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Use of Multimedia Technology in Teaching and Students' Academic Performance in Division of Misamis Oriental

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ABSTRACT

The integration of computer technology and multimedia in education has transformed the way students engage with learning inside the classroom. This study examined the role of multimedia technology in instruction and its impact on students' academic performance. Specifically, it explored the characteristics of respondents, the extent of multimedia technology usage in teaching, the level of students' academic performance, and the relationships between these variables. The study involved 195 public elementary school teachers from selected districts in the Misamis Oriental division. A descriptive correlational research design and purposive sampling technique were employed, utilizing a structured and adapted questionnaire. Data analysis included descriptive statistics such as frequency, percentage, mean, standard deviation, and Pearson's *r* correlation. Findings indicated that multimedia technology was extensively utilized in teaching, and students demonstrated a highly satisfactory academic performance. However, no significant correlation was found between the use of multimedia technology and students' academic outcomes. Conversely, a significant relationship emerged between teachers' characteristics and their usage of multimedia technology. These findings suggest that teachers' attributes influence their adoption of multimedia tools, underscoring the importance of professional development in technology integration. The study recommends the continued use of multimedia platforms to enhance instructional strategies, emphasizing the need for regular feedback from educators. Such feedback fosters collaboration between teachers and developers, ensuring that multimedia tools evolve to meet educators' needs effectively. This ongoing refinement process enhances accessibility, engagement, and adaptability, ultimately supporting the dynamic demands of modern education.

INTRODUCTION

In recent years, the use of multimedia technology in education has gained considerable attention for its ability to enhance teaching and learning experiences. The use of multimedia tools in classrooms is believed to improve not only students' engagement but also their cognitive processing abilities by catering to different learning styles, according to Mayer (2021). Studies have shown that multimedia-based instruction can increase student motivation and improve learning outcomes, particularly when these tools are aligned with sound pedagogical principles (Hashemi *et al.*, 2019).

The root word of multimedia is "media," which generally refers to various means of communication. For example, television, radio, and newspapers are different media types. The term may be used as a noun for the press or news reporting agencies. Within the computer world, "media" is additionally used as a noun but refers to differing kinds of information storage options. Nevertheless, the word multimedia, as the name implies, is the integration of multiple sorts of media. This includes text, graphics, audio, video, etc. as an example, a presentation involving audio and video clips would be considered a multimedia presentation. Educational software that involves animations, sound, and text is named multimedia software. CDs and DVDs are often considered to be multimedia

formats since they store plenty of information, and most types of multimedia require plenty of disc space. Because of the advancements in computer speeds and space for storing, multimedia is commonplace today.

According to Backfisch *et al.* (2021), the integration of multimedia technology in classrooms has become essential for enhancing teaching and learning experiences. Teachers who design multimedia learning materials in line with multimedia learning principles significantly improve student engagement and comprehension. The use of multimedia elements such as videos, images, and audio encourages interactive learning, making information more accessible and engaging. Similarly, Farjon *et al.* (2019) emphasize that effective technology integration in teaching improves student performance, especially when it aligns with pedagogical strategies and is supported by adequate teacher training and resources.

Moreover, when multimedia is used as a noun, it refers to a technology for presenting material in both visual and verbal form. That is the time we use multimedia for classroom presentations. According to Staff (2021), multimedia integration includes learning packages and simulation of laboratory experiments. Aspects of the course curriculum that cannot be explained through simple text and images could be presented through video clips, animation, audio annotations and 3D modeling to understand better.

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LITERATURE REVIEW

Respondents' Characteristics

The characteristics of the respondents include their age, sex, position, teaching experience, and teaching experience. These details help describe who the participants are. The number of trainings or seminars they've attended on multimedia technology shows how familiar they are with using it. Their attitude towards multimedia technology also tells whether they are willing or hesitant to use it in their teaching, which can influence how well they use multimedia as a tool in teaching.

Age

Age is commonly defined in both chronological and psychological terms. Chronological age refers to the actual number of years a person has lived since birth. Psychological age, on the other hand, reflects how old a person feels, behaves, or views themselves, which may differ from their chronological age. Chronological age is often positively associated with social identity, especially in relation to one's age group and work-related roles. The age variable does influence the level of pedagogical digital competence. In addition, it has been confirmed that motivation constitutes an essential variable at the pedagogical digital competence level, both in terms of the use of technological devices as well as the use of Web 2.0 tools and Learning Management Systems (Guillen-Gamez *et al.*, 2019).

Sex

Sex is a biological term that refers to the physical and genetic characteristics that distinguish males and females. These characteristics include chromosomes, gonads, hormones, and genitalia, according to the American Psychological Association (2022). The most expressed unethical behaviors by female and male students are discrimination, roughness and misconduct. While female students stated that the ethical behaviors they faced were professional commitment/development, moral aid and equality/ impartiality, male students, on the other hand, expressed financial aid, moral aid and research on the cause of the problem. In this study, male students stated that they did not encounter ethical behavior in teachers. According to the female students, the unethical behaviors of the teachers were revealed as discrimination, roughness and misconduct, respectively. In contrast, male students stated roughness, discrimination and misconduct (Centin *et al.* (2021).

Position

Teaching positions within educational institutions play a critical role in shaping instructional quality and student outcomes. According to Guskey (2020), professional development is essential for enabling teachers to adapt their practices and meet evolving educational demands. The study highlights that effective professional development can significantly enhance teaching practices, thereby impacting teacher effectiveness and overall job satisfaction. Ingersoll *et al.* (2022) underscore the

importance of mentoring programs in improving teacher retention and effectiveness. Their research demonstrates that mentoring not only supports new teachers in their early career stages but also contributes to their long-term professional growth and stability within the field.

Teaching Experience

Teaching experience is the culmination of skills, exposure, or training acquired over time that enables one to perform an existing job better or prepare one for a teaching position. Teaching experience can be gained through different avenues, such as student teaching, tutoring, or volunteering. It can also be gained through formal training programs, such as a master's degree in education (Indeed, 2023).

Darling-Hammond *et al.* (2021) emphasize that experienced teachers exhibit greater instructional skills and classroom management abilities than their less experienced counterparts. Similarly, a study by Hattie (2022) highlights that the depth of a teacher's experience directly correlates with improved student outcomes, as experienced teachers are better at employing evidence-based practices and adjusting their teaching methods to maximize learning. Furthermore, the longitudinal study by Ingersoll (2023) reveals that teaching experience not only affects immediate classroom performance but also contributes to long-term career satisfaction and professional growth.

Highest Educational Attainment

Data on educational attainments are often qualitative data where the only information available is the highest level of education of the individual. If these levels of education may be ranked, the information available becomes ordinal. It is then possible to use measures of inequality as well as of overall attainment suggested in recent years for the case where only ordinal information is available (Dumas, 2021).

According to Sachs (2021), higher levels of educational attainment, such as advanced degrees, are often associated with improved teaching practices and better student outcomes. Teachers with advanced qualifications tend to possess a deeper understanding of their subject matter and more refined pedagogical skills, which enhance their ability to deliver effective instruction. Similarly, Monk (2022) highlights that teachers with higher educational attainment are more likely to engage in ongoing professional development and utilize evidence-based teaching methods. This, in turn, contributes to higher academic achievement among students. Additionally, the work of Darling-Hammond (2023) reveals that while advanced degrees can positively impact teaching quality, their effects are most pronounced when combined with supportive teaching environments and opportunities for professional growth.

Trainings/Seminars attended on Multimedia Technology

Trainings/seminars are organized educational events

or programs that offer participants specific knowledge and skills pertinent to their professional field or area of interest. These sessions are aimed at enhancing expertise and keeping up with current developments. For instance, in the field of education, such trainings might cover advancements in multimedia technology or updated teaching methodologies (Smith *et al.*, 2021).

This might initiate a meaningful reflection on multimedia design and could positively influence student teachers' behavioral intention for future use of digital media (Langner, 2022).

Attitude Towards Multimedia Technology

Attitude toward multimedia technology refers to the complex set of beliefs, feelings, and behavioral inclinations that individuals hold regarding the use and integration of multimedia tools and resources in various settings. This encompasses several dimensions, including how individuals perceive the usefulness, effectiveness, and ease of use of these technologies. This attitude can significantly impact the willingness of educators, students, or professionals to adopt and effectively utilize multimedia technologies, influencing their overall engagement and success with these tools (Lee *et al.*, 2023). Understanding these attitudes helps in designing better support and training programs to facilitate the successful integration of multimedia technology in different contexts. The study found that multimedia technology can have a positive impact on students' learning outcomes. However, the effect of multimedia technology on learning outcomes can vary depending on a number of factors, including the type of multimedia technology used, the way in which it is used, and the student's prior knowledge and skills.

Use of Multimedia Technology

The use of multimedia technology encompasses the integration of various digital media tools—such as text, images, audio, video, and interactive elements—to improve the presentation, accessibility, and engagement of content. This approach allows for a more immersive and flexible learning or communication experience by combining multiple types of media to cater to different learning styles and preferences. For example, in educational settings, multimedia technology can be used to create interactive presentations, educational videos, and virtual simulations, which enhance student understanding and retention by presenting information in a more engaging and varied manner (Zhang *et al.*, 2022).

Communication

Communication technology is the transfer of messages (information) among people and/or machines through the use of technology. This processing of information can help people make decisions, solve problems, and control machines. Information communication and technology in the development of early childcare not only means enhancing the children's use of computers and electronic devices. However, these kinds of technologies can impact

the development of children if they are used as a tool for them. ICT works as a resource for practitioners to draw positive support to empower the children for their development. If ICT is properly and purposefully utilized, then it can develop a lot of skills among children, such as collaboration, cooperation, discussion, and creativity (Majid *et al.*, 2020).

Further, the multimedia presentation has a narrator presenting concepts with images, words, and work examples. Through those aspects, communication is inevitable. This markedly increases students' academic outcomes on the test compared to those who did not view the presentation, especially in regard to procedural and evaluative knowledge. An additional survey reveals gains in students' metacognitive knowledge. These findings suggest that multimedia presentations contribute to improved student learning outcomes and offer valuable options during increased online course delivery (Tani *et al.*, 2022).

Sharing Information

Information sharing is a critical aspect of effective team functioning. However, it can be challenging to discern whether the information communicated is fact, opinion, or someone's best guess due to the varied understandings, assumptions, and interests team members bring to any collaboration (Romney, 2022). Drawing upon research on motivated information processing, this exercise simulates the challenges of information sharing and assists teachers in demonstrating strategies to overcome them.

Moreover, Dunleavy (2022) stated that the typical introductory Physics lecture requires students to consolidate and assimilate a large quantity of complex information that is often novel. It can leave students overwhelmed, slow the pace of learning, and lower motivation. It was found that carefully designed multimedia summaries in the form of one-minute videos and short text summaries can significantly increase students' understanding of the material as well as the ability to organize information into a useful mental framework, as measured by performances on a concept mapping exercise and a conceptual test of learning. It provides a set of detailed recommendations that instructors can use to develop effective post-lecture multimedia summaries. It suggests that one of the most important and impactful recommendations was incorporating student thinking in the design of these types of summaries informed by the input of qualified former students or teaching assistants with significant experience interacting with students in the course.

Recognition of Prior Knowledge

Recognition of prior learning features is at the top of the policy agenda in many countries because recognition of prior learning (RPL) has proven effective in some parts of the world, and there is much policy learning taking place. Therefore, many countries want to gain the advantages associated with RPL. It brings benefits to individual end-

users and countries. Whether RPL should be identically implemented everywhere is more questionable (Werquin, 2021). The recognition of prior learning is experiencing a renaissance as many employers, employees, alternative providers, and institutions of higher education work together to document and assess non-classroom learning (Uranis, 2020).

Recognition of prior learning had previously been organized as on-campus examinations, although demand for digitalization and electronic examination systems had been voiced to provide students and staff more flexibility and convenience. The digitalization of the RPL process aimed to develop the system in the most popular language for validation, English, and to provide students and RPL assessors with an increasingly effective method for assessing prior learning (Heinonen, 2020).

Developing Websites

Techopedia (2023) studied website development, which is the process of creating a website. It includes website design, website content development, client-side/server-side scripting, and network security configuration. Website development can be divided into two broad categories: front-end development and back-end development. Front-end development is the process of creating the visual aspects of a website, such as the layout, design, and user interface. Back-end development is the process of creating the functionality of a website, such as the database, server, and application programming interfaces. Website development is a complex and ever-changing field. The most popular technologies for website development are Content Management Systems (CMSs) and frameworks. CMSs are software applications that make it easy to create and manage a website. Frameworks are libraries of code that can be used to speed up the development process. Website development is a challenging but rewarding career. It requires a combination of technical skills, creativity, and problem-solving skills. Website developers are in high demand and can earn good salaries.

Locating Resources

Locating resources is the process of finding information, materials, or services that can be used to achieve a goal. In the context of research, locating resources refers to the process of finding scholarly articles, books, and other sources that can be used to support a research paper or project. There are many different ways to locate resources. Some common methods include search engines, search such as Google and Bing can be used to find a wide variety of resources, including scholarly articles, books, websites, and images; online databases, online databases like JSTOR and PubMed provide access to scholarly articles, books, and other materials; library catalogs, library catalogs list the books, journals, and other materials that are available in a particular library; reference librarians, reference librarians can help researchers find the resources they need. The best way to locate resources will vary depending on the specific needs

of the researcher. However, all the methods listed above can be helpful in finding the information, materials, or services needed to achieve a goal (American Psychological Association, 2020).

Academic Performance

Academic performance in all subjects from Grades 1 to 6 is the degree to which a student has mastered the knowledge and skills taught in these subjects. It is typically assessed through grades, test scores, and other evaluations and is often summarized as the general average of students. It is widely recognized as a crucial indicator of future success. According to the National Center for Education Statistics (2019), elementary school students who perform well are more likely to excel in middle school, high school, and higher education, increasing their chances of securing stable employment and positively contributing to society.

MATERIALS AND METHODS

Theoretical Framework

This study was anchored on Paivio's (1986) Dual Coding Theory, which highlights the equal weight to verbal and non-verbal processing.

Dual Coding Theory identified three types of processing: representational, the direct activation of verbal or non-verbal representations, referential, the activation of the verbal system by the nonverbal system or vice-versa, and associative processing, the activation of representations within the same verbal or nonverbal system. This was used in teaching-discussion of topics in line with the curriculum and with the use of multimedia technology where students were exposed to text, images, audio, videos, and interactive elements - to improve the presentation of topic and engagement of content.

Conceptual Framework

This study attempts to show the significant factors, concepts, and levels of using multimedia technology towards teaching and students' academic performance. Further, this framework presents the independent and dependent variables of the study.

Moreover, this study presents the characteristics of the teachers of Naawan District, Initao South and North District, Division of Misamis Oriental during the School Year 2023-2024. It deals with using multimedia technology in terms of communication, sharing information, recognition of prior knowledge, developing websites and locating resources as independent variables. The moderating variables are the respondents' characteristics, namely, age, sex, position, teaching experience, highest educational attainment, trainings/seminars attended on multimedia technology and attitude towards multimedia technology. While the dependent variable is the students' academic performance in all the subjects in Grades 1 to 6 levels.

Thus, this study rests on the assumption that there is a significant relationship between the use of multimedia technology and respondents' characteristics, and students' academic performance.

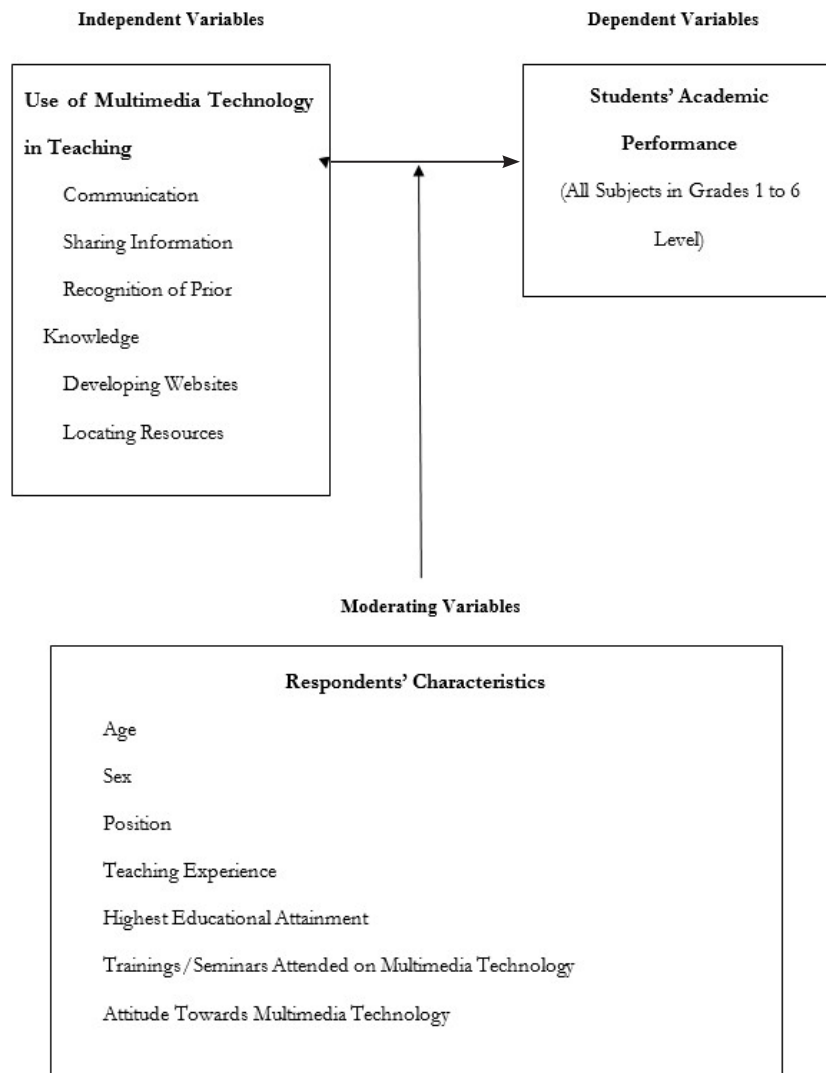


Figure 1: The Schematic Presentation of the Interplay between the Independent and Dependent Variables of the Study

Statement of the Problem

This study attempted to determine the level of the respondents' use of multimedia technology in teaching and students' academic performance in the Division of Misamis Oriental during the School Year 2022-2023.

Particularly, this paper sought to answer the following questions:

1. What are the respondents' characteristics in terms of age, sex, position, teaching experience, highest educational attainment, trainings/seminars attended on multimedia technology and attitude towards multimedia technology?
2. What is the level of the respondents' use of multimedia technology in teaching based on communication, sharing of information, recognition of prior knowledge, developing websites and locating resources?
3. What is the level of the students' academic performance in all subjects in Grades 1 to 6 Level, School Year 2022-2023?
4. Is there a significant relationship between the respondents' use of multimedia technology in teaching and students' academic performance in all subjects in Grades 1 to 6 level?

5. Is there a significant relationship between the respondents' use of multimedia technology in teaching and each of their characteristics?

Hypothesis

Based on the specific problems stated, except Problems 4 and 5, the null hypotheses were tested at a 0.05 level of significance.

Ho1

There is no significant relationship between the respondents' use of multimedia technology in teaching and students' academic performance in all subjects in Grades 1 to 6 level.

Ho2

There is no significant relationship between the respondents' use of multimedia technology in teaching and each of their characteristics.

Significance of the Study

The researcher believes that the results of this study would bring several benefits to the following:

The findings would give the District Supervisors insights into the use of multimedia technology toward student's learning and academic performance.

This is beneficial for the School Administrators because they are able to provide appropriate support for their teachers. Resourcefulness is expected to improve the performance of the teachers when using multimedia.

The teachers would benefit since they are the recipients of the study. This is expected to help and see the overview of multimedia by experiencing how interesting implementing multimedia in teaching.

The students would be able to experience interesting and interactive multimedia technology when it comes to their learning.

The future researchers would use the findings of the study to support their endeavor as a guide and basis in conducting their study in accordance with multimedia technology's effect on teaching and students' academic performance.

Scope and Limitations

This study focused on the respondents' use of multimedia technology in teaching and students' academic performance in Division of Misamis Oriental during the School Year 2022-2023.

This study was limited to the use of multimedia technology in terms of communication, sharing of information, recognition of prior knowledge, developing websites and locating resources. Furthermore, the moderating variables are the respondents' characteristics such as age, sex, position, teaching experience, highest educational attainment, trainings and seminars attended, and attitude towards multimedia technology. On the other hand, the dependent variable is also limited to the students' academic performance in all the subjects in Grades 1 to 6 levels.

The respondents of this study were the one hundred ninety-five (195) public elementary school teachers in Grades 1 to 6 levels in Naawan, Initao South and North Districts, while the three hundred ninety (390) students were the subject of the study.

Definition of Terms

For the purpose of this study, the following terms were defined operationally for clarity and better understanding:

Academic Performance

This refers to the students' performance (GWA) in all the subjects in Grades 1 to 6 in the Department of Education.

Age

This refers to the number of years of existence of the respondent.

Attitude Towards Multimedia

This refers to how the respondents are engaged in multimedia technology.

Communication

This refers to expressing the procedure or task using audio, text, still images, video, animation or interactivity content forms.

Developing Websites

This refers to the action taken which is anchored in developing websites.

Highest Educational Attainment

This refers to teacher-respondents' educational qualification or the degree they have gained in education.

Locating Resources

This refers to how at ease in finding resources through the use of technology.

Position

This refers to the designation of the respondents in their respective schools.

Recognition of Prior Knowledge

This refers to acknowledging first acquired information.

Sex

This refers to physical and genetic characteristics that distinguish male and female.

Sharing of Information

This refers to disclosing knowledge to one person from one another.

Student's Learning

This refers to the performance of the students with the use of multimedia in the discussion.

Teaching Experience

This refers to teacher-respondents' stay in the department. This can also be called the length in service or the years that the teacher respondents have served the institution.

Trainings/Seminars Attended on Multimedia Technology

This refers to the number of trainings and seminars attended by the respondents at either school, district, division, regional, national, or international level.

MATERIALS AND METHODS

Research Design

The study made use of a descriptive correlational method of research. Descriptive research design is used to analyze, interpret and report the current status of the population or phenomenon being studied. Thus, descriptive studies are primarily concerned with finding out "what is" with respect to variables or conditions in a given situation at the time of the study. This study is appropriate with the research design because it seeks to

find out the use of multimedia technology in teaching and the students' academic performance in Initao District and Naawan District. The main intention is to use the data for problem-solving.

Study Setting

This study was conducted in three (3) different Districts: the District of Naawan, the District of Initao South, and the District of Initao North, Misamis Oriental Division. Naawan District, Naawan, Misamis Oriental, is a fourth-class municipality in the province of Misamis Oriental, Philippines. The population of the town is estimated to be 22,444, according to the 2020 census. The municipality has a land area of 88.50 square kilometers or 34.17 square miles, which constitutes 2.83% of Misamis Oriental's total area. Naawan is politically subdivided into 10 barangays. These barangays are Don Pedro, Linangkayan, Lubilan, Mapulog, Maputi, Mat-I, Patag, Poblacion and Tuboran. There are 11 public elementary schools, one integrated school, and three secondary public schools,

including the Senior High School.

In addition, Initao South and North District, Initao, Misamis Oriental, is a third-class municipality in the province of Misamis Oriental. According to the 2015 census, it has a population of 32,370 people in a land area of 111.3 km² (Region X, Northern Mindanao; Census of Population, 2015). Initao is located about 39 kilometers (24 mi) west of the provincial capital of Cagayan De Oro City, 29 kilometers (18 mi) east of Iligan City, and about 767 kilometers (477 mi) south-south-east of Philippine capital, Manila. Initao is politically subdivided into seventeen (17) barangays. These barangays are Aluna, Andales, Apas, Kalacapan, Gimangpang, Jampason, Kamelon, Kanitoan, Oguis, Pagahan, Poblacion, Pontacon, San Pedro, Sinalac, Tagpaco, Tawantawan, and Tubigan. There are fourteen (14) public elementary schools, three integrated schools, and two secondary public schools. In addition, there are private schools, one at the elementary level and one at the secondary level.

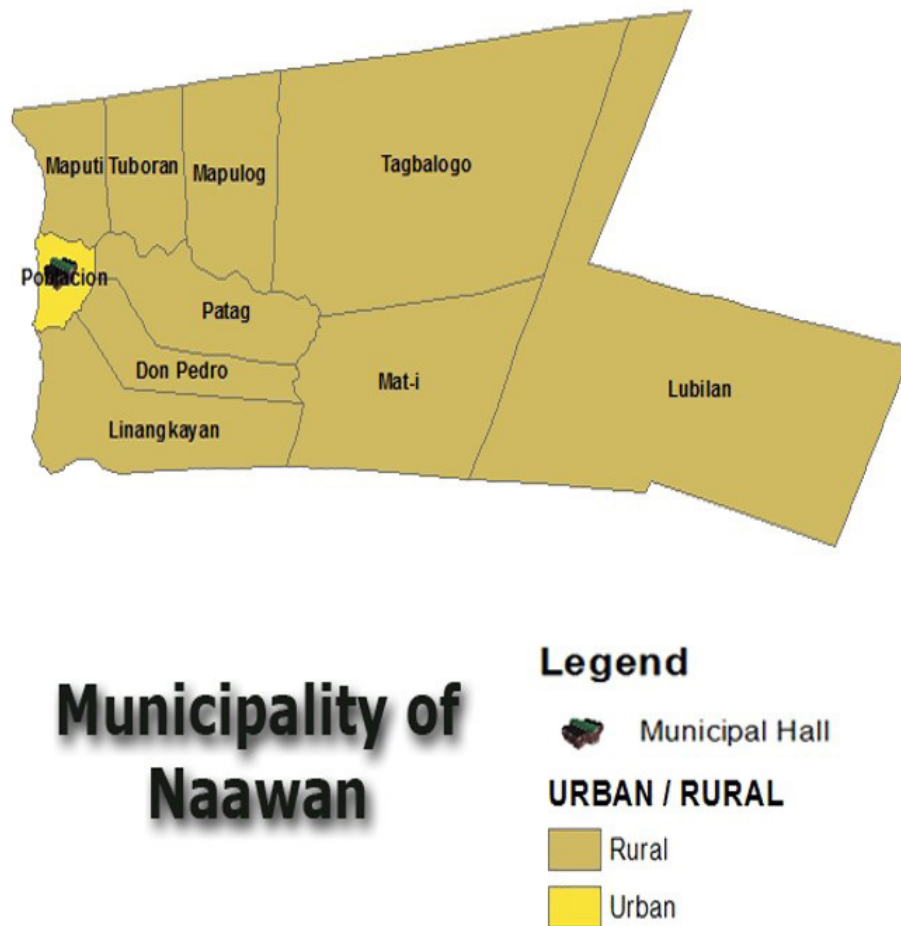


Figure 2: Map of the Municipality of Naawan

Source: https://en.wikipedia.org/wiki/File:Pb_locator_misamis_oriental_naawan.png



Figure 3: Map of the Municipality of Initao

Source: https://en.wikipedia.org/wiki/Initao#/media/File:Ph_locator_misamis_oriental_initao.png

Research Respondents

The respondents of this study were one hundred ninety-five (195) public elementary school teachers in selected districts, Division of Misamis Oriental School Year 2022-2023. These teachers were currently handling Grade 1 to Grade 6 levels in the said division. Three hundred ninety

(390) learners from Grades 1 to 6 were the subject of the study. They were in the ratio of 1 teacher to 2 learners, as suggested by the panel of examiners. The distribution of respondents by school is shown in Table 1.

Table 1: Distribution of Respondents

District	School	Population	Teacher-Respondents	Students
Initao South District	Aluna Elementary School	8	2	4
	Casilihon Elementary School	7	1	2
	Gimangpang Integrated School	20	9	18
	Initao Central School	63	34	68
	Pagahan Elementary School	8	2	4
	Pontacon Elementary School	6	2	4
	San Pedro Elementary School	8	2	4
	Sinalac Elementary School	7	3	6
	Tagpaco Elementary School	8	2	4
	Tawantawan Elementary School	23	10	20
Total		158	67	134
Initao North District	Andales Integrated School	14	4	8
	Jampason Elementary School	21	6	12
	Kalacapan Elementary School	8	4	8
	Kamelon Elementary School	8	4	8
	Kanitoan Elementary School	9	4	8
	Oguis Elementary School	8	3	6
	Tubigan Elementary School	18	13	26

Total		86	38	76
Naawan District	Don Pedro Elementary School	7	3	6
	Linangkayan Elementary School	14	10	20
	Lubilan Integrated School	19	9	18
	Macabagla Elementary School	7	2	4
	Mapulog Elementary School	9	5	10
	Maputi Elementary School	15	10	20
	Mat-I Elementary School	11	7	14
	Naawan Central School	56	34	68
	Pasagdihon Elementary School	7	2	4
	Patag Elementary School	7	2	4
	Tagbalogo Elementary School	10	4	8
Tuboran Elementary School	7	2	4	
Total		169	90	180
Grand Total		413	195	390

Sampling Technique

This research used a purposive sampling technique in identifying and selecting the respondents from each district or school based on the researcher’s judgment and from the population of four hundred thirteen (413) teachers. The students were chosen using simple random sampling such that for every teacher, there were two learners. This was also based on the suggestions of the panel of examiners that every teacher should have two learners.

Research Instrument

Part I was the respondents’ characteristics in terms of age, sex, position, teaching experience, highest educational attainment, related trainings/seminars attended and attitude towards multimedia technology.

Part II dealt with the use of Multimedia Technology in teaching, such as communication, sharing information, recognition of prior knowledge, developing websites, and locating resources. This was patterned and modified from the study of Ikhsan *et al.* (2013), Bello (2010), and Adediwura (2023) titled, “Exploring the Impact of Digital Tools on Teaching and Learning in Higher Education: A Case Study of Multimedia Technology.”

Part III elicited students’ academic performance in all

subjects in Grades 1 to 6 levels based on their General Weighted Average in School Year 2022-2023.

Data Gathering Procedure

Before gathering data, the researcher asked permission from the Dean of the School of Graduate and Professional Studies, who approved the request. For the systematic conduct of the inquiry, the researcher followed a timetable and procedure to serve as a guide. After the approval of the thesis proposal, a revision was presented to the researchers’ adviser for comments and suggestions. Before going to the field, the researcher requested official permission from the Misamis Oriental Division Superintendent, District Supervisors or District In-Charge, as well as from the School Head of the different schools as identified. The researcher made sure that all the responses were recorded, tabulated, analyzed, and treated with utmost confidentiality. The data were collected and recorded for the analysis and interpretation of the study.

Categorization of Variables and System of Scoring

For the analysis and interpretation of the data, the categorization of variables and the system of scoring were as follows:

Table 2: Categorization of Variables and System of Scoring

Part I. Respondents’ Characteristics
Age
60 years old and above
50-59 years old
40-49 years old
30-39 years old
29 years old and below
Sex
Male
Female

Position			
Master Teacher II			
Master Teacher I			
Teacher III			
Teacher II			
Teacher I			
Teaching Experience			
30 years and above			
20-29 years			
10-19 years			
9 years and below			
Highest Educational Attainment			
PhD Graduate			
With PhD Units			
MA Graduate			
With MA Units			
Bachelor's Degree			
Trainings/Seminars Attended on Multimedia Technology			
International Level			
National Level			
Regional Level			
Division Level			
District Level			
School Level			
Attitude Towards Multimedia Technology			
Scale	Range	Description	Interpretation
4	3.26-4.00	Strongly Agree	Very Positive
3	2.51-3.25	Agree	Positive
2	1.76-2.50	Disagree	Negative
1	1.00-1.75	Strongly Disagree	Very Negative
Part II. The Use of Multimedia Technology			
Scale	Range	Description	Interpretation
4	3.26-4.00	At All Times	Very High
3	2.51-3.25	Most of the Time	High
2	1.76-2.50	Sometimes	Low
1	1.00-1.75	Never	Very Low
Part III. Students' Academic Performance (DepEd Order No. 8, s. 2015)			
Range		Description	
90-100		Outstanding	
85-89		Very Satisfactory	
80-84		Satisfactory	
75-79		Fairly Satisfactory	
Below 75		Did Not Meet Expectation	

Statistical Treatment of Data

Frequency and percentage were used to determine the respondents' characteristics on age, sex, position, teaching experience, highest educational attainment, trainings/seminars attended on multimedia technology, and attitude

towards multimedia technology utilized mean and standard deviation. Also, mean and standard deviation were utilized to ascertain the level of the respondents' use of multimedia technology in teaching based on communication, sharing of information, recognition

of prior knowledge, developing websites and locating resources. Further, frequency, percentage, mean, and standard deviation were employed to determine students' academic performance in all subjects.

Moreover, the Pearson Product Moment Correlation was used to determine the significant relationship between the respondents' use of multimedia technology in teaching and students' academic performance and the significant relationship between the respondents' use of multimedia technology in teaching and their characteristics.

Ethical Considerations

All data were treated confidentially, with personal information kept secure and responses anonymized. Participants were fully informed and gave voluntary

consent, with the right to withdraw at any time. The survey was designed to minimize risks and discomfort, with neutral wording. Ethical approval was obtained, ensuring adherence to standards. These measures ensured respect, integrity, and confidentiality, safeguarding the well-being of public school teacher participants from three districts in Misamis Oriental.

RESULTS AND DISCUSSION

Results

Problem 1. What are the Respondents' Characteristics in Terms of Age, Sex, Position, Teaching Experience, Highest Educational Attainment, Trainings/Seminars Attended on Multimedia Technology, and Attitude Towards Multimedia Technology?

Table 3: Distribution of Respondents' Characteristics in terms of Age, Sex and Position

Variables	Categories	Frequency	Percentage
Age	60 years old and above	3	1.54
	50-59 years old	21	10.77
	40-49 years old	71	36.41
	30-39 years old	78	40.00
	29 years old and below	22	11.28
	Total	195	100.00
Sex	Male	33	16.92
	Female	162	83.08
	Total	195	100.00
Position	Master Teacher II	0	0
	Master Teacher I	6	3.08
	Teacher III	36	18.46
	Teacher II	9	4.62
	Teacher I	144	73.85
	Total	195	100.00

Table 3 presents the distribution of respondents' characteristics in terms of age, gender, and teaching position. The highest age distribution of respondents is the 30-39 year old category, comprising a frequency of 78 (40%) of the total teacher-respondents. This indicates that the study is heavily populated by individuals who are in their middle years, possibly reflecting the age range where teaching professionals are well-established in their careers. This demographic typically includes teachers with a decade or more of experience, providing a strong foundation of pedagogical knowledge and practical classroom management skills. Their presence is instrumental in maintaining continuity and institutional knowledge within educational institutions. Additionally, middle-aged teachers are more likely to hold advanced qualifications and professional certifications, contributing to the overall quality and stability of education. As a result, their representation is crucial for sustaining mentorship roles, supporting younger colleagues, and adapting teaching practices to evolving educational standards and technologies. This may also suggest that individuals in this

age bracket are more accessible or willing to participate in such studies. Also, it gives the impression that there are fewer newly hired teachers among the respondents.

According to Sutchter *et al.* (2021), many elementary school teachers are seasoned professionals who have reached a stable phase in their careers, positioning them to remain in the field for the long term. This trend is partly due to the distinct demands of elementary education, which requires not only strong instructional skills but also a balanced approach to managing classroom dynamics, nurturing young students, and adapting to diverse learning needs. Teachers in their middle years often exemplify this balance, bringing a combination of experience, energy, and adaptability that aligns well with the requirements of early education. Their maturity helps them effectively address the social and emotional needs of young learners, while their enthusiasm for teaching supports an engaging learning environment. Consequently, these educators tend to have a lasting commitment to their roles, contributing to the continuity and stability needed in elementary education over time.

On the other hand, the lowest age distribution of respondents is the 60 years old and above category, comprising a frequency of 3 (1.54%) of the total teacher-respondents. This marked difference in representation across age groups indicates a skew toward younger and middle-aged educators within the profession. The limited number of older teachers may reflect a trend of retirement among those aged 60 and above, who often decide to conclude their teaching careers, opting for retirement or alternative pursuits after years of service. This trend could influence the generalizability of findings across age groups, as younger and middle-aged teachers dominate the sample, possibly affecting perspectives on longevity and career sustainability within teaching. Additionally, the reduced representation of older teachers might signal a loss of veteran knowledge and experience, which plays a crucial role in mentoring and guiding newer teachers. Addressing this age imbalance in future studies and recruitment efforts may provide a more comprehensive understanding of the diverse experiences and insights across all stages of a teaching career.

The National Center for Education Statistics (2020) highlights a significant finding related to the age distribution of teachers, with older teachers being underrepresented in U.S. elementary schools. Specifically, teachers aged 60 and above are much less prevalent in the workforce, reflecting broader national trends of an aging workforce exiting education. It suggests that retirement and reduced workforce participation among older educators contribute to their minimal presence in elementary education. Also, Shin *et al.* (2021) further elucidate that educators in this age group derive positivity and satisfaction from the meaningfulness they ascribe to their work. However, their well-being occasionally faces challenges due to the inherent tensions between their job commitments and the additional responsibilities they shoulder across personal and professional domains.

The highest gender distribution of respondents is the female category, comprising a frequency of 162 (83.08%) of the total teacher-respondents. This imbalance reflects broader trends within education, where teaching is often viewed as a nurturing and socially oriented career, attributes historically associated with women. Societal norms and expectations, as well as structural factors like flexible scheduling, may make teaching roles more accessible or appealing to women, especially for those balancing family responsibilities. The high female representation also influences the dynamics and culture within schools, as female educators often lead in fostering collaborative environments and supporting student well-being. However, this gender skew can also highlight challenges, such as the underrepresentation of men, particularly in elementary education, which may affect students' perceptions of gender roles. Understanding this disparity can inform recruitment efforts to diversify the teaching workforce and ensure a range of perspectives and role models for students across all age groups.

According to the Organization for Economic Cooperation

and Development (OECD), the teaching profession has traditionally been predominantly occupied by women. Over the past decade, the proportion of female teachers has steadily risen, reaching 68% in 2014 across all levels of education. Notably, the gender gap diminishes gradually with the level of education, ranging from 97% of women in pre-primary education to 43% in tertiary education. While between 2005 and 2014, the gender gap expanded at the primary and secondary levels, it exhibited a slight reduction at the tertiary level (OECD Library, 2024).

In the Philippines, Sebastian *et al.* (2022) conducted a study that revealed gender-related dynamics within the teaching profession. Their findings indicate that male and female teachers share equal roles in reproductive, community, and leisure activities. However, disparities emerge in their engagement with productive activities, with female teachers dedicating more time to such tasks compared to their male counterparts. This insight underscores the importance of implementing gender-responsive policies and projects tailored to the needs of teachers and other education personnel. By addressing these discrepancies, educational institutions can strive towards fostering more inclusive and equitable environments within the teaching profession.

On the other hand, the lowest gender distribution of respondents is the male category, comprising a frequency of 33 (16.92%) of the total teacher-respondents. Underscoring a significant underrepresentation of men within the teaching profession. This imbalance is often driven by career stereotypes that align men with traditionally 'masculine' fields, such as engineering or finance, and by societal perceptions that associate teaching, especially at the elementary level, with nurturing qualities more typically attributed to women. Such stereotypes may inadvertently create barriers for men who might otherwise be interested in education. Furthermore, the lack of male role models in teaching perpetuates a cycle where young men are less likely to view teaching as a viable career option. Men who do enter teaching, particularly in early education, may also face scrutiny or societal biases, with concerns around their interactions with young children that their female counterparts do not typically encounter. This scrutiny can lead to a fear of misinterpretation or judgment, discouraging some men from pursuing or remaining in teaching roles.

According to Cushman (2020), the teaching profession, particularly at the primary and secondary levels, is often perceived as a feminized field, which contributes to the low representation of men in education. This perception, combined with societal expectations that men pursue higher-paying and higher-status careers, results in teaching being viewed as a less attractive option for males. Additionally, concerns about potential misconceptions surrounding interactions with younger students further discourage men from entering the profession. As a result, male teachers account for only a small percentage of the overall workforce, limiting the presence of male role models for students (Sumsion, 2019). This imbalance

raises concerns about gender diversity in schools and the broader implications it has on students' perceptions of gender roles.

Moreover, the highest teaching position distribution of respondents is Teacher I, comprising a frequency of 144 (73.85%) of the total teacher-respondents. This shows that this is the majority position, which indicates that a significant portion of the Philippine public school workforce consists of early- to mid-career educators. The Teacher I role is the entry-level rank in the Department of Education (DepEd), where most newly licensed teachers begin their careers. This trend is not only indicative of the structure of the education system but also reflects the Department's efforts to address the growing demand for educators, particularly in rural and underserved areas. With an increasing student population and the need for more teachers in geographically isolated or economically disadvantaged regions, the DepEd has been compelled to open a greater number of Teacher I positions to fill these gaps.

Further, Valenzuela (2021) found that the increasing demand for Teacher I positions in the Philippines is largely driven by the country's consistent population growth and the expanding student population in public schools. With a relatively high birth rate, more children are entering the school system each year, creating a pressing need for additional teachers to ensure that all students receive adequate education. The Department of Education (DepEd) has responded by hiring thousands of new teachers annually to meet this growing demand. However, this rapid expansion of the teaching workforce highlights several challenges related to the sustainability and quality of education. The stagnation of career growth for Teacher I educators may also have broader implications for the quality of education. Teachers who remain in entry-level positions for longer periods may experience burnout, dissatisfaction, and decreased motivation, which could ultimately affect their teaching performance.

Additionally, the overrepresentation of Teacher I positions can limit the diversity of experience within

schools, as a higher proportion of educators may lack the leadership skills and mentorship experience that come with higher ranks. To address these challenges, there is a need for systemic reforms in the DepEd, including the creation of clearer, more accessible pathways for career advancement. Offering professional development programs, leadership training, and accelerated promotion opportunities could help retain experienced teachers and ensure they are better equipped to take on roles such as mentors or department heads. Moreover, offering incentives such as increased compensation or non-monetary rewards for teachers who take on leadership roles could motivate teachers to stay in the profession and contribute to its development.

On the other hand, the lowest teaching position distribution is the Master Teachers I, comprising a frequency of 6 (3%) only of the total teacher-respondents. Holding this position may point to underlying challenges in career progression pathways and the recognition of excellence within the teaching profession. Master Teachers I are typically regarded as educators with advanced expertise and a higher level of teaching proficiency. The limited number of educators in this role suggests that not all teachers have access to the opportunities, resources, or support needed to advance within the career ladder. One potential issue could be the competitive and often limited number of available Master Teacher positions, which can lead to a bottleneck effect where only a small proportion of teachers, often those with specialized experience or additional qualifications, are able to attain this rank.

According to the Department of Education (2021), initiatives like Sulong EduKalidad and the transformation of the National Educators Academy of the Philippines were made to enhance professional development and management for teachers. These efforts contribute to improving workforce planning and teacher welfare. As highlighted by Chin *et al.* (2022) research, the professional development needs of teachers predominantly center around honing skills pertinent to online instruction, bolstering information technology literacy, and cultivating research proficiency.

Table 4: Distribution of Respondents' Characteristics in terms of Teaching Experience, Highest Educational Attainment and Related Trainings/Seminars Attended

Variables	Categories	Frequency	Percentage
Teaching Experience	30 years above	6	3.08
	20-29 years	30	15.38
	10-19 years	45	23.08
	9 years and below	114	58.46
	Total	195	100.00
Highest Educational Attainment	PhD Graduate	0	0
	With PhD Units	6	3.08
	MA Graduate	12	6.15
	With MA Units	132	67.69
	Bachelor's Degree	45	23.08
Total	195	100.00	

Related Trainings/ Seminars Attended on Multimedia Technology	International Level	28	14.36
	National Level	21	10.77
	Regional Level	15	7.69
	Division Level	88	45.13
	District Level	66	33.85
	School Level	0	0
	Total	218	111.80

Table 4 presents the distribution of respondents' characteristics in terms of teaching experience, highest educational attainment and related training/seminars attended. The highest teaching experience distribution is 9 years and below, comprising a frequency of 114 (58.46%) of the total teacher-respondents. This indicates that a significant number of teachers are relatively new to the field, bringing with them recent training and possibly a readiness to incorporate new pedagogical approaches. Such a distribution suggests that younger educators are prominent in the teaching workforce, which may have implications for the adaptability and innovation within their classrooms. Additionally, this could influence the overall teaching dynamics in terms of receptiveness to technology and evolving educational methodologies, as newer teachers may be more inclined to embrace changes aligned with modern educational trends. Understanding this distribution is essential, as it shapes the workforce's potential for adopting and sustaining progressive teaching practices. According to Smith *et al.* (2022), the openness of early-career teachers to adopt new technologies in the classroom can create a dynamic learning environment that meets the demands of the digital age. On the contrary, Brown *et al.* (2021) argue that educators with fewer years of experience tend to employ innovative, student-centered approaches that increase engagement and cater to diverse learning styles, which is essential in today's education system. Moreover, Doe *et al.* (2023) emphasize that these educators often pursue ongoing professional development, which is increasingly valued within the profession. This willingness to learn and adapt not only enhances individual teaching practices but also contributes to a school culture that supports continuous improvement and pedagogical innovation. As a result, a substantial proportion of newer educators could facilitate the rapid adoption of modern teaching practices, ensuring that classrooms remain relevant and responsive to current educational standards and student needs.

The lowest teaching experience distribution is 30 years and above, comprising a frequency of 6 (3.08%) of the total teacher-respondents. This limited representation of long-serving educators hints at a gradual generational transition within the teaching workforce, where the most experienced teachers are fewer in number compared to their less-experienced colleagues. Factors such as retirement, career shifts, and the natural progression of workforce demographics could contribute to this trend. The relative scarcity of these highly experienced teachers might also influence the preservation of longstanding

practices, as fewer educators embody decades of institutional knowledge and traditional approaches to teaching. While this trend opens doors for fresh perspectives and new methodologies, it could also mean a loss of valuable insights that only come with extensive experience.

As stated by Thompson *et al.* (2021), the decreasing presence of educators with thirty or more years of experience can lead to significant shifts in a school's teaching culture and overall educational framework. Veteran teachers, with their extensive knowledge and deep familiarity with evolving classroom dynamics, often serve as essential guides for less experienced colleagues, providing mentorship and continuity that strengthens school communities. As these highly experienced educators exit the profession, schools may face challenges in maintaining institutional memory, particularly in areas like classroom management techniques and long-established curriculum practices. Also, Brown *et al.* (2020) emphasize that the absence of these long-serving educators may also result in a diminished ability to uphold certain traditional values and methods that have proven effective over the years. Without this guidance, schools may need to actively develop alternative support structures to help newer teachers, who bring fresh perspectives but may lack the practical insights developed through decades of firsthand experience.

The highest educational attainment distribution is with MA units, comprising a frequency of 132 (67.69%) of the total teacher-respondents. This suggests that a significant portion of the teaching workforce has pursued advanced education beyond the undergraduate level, seeking to deepen their expertise and qualifications. The trend toward earning Master's units highlights the emphasis on professional growth and the importance placed on continuing education within the teaching profession. It may also reflect the growing expectations for educators to demonstrate higher levels of academic achievement and specialized knowledge in their fields, as many educational institutions require or encourage graduate-level education for career advancement or to enhance teaching effectiveness.

As stated by Johnson *et al.* (2022), the growing trend of teachers pursuing advanced education beyond the undergraduate level reflects a broader shift toward professional development in the teaching profession. Teachers who earn Master's units are not only enhancing their qualifications but also deepening their expertise in pedagogy, subject matter, and educational leadership.

This pursuit of higher education is increasingly seen as essential for career advancement, as many school systems now require or strongly encourage graduate-level education for educators to qualify for leadership roles such as department heads or school administrators. As the demands on educators continue to evolve, the expectation for teachers to demonstrate advanced academic achievement and specialized knowledge has become more pronounced (Smith *et al.*, 2021). Teachers with advanced degrees are better equipped to integrate research-based practices, contribute to school improvement initiatives, and provide more effective instruction to a diverse student population. This emphasis on ongoing professional growth ensures that teachers remain responsive to the changing educational landscape and are able to meet the complex needs of today's learners.

Furthermore, the lowest educational attainment distribution is with PhD units, comprising a frequency of 6 (3.08%) of the total teacher-respondents. This low percentage reflects the relatively small number of educators who have pursued doctoral-level studies in the field. While a PhD is often associated with a deep specialization in a particular area of education, the limited number of teachers with this level of academic attainment may be attributed to various factors, such as the time commitment and financial investment required for doctoral programs. Furthermore, many educators may prioritize practical classroom experience over further academic qualifications, as higher degrees are not always a requirement for teaching positions or career advancement in certain educational settings. However, those who do pursue PhD units often contribute significantly to the academic community, engaging in research that influences educational theory and policy. The presence of these individuals in the teaching workforce could also signal a drive for continuous professional development and a desire to contribute to the advancement of educational practices at a deeper, more specialized level.

According to Johnson *et al.* (2020), pursuing PhD units in education is often driven by a desire for deep specialization and involvement in educational research. However, the low proportion of teachers with PhD units may be a reflection of the significant barriers to completing such advanced studies, including the financial and time commitments involved (Taylor *et al.*, 2021). Many educators, while passionate about teaching, may find that their professional development is better served through hands-on experience and smaller-scale educational certifications, rather than the extended academic focus required for a doctoral program.

Additionally, while those with PhD units are often at the forefront of educational research, their numbers remain small compared to other academic qualifications, such as master's degrees, which are more directly aligned with career advancement in teaching (Smith *et al.*, 2022). This suggests that while doctoral education can play a key role in advancing educational practices and policies,

it is not always seen as a necessary or practical path for most educators. Moreover, as stated by Gonzales (2020), many teachers face significant challenges in attending seminars and professional development programs due to limited access and an overload of responsibilities. Teachers, particularly in rural areas, often lack adequate resources such as transportation, funding, and time, making it difficult for them to travel to regional seminars. Furthermore, with the heavy workload that includes preparing lessons, grading, and administrative tasks, teachers find little time to engage in further professional development. The lack of institutional support, combined with these daily demands, discourages many educators from prioritizing seminars and other training opportunities. This situation highlights the need for more accessible and flexible training options that take into account teachers' busy schedules and limited resources.

The highest related trainings/seminars attended distribution is Division Level, comprising a frequency of 88 (45.13%) of the total teacher-respondents. This shows that teachers' exposure to multimedia technology is primarily local and practical, aligned with specific division levels of educational goals and available resources. Division-level trainings often focuses on immediate, applicable skills, such as basic multimedia integration, interactive software use, and content presentation tools suitable for local classrooms. These sessions are likely tailored to meet division-wide curriculum standards, making them accessible and highly relevant for daily teaching. This emphasis on division-level training also indicates possible constraints in accessing broader opportunities. Regional, national, or international trainings often offer advanced insights, current trends, and broader networking, providing teachers with a wider scope of innovative multimedia strategies and exposure to best practices globally.

Consequently, teachers who have attended only division-level multimedia trainings may benefit from expanded support or funding to participate in higher-level sessions. This could improve their ability to incorporate advanced multimedia techniques, adapt to evolving educational technology, and bring new perspectives to enhance student engagement.

As mentioned by Gonzales (2020), division-level multimedia training gives teachers practical skills suited to their local context, directly supporting curriculum goals and available resources. However, when educators' highest training exposure is limited to this local level, they may miss chances to adopt new strategies and advanced multimedia tools used in broader educational contexts. Doe *et al.* (2023) also note that teachers attending regional or national sessions often gain a wider view of teaching technology, including innovative techniques that enhance classroom engagement and adaptability. Expanding training options beyond the division level could, therefore, help teachers bring fresh approaches to their classrooms, creating more dynamic and responsive learning environments.

The lowest related trainings/seminars attended distribution is Regional Level, comprising a frequency of 15 (7.69%) of the total teacher-respondents. This shows that fewer teachers have the opportunity to attend multimedia technology trainings or seminars. Due to its limited access to resources, many teachers, especially those in remote or rural areas, face logistical challenges such as lack of transportation, funding, and technological resources. These barriers prevent them from participating in regional training programs that are often held far from their areas. Also, the overloaded responsibilities of teachers often juggle a heavy workload, including lesson planning, administrative tasks, and extracurricular responsibilities. This leaves little time for professional development or attending training outside their immediate areas. As indicated by Smith *et al.* (2021), limited participation

in regional training for multimedia technology often stems from logistical and resource-based barriers. For many teachers, particularly those in rural areas, regional sessions may require significant travel, which is not always feasible due to costs and limited transportation options. The additional expenses and time commitments make it difficult for schools to support these opportunities consistently. Moreover, teachers frequently manage heavy workloads, balancing lesson planning, administrative duties, and extracurricular obligations that leave little time for travel or extended training commitments (Johnson, 2020). Without flexible options or added support for teachers in remote locations, regional-level training attendance remains low, limiting the broader development of advanced multimedia skills among educators in these areas.

Table 5: Distribution of the Respondents' Characteristics in terms of Attitude towards Multimedia Technology

Indicators	Mean	SD	Description
I have enough knowledge about Multimedia Technology.	3.28	0.54	Strongly Agree
I know how to navigate Multimedia Technology in learning.	3.32	0.53	Strongly Agree
Multimedia Technology is not efficient in teaching.	1.46	0.75	Strongly Disagree
Multimedia Technology is hard to prepare.	1.91	0.78	Disagree
Multimedia Technology catches interest in students.	3.77	0.46	Strongly Agree
Overall	2.77	1.00	Agree

Legend:

3.26-4.00 Strongly Agree/Very Positive

2.51-3.25 Agree/Positive

1.76-2.50 Disagree/Negative

1.00-1.75 Strongly Disagree/Very Negative

Table 5 presents the distribution of the respondents' characteristics in terms of attitude towards multimedia technology with an overall mean of 2.77 (SD=1.00), described as Agree. This means that the respondents generally agree that multimedia technology is beneficial and easy to use in teaching. While there are minor concerns about the preparation aspect, the strong consensus suggests that multimedia technology is perceived as an effective tool for improving student engagement and teaching efficiency. This shows that the teaching and learning process between the students and the respondents' multimedia technology is a great help, which makes the teaching fun and engaging. On the other hand, some respondents are having a hard time preparing. This is due to the respondents' knowledge of using multimedia technology, yet with the aid of an expert, step-by-step peer tutoring, open-mindedness, and patience, preparing lessons using multimedia technology will be easy.

According to Cabellos *et al.* (2023), teachers have increasingly recognized the advantages of multimedia technology in education, citing its ability to engage students more effectively and foster a more dynamic learning environment. Studies have shown that multimedia tools, such as videos, animations, and interactive platforms, can enhance understanding and retention of complex

topics. Educators appreciate how multimedia resources offer diverse modes of content delivery, allowing for more individualized learning approaches that can cater to varying student needs. The interactive nature of these tools encourages active participation, which can deepen students' grasp of material compared to traditional lecture-based methods. Moreover, teachers emphasize that multimedia technology not only aids in delivering content but also helps bridge learning gaps among students with diverse abilities. By incorporating visual, auditory, and kinesthetic elements, multimedia enables a multisensory approach that can be particularly beneficial for students with differing learning styles (Langner, 2022). Furthermore, Dumas (2021) said that the ability to easily access and customize multimedia content has empowered teachers to design lessons that are both relevant and responsive to students' interests, increasing motivation and engagement. The research underscores that multimedia technology can also promote collaboration, as it often involves group activities where students interact with digital resources collectively, fostering a sense of teamwork and community within the classroom (American Psychological Association, 2022).

The indicator Multimedia Technology catches interest in students, got the highest mean of 3.77 (SD=0.46), described as Strongly Agree. This finding aligns with the growing body of literature emphasizing the role of technology in enhancing classroom engagement. This means multimedia technology tools such as videos, animations, and interactive simulations provide a multisensory learning experience that captures students'

attention more effectively than traditional teaching methods. Multimedia technology helps break down complex ideas into more digestible formats, enhancing comprehension and interest. However, educators must ensure that its use aligns with well-structured learning objectives to optimize both engagement and learning outcomes.

According to Aloraini (2020), multimedia technology has been shown to effectively capture students' interest by offering dynamic and interactive learning experiences. First, research indicates that multimedia tools such as videos, animations, and interactive simulations appeal to multiple senses, which enhances student engagement and focus. Second, according to Gonzales (2021), multimedia accommodates diverse learning styles, helping visual, auditory, and kinesthetic learners better understand and retain complex concepts. Lastly, the interactive nature of multimedia encourages active participation, as students can directly engage with the material through activities like educational games or virtual simulations, which increases motivation and deepens learning (Cabellos *et al.*, 2023). These insights suggest that multimedia technology not only grabs students' attention but also enhances the overall learning experience.

On the other hand, the indicator Multimedia Technology is not efficient in teaching got the lowest mean of 1.46 (SD=0.75), described as Strongly Disagree. This means that respondents largely disagree with the notion that multimedia technology is not efficient in teaching, highlighting several key insights. Respondents saw that multimedia technology teaching and learning processes

are enhanced through the use of several tools that make the lesson engaging, cater to diverse learning styles, and develop collaborative skills. The use of multimedia technology is seen as a means to foster collaborative learning environments where students can work together on projects and engage with interactive content, leading to improved communication and teamwork skills.

According to Mayer (2021), respondents clearly disagreed with the idea that multimedia technology is not efficient in teaching. Many educators pointed out that multimedia tools can significantly boost student engagement by presenting information in fun and interactive ways. This engagement helps grab students' attention and makes it easier for them to understand complex topics. Additionally, Aloraini (2020) noted that multimedia resources cater to different learning styles, allowing students to interact with the material in ways that suit their preferences, which helps create a more inclusive classroom. Moreover, using multimedia technology encourages students to work together, fostering teamwork and communication as they collaborate on projects and explore interactive content (Cabellos *et al.* (2023). Overall, these insights show that many educators see multimedia technology as an effective tool that enhances learning rather than hindering it.

Problem 2. What is the Level of the Respondents' Use of Multimedia Technology Based on Communication, Sharing of Information, Recognition of Prior Knowledge, Developing Websites, and Locating Resources?

Table 6: Distribution of the Level of Respondents' Use of Multimedia Technology based on Communication

Indicators	Mean	SD	Description
Multimedia Technology conveys information.	3.80	0.40	At all Times
Multimedia Technology is better than realia.	3.05	0.81	Most of the Time
Multimedia is very fun and interesting to use.	3.58	0.52	At all Times
I found the graphics and multimedia useful in visualizing the concepts.	3.57	0.50	At all Times
Multimedia provides responses that are meaningful to me.	3.51	0.50	At all Times
Multimedia increases motivation of the students to learn.	3.54	0.50	At all Times
Through multimedia, interactivity helps learners better.	3.55	0.50	At all Times
Multimedia Technology is interactive to students' learning.	3.48	0.53	At all Times
Multimedia Technology helped get information for my lesson.	3.57	0.50	At all Times
Multimedia Technology bridges the gap of communication.	3.55	0.53	At all Times
Overall	3.52	0.19	At all Times

Legend:

3.26-4.00 *At all Times/Very High*

2.51-3.2 *Most of the Time/High*

1.76-2.50 *Sometimes/Low*

1.00-1.75 *Never/Very Low*

Table 6 reflects the respondents' use of multimedia technology based on communication with an overall mean of 3.52 (SD = 0.19), described as At All Times. This means that respondents believe multimedia technology is effective in communication and teaching. This implies

that multimedia stimulates the teaching and learning experience through multimedia technology. Through attractive multimedia presentations, students attract their attention and prolong their focus, which leads to positive and effective learning. This shows that with the use of multimedia technology, communication is at ease, having it in an unwieldy medium, which is a phone rather than bulky visual aids. Also, the use of multimedia technology in communication or in teaching makes the lesson interactive and eye-catching leading to effective learning.

As stated by Balante *et al.* (2023), multimedia-based instruction (MBI) has been widely used in education to facilitate learning and engagement among students. It was also stated that this particular instruction allows students to learn through a variety of senses, which enhances their understanding and retention of information and enables teachers to provide more interactive and engaging learning experiences, which can increase students' motivation and interest in learning. Aside from these, it also contributes to their academics in the classroom. Multimedia-based Instruction can be used in various ways to enhance students' learning interests. For example, teachers can use videos and animations to illustrate historical events or cultural practices, providing students with a more immersive learning experience (Salloum *et al.*, 2018).

The indicator Multimedia Technology conveys information obtained the highest mean of 3.80 (SD=0.40), described as At All Times. This means that respondents feel multimedia technology is highly effective in conveying information consistently. The low standard deviation indicates that there is little variation among respondents' views on this aspect, highlighting strong agreement. This implies that respondents believe that the use of multimedia technology in teaching it effectively delivers information to students. Through its versatility in presenting the lesson, like font size, font name, and attractive presentation, inculcating information to students will definitely catch their attention.

According to Samat *et al.* (2020), multimedia technology plays a significant role in enhancing how information is conveyed in classrooms. Their research highlights that tools like videos and animations help make the learning process more engaging and effective for students. Visual tools, such as videos and animations, capture their attention and maintain focus more effectively than traditional methods. Additionally, multimedia technology simplifies complex concepts by providing interactive visuals that break down difficult topics, making them more understandable and accessible to students. This not only aids comprehension but also supports long-term learning.

On the contrary, the indicator Multimedia Technology is better than realia, got the lowest mean of 3.05 (SD=0.81), described as Most of the Time. This means

that respondents are less convinced that multimedia technology surpasses realia in effectiveness. This relatively modest mean value reflects a moderate consensus, implying that respondents do not overwhelmingly believe multimedia technology outperforms realia in instructional effectiveness. Additionally, the higher standard deviation here points to more varied responses, suggesting a diversity of perspectives on the relative advantages of multimedia technology over real-world, tangible teaching aids. Such variability could indicate that while some educators appreciate the flexibility and appeal of multimedia, others still find value in the tangible, hands-on experiences that realia offers.

According to Cabellos *et al.* (2023), educators divided opinions on the effectiveness of multimedia technology compared to traditional methods like realia. Their research highlights that while multimedia tools can engage students and enhance learning, many educators remain unconvinced that these tools are superior to realia, particularly for subjects that benefit from hands-on experiences. The variance in opinions, reflected in a higher standard deviation, mirrors the divided views found in the study, where respondents are less certain about the superiority of multimedia over realia. This shows that some teachers tend to use less multimedia technology when presenting an object, and most teachers use realia. The tendency for why teachers to use multimedia in presenting an object of the lesson is that they need not look for the specific object but to search for a 3D pictures on the internet on the other hand, as to look for object that needs to be discussed in the classroom it consumes a lot of time and effort to bring it in the classroom and to the other, for a departmental type of teaching. Teachers who are in favor of using realia are most likely lacking knowledge on how to navigate and surf the internet.

Teachers have mixed opinions on the use of multimedia technology compared to realia in teaching. While multimedia is convenient and engaging, realia provides a more hands-on approach, which some teachers prefer, especially for certain subjects. The preference for realia is often due to a lack of knowledge in using digital tools effectively, which suggests a need for more training to help teachers incorporate multimedia resources into their lessons.

Table 7: Distribution of the Level of Respondents' Use of Multimedia Technology based on Sharing Information

Indicators	Mean	SD	Description
Multimedia makes it much easier for teachers to deliver information.	3.66	0.47	At all Times
Multimedia is very effective to be used in student's learning.	3.55	0.50	At all Times
Students can get a better understanding when using multimedia to provide information.	3.54	0.53	At all Times
Multimedia can make students more interested.	3.65	0.48	At all Times
Multimedia can create an interesting environment in the classroom.	3.58	0.49	At all Times
When using multimedia, I can enhance my skill in producing my work.	3.55	0.50	At all Times
Using multimedia in the classroom makes discussion more effective.	3.62	0.49	At all Times
I encourage my students to use their phones in sharing information about the lesson.	3.09	0.87	Most of the Time
I use gadgets in informing relevant information to the parents of my students.	3.49	0.53	At all Times

I used multimedia technology in all of my subject areas.	3.32	0.56	At all Times
Overall	3.51	0.17	At all Times

Legend:

3.26-4.00 *At all Times/Very High*

2.51-3.2 *Most of the Time/High*

1.76-2.50 *Sometimes/Low*

1.00-1.75 *Never/Very Low*

Table 7 shows the distribution of respondents' use of multimedia technology based on sharing of information with an overall mean of 3.51 (SD=0.17), described as At All Times. This means that respondents use multimedia technology based on sharing through multimedia technology. Lessons delivered through multiple modalities using multimedia like videos, images, audio, and interactive content were focused, attention and various learning styles—visual, auditory, and kinesthetic learners. Generally, the result indicates a positive perception among teachers toward the use of multimedia technology for sharing information in teaching. However, there is less agreement among teachers regarding the encouragement of students to use their phones for sharing lesson-related information. This suggests a more nuanced view among educators, potentially reflecting concerns about distractions, information quality, logistical challenges, and impacts on classroom dynamics.

According to New Path Learning (2024), multimedia has revolutionized the way teachers impart information, making the learning process more engaging and effective. The reason behind its importance was first, multimedia resources provide an innovative and dynamic way to deliver lessons. Unlike traditional lecturing, where students passively listen, multimedia engages multiple senses. Visual aids, animations, and videos allow students to see and experience concepts, leading to better understanding and retention. When students can envision topics, they are more likely to comprehend them. Graphics and animations help process information more quickly and effectively, making lessons easier to grasp (Mayer, 2019). Further, the indicator Multimedia makes it much easier for teachers to deliver information got the highest mean of 3.66 (SD=0.47) described as At All Times. This means that respondents overwhelmingly believe in the ease multimedia provides for information delivery. The relatively low standard deviation indicates a strong agreement among respondents. By the use of multimedia technology teaching is breezy in delivering information through interactive videos, example pictures and attractive slides. These will lighten the respondents' lesson preparation and be effortless in communicating with students' parents or custodians.

According to Williams *et al.* (2021), multimedia tools in education provide information delivery. The study highlighted that multimedia tools are perceived as highly effective in facilitating the teaching process, with respondents showing strong consensus on their positive impact. This supports the notion that multimedia makes it much easier for teachers to deliver information, as

evidenced by the strong agreement and high mean values gathered in the study. This implies that by the use of multimedia technology, respondents save time and effort to communicate with parents and prepare the lesson. Through multimedia technology respondents have timely communication with students' parents as to what are the updates or standing of their children in school. Also, respondents see the light and effective preparation of the next lesson with the use of multimedia technology where appropriate pictures and suitable videos are in one tap for search. The uniformity in responses across both studies underscores the widespread belief in the advantages of multimedia in enhancing instructional delivery.

On the other hand, the indicator I encourage my students to use their phones in sharing information about the lesson has the lowest mean at 3.09 (SD=0.87), described as Most of the Time. This means a less frequent encouragement of phone usage for sharing lesson information. This is based on the experience of a teacher where students' attention tends to be diverted in using their phones in other ways of communication, which leads to unconcentrated behavior in the lesson. The higher standard deviation indicates substantial variability in responses, reflecting differing opinions or practices among respondents. Some teachers may see mobile phones as beneficial for collaboration, quick research, or communication, while others may perceive them as a source of distraction that hinders classroom management. This variability suggests that while some teachers may use mobile phones as a supplementary tool, others avoid promoting them due to concerns about attention management. These insights reveal a balanced, albeit cautious, perspective on integrating mobile phones into learning environments, indicating that teachers' views may depend on factors like student maturity, classroom dynamics, and school policies.

According to Morris *et al.* (2020), while mobile devices offer opportunities for sharing information and accessing supplementary resources, they also present the risk of students becoming sidetracked by unrelated content or engaging in non-academic activities during instructional time. This may be attributed to several factors. Firstly, there may be concerns among educators regarding the potential distractions and misuse associated with students using their phones in the classroom. Additionally, educators may have reservations about the quality and accuracy of information shared through students' phones. Unlike curated educational resources provided by teachers, information shared via mobile devices may vary in reliability and relevance, potentially undermining the learning objectives of the lesson. Providing guidance on responsible mobile phone use, promoting critical thinking skills for evaluating information, and ensuring equitable access to technology are important considerations for educators seeking to leverage multimedia tools effectively while addressing concerns about their implementation.

Table 8: Distribution of the Level of Respondents' Use of Multimedia Technology based on Recognition of Prior Knowledge

Indicators	Mean	SD	Description
I think it is very effective to use multimedia in the classroom rather than the traditional method.	3.17	0.65	Most of the Time
Multimedia is very easy to use in the classroom.	3.29	0.46	At all Times
When using multimedia, I can be more creative in presenting the lesson.	3.54	0.53	At all Times
I think multimedia is important because it stimulates my thinking.	3.38	0.52	At all Times
Some of my students recognize multimedia technology.	3.23	0.58	At all Times
I found the interface clear, structured and appealing when I browse social media.	3.34	0.56	At all Times
I ask questions about yesterday's lesson through a multimedia presentation.	3.25	0.66	At all Times
I recognize redon done news through newspapers or T.V.	3.25	0.50	At all Times
I already have a powerpoint presentation on some of my topics.	3.48	0.53	At all Times
I don't have any problem when using multimedia in my teaching and learning process.	3.32	0.53	Most of the Time
Overall	3.32	0.12	At all Times

Legend:

3.26-4.00 *At all Times/ Very High*

2.51-3.2 *Most of the Time/High*

1.76-2.50 *Sometimes/Low*

1.00-1.75 *Never/ Very Low*

Table 8 shows respondents' use of multimedia technology based on recognition of prior knowledge with an overall mean of 3.32 (SD=0.12), described as At All Times. This means a general perception that multimedia technology is effective in recognizing and leveraging prior knowledge. The low overall standard deviation indicates a strong consensus among respondents. This indicates that most of the respondents use multimedia technology in recognition of prior knowledge in teaching, which captures the attention of students in recapitulating past lessons with attraction. It is also easy to prepare and engage while bridging the gap. This helps students activate cognitive load management, where students' prior knowledge is awakened before new and connected lessons are discussed.

According to the study by Mayer (2019), educators believe that the use of multimedia technology in the classroom is more effective than the traditional method for several reasons. Firstly, multimedia engages students and sustains their attention by incorporating visual and auditory elements, catering to diverse learning styles. This results in longer attention spans compared to traditional methods like lectures, which may struggle to maintain student interest throughout the class. Secondly, multimedia tools make learning more enjoyable and interactive, fostering intrinsic motivation among students. Through videos, animations, and interactive simulations, students are naturally inclined to explore content, unlike passive listening in traditional lectures, which may not spark the same level of curiosity. Additionally, Tang *et al.* (2023) stated that multimedia encourages active participation by enabling students to collaborate, discuss, and engage with the material in various formats. This contrasts with traditional methods, which often involve passive note-

taking and limit student interaction. With the internet and gadgets presence, students will be given inquiry-based activities aligned with the lesson with strict supervision of respondents. This will develop camaraderie to students and skills in navigating multimedia technology platforms, which make them ready for the inevitable technological future.

Further, the indicator When using multimedia, I can be more creative in presenting the lesson obtained the highest mean of 3.54 (SD=0.53), described as At All Times. This means that respondents feel multimedia technology significantly enhances their creativity in lesson presentations. This implies that the use of multimedia offers teachers the flexibility to personalize their presentations, which may enhance student engagement by making content more interactive and appealing. Teachers can adjust multimedia elements to better align with their students' learning styles, promoting a more dynamic and inclusive classroom environment. The moderate standard deviation indicates some variation in responses, suggesting that while most respondents view multimedia positively, there may be differing levels of confidence or experience among them. Overall, this variability points to a largely positive reception, with teachers feeling empowered to explore creative ways of presenting material.

The study by Roberts *et al.* (2023) found that incorporating multimedia into lessons significantly enhances teachers' ability to be creative. The study highlights that multimedia tools provide educators with innovative ways to present information, engage students, and explore diverse instructional methods. They emphasize that this creative flexibility allows teachers to develop more engaging and varied lesson plans. These insights are consistent with the findings of the research, which also suggests that multimedia facilitates more creative teaching approaches. The high mean score and strong agreement among respondents in the study supports the conclusion that multimedia not only improves the ease of information delivery but also inspires greater creativity in lesson presentation.

Conversely, the indicator I think it is very effective to use multimedia in the classroom rather than the traditional method obtained the lowest mean of 3.17 (SD=0.65), described as Most of the Time. This means that respondents are somewhat less convinced of multimedia's superiority over traditional methods. This implies that some respondents choose to use written or printed visual aids with the use of the cartolina or manila paper in recognizing prior knowledge, where they use traditional methods in activating connected prior knowledge before the new lesson. The relatively higher standard deviation indicates greater variability in respondents' views on this aspect. For some, multimedia may serve as an additional tool rather than a full replacement for traditional methods, especially for initial engagement with prior knowledge or hands-on learning. This variability highlights that, while multimedia offers benefits, traditional approaches retain value, particularly in contexts that benefit from tangible, real-life connections. Teachers seem to balance multimedia with realia depending on lesson objectives, student needs, and the specific topic at hand.

According to Al-Fraihat *et al.* (2020), teachers may face challenges in integrating multimedia seamlessly into their existing curriculum and pedagogical approaches, requiring them to adapt their teaching methods and lesson plans accordingly. This often happens when respondents have less idea as to what and how multimedia technology comes with ease. Moreover, the rapid pace of technological advancement means that teachers must continually update their skills and knowledge to effectively utilize new multimedia tools and resources in the classroom (Tang *et al.*, 2023). The concerns about digital literacy among both teachers and students may hinder the effective use of multimedia technology, as individuals

may lack the necessary skills to critically evaluate and utilize multimedia technology content (Hobbs, 2020). Overall, while teachers generally perceive multimedia technology positively, these potential difficulties highlight the importance of providing ongoing support, training, and resources to facilitate its effective integration into educational practices.

Teachers often encounter challenges when incorporating multimedia into their curriculum, as it requires adapting their teaching styles and lesson plans. Many teachers feel unsure about how to effectively use multimedia tools, especially as technology evolves rapidly. As a result, continuous professional development is essential for teachers to keep up with new multimedia resources and strategies. Furthermore, the lack of digital literacy among both teachers and students can hinder the successful application of multimedia in the classroom, as critical skills for assessing and utilizing such content may be lacking.

However, despite the overall positive perception, teachers may still encounter some difficulties with multimedia technology. Technical issues such as equipment malfunction, software glitches, and compatibility issues can disrupt the flow of lessons and cause frustration. Additionally, integrating multimedia seamlessly into existing curricula and pedagogical approaches may pose challenges, requiring teachers to adapt their teaching methods and continuously update their skills to effectively utilize new multimedia tools. Concerns about digital literacy among both teachers and students may also hinder the effective use of multimedia. Overall, while teachers generally perceive multimedia technology positively, these potential difficulties highlight the importance of ongoing support, training, and resources to facilitate its effective integration into educational practices.

Table 9: Distribution of the Level of Respondents' Use of Multimedia Technology based on Developing Websites

Indicators	Mean	SD	Description
I know how to search for an application that can help me present my lesson.	3.38	0.58	At all Times
I used 1 application in preparing my lesson.	3.06	0.66	Most of the Time
I have integrated 3 applications in preparing my lesson.	3.11	0.53	Most of the Time
I used 2 applications in preparing 1 topic.	3.06	0.55	Most of the Time
I have read surveys in developing websites.	3.02	0.62	Most of the Time
I have read surveys in developing applications.	2.98	0.60	Most of the Time
I have answered 1 survey in developing websites.	2.83	0.69	Most of the time
I have answered 2 or more surveys in developing websites.	2.83	0.69	Most of the Time
I found the chat access helpful whenever I needed assistance.	3.26	0.54	At all Times
Developing a website is necessary.	3.20	0.50	Most of the Time
Overall	3.07	0.18	Most of the Time

Legend:

- 3.26-4.00 *At all Times/Very High*
- 2.51-3.2 *Most of the Time/High*
- 1.76-2.50 *Sometimes/Low*
- 1.00-1.75 *Never/Very Low*

Table 9 shows the respondents' use of multimedia technology based on developing websites with an

overall mean of 3.07 (SD=0.18), described as Most of the Time. This means that while respondents are relatively consistent in their use of technology, there remains some variation in their engagement levels across different indicators. Notably, respondents show a strong tendency to use technology for tasks such as information retrieval and application usage for lesson planning,

indicating a good command over these essential digital tools. However, activities related to conducting surveys are slightly less frequent, suggesting these tasks may either be less prioritized or require additional skills or confidence. This data underscores a solid foundation in technology integration, with potential areas for growth where respondents could further diversify their digital toolkit, particularly in areas that demand interaction or data gathering from others.

In the study by Spector *et al.* (2020), posit that educators who frequently integrate technology into their teaching practices tend to achieve better outcomes in both lesson delivery and student engagement. For instance, a study emphasizes the importance of multimedia tools in enhancing instructional effectiveness, noting that teachers who regularly use multiple applications in their lesson planning are better equipped to address diverse learning needs and improve student understanding. Furthermore, the consistent use of technology, such as chat support for assistance, reflects the growing reliance on digital tools to facilitate both teaching and professional development (Johnson *et al.*, 2021). This underscores the need for ongoing support and training to ensure that educators can maximize the potential of these technologies in their practice. It gives the source the idea of what needs to be developed in their platform, which is an advantage to them for a better experience for their user or subscriber. Further, the indicator I know how to search for an application that can help me present my lesson obtained the highest mean of 3.38 (SD=0.58), described as At All Times. This means that most of the respondents know what they are doing and are knowledgeable in terms of what and how to use applications that are handy, effective and efficient in teaching. This implies that the preparation of the lesson will be light for the respondents, and the lesson will be interactive through the use of multimedia technology, where respondents will be resourceful. This skill in locating relevant applications indicates that teachers are resourceful and knowledgeable and able to integrate technology in ways that streamline lesson preparation. Additionally, having the know-how to use these applications can reduce the time and effort required to prepare lessons, allowing educators to focus more on interactive and student-centered approaches. The moderate standard deviation hints at some diversity in individual confidence or familiarity, indicating that while many teachers are well-equipped to leverage these tools, there may be varying levels of experience with digital resources among them.

Moreover, teachers are often well-versed in selecting appropriate applications for presenting lessons, as technological integration has become a crucial skill in modern education. With the increasing availability of educational technologies, teachers have gained familiarity

with digital tools that enhance student engagement and comprehension. According to Cabellos *et al.* (2023), educators are knowledgeable about various multimedia technologies and are capable of choosing the most suitable platforms for different instructional contexts. Their ability to leverage these tools demonstrates their adaptability and commitment to optimizing the learning experience through thoughtful application choices. This makes teachers fully equipped for the lesson of the day with the saved energy in creating tactile visual aids. Additionally, chat support offers a convenient and non-intrusive communication channel, allowing teachers to multitask and continue working on website development while seeking assistance (Hsiao *et al.*, 2018).

Also, according to Sankar *et al.* (2019), the interactive nature of chat support enables teachers to engage in a dialogue, clarify doubts, and receive personalized support tailored to their specific needs. This personalized assistance can enhance teachers' confidence and proficiency in using multimedia technology for website development, ultimately leading to improved outcomes in the teaching and learning process (Shen *et al.*, 2020).

On the other hand, the lowest mean values are seen in the indicators I have answered 1 survey in developing websites and I have answered 2 or more surveys in developing websites, with the same mean of 2.83 (SD=0.69) described as Most of the Time. This means less frequent participation in surveys related to website development. This shows that fewer teachers answered surveys about developing websites, which differs from the platform that gives surveys after utilization. In today's era, surveys are not a trend anymore. To make their application or platform well-known, they tend not to give surveys but reviews on how their platform performs and cater to the needs of the user. Teachers often prefer to leave quick, unstructured feedback, like reviews or ratings, directly on the platforms they use because these methods require less time and effort.

According to Miller *et al.* (2021), reviews allow teachers to provide immediate reactions based on their recent experiences, which is often more convenient than responding to surveys that require detailed responses. Moreover, platforms often incentivize or prompt users to leave reviews as part of their usage experience, further encouraging participation (Jones *et al.*, 2022). In contrast, surveys tend to demand more structured, reflective input, which may deter teachers from participating. Teachers are often pressed for time, making it difficult for them to complete lengthy surveys that require in-depth responses. Additionally, Garcia *et al.* (2021) state that the formal nature of surveys often makes them feel more like an administrative task, which is less appealing to educators than providing real-time feedback on a tool they are actively using.

Table 10: Distribution of the Level of Respondents' Use of Multimedia Technology based on Locating Resources

Indicators	Mean	SD	Description
I would use multimedia as my teaching and learning methods.	3.42	0.55	At all Times
I always use multimedia in my teaching and learning process.	3.26	0.59	At all Times
Multimedia sometimes has the limitation to be used in the classroom.	3.31	0.50	Most of the Time
I found it easy to locate pieces of information I had previously read.	3.34	0.51	At all Times
I always knew where to go next.	3.17	0.54	Most of the Time
Using multimedia technology is easier than scanning books.	3.34	0.51	At all Times
I know where to search for my topic.	3.32	0.50	At all Times
I use the internet to search for my future topics.	3.38	0.52	At all Times
I know what a reliable reference for my topics is.	3.34	0.51	At all Times
I know what is not a reliable reference for my topics.	3.31	0.53	At all Times
Overall	3.32	0.07	At all Times

Legend:

3.26-4.00 *At all Times/ Very High*

2.51-3.2 *Most of the Time/High*

1.76-2.50 *Sometimes/Low*

1.00-1.75 *Never/ Very Low*

Table 10 presents the distribution of respondents' use of multimedia technology based on locating resources with an overall mean of 3.32 (SD=0.07), described as At All Times. This means that respondents generally use multimedia technology in locating resources that are of great help in preparing future lessons. Having access to a wide array of resources online proves to be a valuable asset for educators, making it easier to gather relevant and diverse content with just a simple search. This capability not only streamlines lesson preparation but also broadens the scope of materials available, enabling teachers to enrich their lessons and adapt to varied learning needs. This is handy to the respondents as it is only one click away in the search bar to have a variety of resources that are helpful to the class. The convenience offered by multimedia technology allows educators to explore new ideas and teaching methods efficiently, supporting a more dynamic and responsive classroom environment.

According to Mayer (2019), the utilization of multimedia technology for locating resources is perceived as easier compared to scanning books, as indicated by the findings of the research. This perception stems from several key factors. Firstly, multimedia technology offers a more dynamic and interactive approach to accessing information, allowing users to navigate through various resources quickly and efficiently. The study by Larson (2020) found that unlike scanning books, which requires physically flipping through pages and locating specific information, multimedia technology enables users to utilize search functions and hyperlinks to access targeted information with greater ease and speed. With the aid of AI generating platforms, online articles and online resources, it gives less time to respondents with the use of multimedia technology. At one search a lot of resources will be available. With spared time scrutinizing information from articles and other resources, the reliability of the lesson will be achieved.

Moreover, multimedia resources often incorporate

visual and auditory elements, enhancing comprehension and retention of information compared to text-based resources alone. The integration of multimedia technology also allows for the organization and presentation of information in multiple formats, catering to diverse learning preferences and enhancing accessibility (Salomon, 2018). Advancements in multimedia technology, such as augmented reality and virtual reality, provide immersive learning experiences that surpass the capabilities of traditional book scanning methods. Overall, the ease of use associated with multimedia technology for locating resources is attributed to its dynamic nature, enhanced search capabilities, interactive features, and ability to accommodate diverse learning styles.

Further, the indicator I would use multimedia as my teaching and learning method obtained the highest mean of 3.42 (SD=0.55), described as At All Times. This means that respondents are highly inclined to adopt multimedia as their primary teaching and learning method. The moderate standard deviation indicates some variability in the frequency of this adoption. This implies that respondents are utilizing multimedia in the methods of teaching and learning process which makes the learning catchier, engaging and diversified with the use of multimedia technology. This also gives immediate access to information and resources that need to be evaluated and read by the respondents before presenting the lesson to ensure reliable and valid discussion.

As stated by Smith *et al.* (2022), the integration of multimedia technology in classroom instruction plays a significant role in enhancing teaching and learning practices. Their study reveals that many teachers frequently use multimedia resources such as videos, interactive presentations, and digital simulations - to boost student engagement and make complex topics more understandable. These tools, including projectors and tablets, enable teachers to present lessons in ways that are visually appealing and interactive, which helps address different learning styles and needs. Despite these advantages, teachers face challenges like limited access to technology, insufficient training, and time constraints, which can hinder the effective use of multimedia. Some

teachers also worry about students becoming distracted by technology, which can impact their focus on the lesson. The study further notes that teachers who regularly employ multimedia are more inclined to use student-centered, interactive teaching methods that promote inquiry-based learning, supporting varied student needs through differentiated instruction. Additionally, multimedia integration is found to vary by subject, with science and social studies showing higher levels of usage, and by grade level, with greater adoption in higher grades where more subject-specific digital resources are available. Smith *et al.* (2022) recommend that schools provide more professional development for teachers on multimedia use and ensure equitable technology access to help teachers fully leverage these tools for enhancing student learning. Conversely, the indicator I always knew where to go next obtained the lowest mean of 3.17 (SD=0.54), described as Most of the Time. This means some uncertainty or less frequent assurance about the next steps in using multimedia technology, and the moderate standard deviation indicates some variation in this experience among respondents. This implies that respondents slightly need structured guidance in manipulating multimedia as to what to click or tap next. For some teachers, uncertainty about the next steps in using multimedia technology can stem from a few underlying factors. In many cases, this hesitation reflects limited exposure to digital tools or insufficient training, which can lead to uncertainty about navigating through different functions or features. Unlike more traditional methods, multimedia technology often requires a sequence of steps or specific interactions, for example, choosing the right app, setting up interactive elements, or troubleshooting issues, which can feel overwhelming if the teacher isn't fully familiar with the platform. Moreover, frequent updates and the rapid evolution of educational technology tools add to this challenge. Teachers who don't have time to consistently explore new features may feel less confident, especially if they are unsure how these tools integrate with their lesson objectives. This can lead to a need for structured guidance, step-by-step instructions, or support from tech-savvy colleagues or resources. Nonetheless, even with some gaps in confidence about what to do next,

teachers recognize that multimedia has the potential to make lessons more dynamic and engaging. As stated by Plass *et al.* (2022), navigating multimedia technology can often be challenging, and users may experience uncertainty about the next steps, especially if the technology lacks intuitive design or clear instructions. This suggests that respondents may face some difficulties or uncertainties in determining their next actions when using multimedia technology tools. To aid this, developers of certain platforms that are handy in using multimedia technology in teaching must develop how it interacts with the respondents with ease and observe friendliness to users. This variability underscores the importance of designing multimedia resources with user-friendly interfaces and providing adequate guidance to ensure that all users can confidently and effectively use these technologies. Despite its numerous benefits, multimedia technology may sometimes face limitations when used in the classroom. Several factors contribute to these limitations, as highlighted in recent research. Firstly, technological issues such as unreliable internet connections, software glitches, or compatibility issues with classroom devices can disrupt the smooth implementation of multimedia resources (Ferdig, 2019). These technical challenges can hinder teachers' ability to deliver lessons effectively and may lead to frustration among both teachers and students. Secondly, while multimedia resources offer dynamic and interactive content, they may also require significant time and resources to create or procure, placing a burden on teachers in terms of preparation and planning. Furthermore, according to Walters *et al.* (2019), over-reliance on multimedia resources can potentially displace traditional instructional methods, leading to concerns about diminished critical thinking skills or overstimulation among students. This may lead to less inculcation of knowledge, yet the idea is in it, or, on the other hand, it may lead to confusion regarding the lesson discussed. Yet, with the guidance and supplement discussion of the respondents may bridge the problem. In summary, while multimedia technology offers numerous advantages for enhancing teaching and learning experiences, its limitations, including technical challenges, resource demands, accessibility issues, and resistance from educators, must be addressed to ensure

Table 11: Summary of the Level of the Respondents' Use of Multimedia Technology

Variables	Mean	SD	Interpretation
Communication	3.52	0.19	Very High
Sharing Information	3.51	0.17	Very High
Recognition of Prior Knowledge	3.32	0.12	Very High
Developing Websites	3.07	0.18	High
Locating Resources	3.32	0.07	Very High
Overall	3.35	0.18	Very High

Legend:

3.26-4.00 At all Times/Very High

2.51-3.2 Most of the Time/High

1.76-2.50 Sometimes/Low

1.00-1.75 Never/Very Low

its effective and equitable use in the classroom.

Table 11 presents a summary of the respondents' use of multimedia technology, measured across various indicators. The data reveals that, on average, respondents exhibit a high frequency of multimedia technology usage

in their professional activities. The overall mean score for the respondents' use of multimedia technology is 3.35 (SD = 0.18), interpreted as Very High. This means a very high level of engagement with multimedia technology across all the measured indicators, underscoring the centrality of these tools in the respondents' professional activities. This implies that respondents use of multimedia technology at all times which indicates that multimedia technology makes teaching engaging, catering diverse learning styles and flexibility. By these, students will learn effectively with the use of multimedia technology. This high score may also reflect a growing familiarity with digital tools due to the increasing integration of technology in education, particularly following recent shifts to online and hybrid learning environments. Teachers' comfort with multimedia might stem from accessible training opportunities, peer collaboration, or self-driven exploration of educational resources. Teachers view multimedia as essential in modern teaching, empowering them to make lessons more interactive and tailored to students' needs. Furthermore, this consistent use likely enhances their overall confidence and skill level, creating a positive cycle where familiarity with multimedia leads to even greater adoption and reliance on these tools in their teaching.

Further, the consistency across these indicators indicates that multimedia technology is a deeply integrated component of the respondents' daily routines, with most activities being conducted with the support of such tools. The high level of usage, particularly in communication and information sharing, suggests that multimedia technology is likely seen as indispensable for effective and efficient work. According to the study by Kuh *et al.* (2020), regular communication, information sharing, and the recognition of prior knowledge are important in creating an engaging and supportive learning environment. These practices are critical for facilitating student understanding and fostering a collaborative learning atmosphere, which are key components of successful educational outcomes. This shows that multimedia technology in communication, sharing information, and recognition of prior knowledge were greatly used by the respondents with ease and effectiveness. On the other hand, websites are useful. They are often secondary to more interactive and immediate forms of technology in education (Garrison, 2021). These studies confirm that while website development plays a role, the focus on direct, continuous engagement through other means is crucial for achieving effective teaching and learning.

The variable Communication obtained the highest mean score of 3.52 (SD=0.19), interpreted as Very High. This means that teachers are increasingly using multimedia technology to enhance communication within the classroom and beyond. Digital platforms like messaging apps, video conferencing tools, and educational software enable teachers to interact with students more effectively, providing real-time feedback, addressing questions, and fostering collaboration. Through multimedia technology,

teachers can communicate instructions, explanations, and resources in visually engaging ways, making complex information easier for students to understand. For instance, incorporating video tutorials, infographics, or interactive presentations allows teachers to clarify concepts and reinforce learning in ways that go beyond traditional methods.

Moreover, multimedia technology facilitates communication outside of classroom hours, creating a bridge for continued learning and support. Platforms like Google Classroom, Microsoft Teams, and Edmodo allow teachers to share resources, make announcements, and communicate individually with students and parents. This enhances transparency and allows for timely intervention if students need additional guidance. Teachers can also use multimedia tools to create a more inclusive communication environment, offering multiple ways for students to engage - whether through written messages, voice notes, or video responses—tailoring communication to individual needs and preferences. This integration of multimedia fosters a more connected, responsive educational experience, empowering both teachers and students to engage meaningfully.

According to Mayer (2021), multimedia technology has become an indispensable tool in the field of education, greatly enhancing both teaching and learning processes. The incorporation of multimedia elements such as videos, animations, and interactive simulations allows educators to present complex concepts in a more engaging and accessible way. This approach not only improves students' comprehension and retention of information but also accommodates different learning styles, making education more inclusive. Studies have shown that students who engage with multimedia content achieve higher levels of understanding and engagement compared to those taught through traditional methods. Additionally, multimedia tools foster collaborative learning and critical thinking, which are vital skills in today's educational landscape (Zhao *et al.*, 2022).

On the other hand, the variable Developing Websites obtained the lowest mean score of 3.07 (SD=0.18), interpreted as High. This means that while website development is an important task, it may not be as frequently required or prioritized as the other multimedia technology uses. One of these impacts is the shift toward interactive and real-time platforms. This implies that teachers and educational institutions prioritize more interactive, real-time forms of technology, such as learning management systems, video conferencing, and collaborative tools, over static websites. The maintenance and technical skills of the respondents, as well as developing and maintaining a multimedia-rich website, require technical skills that many teachers may not possess or have the time to develop.

As stated by Brown (2023), in the field of teaching, the development of websites has become less of a priority compared to other technological tools that more directly enhance the learning experience. While websites can serve

as valuable resources for information dissemination and course management, they often lack the interactive and dynamic features that are essential for engaging students in today's educational environment. Teachers are increasingly favoring multimedia tools and digital platforms that offer interactive content, real-time feedback, and collaborative opportunities over static websites. These alternatives not only better support diverse learning styles but also align more closely with the needs of modern students

who are accustomed to interactive and immersive digital experiences. Consequently, the focus on educational technology has shifted towards tools that offer more substantial pedagogical benefits, rendering website development a secondary concern.

Problem 3. What is the Level of Students' Academic Performance in All Subjects in Grades 1 to 6 Level, School Year 2022-2023?

Table 12: Distribution of Students' Academic Performance in All the Subjects

Level of Performance	Frequency	Percentage
Outstanding (90-100)	273	60.77
Very Satisfactory (85-89)	95	24.36
Satisfactory (80-84)	58	14.87
Fairly Satisfactory (75-79)	0	0
Did Not Meet Expectation (Below 75)	0	0
Total	390	100
Mean	87.83	
SD	0.75	
Description	Very satisfactory	

Legend:

90-100 Outstanding/Very High

85-89 Very Satisfactory/High

80-84 Satisfactory/Moderate

75-79 Fairly Satisfactory/Low

Below 75 Did Not Meet Expectation/Very Low

Table 12 reveals the distribution of the students' academic performance in all the subjects from Grade 1 to Grade 6 for the School Year 2022-2023. The highest level of performance is Outstanding, scored 90-100 with a frequency of 273 (60.77%). This high percentage means that a majority of students are achieving at a very high level, which may indicate a supportive learning environment, effective teaching practices, and strong student motivation. Such a high rate of achievement might also reflect an educational approach that aligns well with student needs, fostering motivation and enabling them to excel. The high proportion of outstanding students might also point to positive external factors, such as parental support, access to resources, or a culture that emphasizes academic excellence. Additionally, with a large group performing at the top, it's worth considering if further differentiation or enrichment opportunities might be needed to continue challenging high-achieving students. Overall, this level of achievement is a strong indicator of student success.

According to Darling-Hammond *et al.* (2020), students' academic success is closely linked to supportive, high-quality instruction that is responsive to their learning needs. When teachers provide engaging, differentiated instruction, students are more likely to reach higher levels of achievement. Additionally, factors such as a positive school climate, parental involvement, and access to resources contribute significantly to students' ability to excel academically. This level of high achievement among students suggests that educational strategies and external

support structures are successfully promoting student learning and motivation, laying a strong foundation for sustained academic success. Further, external influences, such as family involvement, play a critical role in academic success. Studies suggest that students with engaged families tend to perform better academically, as family support provides encouragement and access to additional resources outside of school. Darling-Hammond *et al.* also point out that a community's cultural emphasis on education can drive students' motivation and sense of purpose. When students feel supported both at school and at home, they are more likely to set high goals, persist through challenges, and ultimately perform at an outstanding level. This convergence of strong instruction, supportive relationships, and cultural value on education creates an environment where students can thrive.

On the other hand, the lowest level of performance is satisfactory with a frequency of 58 (14.87%). This means that some students are likely to complete required tasks and show an understanding of foundational concepts, though they may benefit from targeted support to help them reach their full potential. This percentage suggests that while they are grasping core ideas, there may be barriers such as a need for additional guidance, engagement, or resources, that impact their ability to perform at a higher level. This distribution also highlights an opportunity for educators to consider differentiated instruction strategies or interventions. For instance, using varied instructional methods, offering extra support sessions, or encouraging active learning could help boost engagement and understanding for these students. Addressing the needs of students in this range not only supports their progress but can contribute to the overall class dynamic by creating a more inclusive and supportive learning environment that helps each student advance at

their own pace.

As stated by Gregory *et al.* (2021), differentiated instruction provides valuable support for students performing at a satisfactory level, enabling them to engage more fully and achieve greater academic success. By tailoring instructional approaches to meet individual learning needs, teachers can use methods like flexible grouping, targeted interventions, and resource variation to help students who may find it challenging to reach higher performance levels. This approach not only addresses content mastery but also promotes confidence and motivation, as students feel more capable and encouraged by instruction that meets them at their current level. Additionally, the importance of active learning strategies, such as hands-on activities, collaborative projects, and real-world applications. These methods can make learning more accessible and engaging

for students who may otherwise struggle in traditional, lecture-based settings.

Furthermore, frequent feedback and small-group interactions are emphasized as essential for students in the satisfactory range, as these strategies allow for more personalized support and guidance. By creating a classroom environment that values incremental progress and diverse learning methods, teachers can provide students with the tools to build their knowledge and confidence, ultimately benefiting the entire class through a more inclusive, growth-focused atmosphere.

Problem 4. Is There a Significant Relationship between the Use of Multimedia Technology and the Students’ Academic Performance in All the Subjects in Grades 1 To 6?

Table 13: Result of the Test on Relationship Between the Respondents’ Use of Multimedia Technology and Students’ Performance

Use of Multimedia Technology	Students’ Academic Performance		Interpretation
	r	p	
Communication	-0.011	.878	Not Significant
Sharing Information	-0.067	.344	Not Significant
Recognition of Prior Knowledge	-0.050	.474	Not Significant
Developing Websites	-0.051	.474	Not Significant
Locating Resources	0.003	.961	Not Significant

Legend: r = Pearson’s r Correlation p=Probability value Significant @ 0.05 level

Table 11 shows the relationship between the use of multimedia technology and students’ performance in Grades 1 to 6 (GWA), revealing non-significant correlations across various aspects. The use of multimedia technology for communication shows an almost negligible negative relationship with students’ performance, with a correlation coefficient of -0.011 and a p-value of .878, indicating that this relationship is not statistically significant and likely due to chance; thus, the null hypothesis is accepted.

Similarly, using multimedia technology for sharing information has a very weak negative relationship, with a correlation coefficient of -0.067 and a p-value of .344, suggesting no substantial evidence of a meaningful impact on academic performance. Recognizing prior knowledge through multimedia technology also shows a slight inverse relationship with a correlation coefficient of -0.050 and a p-value of .474, signifying no significant impact on students’ academic outcomes. The correlation for developing websites is -0.051 with a p-value of .474, again indicating no statistically significant relationship and implying that the observed correlation is due to random variation. Lastly, the use of multimedia technology for locating resources shows an almost nonexistent relationship with a correlation coefficient of 0.003 and a p-value of .961, suggesting no meaningful correlation or real impact on academic performance. Overall, these results indicate that multimedia technology does not

significantly influence students’ academic performance in Grades 1 to 6.

Furthermore, when both teachers and students are equally proficient in using technology, it doesn’t necessarily lead to noticeable improvements in academic performance. Familiarity with multimedia technology tools can create a situation where multimedia technology becomes routine without adding significant value to the learning process. As both parties are comfortable with multimedia technology, its use may streamline tasks and increase efficiency, but it doesn’t challenge students or push them toward deeper learning. In such cases, multimedia technology doesn’t become transformative; it simply integrates into the current educational framework without triggering significant academic gains (Johnson *et al.*, 2022). To have a meaningful impact on learning outcomes, educators need to employ technology in more innovative and engaging ways. Rather than relying on familiar tools, they should explore creative methods that challenge students to think critically and engage more actively with the material. This could involve applying technology to problem-solving, interactive learning, or personalized instruction, making it a catalyst for more profound learning experiences (Smith *et al.*, 2021).

Problem 5. Is There a Significant Relationship between the Respondents’ Use of Multimedia Technology and Each of Their Characteristics?

Table 14: Result of the Test on the Relationship Between the Respondents' Use of Multimedia Technology and each of their Characteristics

Respondents' Characteristics	Use of Multimedia Technology					Overall Interpretation
	Communication	Sharing Information	Recognition of Prior Knowledge	Developing Websites	Locating Resources	
	r-value	r-value	r-value	r-value	r-value	
	p-value	p-value	p-value	p-value	p-value	
Age	-.13	-.05	-.06	-.24	-.15*	-.148
	.06	.46	.38	<.001	.03	.039
	NS	NS	NS	S	S	S
Sex	-.09	-.17	-.06	-.09	-.19	-.145
	.18	.01	.36	.15	.01	.044
	NS	S	NS	NS	S	S
Position	.04	.15	.05	-.01	.15	.101
	.55	.02	.40	.83	.03	.158
	NS	S	NS	NS	S	NS
Teaching Experience	-.19	-.13	-.12	-.14	-.16	-.175
	.01	.06	.07	.03	.02	.014
	S	NS	NS	S	S	S
Highest Educational Attainment	.06	.15	.04	-.10	.15	.105
	.36	.02	.55	.15	.02	.145
	NS	S	NS	NS	S	NS
Related Training/Seminar Attended	-.15	-.14	-.29	-.20	-.11	-.187
	.03	.04	<.001	.004	.12	.009
	S	S	S	S	NS	S
Attitude towards Multimedia Technology	.32	.27	.38	.40	.42	.42
	<.001	<.001	<.001	<.001	<.001	<.001
	S	S	S	S	S	S

Legend: S-significant; NS-not significant

Table 14 shows the relationship between the use of multimedia technology and respondents' characteristics. This shows that there is a positive relationship between the use of multimedia technology and respondents' characteristics. Therefore, the null hypothesis is rejected. There is a significant relationship between the use of multimedia technology and respondents' age, sex, teaching experience, related training/seminars attended, and attitude towards multimedia technology. This implies that respondents' characteristics significantly influence how respondents use multimedia technology with age, sex, teaching experience, related trainings/seminars attended, and attitudes towards multimedia technology. These all play distinct roles in shaping their engagement with different aspects of multimedia technology. This is measured by Pearson's Correlation Coefficient (r) and the probability value (p). The analysis reveals several significant correlations at the 0.05 level, providing insights into how different demographic and professional variables are associated with the following various aspects of multimedia technology use:

First, age shows a significant relationship with developing websites and locating resources having the overall interpretation of $r = -.148$ ($p = .039$). This indicates that age can significantly influence how individuals approach website development and resource location. Younger individuals, especially those within the Millennial and Gen Z cohorts, are typically more adept at utilizing web development tools and locating online resources due to higher digital fluency and early exposure to technology. In contrast, older generations may face a steeper learning curve, often requiring additional training or support to develop these skills effectively. Studies have shown that digital nativity plays a role in technical adaptability. For instance, a study by Ma *et al.* (2020) found that younger developers are generally faster at adopting newer frameworks and resource-finding tools, while older adults may rely on more traditional search strategies or established methodologies. Despite this, older adults bring valuable strategic and critical thinking skills to web development, often integrating well-rounded perspectives into project outcomes. Additionally, age-

related differences in cognitive processing may affect how individuals perceive and locate resources, with younger adults demonstrating faster navigation skills in complex digital environments.

According to Parker *et al.* (2021), age is significantly correlated with the ability to efficiently develop websites and locate digital resources. Younger individuals, especially those who grew up with digital technology, tend to have higher levels of comfort and skill with web development tools, often adapting quickly to new frameworks and techniques. Additionally, according to Smith *et al.* (2020), age is a key factor in how individuals navigate and engage with digital development tasks, including website creation and resource location. Their research highlights that younger adults tend to perform more efficiently in digital environments due to their early exposure to evolving technology. They note that younger generations are more likely to experiment with new tools and frameworks, showing greater flexibility in navigating complex development processes. Furthermore, they also found that older adults bring unique advantages, including a tendency for careful planning and strategic problem-solving, which can balance the rapid, exploratory style of younger developers in collaborative settings.

Second, sex shows a significant relationship with sharing information and locating resources, having the overall interpretation of $r = -.145$ ($p = .044$). This indicates that women are generally more likely to share information, particularly when it is socially relevant or relationship-building. Men and women tend to use different strategies for finding information. Men are more likely to engage in systematic, goal-oriented searches that emphasize speed and efficiency, especially in technical or work settings. In contrast, women often use a broader, exploratory approach, gathering recommendations from social networks or peers. This approach reflects a focus on building connections and enhancing information quality through diverse sources. Women are often motivated to share resources that support social cohesion or benefit group well-being. Men, in contrast, are often more selective in sharing, motivated by perceived utility or relevance to problem-solving, often prioritizing information seen as instrumental or valuable within a specific context.

As stated by Parker *et al.* (2021), sex plays a notable role in information-sharing and resource-location strategies. Women are generally more likely to share information that builds social connections and is beneficial to group well-being. Men, by contrast, tend to be more selective and share information they see as directly relevant to problem-solving or professional contexts. When locating resources, men often use a systematic, goal-oriented approach, prioritizing speed and efficiency, especially in technical searches, while women adopt a more exploratory strategy, often relying on recommendations from trusted social contacts, which aligns with their preference for relationship-building in information processes (Smith *et al.*, 2020). Furthermore, women tend to place greater emphasis on the trustworthiness of sources verifying

information before sharing, especially within professional networks, whereas men may focus more on relevance than source validation in professional settings (Ma *et al.*, 2020). Third, the teaching position shows a significant relationship with communication, developing websites and locating resources having the overall interpretation of $r = -.175$ ($p = .014$). This means that individuals in teaching roles often show distinct approaches when it comes to communication, website development, and resource location. In communication, teachers prioritize clarity and adaptability, tailoring their messages to various audiences, which is essential for effective instruction and student engagement. This emphasis on clear communication aligns with teaching objectives, where explaining complex ideas in accessible ways is key. For website development, teachers frequently utilize platforms or tools that support educational needs, favoring user-friendly sites that enhance accessibility for students and staff. They may focus on creating resources that are both visually engaging and pedagogically effective, reflecting their goal to support diverse learning styles. Additionally, when locating resources, teachers often rely on educational networks, curated academic sources, and community recommendations, valuing reliable and relevant content over speed. This intentional approach ensures the materials they select are credible, appropriate, and align well with their teaching objectives.

According to Lee (2020), in educational roles, instructors often show distinct tendencies in communication, website development, and resource-location strategies, each reflecting the demands of teaching. Clear communication is essential, as instructors aim to present information in ways that resonate across diverse student needs, a skill vital for instructional success. Teachers also approach website development differently; they often choose platforms that are accessible and easy for students to navigate, which helps in delivering content effectively and supporting varied learning styles. Tools that enhance interactivity or visual engagement are especially favored, aligning with the educator's role in creating inclusive learning experiences (Williams *et al.*, 2021). Additionally, when locating resources, teachers tend to leverage educational networks, databases, and peer recommendations, favoring trusted sources that contribute to instructional quality and relevance over rapid access. This approach ensures the materials selected are credible and tailored to educational goals (Smith, 2020).

Fourth, trainings/seminars attended on multimedia technology shows a significant relationship with communication, sharing information, recognition of prior knowledge, and developing websites having the overall interpretation of $r = -.187$ ($p = .009$). This means that attending relevant training sessions and seminars can greatly enhance communication skills, promote effective information sharing, deepen the recognition of prior knowledge, and support website development. Trainings often refine participants' communication techniques, enabling them to convey ideas clearly and adjust their

messages for different audiences. Such experiences also promote a culture of information sharing as participants learn strategies for collaboration and knowledge exchange, often using digital platforms that streamline access to information. Additionally, specialized seminars in web development equip attendees with the skills to create user-friendly, resourceful websites. These sessions often emphasize the importance of understanding users' prior knowledge, guiding developers to create content that meets a range of skill levels and enhances user engagement.

As stated by Johnson *et al.* (2021), attending relevant training and seminars has a significant impact on communication skills, information sharing, recognition of prior knowledge, and website development. First, training sessions often improve communication techniques, equipping participants with strategies to convey ideas more effectively and adapt messages for various audiences, which is especially valuable in fields like education and management. Second, seminars focusing on digital skills and networking encourage a culture of information sharing. Attendees often learn best practices for sharing knowledge, using collaborative platforms, and building networks to access information quickly and efficiently (Thomas, 2020). Finally, training in website development provides participants with practical skills to create user-friendly, resourceful sites, often designed to accommodate diverse user needs. Additionally, workshops often emphasize the importance of recognizing users' prior knowledge, allowing developers to design content that aligns with varying skill levels, ultimately enhancing user experience and engagement (Martinez *et al.*, 2020).

Fifth, attitude towards multimedia technology shows a significant relationship with all the variables, namely, communication, sharing information, recognition of prior knowledge, developing websites and locating resources having the overall interpretation of $r = -.42$ ($p < .001$). This indicates that Attitudes toward multimedia technology significantly influence several key areas, including communication, information sharing, recognizing prior knowledge, website development, and locating resources. Individuals who view multimedia technology positively often communicate more dynamically, utilizing various tools like videos, animations, or interactive platforms to enhance understanding and engagement. This positive outlook also fosters a greater willingness to share information, as they tend to use digital tools that facilitate knowledge exchange and collaboration. When it comes to recognizing prior knowledge, a favorable attitude toward multimedia can lead users to design learning or informational resources that build on what an audience may already know, often employing adaptive content to meet varying skill levels.

Furthermore, those who embrace multimedia technology are more likely to develop interactive, user-friendly websites that integrate diverse media formats, enhancing accessibility and engagement. Finally, a positive attitude often translates into skillfulness in locating resources,

as these individuals are inclined to leverage various multimedia sources, search tools, and digital libraries to find relevant, high-quality information efficiently.

According to Lee (2020), a positive attitude toward multimedia technology significantly impacts areas such as communication, information sharing, recognizing prior knowledge, website development, and resource location. Research indicates that individuals who are open to multimedia tools often communicate more effectively by incorporating diverse media forms, such as videos or interactive graphics, which enhance message clarity and engagement. Favorable attitudes also correlate with a greater propensity to share information; multimedia-friendly users frequently employ digital platforms that facilitate collaboration and knowledge exchange, making sharing both efficient and impactful (Martinez *et al.*, 2021).

Moreover, those who value multimedia tend to acknowledge the importance of prior knowledge when designing or sharing resources, often using adaptive content that considers varying audience expertise (Johnson, 2020). These individuals are also more inclined to develop visually engaging, user-centered websites, leveraging multimedia elements that enhance accessibility and improve user experience. Finally, a positive outlook on multimedia is linked to advanced resource-location skills, as these users are more likely to utilize diverse digital libraries, databases, and multimedia-rich resources to efficiently gather relevant, high-quality information (Thomas *et al.*, 2021).

Sixth, position shows no significant relationship with communication, recognition of prior knowledge, and developing websites having the overall interpretation of $r = -.101$ ($p = .158$). The findings suggest that a teaching position may not play a significant part in shaping their ability to communicate effectively, recognize students' prior knowledge, or develop websites. This could be because these skills are more influenced by individual experience, training, and personal initiative than by formal job titles or ranks. For instance, new teachers with a background in digital skills might be just as capable of creating online resources as their more senior colleagues, especially if they've received similar training. Additionally, studies indicate that the capacity to communicate and connect with students often depends on each teacher's approach and adaptability, not strictly on their position. This trend aligns with findings in educational research, where teachers across different levels show similar skill levels in technology use when given equivalent training opportunities. Such observations highlight that professional development access and training are crucial factors in skill-building for educators, possibly more so than the specific teaching role they occupy.

As stated by Bates *et al.* (2023), a teacher's position in a school setting does not have a significant impact on their effectiveness in communication, recognizing students' prior knowledge, or developing web resources. These competencies are often more closely related to individual

training and access to professional development rather than job title or seniority. For example, Bates *et al.* observed that teachers across various roles showed comparable skill levels in technology use and website development when given the same training opportunities. This suggests that ensuring equal access to skill-based development programs is more critical for enhancing these abilities than relying on hierarchical distinctions. Ninth, the highest educational attainment shows no significant relationship with communication, recognition of prior knowledge, developing websites, and locating resources, having the overall interpretation of $r = -.105$ ($p = .145$). This indicates that a teacher's highest educational attainment often does not predict proficiency in essential teaching skills, such as communication, recognizing students' prior knowledge, developing websites, or locating online resources. This finding suggests that while advanced degrees may provide theoretical knowledge, practical skills frequently arise from targeted professional development, experience, and adaptability in the classroom. For example, a teacher with a bachelor's degree who has attended workshops on digital tools may perform just as effectively or even excel at creating engaging web content and finding resources compared to a colleague with an advanced degree but less specific training in technology. These insights align with studies in educational psychology, which show that teaching effectiveness is strongly linked to skills honed through real-world application and practice rather than academic credentials alone. In many cases, educators benefit more from continuous, hands-on professional development than from one-time academic achievements. This supports the notion that schools should prioritize offering all teachers access to high-quality, ongoing training, which can build practical skills across diverse areas, ultimately leading to a more equitable and adaptable teaching environment.

According to Johnson *et al.* (2023), the level of a teacher's formal education doesn't always align with certain practical skills, like effective communication, recognizing students' prior knowledge, or working with digital tools such as websites and online resources. Their study revealed that these abilities tend to be shaped more by hands-on training and real classroom experience than by academic degrees alone. Johnson and Lee found that teachers, regardless of their educational backgrounds, showed similar skill levels in these areas when given equal access to professional development. This insight emphasizes the value of accessible, skill-based training for educators across all educational levels to foster a versatile, tech-savvy teaching community.

Overall, these findings suggest that various personal and professional characteristics significantly influence how respondents use multimedia technology, with age, sex, position, teaching experience, educational attainment, and trainings/seminars all playing distinct roles in shaping their engagement with different aspects of multimedia technology. These insights can inform targeted

interventions and professional development programs to enhance technology integration across diverse educator profiles.

As stated by Smith (2023), how educators use multimedia technology is influenced by a variety of personal and professional factors. Smith's research points out that age, gender, job position, years of teaching experience, educational background, and training all play significant roles in shaping their engagement with these tools. This aligns well with our findings, which suggest that understanding these diverse characteristics is crucial for designing effective professional development programs. By tailoring interventions to the unique profiles of educators, we can better support the integration of technology in teaching, ultimately benefiting both educators and students.

Discussion

The characteristics of the teachers surveyed reveal an interesting profile. Most respondents fall in the 30-39 age range, with fewer in the 60 and above group. This age distribution suggests a workforce concentrated in early to mid-career stages, potentially influencing familiarity and comfort with technology. A majority of the respondents are women, reflecting common trends in educational demographics. The highest number of participants hold the position of Teacher I, while Master Teacher I positions are less represented, likely due to fewer openings or greater experience required. In terms of experience, most teachers have been in the field for nine years or less, while those with over 30 years are the least represented. Educationally, most teachers hold master's-level credits, with fewer holding PhD-level units. Furthermore, training attendance is highest at the division level, with fewer opportunities reported at the regional level. Further, the academic performance of students was not found to be significantly related to the use of multimedia technology in areas such as communication, information sharing, and digital resource management. This may suggest that while multimedia tools are valuable for engagement, their direct impact on student achievement may be moderated by other factors, such as individual learning differences or the teaching pedagogy used by the teacher is not effective.

Diving deeper into how teacher characteristics influence multimedia use, the study uncovers several nuanced relationships. Teachers' age significantly impacts their effectiveness in developing websites and locating resources. This might indicate that younger or mid-career teachers, potentially more tech-oriented, are more adept in these digital areas. Gender, too, plays a role, with women significantly more involved in information sharing and resource location. Teaching position emerges as another factor, where those in entry-level roles are more actively engaged in sharing information and resource use, possibly reflecting their position's focus on implementing rather than designing curriculum.

Moreover, experience is also relevant, as teachers with

fewer years in the field are more active in communication and website development, showing that newer educators may bring fresh technological skills into their roles. Additionally, participation in trainings and seminars significantly enhances teachers' skills across various dimensions, such as communication, sharing knowledge, recognizing students' prior learning, and building websites. This underlines the importance of accessible training in equipping teachers with essential multimedia skills. Finally, teachers' attitudes toward multimedia show a strong relationship across all multimedia usage areas, emphasizing that openness to technology is a crucial predictor of effective digital integration in teaching.

CONCLUSION

Based on the results and discussions presented, the following conclusions are drawn:

The results indicate that respondents extensively incorporated multimedia technology in teaching, with a significant emphasis on enhancing communication with students. This consistent utilization underscores the capacity of multimedia tools to facilitate clear and dynamic instructional delivery. It is apparent that these technologies effectively address communication barriers, promoting deeper understanding and active student engagement. The prevalent reliance on such tools reflects educators' acknowledgment of their role in achieving more efficient and impactful teaching outcomes. Ultimately, the integration of multimedia technology has become an indispensable element of contemporary pedagogical approaches.

Recommendations

Based on the results of the study, the following are recommended:

1. Respondents should have a strong educational background to effectively engage with multimedia technology, fostering critical thinking and innovative use. Regular multimedia training is also crucial, focusing on both technical and pedagogical strategies for real-world applications. Continuous exposure to such training enhances digital literacy, ensuring respondents can apply multimedia tools efficiently and stay updated on technological advancements, leading to better outcomes in their fields.
2. When developing a website based on survey data, the developers should make the design process concise and user-focused to maintain alignment with survey insights. Overly complex development can lead to user disengagement. Multimedia tools should be intuitive and user-friendly to ensure smooth navigation, improve user experience, and promote broader engagement, contributing to the website's success. By this, teachers will take time to leave reviews to foster the platform.
3. Teachers should use multimedia technology effectively to improve student performance. These tools support diverse learning styles, enhancing engagement and understanding. By fostering active learning, they help

close academic gaps. Multimedia also promotes critical thinking and creativity. Proper integration supports skills essential for future success.

4. Administrators should focus on teacher professional development, seminars and trainings that offer hands-on multimedia training tailored for older, more experienced educators and aim to bridge the gender gap in technology usage. To foster broader engagement, these programs should emphasize the real-world applications of multimedia tools, promoting positive attitudes toward multimedia technology integration. By focusing on practical training, educators can more effectively incorporate multimedia technology into their teaching.

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