE PEOPLE PREFERENCES TOWARDS PLASTIC MONEY WITH SPECIAL REFERENCE TO PUTTUR TALUK OF DAKSHINA KANNADA

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## ABSTRACT

Now a day both internet and technology has covered the world like a spider web. The revolution in the technology has brought drastic changes in the transaction system. With these changes money has changed its form from cash to cashless. These days' people prefer to make transaction by using plastic money rather than the paper money because of its convenience, safety and mobility. Day by day numbers of plastic money users are increasing due to the digitalization. These changes have made people's life easier. We have conducted this study by using the response of 350 people. With their response we have analyze the people's preference and the reasons for using plastic money over paper money. The study reveals that peoples in Puttur use more plastic money and they have agreed that plastic money has life in future because it is in the stage of replacing the paper money.

**KEY WORDS:** Plastic money, Digitalization, Internet, Technology

## INTRODUCTION

Money makes the world go around, living without money is unimaginable. Like oxygen money also necessary to live the life. Money is a medium of exchange it allows peoples to get what they need for to lead their life. In the digital world the sophisticated technology and internet has swallowed the world. Along with production and other sectors the service sectors also getting digitalized. Banks are one of the main legs of the service sector. Now a day's technology and internet has become the life blood of the banking sector. Due to technology advancement the banking sector has changed its style of rendering services through internet.

Earlier the RBI and Government of India have issuing the bank notes and coins for transaction purposes. After tremendous growth in the technology the banking sectors has started to issue plastic cards for the security and convenient purpose. Plastic money refers to the plastic cards, which is used as alternative to the cash for making payments. There cards are available in the form of debit cards, credit cards, ATM cards and Charge or prepaid cards.

The plastic money has getting more popularity over the paper money, many sophisticated advancement were implemented to the plastic cards. By using these plastic cards, we can access into many services such as Cash withdrawal, cash deposit, UPI, QR Codes and plastic card terminals or readers.

## OBJECTIVES

1. To know the reasons behind the usage plastic money.
2. To know the satisfaction level of people on plastic money.

3. To know the people's perception about the replacement of paper money with plastic money

## RESEARCH METHODOLOGY

This study is evaluative in nature. This study is based on both primary and secondary data. Primary data was collected through sampling survey method by using questionnaire to collect the data. We have collected random data from 350 respondents. The secondary data was collected by reviewing the research paper and by referring some websites. Collected data from the respondents are shown by using various charts and tables to understand and to draw meaningful conclusion.

## LIMITATIONS

1. In this study we have used google forms to collect the responses, and not any other methods are used to collect the data.
2. Secondary data was collected only by studying the past research papers and by referring website, and no other media is referred.

## STATEMENT OF THE PROBLEM

Paper money and plastic money are the main sources of payments. Paper money was popular before the introduction of plastic money. Now a day every transaction is taking place with help of plastic money. There is a little bit of confusion in the minds of the people about the safety and security of plastic money. So this research is conducted to analyze the people's preference towards the plastic money usage for the transaction purpose.

## LITERATURE REVIEW

**Dr.Gurpreet Kaur, Mrs. Rashmi Sharma (2017)** has made an attempt to understand the importance of the usage of plastic cards and its impact on banking sectors. Plastic money has gained importance in people's life. Majority of peoples use plastic money because of its convenience and portability and for safety measure. Banking sectors more depend on plastic money to meet the challenges occurs in dynamic world by applying E finance system properly.

**Jyothi Kapoor Bhargava (2021)** this study depicts the total outlook of the usage of plastic money and its trend in the banking sectors. This study also highlighted the factors behind the customer preference towards the usage of plastic money. Plastic money is used as electronic payment tool by consumers. This card has been replaced the paper money.

**Bansi Patel, Urvi amen (2012)** According to their study due to changes in technologies some drastic changes occur in the transaction system. In current days among any transaction plastic money transaction has become the inevitable part of the transaction system. With the help of plastic money peoples way of life become easier and development taking place. It helps in controlling the money laundry and helpful in tax legislation.

**Ameya P Khangar, Prof. Dr. Vijaya Kumar DUA (2021)** have made an attempt to study about the evolution of paper currency in India and various rules administered in different regions in India and their thought processes and impact on currency. The evaluation of paper currency helps to understand Hindu, Christian, Islamic, Buddhist cultural dimensions in India and their influence on their currency design. Bank notes and coins usage helps to make interaction with human mind with material idea and product

**Mr.A Prshanth, Mr.S. Gokula Kumar, ms.Sowmiya, Ms keerthna, Ms. Priyanka (2019)** this study aim is to find out that e banking and card banking is one of the facility offered by the banking sector. This study is based on the customer preference towards the plastic money and to know the socio economic status of the cardholder to use the different kinds of cards facilitated by the banks and to know the problems associated with the use of plastic card.

**Sukhwindar Kaur (2018)** in his study he evaluated the relevance of the plastic and its impact on the consumer preferences. After money has changed its form from coin to cash, in present it available in formless form as an electronic payment to make transactions. This study also analyzes the acceptability level of the plastic cards among the consumers.

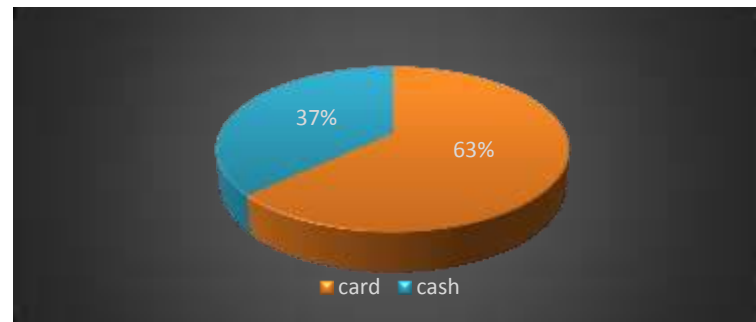
**P. Manivannan(Jan 2013)** in his study he found that credit card usage was seen as a luxury. Higher income peoples can only have offered to use electronic payment. Bank services and facilities are extended to the urban area as well as the peoples who lives in rural area. With development of banking services peoples with fixed income group or salaried classes also start to use electronic payment especially credit cards.

**Richa Geol, Seema Sahai, Anita Vikas Garg (2019)** in their study they made an attempt to measure the factors which affects the people to switch from cash to cashless form. They found that there is a long way for India to become a cashless economy. People have lack of trust and lack of confidence in

the digital payment mode while using. There are many people who still don't have any knowledge about digital payment in India. There are problems and difficulties to fulfill the dream of digital India. But in the future cashless economy will grow and bring out many benefits and advantages along with it.

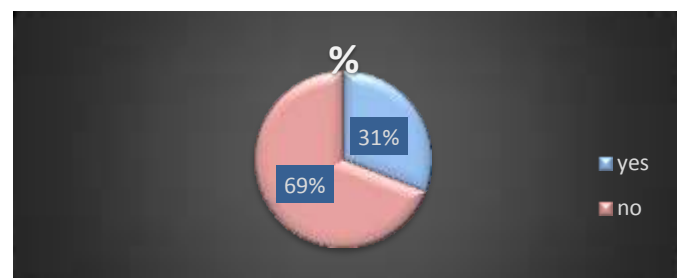
## DATA ANALYSIS AND INTERPRETATION

### 1. Payment mode



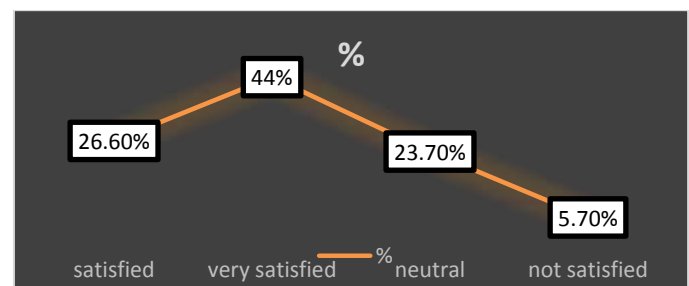
Above pie chart represent that 63% of the respondents are use card to make payments while shopping and rest of 37% of respondent's use cash while making payments.

### 2. Difficulties in plastic money transaction



Above pie charts shows that 69.1% of respondents do not face difficulties while 30.9% face difficulties in plastic money transactions.

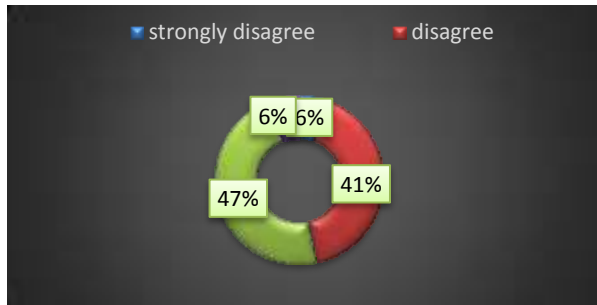
### 3. Satisfaction level on plastic money



This line chart is plotted on the basis of the satisfaction level of the people on plastic money transaction. According to this chart 44% felt very satisfied, 26.6% felt satisfied, 23.7% felt neutral and rest of 5.70% of respondents felt not satisfied with plastic money transaction.

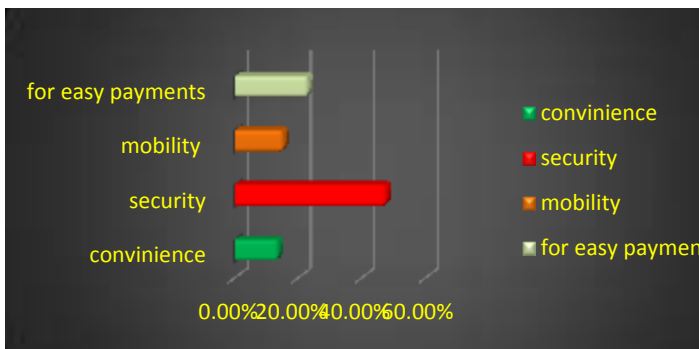


#### 4. Replacement of paper money with plastic money



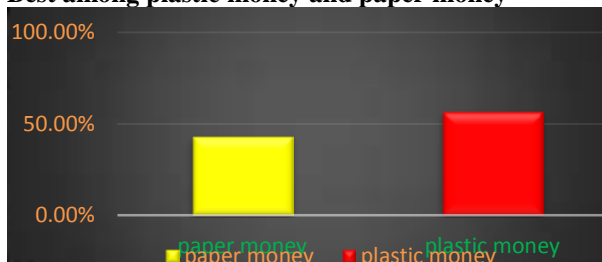
This pie chart exhibit that out 350 respondents 47% are agreed, 6% are strongly agreed, 41% are disagreed and 6% strongly disagree that paper money can be completely replaced with plastic money.

#### 5. Preference towards plastic money



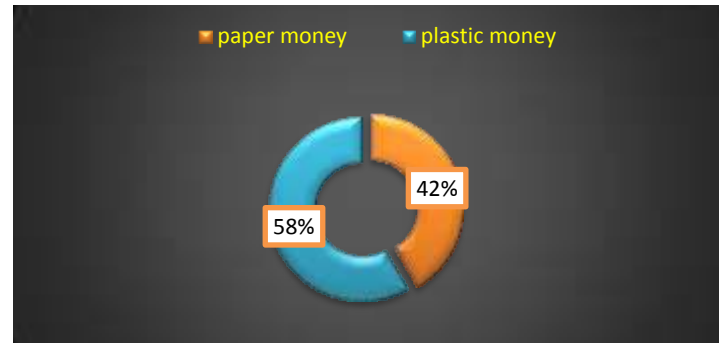
The above bar charts convey that 47.7% of respondents prefer plastic money because of its security, 23.1% prefer because of easy payments, 15.4% prefer for the benefit of the mobility and 13.7% prefer for the convenience purposes.

#### 6. Best among plastic money and paper money



The bar chart reveals that out of 350 respondents 56.6% have considered plastic money is best and rest of 43.4% have considered that paper money is best.

#### 7. Safest method of payment



This pie chart gives clear picture about the safest way for payments. According to 58% of respondents, plastic money is safest method of payment. On other hand 42% of respondents considered as a paper money is safest method of payment.

#### FINDINGS

- ❖ Our study reveals that majority of people uses card for making payments while shopping
- ❖ This survey indicates that majority people do not face any difficulties while using plastic money for transaction
- ❖ In the matter of satisfaction level, peoples are satisfied with the plastic money transactions.
- ❖ By this study we came to know that most of the people agreed that paper money can be completely replaced with plastic money.
- ❖ Most of the peoples prefer plastic money because of its increased and advanced security.
- ❖ Major portion of respondents are agreed that plastic money is the best method for payment when it is considered with other payment.
- ❖ According to our study plastic money is considered as a safest way of payment compared to paper money.

#### SUGGESTION

- India is becoming digital India, in the progressive of becoming digital India, people's contributions are playing major role. The people have to use more e-banking facilities while making payment without depending on the cash.
- Banks has to encourage people to use more e-banking facilities by implementing more security options for fund transfer
- The bank has to concentrate more on rural area and educate the rural people about the available e-banking facilities and its benefits.

#### CONCLUSION

Plastic cards are one of the innovations brought by the banking sectors. Plastic cards are the facilities issued by the banks to help the peoples to avail e banking facilities. With the plastic cards one can easily make any transaction by owing the plastic cards which are issued by the banks. By this study we came to know that peoples tend to prefer more plastic money over paper money because of its security, easy payment option,



and for mobility purpose. Plastic money is considered as best payment tool while compared with paper money transactions. In plastic money there is a no risk to carry the cash to make payment. Most of the peoples have very much satisfied with plastic money usage and its benefits. According to this survey the majority of the people are ready to accept the replacement of paper money with the plastic money due to its speedier and secured way of payment. The respondents have showed the positive perception towards the plastic money and its acceptance; this will play an important role in the economic development of the country. Plastic money has increased the number of transaction through bank accounts. Due to the use of plastic money the most of the transactions are taken place through the bank accounts directly and this will definitely reduce the supply of black money and quota notes circulation in the society. Plastic money transaction helps in increase the flow of tax to the government. The ultimate benefit of increased plastic money transaction will result in the development of the country.

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# CSR PRACTICES IN INDIA: A CASE STUDY ON TATA CONSULTANCY SERVICES LIMITED (TCS)

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## ABSTRACT

Corporate Social Responsibility (CSR), which is described as a company's ability to respond to the judicial, moral, social and environmental demand of its stakeholders, has received more attention in recent times. CSR focuses on the advantages of all stakeholders as opposed to just the shareholders. CSR initiatives are becoming more and more crucial for commercial entities to establish credibility and transparency in the communities where they operate. According to section 135 of the 2013 Companies Act, corporates that meet specified threshold for net profit, turnover and net worth are expected to spend 2% of their average net profit over the previous 3 years on CSR programs. The software giant and IT service provider in India and a BSE and NSE listed firm, Tata Consultancy Services (TCS), has been investing heavily in CSR over the past few years. This study illustrates how TCS in India is implementing & adapting CSR practices and their commitment towards transforming and upliftment of the society. The analysis is mostly based on secondary data regarding actual CSR expenditure and budget of TCS from the FY 2017-18 to FY 2021-22. The study concentrates on aspects like CSR activities, CSR spending patterns and the effect of CSR on the share prices of TCS.

**KEYWORDS:** Corporate Social Responsibility, CSR activities and spending, Tata Consultancy Services (TCS), Share price.

## INTRODUCTION

The concept of corporate social responsibility (CSR) is emerging in modern times as a key aspect of business mindset, reflecting the influence of business on society in the framework of sustainable development. Company social responsibility (CSR) is the voluntary application of corporate assets to improve societal welfare. The growing stance on corporate social responsibility emphasizes accountability to all stakeholders, including creditors, suppliers, personnel, the authorities, and the society, as opposed to just maximizing shareholder profit. In addition to corporate regulatory agreements, CSR also refers to the process of achieving commercial success by using unbiased, philanthropic approaches to environmental and social challenges in a way that benefits society. Businesses are run to have a beneficial holistic impact on the communities, cultures, societies, and environments where they operate. The cornerstone of CSR is the idea that businesses should be ethical enough to combat poverty and other matters of social concern, in addition to public policy. As a result, corporations should handle the problems and difficulties that the governments to some extent handle.

In the last decade, the value of CSR has grown dramatically. CSR grew throughout time to encompass both commercial and humanitarian concerns. Additionally, it expanded to include both monetary and societal interests. Due to demand from many stakeholders, businesses have increased their financial transparency and turned to public reporting. Their programs and initiatives are now being included in their financial statements.

Understanding various company and society related challenges and taking action in accordance with their strategic planning are made possible through CSR. On the other hand, there is a widely held belief that environmentalism and the different societal interest groups are important. Large corporations that act as worldwide suppliers and have gradually come to understand the advantages of offering CSR programmes in their various locales as globalization picks up speed. CSR initiatives are increasingly being carried out globally. The fundamental goal is to set up sustainable enterprises, which depend on vibrant markets, economies and groups. Accountability, credibility, financial infrastructure, growing public demands of corporation, and progressive consciousness are the main forces behind CSR.

## EVOLUTION OF CSR IN INDIA

Since its inception in the Indian context, CSR has developed into the categories listed-

**Phase I (up to 1914):** CSR motivated by philanthropy and charitable work. This is the earliest type of CSR, and it was heavily influenced by culture, religious practice, family tradition and the industrial growth process.

**Phase II (1914-1960):** Gandhi's philosophy of trusteeship for the integration and augmentation of social progress had a major influence during this period, which was driven by battle for independence. Gandhi's reform initiatives included campaigns for the abolishment of untouchability, women's equality and liberty & rural development.

**Phase III (1960-1980):** The third phase of Indian CSR was influenced by the mixed economy model and subsequent laws establishing labour and environmental requirements. Another



feature of this phase is a transition from corporate self-regulations to stringent governmental and legislative regulation of company activities.

**Phase IV (1980 and afterwards):** Corporate Social Responsibility at the intersection of Philanthropic and

Business Strategies. Indian businesses and stakeholders started to give up on traditional philanthropy work and to a certain extent, integrated CSR into a cohesive and sustainable business plan, partially embracing the stakeholder engagement approach.



(Source: Overview of Corporate Social Responsibility, S. Ravi)

## LITERATURE REVIEW

According to **Leena James (2013)**, Organizations need to be aware of the CSR issue. One of the early adopters of CSR initiatives is TCS. TCS adheres to the business philosophy of creating robust, long-lasting enterprises. TCS's sustainability efforts are centered on the neighbourhood and surroundings. The study's findings demonstrated that the company's ongoing reduction in its use of natural resource. Children's education, job creation, and women's empowerment via education are some of the TCS's social efforts. The progress curve displayed that the beneficiaries' number increasing over time.

**Priyanka Varma (2014)** in her studies determined out that Indian businesses did not effectively adopt and document CSR, as a charitable activity. After CSR is made obligatory the CSR initiatives have become transparent through legitimate websites, financial statements, corporate sustainability report etc. Government believes that the necessary CSR will assist our nation to combat poverty, illiteracy, unemployment, and starvation. The study concluded that for overall development, India, a developing nation, needs financial help from corporations. A obligatory CSR is therefore required.

**N. Jaysawal & S. Saha (2015)** concluded that CSR has established itself as a significant milestone in the field of harmonious corporate and social coexistence. In order to achieve the final goal, the law provision has made CSR mandatory for all sectors and regulated its growth. As important opinion leaders, customers, and the general public have great expectations, the case for exhibiting corporate responsibility is becoming more compelling. As a result, it is a fiction in and of itself to claim that CSR is nothing more than eyewash.

**Sudeepta Pradhan (2016)** analyzed that because of the implementation of new rules regarding CSR, the Indian businesses changed their stance from passive philanthropy. Corporate popularity is stepped forward because of discharging of CSR initiatives. An organization which announces its social programs can growth its popularity and the study proved that there is no significant correlation between a company's financial performance and its commitment to social responsibility.

According to **S.K.S. Yadav (2016)**, Corporate Social Responsibility encourages businesses to incorporate social, environmental, and financial concerns into their principles, cultures, decision-making processes, and operational plans in an accountable and transparent way in order to generate wealth and enhance societal well-being. As a result of the study's findings, environmental elements can be controlled, goods can be delivered on time and adequately, and social safeguards are most importantly promoted.

**A.A. Aade & H.A. Chhabra (2019)** stated that TCS plans to concentrate on both, i.e., social and environmental factors, as they both play crucial roles. Sustainability in business will be largely determined by governance. Somewhere at end of the day, creating a huge firm is simple, but creating one of the most reputable corporations in the world and maintaining it for many years is really difficult. The only organizations that can gain the respect of their stakeholders and see more steady growth are those that were established on a solid corporate governance foundation.

**Benson Kunjukunju (2020)** analyzed that despite corporate expenditure on CSR having multiplied from 2014-15, it is still insufficient given the scale of Indian corporations. Approximately, 80% of all CSR expenditures in India come from the top 100 corporations. Observing that the businesses



that fall within the amendment's definition of "Corporate" have not allocated even 2 percent of their net profit to CSR is depressing. Despite the CSR law being in effect for 5 years, approximately 26% of top corporations continue to fall short of the required investment.

## CORPORATE SOCIAL RESPONSIBILITY POLICY OF TCS

TCS is a global Indian corporation that offers business solutions, BPO services, and IT services. With a solid track record in the past, it is positioned for rapid expansion both in India and internationally in the future. The idea of the Tata Group aims to create powerful, sustainable businesses that show a commitment to the environment that is deeply ingrained in society. As a member of Tata Group, TCS is dedicated to serve the local community and its surroundings. It stands for creating dependable, environmentally conscious companies that are based in the community. It's always acknowledged the responsible behaviour towards the larger community in which they operate.

The history of the Tata Group and the founder's philosophy and dedication to raise the standard of living in communities are the foundation of TCS' corporate social responsibility commitment. In order to address the need of the most underprivileged groups in the community, TCS believes that communities must overcome challenging issues. To that end, the company's CSR strategy makes the best use of the organization's knowledge and experience to develop specialized, localized and collaborative solutions.

In the case of TCS, CSR activity is a management concept wherein groups combine social and environmental issues of their enterprise operations and interactions with their stakeholders. CSR is commonly understood as being the manner via which a business enterprise achieves a stability of economic, environmental and social imperatives even as on the equal time addressing the expectancies of shareholders and stakeholders. Anything this is useful for the society may be known as CSR and such interest have to be proven with the aid of using business enterprise on their internet site and corporation ought to take approval from Board of Directors of the company.

## THRUST AREAS IN CSR

**Education and skill development:** TCS uses its position of prominence in the IT industry to operate creative programmes that tackle the community's problems with access to education and skill development. BPS Employability Training, a 100-hour program that has so far given a well-rounded education to over 66,000 children from marginalized communities, and IT Employability Training, which has taught nearly 2,400 students from rural engineering and science colleges technical and managerial skills as well as general aptitude, are two of its solutions in the skilling field. Similar computer-based adult learning programmes are provided by TCS, most notably in the pattern of our Adult Literacy Program. To date, this approach has assisted in the education of over 388,000 individuals by using ICT-based instruction in nine Indian and three foreign languages. Then there is BridgeIT, which uses digital technology to empower marginalized populations.

4,900 TCS support staff members have received computer and linguistic training through our Empower program since its beginning. In addition, our Teacher Empowerment Program, which aids teachers in developing their skills and experience, has benefited over 850 participants. TCS has also established a number of practical solutions to deal with systemic problems. A good example of one of these is the Digital Impact Square (DISQ) in Nashik, Maharashtra, to help young innovators develop digital technologies to difficult social challenges. The 60,000 sq ft Kohli Research Block at IIIT Hyderabad is fostering research, instruction, and innovation in the field of wide intelligent systems. Additionally, TCS assists Tata Strive in implementing thorough skill-building programmes for disadvantaged kids in Mumbai and Hyderabad.

**Health & Wellness:** We assist institutions conducting drilling research as well as provide knowledge on better health habits to all facets of society as part of our initiatives in the medical profession. In terms of the institution, this entails helping the Tata Translational Cancer Research Center at the Tata Medical Centre in Kolkata improve the destiny for cancer patients in India. For these patients, TCS wants to create individualized diagnoses, monitoring, and therapeutic approaches. Additionally, TCS has been offering IT support to the National Oncology Digital Nerve Center. Telemedicine, virtual follow-ups, and instant messaging support are important services. The Cancer Research Institute in Chennai is also given a free, completely integrated hospital administration system by TCS. As a vital part of the Swachh Bharat Abhiyan of the Indian government, TCS in the past installed sanitation services at public schools. As part of our ongoing support for the programme, a campaign for behaviour modification and awareness was put into place at a number of places. This entailed encouraging students to practise good hygiene through role-playing and workshops. TCS additionally provides free IT services, including the creation of straightforward and user-friendly systems, to charities including Operation Smile, Mumbai Mobile Crèches, the Center for Social Action, and the Impact India Foundation. In collaboration with TMC in Kolkata, the Tata Translational Cancer Research Centre (TTCRC) was established. TTCRC aspires to establish an interactive platform for practitioners, researchers and the industry to work together to provide a brighter life for cancer patients in India.

**Environmental Sustainability:** TCS is geared toward reducing the risks associated with climate change through responsible resource management and doing more with less. During the year, the TCS Energy Management programme experienced significant scaling up and further maturation. In India, the programme now includes approximately 135 sites. TCS was one of the first companies in the IT industry to get its environment management system certified to the international standard, ISO 14001 (EMS). Through water conservation, sewage treatment and recycling, and rainwater harvesting, we aim to reduce our water usage to the absolute minimum. All of our new campuses are constructed to utilize 50% more water efficiently, to completely treat and recycle sewage, and to collect rainwater. There is a significantly lower percentage of potentially hazardous wastes, such as used lubricants and lead-acid battery packs. TCS wants to reduce



the amount of trash that is disposed of in dumpsters to less than 5% by using source-based segregation, reuse, and recycling.

**OBJECTIVES OF THE STUDY**

- ❖ To understand the trend of CSR spending of the company for the period of 5 years.
- ❖ To identify the primary areas of contributing towards CSR programs and activities during the financial year 2017-18 to 2021-22.
- ❖ To assess the impact of the CSR initiatives on the share price of the company.

**DATA ANALYSIS & INTERPRETATION**

**Table 1: Net Profit after tax, CSR Budget and CSR Expenditure from Financial Year 2017-18 to 2021-22**

(Rs. in crores)

Financial Years	Net Profit after tax	CSR Budget	CSR Expenditure (spent)	CSR spent (%) of Average Profit of 3 years
2017-18	25826	497	400	1.61
2018-19	31472	542	434	1.60
2019-20	32340	600	602	2.01
2020-21	32430	663	674	2.03
2021-22	38337	716	727	2.03

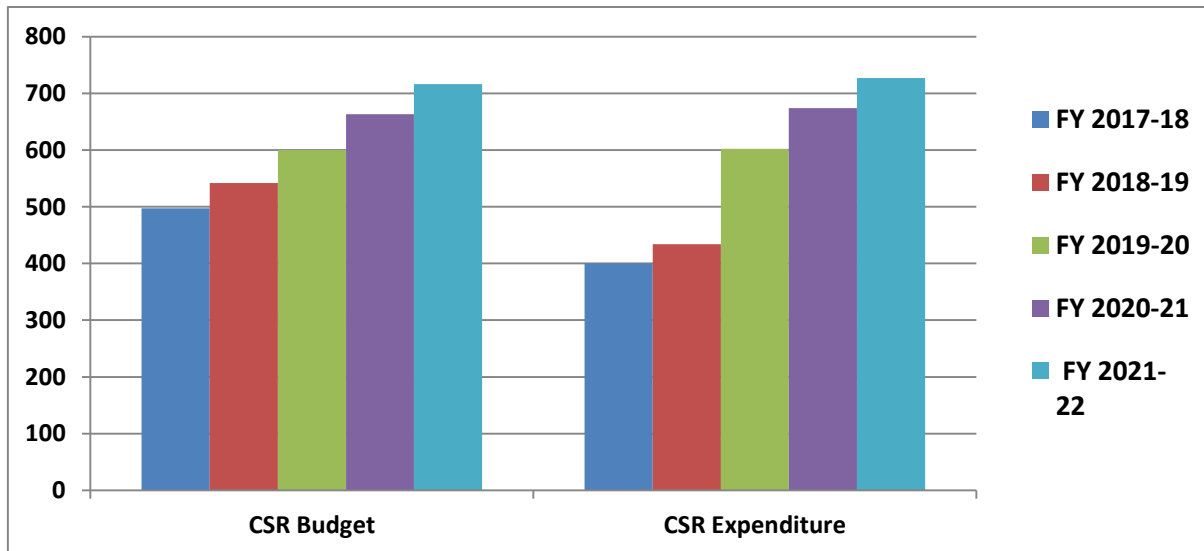
(Source: Annual Reports of TCS from FY 2017-18 to FY 2021-22)

Table 1 discloses the Net Profit after tax, CSR Budget and CSR Expenditure by Tata Consultancy Services Ltd. for 5 financial years, i.e. from the year 2017-18 to 2021-22. This table indicates that in FY 2017-18 & 2018-19 there is a huge difference in the CSR budget and the expenditure resulting increase in unspent money. However, from 2019-20 onwards the difference in the budget and the expenditure is quite

**RESEARCH METHODOLOGY**

The study is conducted on the basis of secondary data. Secondary data has been gathered from a variety of sources, including annual reports of the company, company’s website and internet databases. The researchers have selected TCS for the study since it was ranked number 28 among India’s top 100 companies contributing towards sustainability and CSR in the Responsible Business Ranking 2021 by Futurescape. Critical analysis of TCS’s 5 year annual reports from 2017-18 to 2021-22 have been done, and all CSR contribution have been taken into account.

negligible which exhibits better performance in CSR activity of TCS. They are spending beyond its obligation. The CSR expenditure is approximately 2% each year except for the year 2017-18 and 2018-19. It is also clear from the above table that from 2019-20 the CSR expenditure every year is more than the budget of that year. It is a good sign for the betterment of society. Table 1 is represented graphically in Figure 1.



**Figure 1: CSR Budget & CSR Expenditure From financial year 2017-18 to 2021-22**

Fig 1 depicts that there is subsequent increase in both i.e. CSR budget & CSR expenditure from the financial year 2017-18 to 2021-22. However, a remarkable increase in the CSR expenditure has been noted in the year 2019-20. Henceforth, a static increasing trend has been experienced in CSR budget as well as in the CSR expenditure.

**Table 2: Increase/Decrease in CSR Budget & CSR Expenditure**

From the previous graph it was evident that the budget and expenditure increased every year, but the rate of growth was not clear. Table 2 provides the percentage wise increase in



budget and expenditure. The budget and the expenditure growth rates are both at their maximum in the financial year 2018-19 to 2019-20 i.e. 10.70% and 38.71% respectively and their lowest growth rates are in the financial year 2020-21 to

2021-22 i.e. 7.99% and 7.86% respectively, indicating that there is parity between the two. Table 2 is depicted graphically in Figure 2.

Change in Financial Years	2017-18 to 2018-19	2018-19 to 2019-20	2019-20 to 2020-21	2020-21 to 2021-22
CSR Budget	9.05%	10.70%	10.50%	7.99%
CSR Expenditure	8.5%	38.71%	11.96%	7.86%

(Source: Own Compilation)

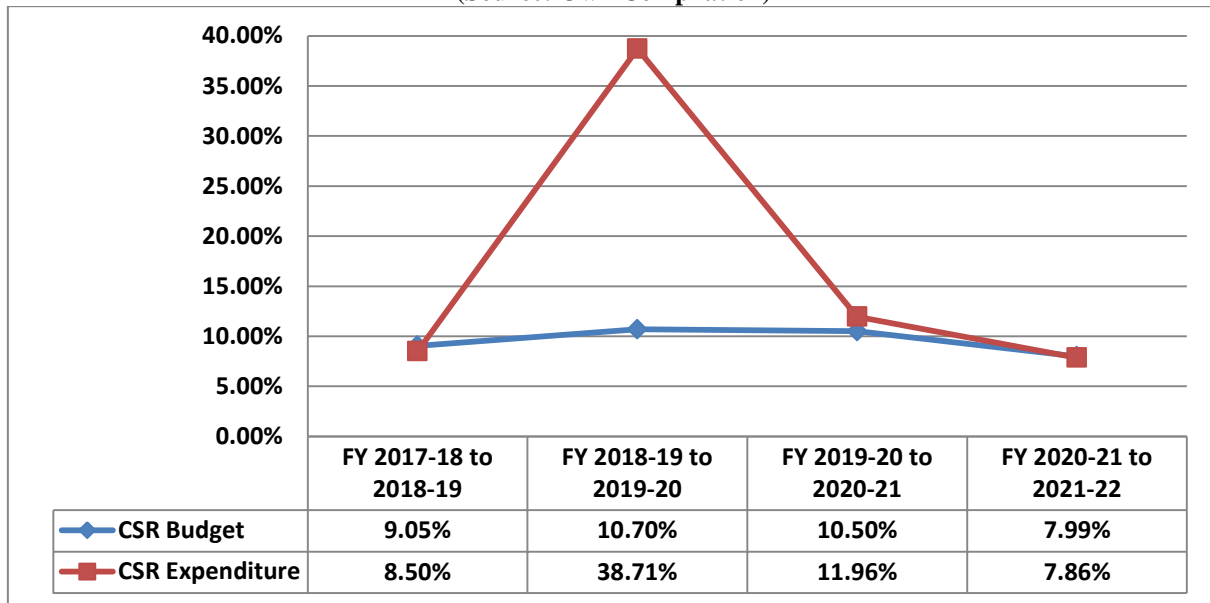


Figure 2: Increase/Decrease in CSR budget and expenditure from financial year 2017-19 to 2021-22

Table 3: Share Price on BSE & NSE from the financial year 2017-18 to 2021-22

Stock Exchange	Financial Year	Open	High	Low	Close
BSE	2017-18	1217.50	3195.10	2272.10	1451.45
	2018-19	1420.00	3604.80	1721.20	2031.30
	2019-20	2010.00	2279.00	1636.10	1823.50
	2020-21	1830.00	3308.20	1654.40	3177.60
	2021-22	3146.00	4019.10	3037.00	3738.80
NSE	2017-18	1219.20	3198.85	2273.15	1454.83
	2018-19	1422.50	3603.70	1721.60	2031.65
	2019-20	2010.00	2277.95	1636.35	1826.10
	2020-21	1825.90	3308.80	1654.20	3177.85
	2021-22	3190.00	4019.15	3035.65	3739.95

(Source: Annual Reports of TCS from FY 2017-18 to FY 2021-22)

From the financial year 2017-18 to 2021-22, the share prices of TCS on BSE & NSE are displayed on Table 3. There is a listing of the opening price at the beginning of the financial year, the closing price at the end of the financial year, the highest and the lowest price during the financial year. The

data shows a positive change in opening, highest, lowest and closing price of the corporation in both the Stock Exchanges i.e. BSE and NSE from financial year 2017-18 to 2021-22. So, the share price of TCS shows a positive consistent trend for BSE as well as NSE.



**Table 4: Sector wise distribution of CSR initiatives**

CSR Development Sector	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Disaster Relief	-	7	2	273	7
Education, Skilling, Employment, Entrepreneurship	91	39	116	28	16
Health, Wellness and Water, Sanitation and Hygiene	136	292	175	22	24
Restoration of Heritage Site	-	1	-	1	-
Environmental Sustainability	1	3	6	-	-
Contribution to TCS Foundation	172	92	303	350	680
Total	400	434	602	674	727

(Source: Annual Reports of TCS from FY2017-18 to FY2021-22)

According to the above data, TCS is investing as CSR initiatives in various sectors such as education and skill development, employment generation, promotion of entrepreneurship, healthcare and sanitation, restoration to heritage sites, environmental preservation and waste management etc. However, the primary area of attention is the health & hygiene sector, in which the company is investing the most of the designated CSR budget.

## CONCLUSION

Enterprises in developing nation like India are interested in and dedicated to CSR. Although it is commendable that CSR practices have recently advanced, corporations still fall short or only act in their own best interests. MNCs must have sound CSR policies in place in order to uphold their reputation. TCS is one of the early adopters of CSR initiatives. TCS adheres to the notion of creating enduringly successful business. TCS's sustainability initiatives focus on the community and environment around it. The above analysis reveals that TCS has a positive static trend in increase of Net Profit, CSR budget and expenditure. TCS also shows similar positive trend in case of share prices listed in BSE or NSE. As a result we can say CSR spending pattern has a positive impact on share price of the company. Over the past 3 years, the company has gradually exceeded the mandatory 2% threshold, which has given the society an impression that TCS will be making much better social development and welfare investments than in the past. Thus, we can say that TCS is moving in the correct direction with its CSR efforts. The only thing is that they should concentrate on some more crucial areas. Their concentration is limited to health & sanitation, education & skill development, and environmental sustainability.

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# THE TECHNOLOGY OF FEEDING CAMELS AND HORSES

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## INTRODUCTION

Camel is a universal agricultural animal with many versatile features that are beneficial to humans. Over the centuries, its place in the socio-economic sphere has changed in line with lifestyle changes. Since the beginning of the twentieth century, due to the mechanization of industries, the role of camels in the economic and transport sectors of the republic began to decline. The development of civilization has weakened the importance of camels as a productive animal in desert and semi-desert areas, where the population has been consuming camel meat and milk (shubat) as food since ancient times.

The development of camels in the economy of the Republic is closely linked with the study of the chemical

composition and nutritional value of natural pastures. A detailed study of the above issues will ensure the organization of a complete and balanced feeding of animals according to the seasons.

## RESULTS OF THE EXPERIMENT

Feeding camels. In the desert pastures, mainly xerophytes, i.e. plants adapted to dry and hot summer conditions, grow. Camels get most of their food from natural pastures. In the desert, the following plants grow: saltbush, saxaul, yantak (camel thorn), needle grass, white wormwood, desert bushes, horny plants etc., from which camels were fed regularly (Table 1).

**Table-1**  
**Feeding norm for unused camels (per feed unit)**

Keeping condition	Living weight of camels, kg									
	400	450	500	550	600	650	700	750	800	850
In hot days	3,6	3,9	4,2	4,5	4,8	5,1	5,4	5,7	6,0	6,4
For getting 1liter of milk	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
In winter	5,8	6,4	6,8	7,2	7,5	7,9	8,2	8,5	8,8	9,1
For getting 1liter of milk	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8

When feeding horses, from concentrates: hay, oats, barley bran are used. If there is a lack of calcium in the diet, the boron is added to concentrate foods 20-30 g per animal. Young foals are fed 4 times a day; the concentrate feeding is given in the morning, lunch and evening. Hay should be given 3 times a day, fructose foods 2 times a day. The basic ration of young and weak-born foals is supplemented with 3-8 liters of skimmed milk or cow's milk mixed with hot water per day at the expense of each animal. At the same time, 20-25 g of sugar is added per liter of milk.

Feeding of camels was carried out taking into account their level of obesity. In the ration of lean camels, additional

feed was given in order to restore their live weight and level of obesity.

During the winter, camels were kept in special pens for 40-50 animals, and they were given 2-4 kg of additional mixed fodder depending on their weight. Depending on the average daily amount of feed and live weight of camels, 16-18 kg of roughage is given. Because camels have the ability to pick up nutrient-rich plants from pasture plants, they were considered to consume moderate amounts of nutrients not only in terms of overall nutrition but also in terms of nutrient content. Camels spend less time grazing in the pasture. In summer, camels graze for 8-9 hours. During this period, as a

result of consuming a variety of different grasses in the pasture, it fully satisfies the body's need for food. This was 6-7 kg per feed unit.

In our experiment, as a result of overgrazing in the pasture conditions in order to get the product from the camels, no additional feeding was envisaged due to the good nutrient content in the pasture. When there was a shortage of fodder in the pastures, 2-4 kg of mixed fodder was given, depending on the yield. Spring, summer, autumn and winter were also used properly. During the winter, used camels and unused camels were fed 3 times a day in specially equipped barns. The amount and quality of food in the ration of camels had to be taken into account, depending on their live weight and direction, as well as the amount of feed per day.

In addition to the ration of camels working in constant and heavy work, strong fodder, barley, wheat bran were given. Strong forages were given not only in winter but also in summer (if the amount of forage in the pasture did not meet the forage demand of the camels).

Feeding rates for unused camels (per feed unit) are given in Table 1.

The nutrient ration of camels with an average live weight of 500 kg was at least 6.8 feed units in winter. At least 0.8 feed units, 60-75 g of digestible protein, 7.2 g of calcium and 10 g of phosphorus were used to produce 1 l of milk from lactating camels.

One of the peculiarities of camels is that they are demanding on salt. The demand of camels for salt depends on

the amount of salt. Like other agricultural animals, camels were also given salt. For each camel coarse-grained salt was given 100 g per day.

The water demand of camels depends on the season of the year, the feed they consume, camels consume 1.7-1.8 l of water per 1 kg of dry matter. A camel drinks an average of 30 liters of water a day and this has been done.

In the spring, camels drink less water because they feed on green grass. In summer water should be given 2-3 times a day, in autumn once a day.

Camels differ greatly in body composition compared to other agricultural animals. When studying their exterior and constitution, one of the most important structures of camels is the presence of one or two fat humps on the body, so the camels' backs are not flat due to their profile. Compared to horses and cattle, the body is short, the legs are long, the thighs are free and in good motion, and the pelvis and muscles of the hind legs are less well developed than in horses.

The shortness of the body, the length of the neck, the strength is due to the mobility as much as possible. The center of gravity of the neck is strongly developed in camels, i.e. the development of the neck in camels is directed forward compared to the center of gravity of the neck in horses and cattle.

The weight of the front part of the camel's body is 10: 5 comparing to the weight of the next part, and in horses it is 10: 7; in cattle at a ratio of 10: 8.



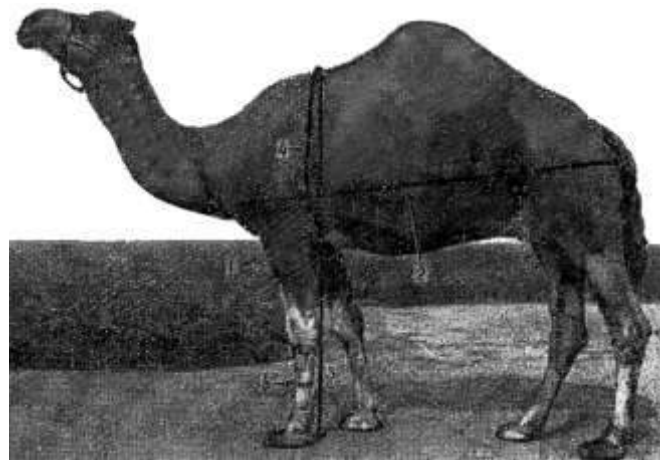
Picture 1. Body dimensions of a camel



**Picture 2. Body structure of a horse**

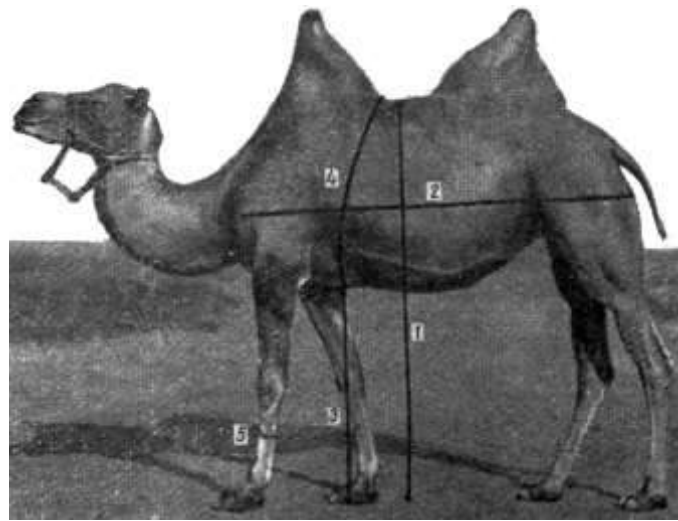
To measure camels, a measuring stick (lidtin), a measuring compass (vilkena compass) and a tape measure (measuring tape) are made of a special material. The body

dimensions of one humped dromedary Turkmen arvana camels are given in Picture 3.



**Picture 3. 1. The height of the gorge. 2. Slope length of the body. 3. The posterior circumference of the chest. 4. Palm circle.**

The body dimensions of two humped Bactrian camels are given in Picture 4.



**Figure 4. Body dimensions of two humped Bactrian camels.**

1. The height of the gorge. 2. Slope length of the body. 3. The posterior circumference of the chest. 4. Palm circle.

The height of the gorge is one of the most important dimensions, which indicates the height of the camel, and the sloping length of the body indicates its speed and productivity.

The posterior circumference of the chest indicates the development of the camel, the weight of the live weight, and palm circle indicates its bones.

Through the palm circle, they determine how well the bones have developed.

The movement of the camels is called alyur, which consists of the following;

Step by step; big steps; crawling; jogging

In camels, the body is short and cannot jump well, i.e. it walks diagonally.

When camels walk, the movement of their legs is not the same. When one part of the limbs is raised, the other part is on the other side. The third leg leans on the ground and the fourth leg tries to lift by leaning.

In camels, the acceleration of the steps is accompanied by crawling, in which the pair's front and back legs move simultaneously in one direction.

The running movement of the camels begins with the next leg.

At the same time behind it, the other front legs move diagonally.

In horses, the normally placed foot is erect and parallel to each other. This is normal for all types of horses. The placement of the hind legs depends on the width of the horse's body, i.e. the bridle. Normally, the hind legs are parallel and wide when viewed from behind, and the forelegs should not be visible from them (Pic. 5).



**Picture 5. The body width of a horse.**



In the areas adjacent to the Kyzylkum oasis, camels feed on saxaul, tetir, kuireuk, biyurgun and wormwood in winter. In the spring, the sands are covered with ephemeral plants that use spring moisture and grow quickly. At this time, the camels are well fed and regain their fatness. During this period, camels eat ilaq, kartyg, epelek and other grasses. In May, the ephemerals dry up. They are replaced by xerophytes — plants with strong root systems. The main food for camels in both summer and winter: salsola and wormwood - plants that are rarely consumed by other animals due to their specific taste (cherkez, buckwheat, chogan, sora, saxaul, biyurgun and wormwood, etc.).

The need of camels for food. The living conditions of the camel in the desert helped to develop the specificity of metabolism and the economical consumption of feed energy. In this case, the researchers used local breeds of Turkmen horses and individual camels to compare the conditions familiar to both animals. This excellent quality of camels is useful for carrying loads in impassable areas of sand, pastures.

When making rations for non-functioning camels, their fatness should be taken into account. Table 2 shows the calculated feeding norms for camels of normal fatness.

**Table 2**  
**Average feeding rates of camels**  
**(kg per feed unit)**

Storage condition	Living weight of camels (kg)						
	400	450	500	550	600	650	700
At average temperature	3,4	3,7	4,0	4,2	4,5	4,7	5,0
At cold temperature	5,5	6,0	6,5	6,9	7,3	7,7	8,1

When feeding low-fed camels, more feed should be given by calculating the expenditure to keep it healthy. The diet should include salt. Water is given for them twice a day in summer and once in winter. Camels stop growing when they are 7 years old. Camels give birth to a calf every two years. The camel produces milk for 18 months. In the cold season, camels are kept separate from their mothers in warm rooms and are allowed to be fed up to 5-6 times a day. In places where winters are harsh, camels are kept in backyard barns. The vast pastures of the Karakalpak part of Ustyurt serve as a good fodder base for camels in summer and autumn, while bamboo pastures are used by camels in early spring, late autumn and winter, meaning that this branch of animal

husbandry is mainly based on year-round pasture maintenance.

Studies show that wormwood, wormwood, wormwood-salsola and ephemeroïd-wormwood plants predominate in the Ustyurt desert pastures, with an average yield of 4-10 kg / ha. 1 kg of dry weight contains 0.4-0.5 nutrient units and 110-120 g of digestible protein. Camels with a live weight of 500-600 kg eat an average of 25-30 kg of green grass (10-16 kg of hay) per day, i.e. receive 7 feed units and 520 g of digestible protein. It should be noted that the biological properties of camels allow better use of grasses of desert and semi-desert pastures than other farm animals. Table 3 summarizes the data characterizing the consumption of various pasture plants by camels (Table 3).

**Table 3**  
**Consumption of pasture grass by camels by seasons (annual consumption,%)**

Plant types	Spring	Summer	Autumn	Winter	During the year
Salty	3	5	11	11	30
Legumes	5	7	1	2	15
Grain crops	3	1	1	-	5
Others	22	20	7	1	50
Total	33	33	20	14	100

The data in Table 3 show that spring and summer animals receive up to 33% of their annual consumption from pasture. In the autumn, the figure drops to 20%, and in winter to 14%.

Thus, the analysis of the seasonal condition of pasture grasses shows that it has a high nutritional value in the spring and autumn periods. Nutrients in these seasons fully meet the needs of camels. But in late autumn and winter it is necessary to arrange additional feeding with concentrated feed.

Today, in the field of camel breeding, as in other livestock industries, there is a comprehensive use of productive qualities. Therefore, intensification of camel breeding can be done only on the basis of organizing rational, complete feeding. To successfully perform this task, it is necessary to be able to assess the nutritional value of fodder, to know the nutritional needs of animals, to master the principles of standardized feeding as the most rational way of using feed.

An animal needs a certain amount of energy, nutrients and biologically active substances to sustain life,



form new body tissues, produce products, and maintain good health.

Nutritional norms depend on the amount of nutrients and biologically active substances that meet the needs of camels for life, work, production, reproduction and health under the conditions provided for in the production technology.

Depending on the direction of economic use, age and physiological condition (growth, foaling, lactation, etc.), the nutritional needs of animals may change. They are not the same in animals of different ages and genders. Thus, in a growing organism, synthesis processes take precedence over decomposition processes, so an adult animal needs more protein per kilogram of live weight.

The developed nutrition standards take into account modern knowledge about the benefits of nutrition and ensure the further enhancement of the genetic potential of productivity, high-quality products with economical consumption of fodder. The daily feeding rates of the camels are given in Table 4 depending on their gender and physiological condition.

In general, it is important to measure body dimensions in cm in order to know the characteristics of the pedigree in feeding, to know the growth and development, to differentiate between breeds, especially in camels breeding to determine the live weight of camels, body dimensions of one humped dromedary and two humped Bactrian camels and to determine it on a scientific basis.

**Table 4**  
**Daily feeding rates depending on the gender and physiological condition of the camels**

Indicators	Male camels		Female camels		
	Working and before working periods	No working	No working	On the 9 <sup>th</sup> month	In the period of lactation
Dry matter on 100 kg of live weight	1,8	1,6	1,6	1,8	2,15
Requires 1 kg of dry matter					
Feed units, kg.	0,6	0,53	0,53	0,6	0,72
Changing energy MJ	6,27	5,58	5,58	6,27	7,35
Digestible protein, g.	72	65	65	72	76

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# THE ONLINE TEACHING AND LEARNING IN MAPEH AMIDST THE COVID-19 PANDEMIC: A TEACHER'S REVIEW AND ANALYSIS

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## ABSTRACT

*As with most teaching methods, online learning also has its own set of positives and negatives. Decoding and understanding these positives and negatives will help institutes in creating strategies for more efficient delivery of the lessons, ensuring an uninterrupted learning journey for the students in MAPEH.*

*One of the most oft-used terms after the pandemic is the term "new normal." The new normal in education is the increased use of online learning tools. The COVID-19 pandemic has triggered new ways of learning.*

*All around the world, educational institutions are looking toward online learning platforms to continue with the process of educating students. The new normal now is a transformed concept of education with online learning at the core of this transformation.*

*Today, digital learning has emerged as a necessary resource for students and schools all over the world. For many educational institutes, this is an entirely new way of education that they have had to adopt. Online learning is now applicable not just to learn academics but it also extends to learning extracurricular activities for students as well.*

*In recent months, the demand for online learning has risen significantly, and it will continue doing so in the future. As with most teaching methods, online learning also has its own set of positives and negatives.*

*Decoding and understanding these positives and negatives will help institutes in creating strategies for more efficiently delivering the lessons, ensuring an uninterrupted learning journey for students.*

**KEYWORDS:** *teaching and learning in MAPEH, analysis and review, and situation of COVID 19 pandemic*

## What Are The Advantages of Online Learning?

### 1. Efficiency

Online learning offers teachers an efficient way to deliver lessons to students. Online learning has a number of tools such as videos, PDFs, podcasts, and teachers can use all these tools as part of their lesson plans. By extending the lesson plan beyond traditional textbooks to include online resources, teachers are able to become more efficient educators.

### 2. Accessibility of Time and Place

Another advantage of online education is that it allows students to attend classes from any location of their choice. It also allows schools to reach out to a more extensive network of students, instead of being restricted by geographical boundaries. Additionally, online lectures can be recorded, archived, and shared for future reference. This allows students to access the learning material at a time of their comfort. Thus, online learning offers students the accessibility of time and place in education.

### 3. Affordability

Another advantage of online learning is reduced financial costs. Online education is far more affordable as compared to physical learning. This is because online learning eliminates the cost

points of student transportation, student meals, and most importantly, real estate. Additionally, all the course or study materials are available online, thus creating a paperless learning environment which is more affordable, while also being beneficial to the environment.

### 4. Improved Student Attendance

Since online classes can be taken from home or location of choice, there are fewer chances of students missing out on lessons.

### 5. Suits A Variety Of Learning Styles

Every student has a different learning journey and a different learning style. Some students are visual learners, while some students prefer to learn through audio. Similarly, some students thrive in the classroom, and other students are solo learners who get distracted by large groups. The online learning system, with its range of options and resources, can be personalized in many ways. It is the best way to create a perfect learning environment suited to the needs of each student.





## What Are The Disadvantages Of Online Learning?

### 1. Inability to Focus On Screens

For many students, one of the biggest challenges of online learning is the struggle with focusing on the screen for long periods of time. With online learning, there is also a greater chance for students to be easily distracted by social media or other sites. Therefore, it is imperative for the teachers to keep their online classes crisp, engaging, and interactive to help students stay focused on the lesson.

### 2. Technology Issues

Another key challenge of online classes is internet connectivity. While internet penetration has grown in leaps and bounds over the past few years, in smaller cities and towns, a consistent connection with decent speed is a problem. Without a consistent internet connection for students or teachers, there can be a lack of continuity in learning for the child. This is detrimental to the education process.

### 3. Sense of Isolation

Students can learn a lot from being in the company of their peers. However, in an online class, there are minimal physical interactions between students and teachers. This often results in a sense of isolation for the students. In this situation, it is imperative that the school allow for other forms of communication between the students, peers, and teachers. This can include online messages, emails and video conferencing that will allow for face-to-face interaction and reduce the sense of isolation.

### 4. Teacher Training

Online learning requires teachers to have a basic understanding of using digital forms of learning. However, this is not the case always. Very often, teachers have a very basic understanding of technology. Sometimes, they don't even have the necessary resources and tools to conduct online classes.

To combat this, it is important for schools to invest in training teachers with the latest technology updates so that they can conduct their online classes seamlessly.

### 5. Manage Screen Time

Many parents are concerned about the health hazards of having their children spend so many hours staring at a screen. This increase in screen time is one of the biggest concerns and disadvantages of online learning. Sometimes students also develop bad posture and other physical problems due to staying hunched in front of a screen.

A good solution to this would be to give the students plenty of breaks from the screen to refresh their mind and their body.

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# UPHOLDING INTEGRITY IN THE MANAGEMENT OF E-LEARNING IN INSTITUTIONS OF HIGHER LEARNING

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## ABSTRACT

*Integrity in e-learning environments is a major concern to institutions as it is an important value that must be upheld. The principle of integrity is the foundation for the achievement and progress of students. Integrity being upheld results in good citizenship and a better society. The flexibility of e-learning which enable students to learn anywhere at their convenient and preference also result in an increase opportunity of breaching academic integrity. It is therefore imperative to examine the issue of academic integrity in e-learning management. This paper is aimed at identifying integrity issues in e-learning and proposing effective methods of maintaining integrity in the management of e-learning without underestimating its benefits to learning institutions. Relevant research articles relating to integrity in the management of e-learning were searched from the internet using different search keywords such as “integrity in e-learning”, “maintaining integrity in online learning”, “types of e-learning”. Articles that are not from peer-reviewed journals were not included. Some integrity issues in e-learning such as academic misconduct and fraudulent activities in e-learning were highlighted. Two methods of maintaining academic integrity in e-learning proposed in the study are avoidance and implementation. Avoidance is a pre-emptive tactics of making sure that misconduct such as plagiarism, fabrication and cheating are not exhibited at all in e-learning. Implementation method on the other hand entails using software to detect academic misconduct and fraudulent activities. It is recommended that e-learning activities should be properly monitored and controlled.*

**KEY WORDS:** Academic integrity; e-learning; fraudulent activities.

## INTRODUCTION

In the educational system, integrity is fundamental in pursuing academic excellence. In recent times, the system has had abounding cases of academic integrity breaches, both reported and unreported; thus making the aim of attaining integrity a key challenge. This paper is aimed at identifying integrity issues in e-learning and proposing effective methods of maintaining integrity in the management of e-learning without underestimating its benefits to learning institutions. Despite the flexibility of e-learning that students can learn at their own convenience and preference anywhere and anytime, its rigor and quality should not be undermined. Online degree is not perceived by some employers positively as a traditional classroom-based one. They believed that online educational system cannot be fully trusted as the testing method adopted is not as difficult as that used in classroom-based educational system (Saad, Busteed & Ogisi, 2013). It is therefore imperative to examine the issue of academic integrity in e-learning management.

E-Learning can be described as education acquired via any electronic device connected to the internet. Here the ‘e’ refers to ‘electronic’; hence, the full form of e-learning is electronic learning. Other terms used to describe e-learning are online learning or online training, where the term ‘online’ refers

to an internet connection or through the use of the Internet. E-Learning make learning easier, more accessible and with minimal restriction. In e-learning, the course materials are shared in various forms such as videos, presentations, word documents, or PDFs. E-learning also uses several tools such as e-learning systems or Learning Management Systems (LMS) for applying different methodologies. E-learning has the prospective of revolutionizing the teaching and learning process (Department for Education and Skills, 2003).

The arrival of internet initiated the development of e-learning which marked a new era in education. The very first virtual classroom was invented in the year 1960 by Donald Bitzer; this he did by interlinking multiple computer terminals. The computer-based training program (CBT program) was called Programmed Logic for Automated Teaching Operations (PLATO). The device originally designed strictly for computer-based education, quickly became the groundwork for online learning and online communities due to its innovative networking proficiencies. With the emergence of the internet and associated technologies, e-learning took on a more structured form. Online-only courses began only after the 1980s and in the 1990s it was possible to earn a degree without the presence of physical professors (Troutner, J. 1991). In 1999, Elliott Masie that first used the term, “e-learning”, in a



professional context during the TechLearn Conference at Disneyworld (Dunn, Meine & McCarley, 2010).

Today, schools, colleges, and other educational institutions have started including the scope of e-learning in their agendas so as to meet up with global trend. E-learning has also become an effective medium of disseminating higher education. Despite the recognition of the benefits of e-learning by higher educational institutes, the ethical and moral challenges with regard to the academic integrity in e-Learning cannot be ignored (Muhammad, Shaikh, Naveed & Qureshi, 2020; Cox, 2013).

### TYPES OF E-LEARNING

There are two types of e-learning, namely:

- Synchronous E-learning and
- Asynchronous E-Learning

#### *Synchronous E-learning*

This involves students and tutors in different geographical locations interacting in real-time. The resources used for learning are circulated via mobile, video conference and/or online chatting. This type of e-learning includes: Virtual classroom, Internet chat, Webinars, Audio/Video conferencing, and instant messaging (Hrastinski, S. 2008).

#### *Asynchronous E-Learning*

In this type of e-learning students and tutors do not interact in real-time. Students can complete the courses at their own convenience because they are self-paced. Various learners can benefit through this type of learning since there is an option to finish the courses in their preferred time. The resources used for learning are in the form of blogs, CDs, DVDs, forums and eBooks. This type of e-learning includes: Self-paced online courses, online forums, Blogs and message boards (Hrastinski, S. 2008).

### Benefits of E-Learning

The fact that one can have access to courses anywhere and anytime is one of the biggest advantages of e-learning. The advantages of e-learning according to (Gautam & Tiwari, 2016) are discussed as follow:

1. Cost-effective: Since learning can be acquired anywhere via the internet, one is saved from travel expenses. Also, courses can be explored more than once when bought which saves the cost of having to pay for a refresher course again. By being online, huge amount of printing costs of courses can be saved.
2. Self-paced: Some people are comfortable learning through notes while some others are comfortable through videos. Since e-learning courses are created using various content forms and have resources in various formats, it fits everyone's individual learning curve and helps them learn in their own way. The self-paced characteristic of e-learning courses means that it can match the learning style of every individual.

3. Feedback: Learners get immediate feedback on their work, while the instructors can ascertain the individual progress of the students in each of the courses. Feeding the correct answers in the system will automatically lead to the grading and evaluation of students.

4. Speed: The quick delivery of information is one of the foremost advantages of e-learning. E-learning has faster delivery cycles since they are easy to develop.

5. Consistency: E-learning courses are available at all time and can reach a wider audience, unlike traditional learning where classroom training can be unpredictable and inconsistent as physical attendance is not required.

### CONSEQUENCES OF BREACHING INTEGRITY IN E-LEARNING MANAGEMENT

Some of the consequences of breaching integrity in e-learning management are discussed next:

1. Indiscipline: E-learning is a self-paced form of learning where one can start, pause, and stop courses at any time. It also hampers the self-discipline of learning. This can diminish the priority to learn and one can keep on avoiding it for a long time. So, the impersonal and passive feature of e-learning courses can be a deterrent for some (Muhammad et'al 2020)
2. Ineffective use of Learning Management System: Training providers must use the Learning Management System to track the activity and progress of students and collection of data for integrity. This is done through the e-learning materials and assessment. The time spent on learning content by students and the number of attempts made for every assessment and the result for each can also be tracked by some other LMS. While other LMS take record of accessed and not accessed course sections or those not completely successfully. These differences must be understood by regulators in order to improve integrity by ensuring high granularity tracking of interactions and assessment of students. It will therefore be difficult to establish that integrity is upheld in absence of high granularity of data (Oliveira, Cunha & Nakayama, 2016)

### MANAGEMENT OF E-LEARNING

Bof (2005) postulated that effective management is needed if the educational benefits of e-learning are to be achieved. To ensure that the system works very well, it is essential to map out plans by defining the different components of e-learning that will operate in a unified way. The management of e-learning implies the ability of manager to plan, organize, coordinate and control the space, money, time, facilities, information and the people, while still concentrating on pedagogical ethics which also applies to educational management. However, the precise nature of e-learning must be carefully examined by managers (Mill & Brito, 2009).

Even in educational institution, the pattern of management differs considerably with the type of institution; for instance, the management of tertiary institution is different from



that of basic education. So also, e-learning management should be handled distinctly.

The combination of Learning Management System (LMS) and e-learning management will likely enhance e-learning processes. Supporting this, Belloni (2001) highlights a significant drift in investing more on information technology (IT) and researches on appropriate methodologies and their application and not only on equipment. Based on this, there is need for studies on either improving the efficiency of the present management methods or creating new mechanisms for improving e-learning processes.

### ACADEMIC INTEGRITY IN E-LEARNING

In defining academic integrity, there are six values which are committed to it in every aspect of academic practices even in the face of difficulty (Fishman, 2014). These values which are guide to behavior similar to academic integrity includes: Honesty, trust, fairness, respect, responsibility, and courage. Conversely, the involvement in any act to gain or an effort to gain unjust academic benefit constitutes breach of academic integrity or misconduct. Therefore this misconduct includes instances of cheating, fabricating, forgery, incorrect alliance, several submissions, plagiarising, and helping others to acquire an unjust academic benefit (Benson, Rodier, Enström & Bocatto, 2019).

Institutions having e-learning platforms must have ways of establishing that students who registers for the program are same who partake and completes the program and also gets the academic credit (Rodchua, 2017). This means that virtual learning environment must be created and maintained by the institutions which are only accessible to registered students. Activities of registered students can be monitored and tracked. General misconduct in academic integrity could be detected and deterred particularly impersonation. Summarily, student identity and honest should be ensured while preventing cheating and fraud authentication solutions of students.

When it comes to the issue of academic integrity, most institutions in Nigeria focuses more on students rather and or rarely on the lecturers. Harassing of students sexually, demanding and accepting of bribery, malpractice in regard to continuous assessment, and corruption are some dishonest practices of lecturers in most learning institutions in Nigeria (Animasahun, 2014). Though there are some exceptional lecturers which are known for their honesty, truthfulness, fairness and high level of integrity both in their academic work and relationship with students.

### METHODS OF MAINTAINING INTEGRITY IN E-LEARNING

There are two broad methods namely:

1. Avoidance method.
2. Implementation methods:

#### Avoidance method

This is a pre-emptive tactics of making sure that misconduct is not exhibited at all. Honor code and declaration of genuineness should be used so that students will have a better understanding of the values, character and integrity of the institutions and then agrees to it (Jones, 2009). Occasionally, students are reminded of this code and the declaration statements are required when the coursework is been submitted.

There are seven methods proposed by Mcallister and Watkins (2012) for redesigning courses online so as to help students develop the self-regulatory skills of refraining from involving in academic fraud. These include: (1) Using all-embracing calendaring for planning of task and management of time as well; (2) Monitoring all work and not only exams; (3) Individualizing examination by randomizing of the questions; (4) Creating awareness by discussing academic integrity; (5) Slowing down the progress of students by permitting asynchronous learning; (6) Tracking students activities to detect possible irregularities; (7) Providing quick response to enable the valuation of student progress.

To achieve aforementioned methods, the institution needs to: (1) Clearly states what integrity entails; (2) Win the commitment of faculty to respect and put into effect the practices of integrity; (3) Developing integrity of students and self-regulation skills; (4) Developing a system of integrity for measuring, monitoring and tracking the development of academic integrity.

#### Implementation methods

These are protective tactics which detects misconduct and fraud. Some of the software used for this methods are, TurnItIn (which is used for detecting plagiarism) and Browser lock-down such as Respondus (used for controlling the test environment so as to prevent student from accessing answers from other sources or means) (Heckler, 2013; Moten et al., 2013; Sewell et al., 2010)

### VERIFICATION SOLUTIONS IN THE MAINTENANCE OF INTEGRITY IN E-LEARNING

#### Knowledge-based verification

This is when only user who registers is allowed to gain access to the platform. The use of user ID, password and security questions is some examples of this verification method (Ullah et al., 2012; McNabb, 2010).

#### Biometric-based verification

The identity of the user is confirmed by taking the user's biometrics like thumbprint, appearance, voice and signature (Rabuzin et al., 2006).

#### Continuous or presence verification

This is important in authenticating users taking online examinations. Examples are bimodal scheme like video monitoring and/or recording via webcam (Apampa et al., 2010).



## INTEGRITY ISSUES IN E-LEARNING

### Academic Misconduct

The involvement in an act to gain or making an effort to gain unjust academic benefit constitutes academic misconduct. This misconduct consists of instances of plagiarism, fabrication, cheating, forgery and helping others to acquire an unjust academic benefit (Benson et al, 2019). Access to information had increased through the internet making it easy to disseminate information students who could use various tools to edit and share it (Nilsson 2016). Also, students can successfully complete their studies easily by copying from the internet (Sutherland-Smith 2016). Moreso, the preparation of assignments, contract cheating and getting academic materials through the support of some website has contributed to plagiarism (Newton and Lang 2016). This has also increase violation of academic integrity (Etgar et al. 2019). Most students indulge in academic misconduct as a result of lack of awareness, the pressure to achieve high grade, time constraint and laziness on the part of student (Newton and Lang 2016; Ellery 2008; Stephens and Nicholson 2008), and competitiveness of the educational system (Doolan and Barker, 2001)

### E-LEARNING PROVIDER BREACHING

#### E-LEARNING INTEGRITY BREACHES

The provider of e-learning may want to breach the e-learning integrity by using unqualified administrative personnel to help with the training. Also, they may limit the access to qualified training personnel in order to reduce cost.

To uphold integrity in e-learning management, the following procedures must be adhered to:

1. Employment of qualified training personnel. It is very important that qualified administrators and trainers are present in online learning environment. These training personnel may connect with students through e-mail, telephone calls, chat, Web conferencing, Skype and videoconferencing. The training personnel must be on a training register.
2. The required time for a trainer should reveal that he is available during working hours.
3. They must respond to learners who need assistance within a specified time limit. A qualified personnel or trainer must assess and confirm all the information pertaining to the student's enrolment and activities before issuing statement of completion.

### FRAUDULENT ACTIVITY IN E-LEARNING

There are four types of fraudulent activities according to Pavela (1997) as cited in Blau, I., Goldberg, Friedman & Eshet-Alkalai, (2020) discussed as follow;

Cheating which implies using of materials, information or receiving of any kind of assistant from others; Plagiarism: The use of other peoples' work such as words, ideas, tables, figures as one's ideas without acknowledging the source; Fabrication: The process of creating data and information not in existence; and Facilitation which is getting assistance from others to intentionally violate academic integrity.

To minimize fraudulent activity in e-learning the following procedure should be observed:

1. Internet Protocol (IP) address of students should be captured to monitor if more than one user is using it.
2. Cheating during assessment text should be monitored by a system that flags whenever students gives exact answer to same questions.
3. The details field of students should be locked and information on it can only be changed by administrative personnel upon student's request. There should be subsequent verification of student's identification. Students should be notified that if any fraud is detected as to the information they provide or their activities during periods of learning, then there will be cancellation of certification.
4. Immediately report students taking the courses for any suspected fraudulent act to the suitable authority. Have the ability to report immediately any suspicious activity by students undertaking the course to the appropriate authority.
5. Training should be delivered via Secure Sockets Layer (SSL) to decrease fraudulent activities of third parties.

### CONCLUSION

Integrity is essential in the pursuit of academic excellence in the educational system. The attainment of integrity has become a challenge as there are abounding cases of its breaches in the system. In e-learning, it is believed by some that the acquired training cannot be fully trusted as there can be loopholes in its management. This article has been able to identify some procedures through which integrity can be upheld and managed in an e-learning environment and how fraudulent activity could be curbed.

### RECOMMENDATION

It is recommended that e-learning activities should be properly monitored and controlled by the training provider. There should be clear distinction between acceptable and unacceptable e-learning practices so that student can have a clear perception of an acceptable behaviour.

### CONFLICT OF INTEREST

The author has not declared any conflict of interest.

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