

Realization of Computer Technology-Based Teaching in the Context of Public Elementary Schools in San Mateo North District

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ABSTRACT

Multimedia works as an instructional instrument, enabling a thorough examination of material through several sensory modalities, employing text, graphics, images, audio, and video. This study investigates the complex dynamics of multimedia as a teaching tool, offering a detailed analysis of its influence on learning. Multimedia facilitates a multi-sensory interaction with information by utilizing several media formats, such as text, graphics, photos, music, and video. Empirical research indicates that combining verbal and visual aspects in multimedia improves the assimilation of information, providing clear benefits compared to traditional approaches that use only one medium. These advantages encompass enhancements in memory, heightened cognitive functioning, and the simultaneous display of a substantial amount of information. The study highlights the vital role of teachers in promoting an ideal learning experience, where students' judgments of the importance and meaning of classroom information are essential. To accomplish this, educators must integrate various instructional techniques and establish engaging and participatory classroom settings. Acknowledging the variety of learning preferences among students, such as visual, auditory, or kinesthetic, emphasizes the significance of incorporating activities that cater to each learning style in the curriculum. The study emphasizes teachers' difficulties while incorporating computer-based instruction into their teaching practices in the modern era. The transition from teachers serving as repositories of knowledge to facilitators in ICT requires learning a distinct set of skills. This study highlights these abilities as essential elements of the teacher's character, representing their various tasks and functions.

Keywords: multimedia; computer technology-based teaching; teaching strategies; teaching innovation; elementary school education; digital learning; ICT integration

INTRODUCTION

Multimedia provides a complex multi-sensory experience in exploring our world through the presentation of information through text, graphics, images, audio, and video, and there is evidence to suggest that a mixture of words and pictures increases the likelihood that people can integrate a large amount of information. (Mayer, R., & Moreno, R., 2003).

The advantages of multimedia design compared to using a single medium might result from the ability to choose among media to present well-structured information (Larkin, J. H., & Simon, H. A., 1987), using more than one representation to improve memory (Penney, C. G., 1989) encouraging active processing and presenting more information at once. (Sweller, J. (1999)

Students learn best by seeing the value and importance of the information presented in the classroom. If the students are uninterested in the material presented, they will not learn it. To achieve the ultimate goal of student learning, it is essential to use a combination of teaching methods and make the classroom

environment as stimulating and interactive as possible. Students learn in many ways. Some students are visual learners, while others are auditory or kinesthetic learners. Visual learners learn visually using charts, graphs, and pictures. Auditory learners learn by listening to lectures and reading. Kinesthetic learners learn by doing. Students can prefer one, two, or three learning styles.

Because of these different learning styles, teachers must incorporate activities related to each of them in their curriculum so that all students can succeed in their classes. While we use all our senses to take in information, we prefer how we learn best. To help all students understand, we must teach them to meet as many of these preferences as possible. (Cuaresma, J., 2008)

When we think about a typical university course, it is rare to find all three of these approaches to learning incorporated into a class. While it may seem impossible, it can be done through thoughtful planning and preparation. It does force us to conceptualize the class differently—with a focus on the variety of ways in which students learn. The various inventories on learning styles allow teachers to gain insight into which areas they can develop further and which are already well developed. It is dangerous to apply only one learning theory to teaching. If teachers do this, they are not allowing students to develop their skills in other learning styles that apply to real-life situations.

Teachers' proficiency with multimedia in the classroom hurts their effectiveness when implementing technology-based lessons, according to Corpuz (2020). The respondents' profile suggests they can incorporate multimedia into the teaching and learning process. Furthermore, the teachers' expertise is in their ability to address the difficulties associated with using multimedia in teaching and find suitable solutions for the problems and concerns. Furthermore, the teachers successfully identified the minimal concerns related to using technology-based multimedia in instruction. Moreover, they noted a need for more data about any enhancement in students' enthusiasm for digital learning through multimedia.

Furthermore, it is determined that gender does not have a significant impact on the respondents' perception of the limitations of employing digital learning methodologies. Irrespective of their status, individuals can face similar obstacles when implementing digital learning practices. The findings lead to the following recommendations:

1. Provide teachers with clear guidance on the desired outcomes and consistently ensure that their teaching practices align with the use of multimedia.
2. Faculty members and students will receive a comprehensive orientation on the effective use of multimedia in teaching. This will provide them with updated knowledge and increase their awareness of its various applications.
3. The school should prioritize and provide sufficient resources, such as facilities, books, and internet connection, as well as additional laboratories, to ensure students have access to the necessary information and knowledge. This will help them develop effective learning strategies and meet the academic expectations set by their teachers.
4. Enhance student engagement with the latest trends and advancements in the educational system that promote the use of digital teaching methods.
5. The school should consistently educate the faculty members about updates and new information regarding the implementation of digital teaching. To effectively use multimedia in the classroom, teachers should also be experts in the subjects they teach.

In their study, Ponraj and Sivakumar (2020) investigated the efficacy of Computer-Assisted Instruction in

teaching Zoology, specifically in connection to the learners' personality traits. The sample comprised 40 students in the Control Group and 40 students in the Experimental Group. The data were obtained using suitable instruments and analyzed using t and f tests. The study determined that the kids in the experimental group had greater achievement scores compared to the students in the control group.

Multimedia and learning are defined and analyzed with an eye toward visual, auditory, and kinesthetic learning styles; the paper goes on to discuss the value of multimedia-based education, the roles of teachers in such an environment, and the current state of multimedia tools in the San Mateo North District.

Based on the numerous citations, the researcher intends to explore the impact of multimedia on the education of elementary school learners. Therefore, this led the researcher to undertake this investigation.

THEORETICAL FRAMEWORK OF THE STUDY

Multimedia has been successfully applied to many courses to provide a wide variety of learning styles or modalities. Learning styles are defined as characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment. Learners are more comfortable learning in an environment that reflects their predominant learning style (Sankey, M. D., 2006).

Learners have a preferred learning modality, namely, visual, aural, read/write, or kinesthetic, while many learners are multimodal (use a combination of these modalities). Multimedia can be used to develop a more inclusive curriculum that appeals to visual, aural, and kinesthetic learners and overcome differences in student performance that may result from different learning styles. Presenting material in a variety of modes has been used to encourage students to develop a more versatile approach to learning. (Morrison, M., et al., 2003).

Moving from the book to the computer is the opportunity for greater interactivity and novel ways to think about a learning activity. Technology provides more ways to represent concepts through different media formats. Such advances in technology ask for pedagogical inquiries to confirm the usefulness of such new activities in facilitating learning. Learners who have access to multiple representations enhance their comprehension, learning, memory, communication, and inference. (Rogers, L. & Wild, R., 1996).

Kozma (1991) argues that learners will benefit more if the instructional methods provide, perform, or model cognitive operations that are important to the task and the situation. Learners will also benefit more if they can perform or provide for themselves the operations provided by these representational media.

Dubois & Vial (2001) mentioned that providing learners with a sound structure and content is more important than providing them with interactivity and animation afforded by new media. Comprehension and learning require sound content and structure of instructional material and not new media or types of representation. The combination of text and image is effective when the information provided is complementary and adapted to each presentation. Making connections from multiple representations depends not only on the presentation mode and the construction of the interrelations between the multimodal items but also on the characteristics of the task.

One of the most important uses of technology is that it makes it easy for instructors to incorporate multimedia into their teaching. There are different multimedia tools. Three of the most popular ones are visual, auditory, and kinesthetic, which students take in information. Some students are visual learners, while others are auditory or kinesthetic learners. While students use all of their senses to take in information, they seem to have preferences in how they learn best. To help students learn, teachers need to teach as many of these preferences as possible. Therefore, teachers can incorporate these multimedia tools in their

curriculum activities so that students can succeed in their classes.

Research Questions

The study is strategically designed to assess the efficacy of computer technology-based teaching methods in public elementary schools in the San Mateo North District throughout the School Year 2021–2022. The main objective is to assess the implementation of this technological technique in educational settings. By focusing on public elementary schools, the study narrows its scope to a certain level of education, allowing for a more focused review of computer technology's impact on teaching techniques. This organized approach enables a thorough study of the use and efficacy of computer technology in the classroom, providing significant insights into the field of educational technology and guiding potential improvements in future implementations.

Specifically, this study sought answers to the following questions:

- (1) What is the profile of the respondents in terms of:
 - (1.1) Age;
 - (1.2) Gender;
 - (1.3) Civil Status;
 - (1.4) Highest Educational Attainment;
 - (1.5) Present Position;
 - (1.6) Latest Performance Rating;
 - (1.7) Length of Experience; and
 - (1.8) In-Service Training, Seminars Attended?
- (2) What is the extent of awareness of the respondents in terms of computer-based multimedia technology in teaching?
- (3) What is the level of knowledge of the teachers of the varied computer technology-based teaching?
- (4) What is the level of confidence of the respondents in using computer technology in teaching?
- (5) What are the factors that influence incentives in computer-based multimedia in teaching as perceived by the teachers?
- (6) What is the extent of issues related to using technology-based multimedia in teaching as perceived by the teachers?
- (7) What is the extent of barriers to using computer-based multimedia technology felt by the respondents?
- (8) Is there a significant difference in the extent of barriers to using computer-based multimedia technology as perceived between the teachers and school heads?

METHODOLOGY

Research Design

The researcher used the descriptive-normative method in conducting the study. According to Good and Scates, this method is appropriate for determining the current condition of any unit, group and organization, program, and many others. The term normative is used because surveys are frequently made to ascertain the normal conditions and practices. They further claimed that these methods are used to organize, analyze, interpret, and report the present situation or status of the group.

In like manner, Van Dalen and Meyer stated that the descriptive research method is not confined to routine fact-gathering and that predicting and identifying relationships among and between variables is the goal of competent investigators or researchers. As in any investigation/inquiry, the descriptive survey method will (1) examine problematic situations; (2) define the problems and state the hypothesis; (3) select appropriate subjects and materials; (4) establish categories for classifying data that are ambiguous and appropriate for the study, and capable of bringing out significant likeness, differences and relationships; (5) select construct techniques; (6) make discriminating objectives observations; and (7) describe, analyze and interpret their findings in clear and precise terms.

Whitney stated that the descriptive-normative research method is directed toward ascertaining prevailing conditions. It seeks to answer the question, “What are the real facts about the existing conditions,” The descriptive-normative method is applied to suggest the two closely related aspects of the study.

The word survey indicates the gathering of facts regarding current conditions. He stated further that this method is an organized attempt to make a report and interpret the present status of social institutions, groups, or areas. Its purpose is to get a group of classified, generalized and interpreted data to guide practice in the immediate future.

Research Locale

This study was conducted in 16 public elementary schools in San Mateo North District, Schools Division of Isabela.

The selection of San Mateo North District, Schools Division of Isabela as the locale for this study is grounded in careful consideration and strategic intent. The choice of this specific locale is motivated by the need for a focused and contextually relevant examination of the realization of computer technology-based teaching in public elementary education. The San Mateo North District serves as a representative microcosm, allowing the research to delve into the intricacies and nuances of technology integration within a distinct educational setting.

Research Population

The sources of the data to comprise the bulk of this study are the Grade 5 teachers in the public elementary schools in San Mateo North District, Division of Isabela. A total enumeration technique was used. The distribution of respondents is shown in table 1

Table 1. Respondents of the Study as to School Origin

Particulars	Frequency	Percentage
1. San Mateo North Central School	3	15.00

2. Salinungan East ES	2	10.00
3. Victoria Integrated S	1	5.00
4. Malasin ES	1	5.00
5. Gaddanan ES	1	5.00
6. Daramuangan Sur ES	1	5.00
7. Daramuangan Norte ES	1	5.00
8. San Roque ES	1	5.00
9. San Antonio ES	1	5.00
10. Marasat Pequeño ES	1	5.00
11. San Ignacio ES	1	5.00
12. Mapuroc ES	1	5.00
13. Villa Gamiao ES	1	5.00
14. Bagong Sikat ES-Main	1	5.00
15. Bagong Sikat ES-Annex 1	1	5.00
16. Bagong Sikat ES-Annex 2	1	5.00
Total	20	100.00

Research Instrument

The researcher used the questionnaire as the dominant data-gathering instrument, and the unstructured interview as the elementary instrument to check and counter-check the validity and reliability of the data gathered through the questionnaire. The following are the parts of the data-gathering instruments used in this study, as to wit:

Part I- Respondents' Profile;

Part II- The extent of awareness of the respondents in terms of computer-based multimedia technology in teaching;

Part III- the level of knowledge of the teachers of the varied computer technology based in teaching;

Part IV- The level of confidence of the respondents in using computer technology based in teaching;

Part V- The extent of incentives in computer-based multi-media in teaching;

Part VI- The extent of issues related to using technology-based multimedia in teaching and

Part VII- The extent of barriers in using computer-based multimedia technology.

The questionnaire was given a try-out to a group of teachers who were not included in the study with whom he would make arrangements that would come from other municipalities.

They requested that they fill out the questionnaire and give suggestions. Their findings and recommendations would serve as bases for the final layout of the instrument.

The questionnaire is presented to the Dean of Graduate Studies and his adviser for further suggestions.

The suggestions and comments derived from the pre-testing, as well as suggestions from the Dean of the Graduate School and his adviser, were incorporated in the final draft of the questionnaire, after which the

reproduction and distribution were done.

The data retrieved through the questionnaire were converted into numerical weight using the Likert 5-Point Scale. The researcher classified and tallied them into different quantities that would enable him to categorize the data.

To compute the extent of awareness of the respondents in terms of computer-based multimedia technology in teaching, the following was used:

Points	Scale	Qualitative Description
5	4.21-5.00	Fully Aware (FA)
4	3.41-4.20	Aware (A)
3	2.61-3.40	Moderately Aware (MA)
2	1.81-2.60	Slightly Aware (SA)
1	1.00 – 1.80	Least Aware (LA)

To gauge the level of knowledge of the teachers of the varied computer technology teaching, the following scale was used:

Points	Scale	Qualitative Description
5	4.21-5.00	Fully Extent (FE)
4	3.41-4.20	Extent (E)
3	2.61-3.40	Moderately Extent (ME)
2	1.81-2.60	Slightly Extent (SE)
1	1.00 – 1.80	Least Extent (LE)

To measure the level of confidence of the respondents in using computer technology-based in teaching, the following scale was used:

Points	Scale	Qualitative Description
5	4.21-5.00	Fully Confident (FC)
4	3.41-4.20	Confident (C)
3	2.61-3.40	Moderately Confident (MC)
2	1.81-2.60	Slightly Confident (SC)
1	1.00 – 1.80	Least Confident (LC)

To gauge the extent of incentives in computer-based multi-media in teaching as perceived by the teachers, the following scale was used:

Points	Scale	Qualitative Description
5	4.21-5.00	Fully Extent (FE)
4	3.41-4.20	Extent (E)
3	2.61-3.40	Moderately Extent (ME)
2	1.81-2.60	Slightly Extent (SE)
1	1.00 – 1.80	Least Extent (LE)

To measure the extent of issues related to using technology-based multimedia in teaching, the following

scale was used:

Points	Scale	Qualitative Description
5	4.21-5.00	Fully Extent (FE)
4	3.41-4.20	Extent (E)
3	2.61-3.40	Moderately Extent (ME)
2	1.81-2.60	Slightly Extent (SE)
1	1.00 – 1.80	Least Extent (LE)

To measure the extent of barriers to using computer-based multimedia technology, the following scale was used:

Points	Scale	Qualitative Description
5	4.21-5.00	Fully Extent (FE)
4	3.41-4.20	Extent (E)
3	2.61-3.40	Moderately Extent (ME)
2	1.81-2.60	Slightly Extent (SE)
1	1.00 – 1.80	Least Extent (LE)

An informal interview was conducted with the respondents of this study to gather additional information that has a bearing on the present study. This was done to check and counter-check the validity and reliability of the responses that were gathered through the questionnaire.

The interview was conducted informally during the retrieval of the questionnaire. The researcher religiously adhered to the IATF protocols during the retrieval of the questionnaires and the conduct of the interview.

Statistical Treatment of Data

The data gathered through the questionnaire were tallied, tabulated, and computed, which facilitated analysis and interpretation. The following formulae were used:

1. Frequencies, Percentage and Ranking. This was used to determine the profile of the teacher-respondents in terms of age, gender, civil status, highest educational qualification, latest performance rating present position, length of teaching experience, and the level of seminars attended in ICT.

The formula is:

$$P = \frac{f}{n} \times 100\%$$

Where:

P = Percentage

f = is the total frequency

n = is the total number of respondents

2. Weighted Mean. This was utilized in treating the data in answer to questions 2, 3, 4, and 5.

$$WAM = \frac{(W \times Fr)}{N} \times 100\%$$

Where:

W = assigned weight

Fr = frequency of respondents

N = total Number of respondents

3. T – Test. This was used to test the hypothesis of the study. The 0.05 level of significance determined the significant difference in the perception of the respondents on the extent of challenges in the implementation of multimedia in teaching students when grouped according to gender and civil status in accepting or rejecting the null hypothesis.

$$T = \frac{X1 - X2}{\sqrt{\frac{(N1 - 1)(S1)^2 + (N2 - 1)(S2)^2}{N1 + N2 - 2}}} \sqrt{\frac{1}{N1} + \frac{1}{N2}}$$

Where:

X1 = means of the first sample

X2 = means of the second sample

SD1² = standard deviation of the first sample

SD2² = standard deviation of the second sample

N1 = Number of cases in the first sample

N2 = Number of cases in the second samples

1 = constant Number

Data Gathering Procedure

In conducting this study, the researcher sought permission from the office of the Schools Division Superintendent through channels. The questionnaires were distributed to the target teacher-respondents through the assistance of the respective school heads. The researcher sought permission from the school heads of the target school to avail of the Latest Performance Rating (LPR) of the respondents for School Year 2020-2021. A follow-up was made at the homes of the teacher-respondents on Saturdays and Sundays to ensure a one hundred percent retrieval. Despite the pandemic brought by COVID-19, one-hundred percent retrieval of the instruments is evident.

RESULTS AND DISCUSSIONS

This section encapsulates the culmination of the research endeavor, offering a detailed presentation of the outcomes derived from a rigorous analysis of the data collected. The study, focusing on the realization of computer-based teaching within Public Elementary Schools in San Mateo North District, Schools Division of Isabela, unveils a nuanced exploration of the challenges and successes associated with the integration of computer technology in teaching practices.

Respondent's Profile

Age Bracket. There was 4 or 20 percent for the age bracket of 20 to 25 years old and 26 to 30 years old, 6 or 30.00 percent for 31-35 years old, another 4 or 30.00 percent for the age bracket 36-40 years old; 1 or 5.00 percent each for 41-45 years old and 46-50 years old. It can be noted that the majority of the Grade 5 teachers of San Mateo North District are categorized under the age bracket of 31-35 years old.

Gender. It is manifested that 19 or 95.00 percent of respondents were females while 1 or 5.00 percent of respondents were male. This manifests that teachers in Grade 5 are dominated by females in the whole district of San Mateo North District.

Civil Status. It is noticeable that 8 or 40.00 % of respondents were single while 12 or 60.00 percent were married, which is the distribution of respondents in terms of civil status. The result shows that more of the Grade 5 teachers are married. This implies that in teaching basic education, marital status might be considered to know how to deal easily with children. In addition, civil status is often associated with the employee's job performance in terms of two considerations. The married group is linked to a sense of responsibility. Being married, they are said to be bringing along with them their experiences in terms of responsibility as having their own family, and they used this scenario in treating the pupils like their own children. However, in terms of time, the single group has the sense of giving out their full consideration because they are not indulging much in household responsibilities.

Educational Attainment. The bachelor's degree holders were dominant, with 8 or 40.00 percent responding. It is worth noting, however, that 7 or 35.00 percent out of the 20 respondents could manage to finish their Master of Arts in Education (MAEd). On the other hand, 5 or 25.00 percent of Grade 5 teachers obtained MA units. The findings raised the issue that nobody from the group had obtained a doctoral degree or even units in post-graduate studies. The result implies that Grade 5 teachers of San Mateo North District are composed of a resilient work potency, as indicated by their continuing professional development. It is also good to note that 7 Grade 5 teachers have finished a master's degree.

Present Position. 14 or 50.00 percent of the respondents claimed they were classified under Teacher III, which dominated the teaching position, and 3 or 15.00 percent claimed they were classified under Teacher II. On the other hand, 2 or 10.00 percent claimed that they were under Teacher I, while 1 or 5.00 percent of respondents claimed under Master Teacher I. This implies that the respondents are composed of a very strong workforce, as indicated by their position. As gleaned from the table, Teacher III's position dominated among the teachers.

Latest Performance Rating. 100% percent of the respondents received an "Outstanding" performance rating. The result implies that out of 20 respondents, an outstanding performance rating was obtained, which means that subject teachers strictly adhered to the level of proficiency of the Philippine Professional Standards for Teachers (PPST). This means that in the group of Grade 5 teachers, there are teachers who excelled in their field.

Length of Service. As revealed, those 1-5 years of stay in the job were dominant, with 7 or 35.00 percent of them. This was followed by 11-15 years, with 6 or 30.00 percent of respondents. There were 3 or 15.00 percent for 6-10 years of experience, and a single response or 5.00 percent for 16-20 and 21 to 25 years in service. On the other hand, 2 or 10 percent stayed in the service for 26-30 years. It can also be noted that most of the teachers are still young in the service, which coincides with their age distribution.

Attendance at Training and Seminars. All the respondents were in attendance at seminars of various levels. There were 17 who attended the school level, 14 who joined at the district level, 15 who participated at the division level, and 11 respondents who attended the regional level. On the other hand, 11 teachers attended at the national level. The findings raise an issue that nobody from the Grade 5 teachers attended at the international level. This implies that the current situation of the Philippine Educational System affected the attendance of the teachers in the training and seminars at the international level. Moreover, the findings implicate that the respondents were able to enhance their engagement and actively embrace a continuing effort to attain proficiency and professional growth and development.

Information Proper

Table 2. The extent of awareness of the respondents in terms of the computer-based multimedia technology in teaching

	Wtd. Mean	Q.D.	Rank
1. Computer Aided Instruction (CAI)	3.52	A	3.5
2. Multimedia Technology	3.58	A	2
3. Audio graphics	3.45	A	5
4. Internet	4.58	FA	1
5. Electronic Mail	3.52	A	3.5
Average Weighted Mean	3.73	Aware	

As to the extent of awareness of the respondents in terms of the computer-based multimedia technology in teaching as perceived by the teachers. It shows that the average weighted mean was 3.73, which is interpreted as “aware” based on the survey. This means that both school heads and teachers are aware of the computer-based multimedia technology in teaching. As to teachers, it shows that the internet obtained the highest mean of 4.58 while audio graphics obtained the lowest mean of 3.45, which translates to being fully awake and aware. The findings show that both teachers are aware of the computer-based multimedia technology. This implies that the internet was the common platform for computer-based multimedia technology in teaching among the Grade 5 pupils in San Mateo North District, Division of Isabela.

Table 3. The level of knowledge of the teachers of the varied computer technology-based in teaching

Particulars	Wtd. Mean	Q.D.	Rank
	1. Equipment for using multimedia technology is readily available in the school	3.52	E
2. The use of multimedia in teaching can improve student learning	3.58	E	2.5
3. The use of multimedia in teaching can improve student interest.	3.45	E	10
4. Multimedia Technology would be easy to integrate into the subject.	4.58	FE	2.5
5. Training in the use of multimedia technology is readily available where I work.	3.52	E	8.5

6. I have enough time to learn about using multimedia technology.	4.52	FE	4
7. I have work technical advice and support using multimedia technology	4.50	FE	5
8. The use of multimedia technology in teaching is supported by my co-teachers	4.60	FE	1
9. The integration of multimedia technology is necessary for the school to remain competitive.	4.40	FE	6
10. Multimedia technology plays a growing role in the delivery of the school in the learning process.	4.28	FE	7
Average Weighted Mean	4.10	Extent	

The level of knowledge of the teachers regarding the varied computer technology teaching methods as perceived by the teacher. It revealed that the average weighted mean in terms of the varied computer technology-based teaching, as observed by the teachers, was 4.10. Generally, the use of multimedia technology in teaching is supported by my co-teachers, obtained the highest mean of 4.60, which denotes “full extent,” while the use of multimedia in teaching can improve student interest, obtained the lowest mean of 3.45, which denotes “extent.” It revealed that the use of multimedia in teaching can improve student learning, which was rated as the lowest, particularly in terms of varied computer technology-based teaching as perceived by the teachers. The findings imply that in utilizing multimedia in teaching does not guarantee the improvement of student learning. This raises the issue that teachers should emphasize the significant contribution of multimedia in teaching, especially nowadays.

Table 4. The level of confidence of the respondents in using computer technology based on teaching

Particulars	Wtd. Mean	Q.D.	Rank
1. Computer Aided Instruction (CAI)	3.50	C	4
2. Multimedia Technology	3.54	C	2
3. Audio graphics	3.42	C	5
4. Internet	4.56	FC	1
5. Electronic Mail	3.52	C	3
Average Weighted Mean	3.71	Confident	

Generally, the average weighted mean of 3.71 denotes that the respondents’ confidence level in using computer technology in teaching was rated “confident” as rated by the teachers. The teacher’s group rated Internet, Multimedia Technology, Electronic Mail, Computer Aided Instruction (CAI), and Audio graphics obtained the means of 4.56, 3.54, 3.52, 3.50, and 3.42, respectively.

Table 5. The extent of the factors be incentives in computer-based multimedia in teaching

	Wtd. Mean	Q.D.	Rank
1. Available equipment/resources	3.58	E	8.5
2. Evidence of improved learning	3.60	E	2.5
3. Evidence of improved student interest	3.45	E	10
4. Easy to integrate into the subject	4.60	FE	2.5
5. Available quality materials	3.58	E	8.5
6. Availability of training	4.54	FE	4
7. Time out to learn technology	4.52	FE	5
8. Available technical support/advice	4.62	FE	1

9. Support from faculty	4.42	FE	6
10. Comfort with technology	4.30	FE	7
Average Weighted Mean	4.12	Extent	

In addition, the grand weighted mean of 4.12 denotes that the extent of the factors being incentives in computer-based multi-media in teaching has its “extent” as rated by the teachers. Likewise, available technical support/advice obtained the highest mean of 4.62, which denotes “full extent” in terms of the extent of the factors be incentives in computer-based multi-media in teaching, while evidence of improved student interest obtained the lowest mean of 3.45, which can be interpreted as “extent.”

Table 6. The extent of issues related to using technology-based multimedia in teaching

	Wtd. Mean	Q.D.	Rank
1. Offers flexible study options	3.60	E	6
2. Offer more control	3.62	E	5
3. Is more interactive	3.44	E	8
4. Is more motivating	4.60	FE	2
5. Is more interesting	3.58	E	7
6. Is more effective	4.54	FE	3
7. Accommodates varied learning styles	4.52	FE	4
8. Provides more feedback	4.62	FE	1
Average Weighted Mean	4.12	Extent	

The extent of issues related to using technology-based multimedia in teaching was rated “extent” as perceived by the teachers. It shows that the average weighted mean of 4.12 denotes “extent” in terms of the extent of issues related to using technology-based multimedia in teaching as perceived by the teachers.

Table 15 divulges the extent of barriers to using computer-based multimedia technology as perceived by the teachers. As vividly seen in the table, the average weighted mean of 3.71 denotes “extent” in terms of barriers to using computer-based multimedia technology as rated by the teachers. This means that both teachers have similarities in terms of their observation about the barriers to using computer-based multimedia technology in the pedagogical aspects.

Table 7. The extent of barriers to using computer-based multimedia technology

	Wtd. Mean	Q.D.	Rank
1. Lack of equipment/resources	3.50	E	4
2. No evidence of improved learning	3.54	E	2
3. No evidence of improved student interest	3.42	E	5
4. Difficult to integrate into a subject	4.56	FE	1
5. Lack of quality materials	3.52	E	3
Average Weighted Mean	3.71	Extent	

In particular, the teacher group provided more feedback with a 4.62 average weighted mean as the highest particular, which denotes “full extent,” while multimedia is more interactive was obtained with the lowest mean of 3.44, which denotes “extent.” This implies that interactive activities are not employed when utilizing multimedia in teaching. Likewise, active participation in the teaching-learning process is no longer

observed.

About the barriers to using computer-based multimedia technology, the average weighted mean of 3.71 denotes “extent” in terms of barriers to using computer-based multimedia technology as rated by the teachers. This means that both teachers have similarities in terms of their observation about the barriers to using computer-based multimedia technology in the pedagogical aspects.

Likewise, difficulty in integrating into the subject obtained the highest mean of 4.56, while no evidence of improved student interest was obtained with the lowest mean of 3.42. Further, no evidence of improved learning, Lack of quality materials, and Lack of equipment/resources were obtained with the average weighted means of 3.54, 3.52, and 3.50, respectively.

Table 8. The t-test analysis of the perceptions of the respondents on the extent of barriers to using computer-based multimedia technology when grouped according to their gender

	Gender	Mean	Description	t-value	p-value	Decision
The extent of barriers to using computer-based multimedia technology	Male	4.32	Extent	-2.565	0.021	Reject Ho

Also, in terms of significant differences in the perception of the respondents to the extent of barriers in using computer-based multimedia technology when grouped according to their gender, results show that to the extent of the barriers in using computer-based multimedia technology, there is a significant difference in terms of the response of male and female respondents. Though both of them view personal viewpoints as fully adhered to, female respondents have a higher preference than males, with means of 4.32 and 4.30, respectively. Generally, the computed p-value of 0.021 is greater than the computed t-value of -2.565, which denotes that the hypothesis is rejected.

Table 9. The t-test analysis of the perception of the respondents to the extent of barriers to using computer-based multimedia technology when grouped according to their civil status

	Civil Status	Mean	Description	F-value	p-value	Decision
The extent of barriers to using computer-based multimedia technology	Single	4.30	Extent	6.545	0.011	Reject Ho

Finally, the significant difference in the respondents’ perception of the extent of barriers to using computer-based multimedia technology when grouped according to their civil status revealed that the extent of barriers to using computer-based multimedia technology has significant differences when grouped by civil status of respondents. Though all of them have the same perception, the married teacher has a higher mean compared to the single, with a mean of 4.30 and 4.28, respectively. Further, it reveals that the computed f-value of 6.545 is greater than the p-value of .011. This means that the presented null hypothesis is rejected based on the 0.05 level of significance.

CONCLUSIONS

The function of the teacher is to help people develop the ability to react in any situation they are in, to organize as far as possible the opportunity for them to do so, and to stimulate them to do what they think is best for themselves about the utilization of computer-based multimedia in the teaching-learning process.

Teachers' role in the educative process in the 21st century by integrating computer-based instruction is indeed challenging. With the shift of major emphasis from the teacher as a source of knowledge in ICT, a new set of competencies can be identified as components of the personality of the teacher, all of which epitomize the whole range of the teachers' roles and functions by knowing the benefits of computer and technology in teaching.

In the performance of their functions as techno-savvy teachers, teachers look forward to enhancing their skills in computers and technology.

RECOMMENDATIONS

In the light of the findings arrived at, the following recommendations are hereby offered:

1. Elementary school heads should find interventions to solve the concerns about the dearth of modern equipment and facilities by finding donors, especially regarding the provision of modern technology in teaching.
2. School administrators should have a balanced work program so that supervision should be supervised when utilizing computer-based instructions.
3. School-based in-service training should be conducted to focus on the needs of teachers to improve their teaching competencies in manipulating computers and technology-based activities related to teaching.
4. Teachers teaching Grade 5 should be motivated and encouraged to pursue their studies in the graduate studies program to gain further insights, knowledge, and other new trends in coping with the difficult concerns they encounter in the performance of their functions.
5. Teachers should be encouraged to attend higher levels of in-service training related to computer-based multimedia in teaching.
6. School administrators should appraise teachers' performance regularly on their skills and abilities in technology to effect better teaching outputs.
7. Similar research should be conducted by other researchers utilizing other variables to find out the level of understanding of teachers in multimedia.

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