



TECHNOLOGICAL INTEGRATION IN A FACILITATIVE CLASSROOM: ITS EFFECT ON THE LEARNING OF SECONDARY EDUCATION STUDENTS AT EASTERN SAMAR STATE UNIVERSITY-CAN-AVID

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ABSTRACT

The purpose of this study is to identify the technological materials utilized by the students and instructors in the classrooms, to find out the effects of technological integration in teaching learning process and determine the significant difference of modern and traditional instructional materials as perceived by the students at Eastern Samar State University Can-avid. This study utilized a descriptive method of research using a standardized questionnaire. The researchers adopted the simple random sampling in choosing the respondents. The Slovin's formula was used in getting the target respondents of the study and IBM SPSS Statistic was utilized as a tool in analyzing the gathered data. The findings revealed that out of 170 respondents 102 or 60% averred that laptop and projector are the technological devices commonly used by students and instructors in the classroom. As to the effect of technology integration in the classroom, 69% of the respondents agree and 32% strongly agree that technology integration can increase their academic performance. With regard to the comparison of modern and traditional instructional materials, majority of the respondents agreed that modern instructional materials are more effective and efficient to utilize in the classroom. These results suggest that teachers should maximize the use of technology in the classroom to increase the academic performance of the students. The administrator should provide adequate and consistent training for the teachers in order for them to become an expert in handling technology and be aware on the benefits of integrating technology in teaching. In general, technology integration has a positive effect on the students, since result shows that technology enhances students learning and improves different skills of a 21st century learner. Keywords: technology integration, facilitative classroom, modern and traditional instructional materials, students learning, effects of technology.

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INTRODUCTION

Background of the Study

Technology integration is the utilization of modern technology inside the classroom. As a teacher, it is important to know the latest trends in educational technologies and knows how to deal with it. When technology is frequently used, it will encourage the student's motivation towards learning and active involvement in class. So it is necessary for the instructor to acquire the skills in handling technology. This is a challenged for educators to provide modern day techniques and approaches to enhance students learning. In the present times, educators have the ability to utilize a variety of educational technologies which advances teaching styles. One of these educational technologies is the computer, which gives the teacher a new way of making instructional materials that tend students to become active and participative in the discussion (Youngr, 2008).

Technology will never substitute the teacher but rather, it is an aid for teachers to make the teaching-learning process more meaningful. An analysis of effective technology use for an at-risk student found that replacing teachers with computer-based instruction typically yield no learning benefits rather, blending

technology with teachers to support interactive learning, exploration, and creation ("drill and skill" technique) leads to higher engagement and learning games. Technology will never replace to teacher's greatness rather it is a support to teachers' task; therefore the skill and knowledge of the teacher in handling technology is an integral factor to consider in technology integration (Darling-Hammond, Zieleszinski, & Goldman, 2014).

Today's instructions, technology is indispensable in stressing the students to become better learners. it is one of the lifelines for teachers to succeed in their teaching. The integration of technology is one factor that contributes to the conduciveness of classrooms for both teaching and learning process. The students of Education Department specifically, the Secondary Education major views technology as a vital tool for learning in a way that it is useful to a facilitative discussion. Through the use of technology in the classroom, the discussion becomes lively as there is a higher involvement of the student's participation in any form of activities employed by the instructors. More recent studies found out that technology in the classroom can lead to more student-centered practices being used by teachers (Lowther, 2007). According to Harding (2011), technology



integration tends many students to be frequently thinking about information, making choices, and demonstrating skills than is typical teacher dominated instruction.

Objectives of the Study

This study aimed to assess the effect of technological integration in a facilitative classroom on learning of the students in the Secondary Education Program at Eastern Samar State University Can-Avid Campus.

Specifically, this study aimed to:

1. Identify the technological materials used by the students and instructors.
2. Find out the effects of technological integration in teaching and learning process.
3. Determine the significant difference between modern and traditional instructional materials as perceived by the students.

METHODOLOGY

Research Design

This study utilized the descriptive method of research through the use of a survey questionnaire. It was considered descriptive because it aimed to gather a wide range of information based on the students' responses, particularly their individual perceptions regarding the effects of technological integration on their learning. This approach allowed the researcher to describe and analyze trends, opinions, and experiences as reported by the participants.

Locale of the Study

This study was conducted at Eastern Samar State University (ESSU), located in Barangay 10, Can-avid, Eastern Samar. ESSU is one of the leading higher education institutions in the province, serving students from various municipalities in Eastern Samar. The Can-avid campus, where the research was carried out, offers a range of academic programs and provides an accessible venue for studying the perceptions and experiences of students in a rural educational setting. The location was chosen due to its relevance to the study's objectives, accessibility to participants, and its active implementation of technological integration in teaching and learning, making it an appropriate and meaningful site for gathering data.

Respondents of the Study

The respondents were chosen from the secondary education students major in social science and mathematics. Given a total population of 309 secondary education students applying the Slovin's formula ($n = N / (1 + Ne^2)$), where n =number of sample, N =Total population, e =margin of error which is equivalent to 0.05. Using the formula, the computed sample size for the study is 170.

A cluster sampling procedure was employed in selecting the participants for this study. The researcher divided the target population into clusters or groups, typically based on their academic sections, year levels, or programs. From these identified clusters, a number were randomly selected to represent the whole population. This method was chosen for its

practicality and efficiency, especially in a setting where the population is geographically concentrated and naturally grouped. It allowed the researcher to gather data from a representative subset while minimizing time, effort, and resources.

Research Instruments

The instrument used for this study was a standardized questionnaire. The survey questionnaire was adapted from a project conducted by the Centre for the Study of Learning and Performance (CSLP) at Concordia University in Montreal, Quebec, under the leadership of Centre Director Mr. Philip C. Abrami. The researchers modified certain parts of the original questionnaire to enhance its reliability and validity, as well as to ensure its relevance to the specific objectives of the study. These modifications were made carefully to maintain the integrity of the original tool while aligning it with the context and needs of the target respondents.

Data Gathering

The researcher began the data-gathering process by sending a formal request for permission to the Dean of the College of Education and the Head of the Secondary Education Program. Upon receiving approval, the survey was personally administered to the selected respondents. The questionnaire was answered in the presence of the researcher to provide immediate assistance and to clarify any questions that might arise during the process. Once completed, the questionnaires were collected and organized for data analysis.

Analysis of Data

The researcher used the Statistical Package for the Social Sciences (SPSS) to analyze the data gathered. Statistical tests were conducted to examine the relationship between variables, with the level of significance set at 0.05. This threshold was used to determine whether to accept or reject the null hypothesis, ensuring that the results met the standard criteria for statistical reliability.

Ethical Considerations

This study followed the appropriate research ethics guidelines. Consent from the respondents were provided, and permit was ensured when using their given data. The participants were assured that these data was kept confidential and cannot be used in any legal actions against them.

RESULTS

TECHNOLOGICAL DEVICES USED BY THE INSTRUCTORS

Frequently Used Technology in the Classroom

Table 1 shows the frequently used technology in the classroom, a total of 170 respondents, 102 or 60% of them answered laptop and projector, 66 or 38.8% averred that cellphone were utilized, and 2 or 1.2% agrees that they used other devices. IT can be gleaned that laptop and projector were the most frequently used technological devices in the classroom. Hence, classroom instruction nowadays is technology-based wherein; laptop and projector are more engaging.



Table1. The Frequently Used Technology in the Classroom

| Technological Devices | Frequency | Percent |
|-----------------------|-----------|---------|
| Laptop & Projector | 102 | 60.0 |
| Cellphone | 66 | 38.8 |
| Others | 2 | 1.2 |
| Total | 170 | 100.0 |

This is in accordance with the findings of Grimes and Warschauer (2008) where they found out that laptop was used regularly in the classroom. Furthermore, they agree that laptop was used as a basic tool as an aid on their pedagogies. However, laptop is used less frequent in mathematics subject. As to the study of Washington (2017), he agrees that over 65% of the respondents reported that laptops, tablets and smartphones are mostly used in all of their classes. But according to Large (2016) on his study, interactive whiteboards were the most used technology in the classroom in lieu of the said devices.

Frequency of Using Technology for Instruction

Table 1.2 shows how often the technology is used by the instructors for giving instruction. A total of 170 respondents 63 or 37.1% reported the instructors often used technology for instruction, 41 or 24.1% respond “sometimes”, 32 or 18.8% respond “daily”, 30 or 17.6% respond “weekly” and the remaining 4 or 2.4% respond that technology is never been used by their instructors for giving instructions. This can be concluded that instructors often utilize technology in giving instructions. This is because using technology mitigates difficulty in conveying instruction.

Table1.2 the Frequency of Using Technology for Instruction

| How Often | Frequency | Percent |
|-----------|-----------|---------|
| Daily | 32 | 18.8 |
| Weekly | 30 | 17.6 |
| Often | 63 | 37.1 |
| Sometimes | 41 | 24.1 |
| Never | 4 | 2.4 |
| Total | 170 | 100.0 |

Hawkins (2002) reported that teachers use computers more often for their teaching-learning process if they perceived an adequate support from the administrator. Teachers who receive adequate ICT support from the administrator are more likely to use ICT’s in their practice while those who do not receive ICT support from the higher authorities in school are less enthusiastic in using computer or do not integrate technology at all. The same with findings of Schaffer et al. (2004, cited in Afshari et al, 2009) reported that when technology is introduced into teacher education programs, the emphasis is often on teaching about technology. Hence, inadequate preparation to use technology is one of the reasons that teachers do not systematically use computers in their classes.

Purpose of Using Technology in the Classroom

Table 1.3 shows that computer is most commonly used for research purposes. A total of 170 respondents , 44.1% of them respond that they used computer for research purposes, 42.9% respond for internet purposes, 5.9% respond as a used for learning materials, 4.1% for watching videos and the remaining 2.9% specified other purposes of using computer. Based on the table it is noticeable that computers are most commonly used for internet and research purposes. This is because, students are fond of doing research in working of their assignments, projects and requirements using the internet.

Table 1.3. The Purpose of Using Computers in the Classroom

| Purpose | Frequency | Percent |
|--------------------|-----------|---------|
| Internet | 73 | 42.9 |
| Research | 75 | 44.1 |
| Learning Materials | 10 | 5.9 |
| Watching Video | 7 | 4.1 |
| “Others” | 5 | 2.9 |
| Total | 170 | 100.0 |

This is conformity with the study of Muir, Manchester, Moulton (2005) found that students use the Internet to do research and apply information they find to enhance their projects rather than using the Internet as one big answer key. Likewise, as to the study of Mazzie (2008) she mentioned that laptop used by the students in surfing the internet and she added that it is used also for taking notes, working on class exercises, E-mail, instant messaging, and reading news. In contrast to the

findings of Muir, Manchester, Moulton and Mazzie, Fisher (2015) asserted that students often find the presence of some technology devices to be distracting – whether because the devices in class makes it more likely those students will engage in activities such as texting or online social networking and playing games.



EFFECTS OF TECHNOLOGICAL INTEGRATION IN TEACHING AND LEARNING EXPERIENCES

Technology Integration Help Increase Academic Performance of the students

Table 2 shows that most of the students agree that technology integration help increase their academic performance. A total of 170 respondents, 69 or 40.6% students A (Agree), 55 or

32.4% SA (Strongly Agree), 23 or 13.5% are U (Uncertain), 14 or 8.2 are D (Disagree) and the remaining 9 or 5.3% respondents are SD (Strongly Disagree) that technology integration is an aid to increase their academic performance. It can be deemed that technology is a tool towards the academic achievement of the students since it is an integral part in the teaching and learning process.

Table 2. Technology Integration Help Increase Performance of the Students

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 9 | 5.3 |
| D (Disagree) | 14 | 8.2 |
| U (Uncertain) | 23 | 13.5 |
| A (Agree) | 69 | 40.6 |
| SA (Strongly Agree) | 55 | 32.4 |
| Total | 170 | 100.0 |

This is in accordance with the study of Ringstaff and Kelley (2002), examined the impact of computer integrated instructional program had on student achievement. "Students showed positive results at both high and low achieving schools, having higher grade point and averages and on average scoring higher on standardized tests". Likewise, research findings by Ottenbreit-Leftwich, Glazewski, Newby & Ertmir (2010) revealed that teachers used technology to address professional and student needs, all of which related to the underlying value belief of promoting student learning. On the other hand technology integration has its adverse effect to students' performance. This is in accordance with the study of Chou (2001) reported that heavy technology integration and internet use was correlated with poor academic performance. According also to Klaus (2018) integrating technology can take away valuable learning time, it can be overused, and it can also turn educational experiences into games for students who may miss

the point of the lesson. Lai et al. (2006) the results of this study using international perspective confirm that computer

Technology Integration Promotes the Development of Communication Skills

Table 2.1 shows that a total of 170 respondents, 85 or 50% of the students agree that technology integration promotes the development of Communication Skills. 57 or 33.5% students answered SA (Strongly Agree), 17 or 10.0% are U (Uncertain), while 7 or 4.1% of the students D (Disagree) and 4 or 2.4% answered SD (Strongly Disagree) that integrating technology helps in developing the communication skills of the students. It can be inferred that technology improve the skills of the students in communication. Hence, students develop their verbal ability in communicating towards their peers.

Table 2.1 Technology Integration Promotes the Development of Communication Skills

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 4 | 2.4 |
| D (Disagree) | 7 | 4.1 |
| U (Uncertain) | 17 | 10.0 |
| A (Agree) | 85 | 50.0 |
| SA (Strongly Agree) | 57 | 33.5 |
| Total | 170 | 100.0 |

This result with consistent with the findings of Istifci, Lomidaxde & Demiray, (2011) where they reported that technology has aided communication in many different areas, and research does support the positive influences. Using technology to communicate online with the students learning English was shown to be effective, providing communication methods to aid students with special needs. Based on the study conducted by Barakati (2011), according to him, smartphones were used not only as a communication tool, or just to keep up with technology, but it could be used to learn and improve student skills in English language learning in a more relaxed and enjoyable way. In contrast with the findings of Barakati, Lenhart (2012) asserted that the increase use of technology to

communicate has caused face-to-face communication abilities suffered significantly from the increased in technology. IN another scenario, May (2011) technology has created many more ways for people to communicate with each other, but they may make it easier to misread social cues when interacting in person it could lead to people have difficulty expressing emotion, social anxiety, and difficulty in communicating effectively.

Technology Integration Helps the Student to Think Critically

Table 2.3 shows that a total of 170 respondents, 106 or 62.4% of the students did agree that the integration of technology helps



them to think critically. 36 or 21.2% students were strongly agree, 19 or 11.2% are uncertain, 5 or 2.9% of the respondents were strongly disagree that the use of technology can help them

to think critically. These result indicate that the high percentage of responses was (Agree). Apparently, technology integration develops students' critical thinking skills.

Table 2.3 Technology Integration Help the Students to Think Critically

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 5 | 2.9 |
| D (Disagree) | 4 | 2.4 |
| U (Uncertain) | 19 | 11.2 |
| A (Agree) | 106 | 62.4 |
| SA (Strongly Agree) | 36 | 21.2 |
| Total | 170 | 100.0 |

According to the research findings of Swart (2017), he revealed that students perceived that the use of technology support their learning and development of critical thinking skills. Same with Swart, Becker (2006) found that when students used computer supported intentional learning environment, students develop greater comprehension of the subject matter, showed increased motivation and ability to tackle different questions. On the other hand, Brahmabhatt, Duncan, Hardikar, Kasinger & Pillai (2012) believes that technology is a real collaborative force within education as the mere the involvement of many form technology does not guarantee substantial effects on education quality. They added that technology is producing a decline in critical thinking and analysis.

THE SIGNIFICANT DIFFERENCE BETWEEN TRADITIONAL AND MODERN INSTRUCTIONAL MATERIALS AS PERCEIVED BY LEARNERS

Comparison between Multimedia Content and Traditional Instructional Materials as to the Ease of Understanding

Table 3 shows the comparison between the modern and traditional IM's utilized in classroom setting. A total of 170 respondents, 109 or 64.1% students did agree that multimedia content is easier to understand than the traditional instructional materials used by the instructors, 25 or 14.7% students were SA (Strongly Agree), 24 or 14.1% were U (Uncertain), 8 or 4.7% were D (Disagree) and the remaining 4 or 2.4% students were SD (Strongly Disagree) that multimedia is better than traditional IM's. Evidently, using multimedia as an instructional tool can get the attention and interest of the students, for this reason, learning takes place. Based on Dale's Cone of Experience, 50% of the students learning emanate from what they hear and see.

Table 3. Comparison between Multimedia Content and Traditional IM's /as to the Ease of Understanding

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 4 | 2.4 |
| D (Disagree) | 8 | 4.7 |
| U (Uncertain) | 24 | 14.1 |
| A (Agree) | 109 | 64.1 |
| SA (Strongly Agree) | 25 | 14.7 |
| Total | 170 | 100.0 |

This is in consistent with the study of Yueh, Lin, Huang, & Sheen (n.d.) they reported that multimedia videos help raise students' awareness of learning issues, improve their understanding of content, and increase the depth of their learning. They added that almost all students liked the approach using multimedia to assist teaching and learning, preferring this approach over traditional lecture-based instruction. In another study conducted by Nusir, Alsmadi, Al-Kabi & Sharadgah (2013), they investigated the effectiveness of multimedia in learning and found that the people who used computer based multimedia instruction performed better in terms of test score compared with those who received instruction through traditional classroom lectures. On the other hand, as to the study of Sungur & Tekkaya (2006), the teacher gives information to the learners containing concepts, facts, diagrams, and terms. Every class hour, students involve in note taking, usually through the use of a chalk board or white board. In this

traditional classroom instruction, students are expected to answer questions provided by the teachers.

Using Audio and Visual Aids Makes the Classroom Livelier than the Traditional Instructional Materials

Table 3.1 shows that using audio and visual aids makes the classroom livelier than the traditional IM's. A total of,170 respondents, 95 or 55.9% students did agree that audio and visual aids makes the classroom livelier than the traditional IM's, 54 or 31.8% students were SA (Strongly Agree), 15 or 8.8% were U (Uncertain), 4 or 2.4% were D (Disagree) and the remaining 2 or 1.2% students were SD (Strongly Disagree). The results indicates that utilizing audio and visual aids makes up vigorous discussion since most of the students did agree. This can be inferred that students' participation is high due to the advance and quality of instruction provided by the instructor



through the use of technology in a way that is enjoyable and engaging.

Table 3.1 Using Audio and Visual Aids Makes the Classroom livelier than the Traditional IM's

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 2 | 1.2 |
| D (Disagree) | 4 | 2.4 |
| U (Uncertain) | 15 | 8.8 |
| A (Agree) | 95 | 55.9 |
| SA (Strongly Agree) | 54 | 31.8 |
| Total | 170 | 100.0 |

This is in accordance with the findings of Singh (2005) he revealed that using Audio-Visual aids in teaching catches the attention of the students and generates interest to know further essential learning. Audio-Visual motivates the students to think, act and stimulate their overall mental and physical activity. Another view of Zhang (2012) according to him multimedia learning encourages students become more eager to learn actively and provides materials that are easier to comprehend. But on the other hand, Hu and Xu (2012) stated that everybody must see the advantages of traditional teaching in which it play the role of a better services for teaching.

The Legibility of Content in Power Point Compared to Blackboard

Table 3.2 shows the legibility of content in a power point compared to a blackboard. A total of 170 respondents, 102 or 60% students did agree that power point presentation is more legible than blackboard, 45 or 26.5% students were SA (Strongly Agree), 18 or 10.6% were U (Uncertain), 4 or 2.4% were D (Disagree) and the remaining 1 or .06% student were SD (Strongly Disagree). Clearly, the result shows that most of the respondents did agree that a topic can be seen clearly and vividly through power point presentation viewed in an overhead projector (OHP) compared to the writings on the blackboard. Since everybody can see especially the students with myopia sitting at the last row of the classroom.

Table 3.2 The Legibility of Content in Power Point Compared to Blackboard

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 1 | .6 |
| D (Disagree) | 4 | 2.4 |
| U (Uncertain) | 18 | 10.6 |
| A (Agree) | 102 | 60.0 |
| SA (Strongly Agree) | 45 | 26.5 |
| Total | 170 | 100.0 |

According to the findings of Hu and Xu (2012) some teachers ignore the existence of the blackboards in the process of multimedia teaching. Moreover, some schools simply abandon blackboards teachers can use presentation designed by laptops and computers but no writing on the blackboard. Furthermore multimedia teaching save some time writing on the blackboard, but the teaching teachers frequently turn pages quickly and easily leads students' persistence of vision. The same with the study of Susskind (2005) students displayed more positive attitudes toward PowerPoint lectures; they claimed that when PowerPoint was used, the lectures were more organized and their main points were emphasized more. In contrast, Elsevier (2008) found out that there is not much difference regarding visual presentation of basi9c graphics and alphanumeric information when comparing PowerPoint and chalkboards.

E-Learning Is More Helpful In Understanding Concepts than Textbook Learning

Table 3.3 shows that providing soft copy is more helpful in understanding concepts than handouts. A total of 170 respondents, 92 or 54.1%, 57 or 33.5% students were SA (Strongly Agree), 15 or 8.8% were U (Uncertain), 5 or 2.9% were D (Disagree) and the remaining 1 or .06% students were SD (Strongly Disagree). The result revealed that soft copy is more helpful in understanding concepts than handouts, because most students are more comfortable in using their mobile phones for reading and reviewing their lessons rather than the stress themselves in spending money for the handouts.

Table 3. E-Learning is more helpful in Understanding Concepts than printed textbooks

| Responses | Frequency | Percent |
|------------------------|-----------|---------|
| SD (Strongly Disagree) | 1 | .6 |
| D (Disagree) | 5 | 2.9 |
| U (Uncertain) | 15 | 8.8 |
| A (Agree) | 92 | 54.1 |
| SA (Strongly Agree) | 57 | 33.5 |
| Total | 170 | 100.0 |

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