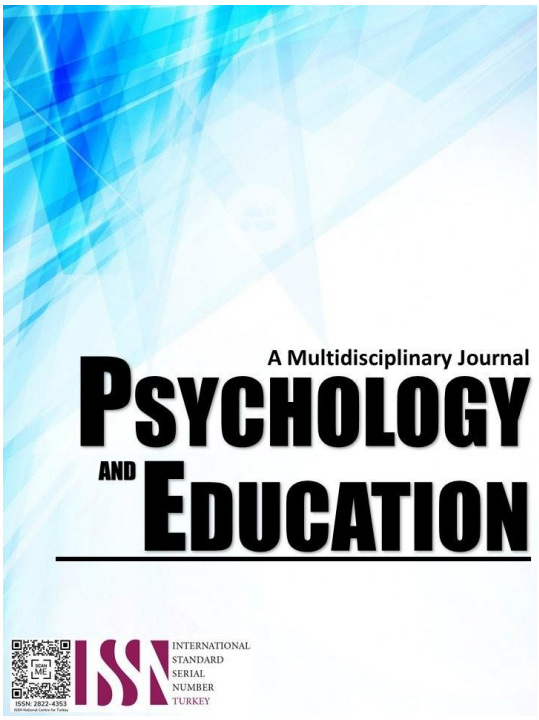
MEDIA LITERACY, TECHNOLOGICAL ADAPTATION, AND PRACTICES ON 21ST CENTURY SKILLS OF TEACHERS IN RELATION TO PUPILS' PERFORMANCE: BASIS FOR ENHANCEMENT



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Research Article

Media Literacy, Technological Adaptation, and Practices on 21st Century Skills of Teachers in Relation to Pupils' Performance: Basis for Enhancement

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Abstract

In today's rapidly evolving educational landscape, students' academic and holistic development relies heavily on the interplay of media literacy, technological adaptation, and the proactive cultivation of 21st-century skills by teachers. This study sought to examine the levels of media literacy, technological adaptation, and 21st-century skill practices among teachers and their relationship with student performance. Utilizing descriptive, comparative, and correlation research designs, the study involved 144 teachers and 144 pupils, with statistical tools including means, Mann-Whitney U-test, H-test, and Gamma test. The study reveals a diverse demographic among respondents, with a gender distribution favoring females and a majority of teachers having less than 20 years of service. Educational attainment is high, with many holding Bachelor's and Master's degrees. Teachers generally exhibit strong media literacy, with younger and less experienced educators showing higher proficiency. Technological adaptation is widespread, particularly among younger teachers, while the implementation of 21st-century skills is notably robust, especially in life and career skills. However, pupil academic performance ranges from satisfactory to passing, and no significant relationship was found between teachers' media literacy, technological adaptation, or 21st-century skills and pupil performance. Significant relationships were found between media literacy and both technological adaptation and 21st-century skills, as well as between technological adaptation and 21st-century skills practices. These findings underscore the need for a comprehensive enhancement plan aimed at improving teachers' media literacy, technological adaptation, and 21st-century skill practices to foster a more effective educational environment.

Keywords: *media literacy, technological adaptation, enhancement*

Introduction

In today's fast-paced educational arena, students' academic success and holistic advancement hinge on the dynamic interplay of media literacy, technological adaptation, and dedicated teachers' proactive cultivation of 21st-century proficiencies. Teachers have an increasing responsibility as the digital era develops, not just to impart information but also to provide pupils with the critical thinking skills they need to sort through and assess the wide range of media sources that are out there. Because of this, incorporating technology into pedagogical practices must be done proactively to support instructors' proficiency with digital tools and their capacity to develop media literacy skills in their students (Sopandi et al., 2023).

Furthermore, media literacy is a crucial skill for educators, involving the ability to navigate, critically evaluate, and responsibly use various media sources. This skill is becoming increasingly important as information becomes more digitized and readily available. Teachers must guide students in developing media literacy competencies (Jones & Jang, 2021; Guess et al., 2020; Valdmane et al., 2020). Additionally, educators must adapt to technological advancements to enhance teaching and learning experiences (Rahmadi, 2021). Integrating technology into pedagogy can revolutionize traditional teaching methods, catering to diverse learning styles and fostering greater student engagement and collaboration (Marienko, 2020). In the Philippines, the importance of media literacy among educators is emphasized due to the growing digital and ubiquitous nature of information dissemination (Bautista, 2021). Teachers must possess skills to navigate various media sources and adapt to technological advancements (Concepcion, 2019). Furthermore, cultivating essential 21st-century skills such as critical thinking, creativity, collaboration, communication, and digital literacy is crucial for student success (Gonzales, 2020). Educators play a vital role in fostering these skills through project-based learning, inquiry-driven approaches, and real-world problem-solving activities, ensuring students are prepared for an ever-changing global society.

Moreover, this study is notable for its distinct focus on addressing a significant challenge in the school district of Pulupandan. The lack of media literacy and technological adaptation hinders society's ability to critically navigate and utilize the vast digital landscape effectively as the researcher observes the disparity of media literacy and technological adaptation of the teachers in the District of Pulupandan. Despite the tireless efforts of dedicated educators, the prevailing issue persists, casting a shadow over our students' academic journey. In this milieu, the need for targeted intervention and innovative solutions becomes glaringly apparent, beckoning us to confront the problem head-on and pave the way for a brighter, more equitable future for all learners.

By shedding light on this overlooked aspect of education, this study seeks to bridge the existing gap, offering invaluable insights into how educators can enhance their practices to better equip students for success in an increasingly digital and interconnected world. Furthermore, understanding the relationship between these factors and student performance is crucial for identifying avenues of improvement and refining educational strategies to meet the demands of the modern era. Hence, this study seeks to explore and analyze the interconnectedness of media literacy, technological adaptation, and 21st-century skills among teachers, providing a foundational framework for enhancing educational outcomes and preparing pupils for success in an increasingly digitized world.

Research Questions

This study aimed to determine the level of media literacy, extent of technological adaptation, and extent of practices on 21st century skills of teachers in the District of Pulupandan during the School Year 2023-2024 when taken as a whole and grouped according to age, sex, length of service, rank, and highest educational attainment. Likewise, this study also determined the academic performance of pupils in a public elementary school during the school year 2023 – 2024 when taken as a whole and in terms of general weighted average. Specifically, this aims to answer the following questions:

1. What is the profile of the respondents in terms of:
    1.1. age;
    1.2. sex;
    1.3. length of service;
    1.4. rank; and
    1.5. highest educational attainment?
2. What is the level of media literacy of teachers when grouped according to aforementioned variables and in terms of:
    2.1. Personal Competency
    2.2. Pedagogical – Didactical Competency
3. What is the extent of technological Adaptation of teachers when grouped according to aforementioned variables and in terms of:
    3.1. personal productivity;
    3.2. information presentation;
    3.3. classroom management;
    3.4. analyze student performance; and
    3.5. electronic resources?
4. What is the extent of practices on the 21st century skills of teachers when grouped according to aforementioned variables and in terms of:
    4.1. learning and innovative skills;
    4.2. information, media, and technology skills; and
    4.3. life and career skills?
5. What is the level of academic performance of pupils when taken as a whole and grouped according to grade level?
6. Is there a significant difference in the level of media literacy of teachers when grouped according to age, sex, length of service, and highest educational attainment?
7. Is there a significant difference in the extent of technological adaptation when grouped according to age, sex, length of service, and highest educational attainment?
8. Is there a significant difference in the extent of practices on the 21st century skills of teachers when grouped according to age, sex, length of service, and highest educational attainment?
9. Is there a significant relationship between level of media literacy of teachers and academic performance of pupils?
10. Is there a significant relationship between extent of technological adaptation and academic performance of pupils?
11. Is there a significant relationship between extents of practices on the 21st and academic performance of pupils?
12. Is there a significant relationship between level of media literacy and extent of technological adaptation of teachers?
13. Is there a significant relationship between level of media literacy and extent of practices on the 21st century skills of teachers?
14. Is there a significant relationship between extent of technological adaptation and extent of practiced 21st century skills of teachers?
15. What enhancement plan can be created based on the results of the study?

Methodology

Research Design

In this study, a quantitative approach was employed to address the concepts of dependent and independent variables and the concept of measurement and its associated issues, such as error, reliability, and validity. The quantitative research design was utilized as it involves the reduction of phenomena to numerical values (Apuke, 2018). Consequently, descriptive – correlational researches designs will collect, quantify, and analyze the provided data. A descriptive, comparative, and correlational study aimed to elucidate the potential factors related to the problem.

Descriptive research sought to accurately and systematically describe a population, situation, or phenomenon, answering what, where, when, and how questions but not why (McCombes, 2019). Given that this study is descriptive, it identified the characteristics among variables of teachers' media literacy, technological adaptation, and 21st-century skills practices.

Correlational research design explores relationships between variables without the researcher manipulating or controlling any of the variables, revealing the strength and direction between two or more variables (Pritha Bhandri, 2021) as this correlational study established the relationship between media literacy, technological adaptation, and 21st-century skills of teachers and the academic

performance of pupils.

Respondents

In this study, teachers were the focal point of the investigation, serving as the subject under scrutiny. The research aimed to explore various dimensions of media literacy, technological adaptation, and practices of 21st-century skills. It delves into teachers' diverse roles and responsibilities in facilitating student learning and development, including their instructional strategies, classroom management techniques, assessment practices, and efforts to foster a conducive learning environment. The respondents of the study were elementary school teachers from the school district of Pulupandan. All teachers were taken in the district of Pulupandan. These teachers represented various grade levels, subject areas, and teaching experience to ensure comprehensive insights into the research variables.

Additionally, the study included pupils from the same schools to assess their performance in the concepts above. The pupils were selected using simple random sampling techniques to ensure a representative sample of the student population in the district.

The study encompassed all 144 elementary teachers as participants, representing a comprehensive inclusion of the entire population without employing any specific sampling technique. This approach ensures that every teacher within the defined elementary school context was involved in the research, providing a holistic view of their perspectives, practices, and experiences relevant to the study's objectives. By including the entire population rather than a subset, the research aims to capture a complete and representative portrayal of elementary teachers' insights and behaviors, offering robust data for thorough analysis and informed conclusions.

Table 1. *Population of Teachers and Students, and the sample size of students in each level in the District of Pulupandan*

School	*Population*	
	Teachers	*Students*
A	35	806
B	34	808
C	12	279
D	16	323
E	10	168
F	13	289
G	10	170
H	9	168
I	5	66
Total	144	3077

Instrument

The research methodology encompasses the application of a test format, spanning both the initial and subsequent sections of the questionnaire. The research instrument used in this study was thoughtfully structured into three distinct components to facilitate the comprehensive collection of pertinent data.

Part I was dedicated to collecting essential personal information from the respondents, encompassing details such as the optional disclosure of the respondent's name, age, sex, length of service, and highest educational attainment.

The focal point of the research instrument lies within Part II, where a standardized and researcher-made questionnaires were utilized. A standardized questionnaire by Simons et al. (2018) that includes statements for personal competencies on media literacy and pedagogical-didactical competencies on media literacy, using the Likert scale questionnaire with verbal descriptions of (4) Strongly Agree, (3) Agree, (2) Disagree, and (1) Strongly Disagree.

Furthermore, a researcher-made questionnaire was utilized to determine the extent of teachers' technological adaptation regarding personal productivity, information presentation, classroom management, and analyzing student performance. It was subjected to validity using the Content Validity Ratio by Lawshe and Split-half for reliability testing. This will also use a Likert scale type of questionnaire with verbal descriptions of (4) very great extent, (3) great extent, (2) small extent, and (1) very small extent.

Lastly, a researcher-made survey questionnaire was utilized to determine the extent of practices on the 21st-century skills of teachers in terms of learning and innovative skills, information, media, and technology skills, and life and career skills, subjected to validity using Content Validity Ratio by Lawshe and split half test for reliability testing. The Likert scale type of questionnaire with verbal descriptions of (4) very great extent, (3) great extent, (2) small extent, and (1) very small extent was adopted. In evaluating pupils' academic performance, secondary data served as the basis for assessment consisting of five distinct categories: Outstanding, Very Satisfactory, Satisfactory, Fairly Satisfactory, and did not meet expectations.

Procedure

Prior to commencing the data collection process, the researcher secured official permissions by obtaining formal letters of authorization from the Division Superintendent (See Appendix A), School District Supervisor (See Appendix B), and School Principals (See Appendix C) of the different elementary schools. This pivotal procedural step established the researcher's commitment to ethical and

procedural standards inherent in scholarly research.

Upon the subsequent endorsement of the aforementioned permissions, the researcher initiated preparatory actions. The researcher formally requested permission from the different public elementary schools to access the requisite data, specifically the lists of teachers and pupils during the school year 2023 - 2024. This strategic step ensured meticulous respondent selection in alignment with the study's scope and objectives.

Before the questionnaire administration, the researcher meticulously elucidated the study's purpose to potential respondents, aiming to foster a clear comprehension of the research's rationale and significance. Following this, the researcher diligently obtained informed consent from each participant, ensuring their comprehensive understanding of the study's implications and voluntary participation in the scholarly endeavor.

After securing informed consent (See Appendix E) from the respondents, the researcher proceeded to execute the test with the assistance of the schools, ensuring the conduction adheres to face-to-face protocols. Upon completing the survey, the researcher retrieved the questionnaires after the teachers responded.

After data collection, the gathered information was analyzed using suitable statistical tools and subsequently interpreted by the researcher. This interpretive process addressed the research questions and yielded a robust, substantiated conclusion. The meticulous and methodical approach employed throughout this research endeavor ensured the accuracy and reliability of the study's findings.

In response to heightened societal expectations for accountability, ethical conduct in personal, professional, and research activities has gained increased attention and breadth. Collecting data from human participants without ethical approval can breach institutional codes of conduct, particularly in educational settings, prompting adherence to Human Research Ethics regulations.

Respecting participants' autonomy necessitates full disclosure of study details, voluntary participation, and the explicit right to refuse without consequences. Informed consent is a cornerstone of ethical human subjects' research, requiring ongoing assessment and revision to align with evolving standards. This process ensures respondents' comprehension and conscious choice, exemplified in the study through comprehensive information provision and voluntary consent.

Ensuring minimum risk research and safeguarding confidentiality and anonymity further uphold ethical standards. Such commitments underscore the research's dedication to participants' rights and well-being, promoting transparency and accountability.

Data Analysis

This section outlined the systematic steps and methodologies to transform data into actionable knowledge. From data collection and preparation to exploratory analysis, statistical modeling, and interpretation, each phase plays a crucial role in unveiling patterns, trends, and correlations that guide informed conclusions.

In this study, research question number one (1) utilized a descriptive-analytical scheme, collecting data on variables such as age, sex, length of service, and highest educational attainment. Furthermore, research question number one (1) utilized the frequency count and percentage to determine the profile of the respondents in terms of age, sex, length of service, and highest educational attainment.

The researcher also utilized a descriptive-analytical scheme to determine the media literacy level in terms of personal and pedagogical – didactical when taken as a whole and grouped according to variables. Research question number two (2) utilized mean.

This study utilized descriptive analytical scheme to determine the extent of technological adaptation in terms of personal productivity, information presentation, classroom management, analyze student performance, and electronic resources when taken as a whole and grouped according to variables. Research question number three (3) utilized mean.

Research question number four (4) utilized descriptive analytical scheme to determine the extent of practices of 21st century skills in terms of learning and innovative skills, information, media, and technology skills, and life and career skills when taken as a whole and grouped according to variables. Research question number four (4) utilized mean

Research question number five (5) utilized descriptive analytical scheme to determine the level of performance of pupils in terms of general weighted average according to the Department of Education's rating guide. Research question number five (5) utilized mean.

Research question number six (6) utilized comparative analytical scheme to determine if there is a significant difference in the level of media literacy of teachers in terms of personal and pedagogical – didactical when grouped according variables. Research question number six (6) utilized Mann – Whitney U test and Kruskal Wallis H test.

Research question number seven (7) utilized a comparative analytical scheme to determine if there is a significant difference in the extent of technological adaptation of teachers in terms of personal productivity, information presentation, classroom management, analysis of student performance, and electronic resources when grouped according to variables. Research question seven (7) utilized the Mann – Whitney U and Kruskal Wallis H tests.

Research question number eight (8) utilized a comparative analytical scheme to determine if there is a significant difference in the extent of practices on the 21st-century skills of teachers in terms of learning and innovative skills, information, media, and technology

skills, life and career skills when grouped according to variables. Research question number eight (8) utilized the Mann – Whitney U test and the Kruskal Wallis H test.

Research question number nine (9) utilized a correlational analytical scheme to determine if there is a significant relationship between media literacy and the performance of pupils, Gamma Coefficient was used.

Research question number ten (10) utilized a correlational analytical scheme to determine if there is a significant relationship between technological adaptation and the performance of pupils, Gamma Coefficient was used.

Research question number ten (10) utilized a correlational analytical scheme to determine if there is a significant relationship between 21st-century skills practiced by teachers and the performance of pupils, Gamma Coefficient was used.

Research question number ten (11) utilized a correlational analytical scheme to determine if there is a significant relationship between media literacy and technological adaptation, Gamma Coefficient was used.

Research question number ten (11) utilized a correlational analytical scheme to determine if there is a significant relationship between technological adaptation and practices of 21st-century skills, the Gamma Coefficient was used.

Research question number ten (11) utilized a correlational analytical scheme to determine if there is a significant relationship between media literacy and practices of 21st-century skills of teachers, Gamma Coefficient was used.

Results and Discussion

In this section, the data gathered were further treated, presented, analyzed, and interpreted to focus on the specific problem of the study. It presents the study's findings through statistical tools and treatment of descriptive and inferential data.

Frequency and Percent Distribution of Respondents

Table 2 on the next page summarizes respondents' demographic attributes, encompassing essential categories such as age, sex, length of service, rank, and highest educational attainment. Each category is meticulously detailed with both frequency (f) and percentage (%), providing a clear and insightful snapshot of the composition of the surveyed group. The age distribution within the table reveals a varied representation across different age brackets, highlighting the presence of both younger educators starting their careers and more experienced professionals contributing to their extensive tenure. This diversity in age demographics offers valuable insights into the generational mix within the educational workforce.

Sexual demographics underscore the predominance of one gender over the other, reflecting broader trends within the educational sector. Length of service categories depict a spectrum of professional experience levels, ranging from novice educators to those with significant institutional knowledge and seniority. Professional ranks within the table illustrate the hierarchical structure prevalent in educational institutions, indicating the distribution of responsibilities and leadership roles among respondents. Educational attainment data delineates the academic qualifications of respondents, distinguishing between those with Bachelor's, Master's, or other degrees, thereby highlighting the educational diversity and expertise within the surveyed group.

Table 2. *Frequency and Percent Distribution of Respondents according to Profile*

Profile	*Category*	*Frequency (f)*	*Percent (%)*
Age	51 and above	14	9.7
	41-50	45	31.3
	31-40	36	25.0
	21-30	49	34.0
	Total	144	100.0
Sex	Male	11	7.6
	Female	133	92.4
	Total	144	100.0
Length of Service	36 years and Above	5	3.5
	31-35	11	7.6
	26-30	15	10.4
	21-35	18	12.5
	16-20	32	22.2
	11-15	16	11.1
	10 years & below	47	32.6
	Total	144	100.0
Rank	Teacher I	56	38.9
	Teacher II	20	13.9
	Teacher III	54	37.5
	Head Teacher I	2	1.4

	Master Teacher I	9	6.3
	Master Teacher II	3	2.1
	Total	144	100.0
Highest Educational Attainment	Bachelor's Degree	81	56.3
	Master's Degree	60	41.7
	Others	3	2.1
	Total	144	100.0

The age distribution reveals a diverse representation across different life stages. The largest cohort falls within the 21-30 age bracket, comprising 49 respondents or 34.0% of the total sample. This demographic skew towards younger adults suggests a significant presence of early-career professionals within the surveyed group. In contrast, individuals aged 41-50 account for 45 respondents or 31.3%, highlighting a substantial middle-aged cohort contributing to the dataset. Moreover, respondents aged 51 and above constitute 14 individuals or 9.7%, reflecting a smaller yet notable segment of more seasoned professionals within the surveyed population.

Sex composition is prominently skewed towards females, who comprise 133 respondents or 92.4% of the total, contrasting starkly with males, who constitute only 11 respondents or 7.6%. This notable gender imbalance underscores prevailing gender dynamics within the surveyed profession, aligning with broader trends observed in educational and societal contexts.

Furthermore, Length of service delineates a range of professional tenures within the surveyed group. Most respondents have accrued less than 20 years of service, with significant contingents falling into the ten years and below category (47 respondents or 32.6%) and the 16-20 years category (32 respondents or 22.2%). Conversely, individuals with over 35 years of service constitute a smaller yet distinct segment, comprising five respondents or 3.5% of the total. This distribution underscores a continuum of experience levels among respondents, potentially influencing organizational knowledge transfer and professional development dynamics within their respective contexts.

Professional rank distribution highlights a hierarchical structure typical of educational settings. Teacher I ranks highest, with 56 respondents or 38.9%, followed closely by Teacher III, with 54 respondents or 37.5%. Less common ranks such as Master Teacher I (9 respondents or 6.3%) and Head Teacher I (2 respondents or 1.4%) represent advanced career stages, illustrating pathways for professional growth and leadership within the educational profession.

In addition, Educational attainment among respondents emphasizes high academic achievement. The majority hold Bachelor's Degrees (81 respondents or 56.3%), underscoring a foundational educational credential within the surveyed profession. Additionally, 60 respondents, or 41.7%, possess Master's Degrees, indicating a significant proportion of respondents have pursued advanced studies, which indicates a commitment to continuous professional development and expertise enhancement.

In conclusion, the detailed breakdown of respondents' profiles provides valuable insights into the composition of the surveyed group. By presenting both frequency and percentage distributions across critical categories such as age, sex, length of service, rank, and educational attainment, the table offers a comprehensive understanding of the surveyed cohort's demographics and professional attributes. These insights are crucial for informing targeted strategies in recruitment, professional development, and institutional support within educational contexts, ensuring alignment with educators' diverse needs and experiences.

Level of Media Literacyin terms of Personal Competency and Pedagogical -Didactical Competency

Table 3 on the next page shows teachers' level of media literacy as a whole and when grouped in terms of personal competency and pedagogical -didactical competency. Table 3 provides a detailed assessment of teachers' media literacy regarding personal competency and pedagogical-didactical competency, alongside an overall evaluation.

Table 3. *Level of Media Literacy of Teachers as a whole and when grouped in terms of Personal Competency and Pedagogical -Didactical Competency*

Media Literacy	*N*	*Mean*	*Interpretation*
Personal Competency	144	3.41	Very Literate
Pedagogical-Didactical Competency	144	3.19	Literate
	As a whole	3.30	Very Literate

Table 3 shows a detailed assessment of the media literacy levels among teachers, both collectively and when categorized by personal competency and pedagogical-didactical competency. The data reveals that across all respondents (n=144), the mean media literacy score is 3.30, indicating a classification of very literate.

In addition, when examining the breakdown by competency, teachers score slightly higher in terms of personal competency with a mean of 3.41, suggesting they are perceived as very literate in handling media within personal contexts. In contrast, the mean score for pedagogical-didactical competency is slightly lower at 3.19, falling within the literate range but indicating a marginally lower perceived proficiency in integrating media into teaching and instructional practices.

These findings suggest that while teachers demonstrate strong personal media literacy skills, there may be areas for improvement in

effectively incorporating media into pedagogical strategies. This differentiation in competency levels highlights potential areas where targeted professional development and training initiatives could be beneficial. For instance, enhancing pedagogical approaches that effectively leverage media in classrooms could help bridge any perceived gap between personal media literacy and its application in educational contexts.

Furthermore, the implications of these findings are significant for educational institutions and policymakers aiming to enhance teaching practices in the digital age. Strengthening teachers' media literacy across both personal and pedagogical domains supports their professional growth and enhances their ability to navigate and critically evaluate media content, ultimately benefiting student learning outcomes. By investing in targeted training programs that address these competency areas, educational stakeholders can foster a more digitally competent teaching workforce capable of effectively integrating media into curriculum delivery.

In conclusion, results underscore the dual proficiency of teachers in media literacy, highlighting their solid competency while suggesting opportunities for enhancing pedagogical-didactical applications. This nuanced understanding underscores the importance of tailored strategies to support teachers in effectively harnessing media for educational purposes, ensuring they can navigate the complexities of media in both personal and professional contexts.

Moreover, the results of this study conform with Simon et al. (2018) that with the pervasive influence of media, schools are increasingly tasked with regulating its presence and usage within educational settings, such as managing student mobile phone use and internet behavior. However, this regulation should not only restrict but also educate and foster media literacy by teaching students how to effectively manage the opportunities and risks of media consumption. Enhancing media literacy is integral to education's broader pedagogical mission, akin to promoting civic engagement, sustainability education, and social skills. Explicit media education is crucial to cultivating students' critical thinking and creative use of media as educational tools inside and outside the classroom. Moreover, education must emphasize literacy development and current affairs knowledge to empower students to reflect on media's societal impacts critically and actively contribute to a well-informed global community.

Media Literacy of Teachers as a whole and when grouped according to Age

Table 4.1 provides an insightful breakdown of teachers' perceived media literacy levels based on different age groups, as well as an overall assessment. The mean scores indicate varying levels of confidence and competency across age categories, accompanied by an interpretation label.

Table 4.1. *Level of Media Literacy of Teachers as a whole and when grouped according to Age*

Age	*Mean*	*Interpretation*
51 and Above	3.12	Literate
41-50	3.31	Very literate
31-40	3.41	Very literate
21-30	3.49	Very literate
As a Whole	3.33	Very literate

Starting with the age-specific analysis, teachers aged 21-30 exhibit the highest mean score of 3.49, interpreted as very literate. It suggests that younger teachers perceive themselves as highly competent in media literacy due to their familiarity and comfort with digital technologies from a younger age. Similarly, teachers aged 31-40 and 41-50 also demonstrate strong confidence with mean scores of 3.41 and 3.31, respectively, interpreted as very literate. This trend indicates a consistently high media literacy level across these mid-career age groups.

In contrast, teachers aged 51 and above show a slightly lower mean score of 3.12, interpreted as literate. While still positive, this score suggests that older teachers may perceive themselves as less proficient in media literacy than their younger counterparts. It could reflect differences in digital upbringing and varying levels of exposure to evolving digital tools throughout their careers. Overall, the combined mean score for media literacy is 3.33, which falls under very literate. This indicates a widespread positive perception among teachers regarding their overall competency in media literacy across all age groups surveyed.

In addition, the data reveals notable differences in media literacy perceptions based on age. Younger teachers show the highest confidence levels due to their greater exposure to digital technologies from an early age. In contrast, while still confident, older teachers may benefit from targeted professional development opportunities focused on enhancing digital literacy skills to bridge any perceived gaps. Furthermore, the strong agreement across all age groups regarding media literacy highlights a collective strength in the teaching workforce. This solid foundation presents opportunities for educational institutions to leverage teachers' existing competencies in media literacy to innovate teaching practices, enhance digital learning experiences, and prepare students for a technology-driven future.

In conclusion, the results provide valuable insights into the relationship between age and teachers' perceptions of media literacy. Understanding these dynamics can inform targeted professional development and curriculum enhancement strategies, ultimately contributing to a more digitally competent teaching workforce and better student educational outcomes.

The results of this study agree with McNelly and Harvey (2021), stating that age was found to have an impact on teachers' media literacy knowledge. Specifically, they observed that their reported media literacy knowledge tended to decrease as teachers' age

increased. However, these findings contrast with research by Schmidt (2013), which indicated that older teachers with more teaching experience were more likely to integrate media literacy practices in their classrooms than younger, less experienced teachers. Therefore, to enhance teachers' proficiency in media literacy education, it is crucial to provide ongoing professional development workshops and resources targeting experienced teachers who, like the study sample, may require additional support.

Media Literacy of Teachers as a whole and when grouped according to Sex

Table 4.2 presents a nuance analysis of teachers' perceptions of media literacy categorized by sex, offering valuable insights into how male and female educators view their competency in media usage.

Table 4.2. *Level of Media Literacy of Teachers as a whole and when grouped according to Sex*

Sex	*Mean*	*Interpretation*
Male	3.35	Very Literate
Female	3.29	Literate
As a Whole	3.32	Very Literate

The data reveals that male teachers have a mean score of 3.35, indicating a Very literate interpretation regarding their proficiency in media literacy. This suggests a high confidence level among male educators in their ability to navigate and utilize media personally and within educational contexts effectively. Conversely, female teachers show a slightly lower mean score of 3.29, interpreted as literate, indicating a positive but somewhat less pronounced perception of their media literacy skills compared to their male counterparts.

The difference in perception between male and female teachers highlights potential disparities in digital literacy experiences and comfort levels with technology. Factors such as varying exposure to digital tools and differing confidence levels in using technology may contribute to these differences. Understanding these dynamics is crucial for developing targeted professional development initiatives that address specific needs related to gender and digital literacy.

Overall, the combined mean score for media literacy is 3.32, which falls under the very literate category. This collective positive perception across male and female teachers underscores a strong foundation in media literacy within the teaching profession. It suggests that educators, regardless of sex, generally feel well-prepared to integrate media effectively into their teaching practices and support students in developing critical media literacy skills.

Furthermore, the implications of these findings extend to educational policy and practice. Schools and educational institutions can use this data to design inclusive professional development programs that cater to educators' diverse needs and experiences. Targeted support initiatives can empower all teachers to enhance their digital literacy skills, foster innovative teaching practices, and prepare students for success in a digital world. It provides insights into gender-related differences in teachers' perceptions of media literacy and underscores the importance of equitable access to digital skills development and ongoing support for educators. By addressing these factors, educational stakeholders can ensure that teachers can effectively leverage media to enhance student learning outcomes and prepare future-ready graduates.

The results of this study agree with the study of Celebi & Cupor (2019), which found that male secondary school teachers demonstrated higher proficiency in accessing media messages and analyzing them than their female counterparts. This indicates that male teachers may have a more developed ability to navigate and critically evaluate media content. It underscores the importance of targeted professional development and training initiatives to enhance media literacy skills across all educators. This ensures equitable access to skills that are increasingly essential in navigating and utilizing media effectively in educational settings.

Media Literacy of Teachers as a whole and when grouped according to Length of Service

Table 4.3 provides a comprehensive analysis of teachers' perceptions of media literacy categorized by their length of service, along with an overall assessment. The data reveals varying levels of confidence and competency among different tenure groups, as indicated by mean scores and interpretation labels.

Table 4.3. *Level of Media Literacy of Teachers as a whole and when grouped according to Length of Service*

Length of Service	*Mean*	*Interpretation*
36 years and above	3.24	Literate
31-35	3.09	Literate
26-30	2.96	Literate
21-25	3.27	Very Literate
16-20	3.27	Very Literate
11-15	3.32	Very Literate
10 years & below	3.47	Very Literate
As a Whole	3.23	Literate

Teachers with ten years and below of service exhibit the highest mean score of 3.47, interpreted as very literate. It suggests that newer teachers feel particularly adept at using media in their professional roles, possibly benefiting from recent educational training emphasizing digital literacy skills. Their high confidence likely stems from familiarity with modern digital tools and technologies integral to contemporary teaching practices. Similarly, teachers with 11-15 years of service also show a strong perception with a mean score of 3.32, falling under very literate. This group's confidence reflects a balance of experience and ongoing adaptation to digital advancements throughout their careers, enabling them to incorporate multimedia resources into their teaching methodologies effectively.

Conversely, teachers with 26-30 years of service have a lower mean score of 2.96, categorized as literate. This group may have encountered significant technological changes over their tenure, potentially impacting their perception of media literacy compared to their more recently trained colleagues.

The combined mean score for media literacy is 3.23, indicating a literate interpretation across all length-of-service categories. This collective positive perception underscores a foundational level of media literacy competency among teachers, regardless of their career stage.

The data highlights several important implications for educational practice and professional development. Firstly, it underscores the critical role of initial and ongoing training in digital literacy skills for newer teachers, ensuring they are well-prepared to leverage media effectively in teaching and learning. This could involve integrating digital literacy into teacher preparation programs and providing continuous professional development opportunities focused on emerging technologies and pedagogical strategies. Secondly, the varying perceptions among different tenure groups suggest a need for targeted support and training initiatives tailored to the evolving needs of experienced educators. Teachers with more extended service, such as those in the 26-30 years category, may benefit from specialized workshops and resources to refresh their digital skills and update their teaching practices to align with current technological trends. Lastly, educational policymakers can use these insights to shape policies that promote a culture of digital fluency and lifelong learning among educators. By investing in comprehensive strategies for enhancing media literacy across all stages of a teacher's career, policymakers can foster an environment where educators feel confident and capable of leveraging digital tools to enhance student educational outcomes.

The results of this study provide valuable insights into how length of service influences teachers' perceptions of media literacy. Addressing these insights through targeted professional development and supportive policies can strengthen educators' abilities to integrate media effectively into teaching practices, ultimately preparing students for success in a digitally-driven world.

These results differ from the study of Celebi & Cupor (2019), that teachers who have been in the profession for an extended period tend to exhibit higher proficiency in problem-solving. Veteran teachers often develop a repertoire of strategies and approaches through years of practice and professional development, enabling them to effectively navigate and resolve issues that arise in their teaching environments. Consequently, the observed increase in problem-solving skills with seniority underscores the value of experience and continuous professional growth in shaping educators' ability to effectively address the complexities of teaching and learning.

Media Literacy of Teachers as a whole and when grouped according to Rank

Table 4.4 presents a detailed breakdown of teachers' perceived media literacy levels categorized by their ranks, alongside an overall evaluation of the teaching profession's competency in this domain. The mean scores and interpretation labels provide valuable insights into how various levels of experience and responsibility influence teachers' confidence in media literacy.

Table 4.4. *Level of Media Literacy of Teachers as a whole and when grouped according to Rank*

Rank	*Mean*	*Interpretation*
Teacher 1	3.42	Very Literate
Teacher II	3.25	Literate
Teacher III	3.22	Literate
Head Teacher I	3.18	Literate
Master Teacher I	3.14	Literate
Master Teacher II	3.06	Literate
As a Whole	3.21	Literate

When grouped according to rank, Teacher I rank highest with a mean score of 3.42, indicating a very literate interpretation. It suggests that entry-level teachers feel highly competent in utilizing media effectively, likely benefiting from recent training and exposure to digital tools integral to modern teaching practices. Following closely, Teacher II ranks demonstrate a mean score of 3.25, categorized as Literate. This indicates a positive perception of media literacy skills among mid-career educators, though slightly less pronounced than Teacher I. Similarly, Teacher III ranks show a mean score of 3.22 under literate, indicating a solid confidence level in their media literacy competencies. This group's perception reflects a balance of experience and ongoing adaptation to digital advancements in education.

In contrast, higher-ranking educators such as Head Teacher I and Master Teacher I exhibit mean scores of 3.18 and 3.14, respectively,

interpreted as literate. These scores suggest that while these educators perceive themselves as competent in media literacy, their confidence levels are somewhat tempered compared to their lower-ranking counterparts. Conversely, Master Teacher II ranks lowest with a mean score of 3.06, still categorized as literate. This group's perception indicates a positive but more cautious stance toward their media literacy skills, possibly reflecting a more conservative approach to digital integration in teaching.

The overall mean score of 3.21 for media literacy across all ranks, interpreted as literate, indicates a generally positive perception of competency within the teaching profession. This score reflects educators' collective confidence in effectively utilizing and integrating media into teaching practices. It underscores a strong foundation in media literacy skills among teachers, essential for fostering critical thinking, digital citizenship, and innovative learning environments. This positive assessment suggests that ongoing professional development and technological integration initiatives have effectively equipped educators with the necessary skills to navigate and harness media's potential in education. Moving forward, leveraging this foundation can further enhance instructional strategies and support students in developing essential skills for success in a digital world.

The findings highlight several implications for educational practice and professional development. Firstly, the higher mean scores among lower-ranking teachers (Teacher I, Teacher II, and Teacher III) underscore their confidence in media literacy. It suggests a need to capitalize on their enthusiasm and skills through targeted professional development programs focused on advanced digital pedagogies and multimedia integration. Secondly, while higher-ranking educators (Head Teacher I, Master Teacher I, and Master Teacher II) also perceive themselves positively in media literacy, there is an opportunity to address any potential gaps through specialized training and support initiatives. These include leadership in digital learning strategies and ensuring that educators at all levels can effectively guide their peers and students in utilizing media for enhanced educational outcomes.

Furthermore, the collective positive perception of media literacy across ranks emphasizes fostering a culture of continuous improvement and innovation in digital skills within educational institutions. By investing in comprehensive strategies for professional growth and support, schools can empower educators to navigate the complexities of digital media effectively, thereby preparing students for success in a digitally-driven world.

In conclusion, results provide a nuanced view of how different ranks perceive media literacy within the teaching profession. Addressing these perceptions through tailored professional development initiatives and collaborative learning opportunities can strengthen instructional practices and student engagement in today's technology-rich educational environments.

Furthermore, in contrast with Park et al. (2020) when analyzed by rank, it becomes evident that higher professional seniority correlates positively with enhanced problem-solving skills among secondary school teachers, reflecting the cumulative benefits of experience and ongoing professional development. These findings emphasize the importance of targeted interventions to promote media literacy across all levels of teaching, ensuring educators are equipped to navigate and utilize media effectively in educational contexts. Moving forward, fostering a culture of continuous learning and support for media literacy among educators will be essential to meet the evolving demands of digital-age education and empower teachers to enhance educational outcomes for their students.

Media Literacy of Teachers as a whole and when grouped according to Educational Attainment

Table 4.5 provides an insightful breakdown of teachers' perceived media literacy levels categorized by their highest educational attainment, along with an overall mean score. The mean scores and interpretation labels highlight varying degrees of confidence and competency in media literacy among different educational backgrounds within the teaching profession.

Table 4.5. *Level of Media Literacy of Teachers as a whole and when grouped according to Educational Attainment*

Highest Educational Attainment	*Mean*	*Interpretation*
Bachelor's Degree	3.31	Very Literate
Master's Degree	3.27	Very Literate
Others	3.46	Very Literate
As a Whole	3.34	Very Literate

Starting with the analysis of educational attainment, teachers with a bachelor's degree demonstrate a mean score of 3.31, interpreted as very literate. This suggests that educators with undergraduate qualifications feel highly proficient in utilizing media, likely benefiting from foundational training in digital literacy during their academic studies. Similarly, teachers holding a Master's Degree show a mean score of 3.27, falling under literate. This group also expresses a positive perception of media literacy skills, albeit slightly lower than those with Bachelor's Degrees. Their confidence in media literacy may stem from advanced coursework and research experiences related to digital technologies and educational media.

Interestingly, teachers classified under others, which likely includes educators with diverse or specialized educational backgrounds, demonstrate the highest mean score of 3.46, interpreted as very literate. This group's heightened confidence in media literacy may reflect specialized training or professional development emphasizing advanced digital skills relevant to their specific roles within education.

The overall mean score for media literacy is 3.34, categorized as very literate. This collective perception underscores a robust level of

competency across all educational attainment categories within the teaching profession, indicating a solid foundation in utilizing media effectively for educational purposes.

The findings reveal several implications for educational practice and professional development. Firstly, the higher mean scores among teachers with Bachelor's Degrees and Others suggest a need to leverage their expertise in media literacy through targeted professional development programs. These initiatives could focus on enhancing pedagogical approaches that integrate multimedia resources and promote digital literacy skills among students. Moreover, while educators with master's degrees also demonstrate a positive perception of media literacy, there is an opportunity to address potential gaps through specialized training in advanced digital pedagogies and educational technologies. This could further empower them to innovate and adapt teaching practices to meet the evolving needs of students in a digital age.

Furthermore, the overall strong perception of media literacy competency across different educational backgrounds highlights the effectiveness of current educational strategies in preparing teachers to navigate digital environments effectively. Educational institutions can build on this foundation by investing in curriculum development, technological infrastructure, and professional learning opportunities that foster digital fluency among educators.

In conclusion, it underscores the importance of ongoing support and development in enhancing media literacy competencies across diverse educational backgrounds within the teaching profession. By addressing these insights, schools can empower educators to leverage media effectively, enhancing instructional quality and preparing students for success in a digitally driven world.

On the contrary, the expectation that teachers with higher academic qualifications would possess superior digital skills does not align with the findings of this study from the study of Sanchez et al. (2021). Similarly, concerning the educational level at which teachers are employed, consistent with the findings of Fernandez-Cruz et al. (2018), educators teaching at higher levels demonstrate a more robust profile of digital competencies. These insights underscore the complex interplay between academic qualifications, teaching environment, and digital skill development among educators, highlighting the need for targeted strategies to enhance digital literacy across all levels of education.

Extent of Technological Adaptation of Teachers

The table 5 on the next page presents the extent of technological adaptation of teachers as a whole in terms of personal productivity, information presentation, classroom management, and analysis of student performance and electronic resources. The mean scores and interpretation labels shed light on how educators perceive their integration of technology into different aspects of their professional practice.

Table 5. *Extent of Technological Adaptation of Teachers as a whole and in terms of Personal Productivity, Information Presentation, Classroom Management, Analyze Student Performance and Electronic Resources*

Technological Adaptation	*Mean*	*Interpretation*
Personal Productivity	3.20	Great Extent
Information Presentation	3.14	Great Extent
Classroom Management	3.13	Great Extent
Analyze Student Performance	3.04	Great Extent
Electronic Resources	2.94	Great Extent
As a Whole	3.09	Great Extent

Regarding individual domains, Personal Productivity ranks highest with a mean score of 3.20, interpreted as great extent. This suggests that teachers feel confident in using technology to enhance their productivity, likely through tools for lesson planning, grading, and administrative tasks. Information Presentation follows closely with a mean score of 3.14, also categorized as great extent. This indicates that educators are adept at effectively utilizing technology to present information, leveraging multimedia tools and digital platforms to engage students in diverse learning formats. Furthermore, Classroom Management receives a mean score of 3.13, indicating a firm reliance on technology to manage classroom activities efficiently. This may include using digital tools for attendance, behavior management systems, and communication with students and parents.

However, the analyzing student performance scores were slightly lower, with a mean of 3.04, and still fell under great extent. This suggests that while educators utilize technology for assessing student progress and performance, there may be opportunities to enhance data analysis skills and use more advanced assessment tools. The same is true for electronic resources, which also receives the lowest mean score of 2.94, categorized as great extent. This domain indicates that while teachers use digital resources in their teaching, there is room for growth in leveraging a more comprehensive range of electronic materials and online resources to enrich instructional content.

The overall mean score for technological adaptation is 3.09, interpreted as to a great extent. This collective perception underscores a solid integration of technology across various facets of teaching practice, highlighting educators' proficiency in utilizing digital tools to enhance teaching effectiveness and efficiency.

The findings suggest several implications for educational practice and professional development. Firstly, while educators demonstrate

strong technological adaptation in areas like personal productivity and information presentation, there is a need to enhance proficiency in domains such as electronic resources and analyzing student performance. This could be addressed through targeted training programs focusing on expanding digital literacy skills, incorporating data-driven decision-making processes, and accessing a broader range of digital educational materials. In addition, the positive perception of technology's role in classroom management underscores its effectiveness in improving organizational efficiencies within educational settings. This highlights the importance of integrating technology into administrative tasks and communication channels to streamline workflows and enhance collaboration among educators, students, and parents.

Furthermore, the overall strong integration of technology in teaching practices signifies a readiness among educators to embrace digital transformation in education. Educational institutions can build on this foundation by fostering a culture of innovation and continuous improvement through ongoing professional development, technological infrastructure upgrades, and supportive policies that encourage experimentation with new digital tools and pedagogical approaches.

The results of this study align with the study of Jorge-Vasquez (2021), which that university faculty generally exhibit intermediate levels of digital skills, with younger generational cohorts showing more advanced proficiency, irrespective of variables. Factors such as the technological resources available at the university center and the provision of targeted training programs on the pedagogical application of digital technologies have been identified as influential factors shaping the development of digital skills among faculty members. These findings underscore the importance of institutional support and ongoing professional development initiatives in fostering digital literacy among educators in higher education.

Technological Adaptation of Teachers as a whole and when grouped according to Age

Table 6.1 provides a detailed breakdown of teachers' perceived extent of technological adaptation categorized by age groups, alongside an overall assessment. The mean scores and interpretation labels highlight varying degrees of confidence and usage of technology among different age demographics within the teaching profession.

Table 6.1. *Extent of Technological Adaptation of Teachers as a whole and when grouped according to Age*

Age	*Mean*	*Interpretation*
51 and Above	2.88	Great Extent
41-50	2.99	Great Extent
31-40	3.30	Very Great Extent
21-30	3.38	Very Great Extent
As a Whole	3.13	Great Extent

Among age groups, teachers aged 51 and above report the lowest mean score of 2.88, interpreted as great extent. This suggests a moderate reliance on technology for their professional practices, reflecting potentially less exposure or familiarity with digital tools than younger counterparts. Furthermore, teachers aged 41-50 demonstrate a mean score of 2.99, also categorized as great extent. This group shows a slightly higher level of technological adaptation, indicating a gradual increase in comfort and proficiency with digital tools as compared to older age groups.

In addition, in the 31-40 age group, teachers report a mean score of 3.30, reflecting a higher level of technological adaptation described as great extent. This age group shows significant confidence in utilizing technology, likely benefiting from increased exposure and training opportunities in digital tools throughout their careers. Moreover, Teachers aged 21-30 exhibit the highest mean score of 3.38, interpreted as very great extent. This indicates a firm reliance on and proficiency in technology, reflecting their status as digital natives who have grown immersed in digital environments and are adept at seamlessly integrating technology into their teaching practices.

The mean score for technological adaptation across all age groups is 3.13, categorized as great extent. This collective perception suggests a robust technology integration across the teaching profession, underscoring educators' proficiency in leveraging digital tools to enhance teaching and learning experiences.

The findings imply that while younger teachers (aged 21-30) demonstrate the highest level of technological adaptation, there is an opportunity to leverage their expertise through mentorship and collaborative learning initiatives that can benefit older colleagues. Furthermore, the positive trend of increasing technological adaptation with younger age groups highlights the importance of continuous professional development tailored to the evolving digital landscape. Educational institutions can invest in targeted training programs catering to different age demographics, focusing on enhancing digital literacy skills and effectively integrating innovative digital tools into teaching practices.

In addition, addressing the slightly lower scores among older age groups (51 and above, 41-50) indicates a need for specialized support and resources to bridge gaps in technological proficiency. This could involve personalized training sessions, peer support networks, and accessible resources designed to build confidence and competence in using technology for educational purposes.

Finally, the result underscores the diverse perceptions and practices of technological adaptation among teachers across different age groups. By capitalizing on generational strengths and addressing specific developmental needs, educational institutions can foster a

culture of innovation and digital fluency that benefits educators and enhances student learning outcomes in a rapidly evolving digital era.

Furthermore, the results of this study confirm the study of Melo Fiallos et al. (2018) that younger teachers from the millennial generation demonstrate a more advanced profile in digital skills, whereas older teachers, particularly from the Baby Boomer generation, exhibit lower levels of digital proficiency. This divide suggests that younger cohorts, who have grown up in a digital age, are more adept at leveraging digital technologies than their older counterparts, who may have had less exposure or formal training in digital tools and methods. Addressing this generational gap through targeted training and support initiatives is crucial to ensuring all faculty members can effectively utilize digital technologies to enhance teaching and learning experiences in higher education.

Technological Adaptation of Teachers as a whole And when grouped according to Sex

Table 6.2 provides an overview of teachers' perceived extent of technological adaptation categorized by sex, alongside an overall assessment. The mean scores and interpretation labels offer insights into how male and female educators perceive and utilize technology in their professional roles.

Table 6.2. *Extent of Technological Adaptation of Teachers as a whole and when grouped according to Sex*

Sex	*Mean*	*Interpretation*
Male	3.15	Great Extent
Female	3.08	Great Extent
As a Whole	3.12	Great Extent

Male teachers report a mean score of 3.15, interpreted as great extent. This suggests a high confidence level and proficiency among male educators in utilizing technology to enhance their teaching practices, indicating a solid integration of digital tools for various educational purposes. Similarly, female teachers demonstrate a mean score of 3.08, also categorized as great extent. This indicates a robust reliance on technology in their professional practices, showcasing a significant utilization of digital tools for instructional delivery, classroom management, and professional development.

The overall mean score for technological adaptation across both sexes is 3.12, interpreted as great extent. This collective perception underscores a solid technology integration within the teaching profession, highlighting educators' proficiency in leveraging digital tools to support student learning and enhance educational outcomes.

The findings suggest several implications for educational practice and professional development based on sex differences in technological adaptation. Firstly, the similar mean scores between male and female teachers indicate a balanced utilization of technology across genders within the teaching profession. This underscores the importance of equitable access to digital resources and support regardless of sex. It ensures that all educators have the tools and training to integrate technology into their teaching practices effectively.

Furthermore, the high mean scores for both male and female teachers reflect a strong foundation in technological adaptation, suggesting that current professional development initiatives and technological infrastructure support have effectively fostered digital literacy skills among educators. Moving forward, schools can build on this foundation by offering advanced training opportunities that explore innovative digital tools and pedagogical strategies, thereby enhancing instructional effectiveness and student engagement.

Moreover, teachers' collective high perception of technological adaptation emphasizes the role of ongoing support and collaborative learning in sustaining and expanding digital competencies within educational settings. By fostering a culture of continuous improvement and innovation, educational institutions can empower educators to stay abreast of technological advancements and leverage them to meet the diverse learning needs of students in today's digital age.

In conclusion, it highlights the positive perceptions and practices of technological adaptation among male and female educators. By addressing the insights and implications identified, schools can further enhance digital fluency across the teaching profession, ultimately contributing to enriched learning experiences and improved educational outcomes for all students.

Furthermore, these findings resonate with previous studies, such as Cabero-Almenara et al. (2021) and Orozco et al. (2019), which similarly found that both men and women exhibit an intermediate level of digital competence. Additionally, Basantes-Andrade (2020) concludes that gender does not significantly influence teachers' level of digital skills. Together, these studies underscore the consistent pattern across different contexts that digital competence among educators is generally moderate and not significantly influenced by gender. This highlights the broader trend that proficiency in digital skills among teachers is more closely linked to factors such as age, generational cohort, and institutional support rather than gender-specific characteristics.

Technological Adaptation of Teachers as a whole and when grouped according to Length of Service

Table 5.3 presents a comprehensive view of teachers' perceived extent of technological adaptation categorized by their length of service, alongside an overall assessment. The mean scores and interpretation labels provide valuable insights into how educators' proficiency in utilizing technology varies across different stages of their careers.

Table 5.3. *Extent of Technological Adaptation of Teachers as a whole and when grouped according to Length of Service*

Length of Service	*Mean*	*Interpretation*
36 years and above	2.94	Great Extent
31-35	2.94	Great Extent
26-30	2.82	Great Extent
21-25	2.95	Great Extent
16-20	2.96	Great Extent
11-15	3.13	Great Extent
10 years & below	3.35	Very Great Extent
As a Whole	3.01	Great Extent

Among teachers with 36 years and above of service, the mean score is 2.94, interpreted as great extent. This suggests a moderate level of technological adaptation among more experienced educators, reflecting their gradual adoption of digital tools over their teaching careers. The same is true for teachers with 31-35 years of service, who also report a mean score of 2.94, categorized as great extent. This group demonstrates a comparable level of technological adaptation, indicating a consistent use of technology to support teaching practices despite longer tenures in the profession.

In addition, Teachers in the 26-30 years of service category show a slightly lower mean score of 2.82, interpreted as great extent. This suggests a subtle decrease in perceived technological adaptation compared to their more junior counterparts, possibly influenced by evolving technological advancements over their careers.

Teachers with 21-25 years of service report a mean score of 2.95, categorized as great extent. This group maintains a firm reliance on technology, indicating ongoing integration of digital tools despite nearing the midpoint of their teaching careers. Moreover, teachers with 16-20 years of service demonstrate a mean score of 2.96, also categorized as great extent. This group continues to emphasize the importance of technological adaptation, showcasing their sustained engagement with digital tools throughout their professional journey.

Furthermore, Teachers with 11-15 years of service exhibit a higher mean score of 3.13, interpreted as great extent. This suggests a notable increase in technological adaptation among mid-career educators, likely benefiting from advancements in digital resources and professional development opportunities. Among teachers with ten years and below of service, the mean score is 3.35, interpreted as very great extent. This indicates a firm reliance on and proficiency in technology among early-career educators, reflecting their familiarity with digital tools from recent training and educational experiences.

The overall mean score for technological adaptation across all lengths of service is 3.01, categorized as great extent. This collective perception underscores a solid technology integration within the teaching profession, highlighting educators' proficiency in leveraging digital tools to support effective teaching and learning practices.

The findings from Table 3c reveal several implications for educational practice and professional development based on educators' length of service. Firstly, the varying mean scores across different tenure categories underscore the importance of tailored professional development programs that cater to educators' evolving needs and technological competencies at different career stages. For more experienced teachers (36 years and above, 31-35 years), targeted training initiatives can focus on updating digital skills and integrating new technologies into established teaching practices.

Moreover, the higher mean scores among mid-career teachers (11-15 years) and early-career educators (10 years and below) highlight their proficiency and comfort in using technology. This suggests a need to leverage their expertise in digital tools through mentorship programs and collaborative learning environments that encourage knowledge sharing and innovation across the teaching profession.

Furthermore, the overall positive perception of technological adaptation among teachers indicates a readiness to embrace digital transformation in education. Schools can build on this foundation by investing in technological infrastructure, providing ongoing support for digital literacy development, and fostering a culture of innovation that encourages educators to explore and implement new digital tools and pedagogical strategies.

In conclusion, it underscores the diverse perceptions and practices of technological adaptation among educators at different stages of their careers. By addressing the insights and implications identified, educational institutions can further enhance digital fluency across the teaching profession, ultimately contributing to enriched learning experiences and improved educational outcomes for all students in today's digital age.

These results agree with Eskici & Cayak (2023), suggesting that years of experience alone may not be a determining factor in the level of technological skills and their integration among educators. Their finding challenges the assumption that longer tenure inherently leads to higher proficiency in technology use or integration in educational settings. Instead, it underscores the need for targeted professional development programs that cater to educators at all stages of their careers, ensuring ongoing skill enhancement and adaptation to technological advancements. Institutions should consider providing continuous training and support to educators, regardless of seniority, to foster a more cohesive and effective integration of technology in teaching practices.

Technological Adaptation of Teachers as a whole and when grouped according to Rank

Table 5.4 on the next page provides a comprehensive view of teachers' perceived extent of technological adaptation categorized by their rank, offering insights into how different levels of educators integrate technology into their professional practices. The mean scores and interpretation labels shed light on the varying degrees of proficiency and utilization of digital tools across different ranks within the teaching profession.

Table 5.4. *Extent of Technological Adaptation of Teachers as a whole and when grouped according to Rank*

Rank	*Mean*	*Interpretation*
Teacher 1	3.29	Very Great Extent
Teacher II	2.93	Great Extent
Teacher III	3.00	Great Extent
Head Teacher I	3.23	Great Extent
Master Teacher I	2.87	Great Extent
Master Teacher II	2.53	Great Extent
As a Whole	2.97	Great Extent

Teachers holding the rank of Teacher 1 demonstrate the highest mean score of 3.29, interpreted as great extent. This group exhibits strong confidence and proficiency in leveraging technology for instructional delivery and administrative tasks. Their high score suggests that Teacher 1 educators actively incorporate digital tools to enhance teaching effectiveness, streamline administrative processes, and engage students through multimedia resources. In contrast, teachers with the rank of Teacher II report a slightly lower mean score of 2.93, also categorized as to a great extent. While still demonstrating a solid reliance on technology, this group may exhibit a nuanced difference in the extent and variety of digital tools used compared to Teacher 1. Professional development opportunities tailored to Teacher II educators could focus on expanding their repertoire of digital teaching strategies and tools to enhance instructional practices further.

Furthermore, teachers classified as Teacher III show a mean score of 3.00, indicating a comparable level of technological adaptation to Teacher II. This suggests that educators in this rank are proficient in integrating technology into their teaching and administrative responsibilities, albeit with potential variations in the specific applications and depth of technological integration across different contexts.

Head Teacher I stand out with a higher mean score of 3.23, categorized as a great extent. This group demonstrates a significant reliance on technology for leadership roles within schools, utilizing digital tools to manage administrative tasks efficiently, facilitate communication among staff and stakeholders, and support teaching staff in integrating technology into classroom practices.

On the other hand, Master Teacher I and Master Teacher II exhibit lower mean scores of 2.87 and 2.53, respectively, also categorized as great extent. These ranks indicate a lower perceived level of technological adaptation than other ranks. This suggests a potential gap in digital proficiency and integration among Master Teachers, highlighting the need for targeted professional development initiatives that address their specific technological needs and promote the use of advanced digital tools in their instructional roles.

The overall mean score for technological adaptation across all ranks is 2.97, categorized as great extent. This collective perception underscores a solid integration of technology within the teaching profession, indicating educators' proficiency in leveraging digital tools to enhance teaching effectiveness and administrative efficiency across different ranks.

The findings reveal several implications for educational practice and professional development based on educators' ranks. Firstly, the varying mean scores across different ranks underscore the importance of tailored professional development initiatives that address educators' specific technological needs and competencies at various leadership levels. For instance, programs can focus on enhancing digital leadership skills for Head Teachers and integrating advanced digital pedagogies for classroom teachers. Secondly, the slightly lower mean scores among Master Teachers (Master Teacher I and Master Teacher II) suggest a need for targeted support and resources to enhance further their digital literacy skills and confidence in utilizing technology. This could involve specialized training sessions, peer mentoring opportunities, and access to innovative digital tools that align with their instructional responsibilities.

Furthermore, the overall positive perception of technological adaptation among teachers underscores the readiness of educators to embrace digital transformation in education. Schools can capitalize on this foundation by fostering a culture of continuous improvement and innovation through ongoing professional development, technological infrastructure investments, and collaborative learning communities that encourage experimentation with new digital tools and instructional strategies.

In conclusion, it highlights the diverse perceptions and practices of technological adaptation among educators across different ranks. By addressing the insights and implications identified, educational institutions can further enhance digital fluency across the teaching profession, ultimately contributing to enriched learning experiences and improved educational outcomes for all students in today's digital age.

About the study of Sacramento et al. (2022), the high adaptability of teachers in technology, regardless of their rank, underscores their

capacity to integrate and utilize technological tools in educational settings effectively. This adaptability suggests that educators at all levels, whether they are junior faculty or senior administrators, demonstrate a willingness and capability to embrace new technologies to enhance teaching and learning experiences. This flexibility is crucial in navigating the evolving landscape of digital education, where rapid technological advancements require continuous adaptation and learning. It also highlights the proactive approach of educators in leveraging technology to innovate instructional methods, regardless of hierarchical position within educational institutions.

Technological Adaptation of Teachers as a whole and when grouped according to Educational Attainment

Table 5.5 provides a detailed analysis of teachers' perceived extent of technological adaptation categorized by their highest educational attainment, alongside an overall assessment. The mean scores and interpretation labels offer insights into how educators with different academic backgrounds integrate technology into their professional practices.

Table 5.5. *Extent of Technological Adaptation of Teachers as a whole and when grouped according to Educational Attainment*

Highest Educational Attainment	*Mean*	*Interpretation*
Bachelor's Degree	3.13	Great Extent
Master's Degree	3.03	Great Extent
Others	3.25	Great Extent
As a Whole	3.14	Great Extent

Teachers with a Bachelor's Degree report a mean score of 3.13, interpreted as great extent. This group demonstrates a strong proficiency and confidence in utilizing technology for instructional delivery, administrative tasks, and professional development. The score suggests that educators with a Bachelor's Degree are adept at incorporating digital tools to enhance teaching effectiveness and support student learning across various subjects and grade levels. Furthermore, teachers holding a Master's Degree show a slightly lower mean score of 3.03, also categorized as great extent. While still demonstrating a high level of technological adaptation, this group may exhibit nuanced differences in the breadth and depth of digital tools used compared to their counterparts with a Bachelor's Degree. Professional development opportunities tailored to educators with a Master's Degree could focus on advancing their expertise in specific digital tools and pedagogical approaches that align with their academic specialization and teaching responsibilities.

Teachers classified under Others, which typically includes those with specialized certifications or alternative educational backgrounds, report the highest mean score of 3.25, interpreted as great extent. This group shows a firm reliance on and proficiency in technology, likely benefitting from specialized training and certifications that enhance their digital literacy skills and ability to integrate innovative digital tools into teaching practices effectively.

The overall mean score for technological adaptation across all educational attainments is 3.14, categorized as great extent. This collective perception underscores a robust integration of technology within the teaching profession, indicating educators' proficiency in leveraging digital tools to support instructional delivery, enhance administrative efficiency, and foster student engagement and learning outcomes.

The findings reveal several implications for educational practice and professional development based on educators' highest educational attainments. Firstly, the varied mean scores across different educational backgrounds highlight the importance of personalized professional development initiatives that cater to the specific technological needs and competencies of educators with different academic qualifications. For educators with a Bachelor's Degree, ongoing professional development can focus on expanding their repertoire of digital tools and pedagogical strategies to enhance instructional practices across diverse student populations and subject areas. This could involve workshops, collaborative learning communities, and access to updated resources that promote effective technology integration in classroom settings.

Similarly, educators with a Master's Degree may benefit from advanced training programs that deepen their understanding of emerging technologies and their application in specialized fields of study. Professional development initiatives can encourage these educators to explore innovative digital tools, research digital pedagogies, and mentor colleagues in integrating technology into curriculum design and instructional delivery methods. For educators categorized under others, investing in specialized training and certification programs can further strengthen their digital literacy skills and confidence in using technology to address unique educational challenges and student needs. Schools can support these educators by providing access to professional networks, specialized training modules, and opportunities for collaborative projects that showcase their expertise in leveraging technology to enhance teaching effectiveness and student engagement.

In conclusion, the result underscores the diverse perceptions and practices of technological adaptation among educators based on their highest educational attainments. By addressing the insights and implications identified, educational institutions can foster a culture of continuous learning and innovation that empowers educators to harness the full potential of technology in advancing educational excellence and improving learning outcomes for all students in today's digital age.

This study is supported by the study of Eskici and Cayak (2023), who suggest that the level of formal education attained by educators does not inherently correlate with higher levels of technological skills or their integration into teaching practices. This challenges the

notion that educators with advanced degrees possess superior technological proficiency compared to those with lower academic qualifications. Secondly, these results underscore the need for targeted professional development initiatives that address technological competence across all educational levels. Institutions should prioritize continuous training and support for educators to ensure they can effectively utilize technology in diverse educational contexts. Lastly, the findings highlight the importance of assessing individual competencies and tailoring professional development efforts accordingly rather than assuming a direct link between academic credentials and technological proficiency among educators.

Extent of Practices on the 21st Century Skills of Teachers in terms of Learning and Innovative Skills, Information, Media, and Technology Skills and Life & Career Skills

Table 7 provides a comprehensive overview of teachers' perceived extent of practices related to 21st-century skills, categorized into Learning and Innovative Skills, Information, Media, and Technology Skills, as well as Life and Career Skills, along with an overall assessment. The mean scores and interpretation labels offer insights into how educators prioritize and integrate these critical skills into their teaching practices.

Table 7. *Extent of Practices on the 21st Century Skills of Teachers as a whole and in terms of Learning and Innovative Skills, Information, Media, and Technology Skills and Life & Career Skills*

Practices on the 21st Century Skills	*mean*	*Interpretation*
Learning and Innovative Skills	3.19	Great Extent
Information, Media, and Technology Skills	3.25	Great Extent
Life and Career Skills	3.51	Very Great Extent
As a Whole	3.31	Very Great Extent

In Learning and Innovative Skills, teachers report a mean score of 3.19, interpreted as great extent. This suggests that educators emphasize fostering creativity, critical thinking, collaboration, and problem-solving skills among students. Educators aim to cultivate a learning environment that promotes innovation and prepares students for future challenges and opportunities by integrating these skills into their instructional approaches.

Furthermore, in Information, Media, and Technology Skills, teachers demonstrate a higher mean score of 3.25, also categorized as great extent. This indicates a strong focus on equipping students with essential competencies in information literacy, digital citizenship, and proficiency in utilizing technology for research, communication, and learning. Educators prioritize the development of these skills to empower students to navigate and contribute effectively in an increasingly digital and interconnected world.

In addition, life and career skills stand out, with the highest mean score of 3.51, interpreted as very great extent. This underscores educators' dedication to preparing students with communication, collaboration, adaptability, leadership, and global awareness skills. These skills are crucial for students' personal growth, career readiness, and success in an evolving global workforce, reflecting educators' commitment to holistic development beyond academic achievement.

The overall mean score for practices related to 21st-century skills across all categories is 3.31, categorized as very great extent. This collective perception highlights educators' commitment to integrating and prioritizing 21st-century skills in their teaching practices. It underscores the importance placed on preparing students with comprehensive competencies essential for lifelong learning, success in higher education, and future career endeavors.

The insights underscore educators' commitment to integrating and prioritizing 21st-century skills in their teaching practices. Specifically, the focus on Learning and Innovative Skills highlights educators' efforts to foster creativity, critical thinking, collaboration, and problem-solving among students, which are essential for preparing them to navigate a dynamic world. Similarly, the emphasis on Information, Media, and Technology Skills reflects educators' dedication to equipping students with competencies in digital literacy, information fluency, and responsible technology use, which are crucial for their academic and professional success in an interconnected society.

Moreover, the significant emphasis on life and career skills indicates educators' recognition of the importance of holistic education. By prioritizing communication, adaptability, leadership, and global awareness, educators aim to prepare students for personal growth, career readiness, and effective participation in the global workforce. These efforts reflect a commitment to nurturing well-rounded individuals who thrive in diverse environments. The overall high mean score across all categories for practices related to 21st-century skills reinforces educators' proactive approach to adapting teaching methodologies and curriculum frameworks. This approach not only meets the evolving educational needs of students but also supports their development as lifelong learners equipped with essential competencies for future challenges and opportunities.

In conclusion, it highlights educators' pivotal role in preparing students for the complexities of the modern world through the integration of Learning and Innovative Skills, Information, Media, and Technology Skills, as well as Life and Career Skills. By aligning educational practices with these foundational skills, schools can empower students to thrive academically, professionally, and personally in an interconnected global society.

This result is supported by Sulaiman and Ismael (2020), who states that teacher competence plays a pivotal role in successfully implementing 21st-century skills within educational organizations. Teachers' abilities to refine their talents and maximize their potential are crucial in embodying superior personal competencies that facilitate the integration of new skills demanded by the 21st century. Competent and highly motivated educators are better equipped to adopt inclusive, real-world approaches that effectively impart these skills to students. Therefore, there is a pressing need to expand the scope of research on 21st-century skills among teachers. Future studies should aim for greater comprehensiveness, exploring various influences and developing models that foster a culture conducive to 21st-century skills development in educational settings. This research will inform educational practice and contribute to the broader goal of preparing students to thrive in a rapidly changing global landscape.

Practices on the 21st Century Skills of Teachers as a whole and grouped according to Age

Table 8.1 shows the teachers' perceived extent of practices related to 21st-century skills, segmented by age groups and culminating in an overall assessment. The mean scores and interpretation labels offer valuable insights into how different age demographics within the teaching profession prioritize and integrate these critical skills into their instructional practices.

Table 8.1. *Extent of Practices on the 21st Century Skills of teachers as a whole and grouped according to Age*

Age	*Mean*	*Interpretation*
51 and Above	3.16	Great Extent
41-50	3.25	Great Extent
31-40	3.49	Very Great Extent
21-30	3.52	Very Great Extent
As a Whole	3.35	Very Great Extent

Teachers aged 51 and above report a mean score of 3.16, interpreted as great extent. This indicates a solid commitment among senior educators to incorporate 21st-century skills such as critical thinking, communication, and digital literacy into their teaching methodologies. While slightly lower than younger age groups, this score reflects a proactive approach among senior teachers in adapting to evolving educational paradigms and equipping students with essential competencies for the future. Furthermore, in the 41-50 age group, teachers demonstrate a mean score of 3.25, also categorized as great extent. This strongly emphasizes integrating innovative teaching practices and technology-enhanced learning experiences. Educators in this cohort are likely leveraging their experience and expertise to foster a learning environment that promotes creativity, collaboration, and digital fluency among students.

In addition, the age group of 31-40 stands out with a mean score of 3.49, interpreted as very great extent. This group is highly dedicated to advancing 21st-century skills in their teaching practices, emphasizing critical thinking, problem-solving, and technological proficiency. Their proactive stance underscores a deep commitment to preparing students for future challenges and opportunities through innovative instructional strategies and digital literacy initiatives. Similarly, educators aged 21-30 report the highest mean score of 3.52, also categorized as very great extent. This younger demographic demonstrates a robust integration of 21st-century skills, leveraging their familiarity with digital tools and innovative pedagogies to enhance student engagement and learning outcomes. Their proactive approach aligns with contemporary educational practices, prioritizing technological fluency and adaptive learning methodologies.

The overall mean score for practices related to 21st-century skills across all age groups is 3.35, categorized as a very great extent. This collective perception highlights a comprehensive commitment among educators of varying ages to integrate essential skills critical for student's academic success, career readiness, and lifelong learning in a globalized society.

Moreover, the findings reveal several critical implications for educational practice and professional development based on age demographics. Firstly, the variation in mean scores across different age groups underscores the importance of tailored professional development initiatives that cater to educators' specific needs and technological competencies at different stages of their careers. For instance, programs can focus on enhancing digital fluency among senior educators while providing opportunities for younger teachers to explore innovative teaching methodologies and emerging technologies. Moreover, the higher mean scores among younger age groups (31-40 and 21-30) suggest a generational shift towards embracing and integrating 21st-century skills more extensively into classroom practices. Educational institutions can leverage this generational perspective by fostering mentorship programs and collaborative learning communities that facilitate knowledge-sharing and innovation among educators of different age groups.

Furthermore, the overall high mean score across all age groups indicates a collective readiness within the teaching profession to adapt and innovate in response to the evolving educational landscape. Schools can capitalize on this readiness by investing in technological infrastructure, providing ongoing professional development opportunities, and fostering a culture of continuous improvement that supports educators in enhancing their instructional practices and student outcomes.

In conclusion, it highlights teachers' diverse approaches to integrating 21st-century skills across different age groups. By addressing the insights and implications identified, educational institutions can foster a dynamic learning environment that prepares students for success in a rapidly changing world. Through strategic professional development and supportive educational policies, schools can empower educators to effectively cultivate critical thinking, collaboration, digital literacy, and other essential skills for students' future

academic and professional endeavors.

Furthermore, this result is also supported by Sulaiman & Ismael (2020) that younger teachers' exhibit significantly higher engagement in practicing 21st-century skills compared to their older counterparts, highlighting a generational divide in educational practices. This disparity underscores the evolving nature of educational methodologies and the increasing integration of modern skills such as critical thinking, collaboration, digital literacy, and problem-solving into teaching approaches. Younger teachers, often more familiar with contemporary technological advancements and pedagogical innovations, are naturally inclined to incorporate these skills into their instructional practices actively.

Practices on the 21st Century Skills of Teachers as a whole and grouped according to Sex

Table 8.2 on the next page provides a comprehensive overview of teachers' perceived extent of practices related to 21st-century skills, categorized by sex and culminating in an overall assessment. The mean scores and interpretation labels reveal insights into how male and female teachers prioritize and integrate critical skills into their instructional practices.

Table 8.2. *Extent of Practices on the 21st Century Skills of Teachers as a whole and grouped according to Sex*

Sex	*Mean*	*Interpretation*
Male	3.34	Very Great Extent
Female	3.32	Very Great Extent
As a Whole	3.33	Very Great Extent

Male teachers report a mean score of 3.34, interpreted as very great extent. This indicates a robust commitment among male teachers to fostering 21st-century skills such as critical thinking, collaboration, digital literacy, and innovation in their teaching methodologies. Their high score suggests a proactive approach to leveraging these skills to enhance student learning outcomes and prepare them for future challenges in a globally interconnected society. Similarly, female teachers demonstrate a mean score of 3.32, also categorized as to a very great extent. This underscores a strong dedication among female teachers to integrating essential competencies like communication, problem-solving, and technological proficiency into their instructional practices. Female teachers prioritize creating inclusive and engaging learning environments that promote creativity, adaptability, and lifelong learning skills among students.

The overall mean score for practices related to 21st-century skills across both sexes is 3.33, categorized as a very great extent. This collective perception highlights a unified commitment within the teaching profession to prioritize and advance critical skills essential for students' academic success and future career readiness in a rapidly evolving digital landscape.

The findings underscore several implications for educational practice and professional development based on sex demographics. Firstly, the negligible difference in mean scores between male and female teachers indicates a shared commitment to integrating 21st-century skills, irrespective of gender. This suggests that male and female teachers are equally dedicated to preparing students with essential competencies to thrive in the 21st century. In addition, the high mean scores across both sexes reflect a collective readiness among teachers to adapt instructional practices and curriculum frameworks to meet the evolving needs of students. Educational institutions can capitalize on this readiness by fostering collaborative learning communities, providing ongoing professional development opportunities, and investing in technological infrastructure that supports innovative teaching methodologies and digital fluency among teachers.

Furthermore, the emphasis on integrating 21st-century skills in teaching practices highlights teachers' role as key drivers of educational innovation and transformation. Schools can enhance teacher support systems by promoting peer learning, mentorship programs, and access to resources that facilitate continuous improvement and effective integration of critical skills across diverse student populations.

In conclusion, it underscores the unified commitment among male and female teachers to prioritize and integrate 21st-century skills into their instructional practices. By leveraging the insights and implications identified, educational institutions can foster a collaborative and innovative learning environment that equips students with essential competencies for success in a globalized and technology-driven society. Through strategic initiatives and supportive educational policies, schools can empower teachers to continue advancing their pedagogical practices and preparing students for future academic and professional endeavors.

These findings are consistent with the results of Gómez-Trigueros., & Yáñez, which underscore differences between male and female teachers in their perceived importance of critical aspects crucial for practical training in digital competencies among future educators. Particularly among female teachers, deficiencies are noted in their capacity to select, evaluate, and utilize appropriate digital technologies for instructional purposes inside and outside the classroom. Similarly, female teachers demonstrate a lack of implementation in responsibly managing and organizing digital technologies and spaces within their university settings.

Practices on the 21st Century Skills of Teachers as a whole and grouped according to Length of Service

Table 8.3 presents an in-depth analysis of teachers' perceived extent of practices related to 21st-century skills, categorized by length of service and culminating in an overall assessment. The mean scores and interpretation labels provide valuable insights into how teachers at different career stages prioritize and integrate critical skills into their instructional practices.

Table 8.3. *Extent of Practices on the 21st Century Skills of teachers as a whole and grouped according to Length of Service*

Length of Service	*Mean*	*Interpretation*
36 years and above	3.14	Great Extent
31-35	3.31	Very Great Extent
26-30	3.12	Great Extent
21-25	3.11	Great Extent
16-20	3.30	Great Extent
11-15	3.37	Very Great Extent
10 years & below	3.49	Very Great Extent
As a Whole	3.26	Great Extent

Teachers with 36 years and above of service report a mean score of 3.14, interpreted as great extent. This suggests a solid commitment among veteran teachers to incorporating 21st-century skills such as critical thinking, collaboration, and digital literacy into their teaching methodologies. Despite their extensive experience, these educators demonstrate a proactive approach to adapting to contemporary educational needs and preparing students for future challenges. In the 31-35 years of service category, teachers demonstrate a mean score of 3.31, categorized as very great extent. This indicates a heightened dedication among mid-career educators to advancing 21st-century skills in their teaching practices. They prioritize fostering innovation, problem-solving, and technological proficiency to enhance student engagement and academic achievement.

Similarly, teachers with 26-30 years of service and 21-25 years of service exhibit mean scores of 3.12 and 3.11, respectively, interpreted as great extent. This reflects a strong commitment among teachers in these cohorts to integrate essential competencies that prepare students for success in a digital and globally interconnected world. Teachers with 16-20 years of service report a mean score of 3.30, also categorized as great extent. This group emphasizes the importance of critical thinking, communication, and adaptability in their instructional approaches, fostering a learning environment that nurtures students' intellectual and personal growth. Furthermore, teachers with 11-15 years of service demonstrate a mean score of 3.37, indicating very great extent. This suggests a robust integration of 21st-century skills, including creativity, collaboration, and technological fluency, to support students' holistic development and readiness for future academic and professional pursuits.

The most recent entrants, with ten years and below of service, exhibit the highest mean score of 3.49, categorized as very great extent. This younger cohort is proactive in leveraging digital tools, innovative pedagogies, and interdisciplinary approaches to enhance student learning outcomes and prepare them for a rapidly evolving digital landscape. In addition, the overall mean score for practices related to 21st-century skills across all length of service categories is 3.26, interpreted as great extent. This collective perception underscores a comprehensive commitment among teachers of varying experience levels to integrate critical skills essential for student's academic success, career readiness, and lifelong learning in a globalized society.

The findings reveal several implications for educational practice and professional development based on length of service. Firstly, the variation in mean scores across different career stages highlights the importance of tailored professional development initiatives that cater to teachers' specific needs and technological competencies at various points in their careers. Schools can leverage this diversity to create mentorship programs and collaborative learning communities that facilitate knowledge-sharing and innovation among educators. Moreover, the high mean scores across all lengths of service categories reflect a collective readiness among teachers to adapt instructional practices and curriculum frameworks to meet the evolving needs of students. Educational institutions can capitalize on this readiness by providing ongoing professional development opportunities, fostering a culture of continuous improvement, and investing in technological infrastructure that supports innovative teaching methodologies and digital fluency among educators. Furthermore, emphasizing integrating 21st-century skills in teaching practices highlights teachers' pivotal role in driving educational innovation and transformation. Schools can enhance support systems by promoting peer learning, facilitating interdisciplinary collaboration, and providing access to resources that effectively empower teachers to integrate critical skills across diverse student populations.

Ultimately, it underscores the unified commitment among teachers at different career stages to prioritize and integrate 21st-century skills into their instructional practices. By leveraging the insights and implications identified, educational institutions can foster a dynamic learning environment that equips students with essential competencies for success in a globalized and technology-driven society. Through strategic initiatives and supportive educational policies, schools can empower teachers to continue advancing their pedagogical practices and preparing students for future academic and professional endeavors.

Furthermore, these findings align with Eskici and Cayak (2023), indicating that years of experience do not necessarily correlate with higher proficiency in 21st-century technological skills and their integration among educators. This challenges the notion that longer tenure automatically results in enhanced technology use or integration in educational contexts. Instead, it emphasizes the importance of targeted professional development programs that address the evolving demands of 21st-century skills across all career stages. Institutions should prioritize continuous training and support for educators to ensure they can effectively adapt and enhance their technological competencies. This approach will foster a cohesive and effective integration of technology into teaching practices, preparing educators to meet modern education's challenges effectively.

Practices on the 21st Century Skills of Teachers as a whole and grouped according to Rank

Table 8.4 provides a detailed assessment of teachers' perceived extent of practices related to 21st-century skills, segmented by rank and culminating in an overall evaluation. The mean scores and interpretation labels offer valuable insights into how different ranks within the teaching profession prioritize and integrate critical skills into their instructional approaches.

Table 8.4. *Extent of Practices on the 21st Century Skills of Teachers as a whole and grouped according to Rank*

Rank	*Mean*	*Interpretation*
Teacher 1	3.46	Very Great Extent
Teacher II	3.33	Very Great Extent
Teacher III	3.22	Great Extent
Head Teacher I	3.62	Very Great Extent
Master Teacher I	3.13	Great Extent
Master Teacher II	2.91	Great Extent
As a Whole	3.27	Very Great Extent

Teachers holding the rank of Head Teacher I demonstrate the highest mean score of 3.62, interpreted as very great extent. This indicates a robust commitment among senior education leaders to advance 21st-century skills such as critical thinking, collaboration, digital literacy, and innovation within their educational settings. Their proactive approach underscores their role in shaping educational practices and fostering a conducive learning environment that prepares students for future challenges and opportunities. Following closely, teachers with the rank of Teacher 1 exhibit a mean score of 3.46, categorized as great extent. This group emphasizes the integration of essential competencies like problem-solving, communication, and technological proficiency in their instructional practices. Their dedication highlights their role in implementing innovative teaching methodologies that enhance student engagement and academic achievement.

Furthermore, teachers holding the rank of Teacher II report a mean score of 3.33, also interpreted as very great extent. This group demonstrates a strong commitment to fostering 21st-century skills in their teaching approaches, leveraging their experience and expertise to create learning environments that promote students' creativity, critical thinking, and digital fluency. Teachers with the rank of Teacher III exhibit a mean score of 3.22, categorized as great extent. This group emphasizes the importance of integrating critical skills into their instructional practices. It focuses on preparing students for success in a rapidly changing global landscape through effective pedagogical strategies and technological integration.

In contrast, Master Teacher I and Master Teacher II, with mean scores of 3.13 and 2.91, respectively, categorized as great extent, demonstrate a slightly lower emphasis on 21st-century skills than their counterparts in higher-ranking positions. Nonetheless, they still emphasize the integration of essential competencies that promote student learning and development across various academic disciplines.

The overall mean score for practices related to 21st-century skills across all ranks is 3.27, interpreted as great extent. This collective perception highlights a comprehensive commitment among teachers of varying ranks to integrate critical skills essential for student's academic success, career readiness, and lifelong learning in a globalized society.

The findings reveal several implications for educational practice and professional development based on rank within the teaching profession. The variation in mean scores across different ranks underscores the importance of leadership in driving educational innovation and transformation. Senior leaders, such as Head Teachers, play a pivotal role in setting the tone for integrating 21st-century skills by providing strategic direction, resources, and support to teachers at all levels. Furthermore, the higher mean scores among Head Teachers and Teacher 1s suggest a proactive approach to implementing innovative teaching methodologies and fostering a culture of continuous improvement. Educational institutions can capitalize on these insights by fostering mentorship programs, collaborative learning communities, and professional development initiatives that effectively empower teachers to integrate critical skills into their instructional practices.

In addition, the emphasis on integrating 21st-century skills in teaching practices highlights teachers' role as key influencers in shaping students' readiness for future academic and professional endeavors. Schools can enhance support systems by promoting peer learning, facilitating interdisciplinary collaboration, and providing access to resources that empower teachers to innovate and adapt to changing educational paradigms.

The result underscores the unified commitment among teachers of different ranks to prioritize and integrate 21st-century skills into their instructional practices. By leveraging the insights and implications identified, educational institutions can foster a dynamic learning environment that equips students with essential competencies for success in a globalized and technology-driven society. Through strategic initiatives and supportive educational policies, schools can empower teachers to continue advancing their pedagogical practices and preparing students for future academic and professional endeavors.

Results conform to the study of Esman et al. (2023), that this trend may be attributed to Teacher 1 instructors generally being content with their acceptance into the teaching profession, regardless of advancement opportunities. Additionally, there appears to be an inverse

relationship between rank and proficiency in 21st-century skills, suggesting that lower-ranking teachers exhibit greater competence in these modern skills. This highlights the potential for lower-ranking educators to excel in integrating critical skills such as digital literacy, collaboration, and problem-solving into their teaching practices, possibly due to their closer interaction with classroom realities and direct student engagement.

Practices on the 21st Century Skills of Teachers as a whole and grouped according to Educational Attainment

Table 8.5 shows the teachers' perceived extent of practices related to 21st-century skills, categorized by their highest educational attainment, with an overall evaluation included. The mean scores and interpretation labels offer insights into how educational attainment influences teachers' prioritization and integration of critical skills into their instructional approaches.

Table 8.5. *Extent of Practices on the 21st Century Skills of teachers as a whole and grouped according to Educational Attainment*

Highest Educational Attainment	*Mean*	*Interpretation*
Bachelor's Degree	3.34	Very Great Extent
Master's Degree	3.29	Very Great Extent
Others	3.63	Very Great Extent
As a Whole	3.42	Very Great Extent

Teachers holding a Bachelor's Degree report a mean score of 3.34, interpreted as very great extent. This group demonstrates a strong commitment to fostering 21st-century skills such as critical thinking, collaboration, and technological proficiency in their teaching practices. Their dedication reflects their readiness to adapt and innovate within their classrooms to meet the evolving needs of students in a digital age. Furthermore, teachers with a Master's Degree exhibit a mean score of 3.29, categorized as great extent. This group emphasizes the integration of essential competencies that enhance student learning and prepare them for future academic and professional endeavors. Their advanced educational background equips them with the knowledge and skills to effectively implement innovative teaching methodologies and promote a deeper understanding of 21st-century skills among students.

Teachers classified under others report the highest mean score of 3.63, interpreted as very great extent. This category includes teachers with qualifications beyond traditional Bachelor's and Master's Degrees, such as specialized certifications or additional training in specific educational domains. Their exceptional commitment underscores a deep understanding and application of advanced pedagogical practices and technological integration to foster comprehensive student development.

The overall mean score for practices related to 21st-century skills across all educational attainment categories is 3.42, interpreted as very great extent. This collective perception highlights a strong commitment among teachers of varying educational backgrounds to integrate critical skills essential for students' academic success, career readiness, and lifelong learning in a globalized society.

Implications of this study include the variation in mean scores across different educational categories, which underscores the importance of continuous learning and professional growth in fostering 21st-century skills among educators. Schools can leverage these insights by offering targeted professional development opportunities that cater to teachers' diverse educational backgrounds and learning needs.

Furthermore, the higher mean scores among teachers classified under others suggest a correlation between specialized educational qualifications and enhanced integration of advanced pedagogical practices. Educational institutions can promote innovation and excellence by recognizing and supporting educators with specialized expertise through mentorship programs, collaborative research initiatives, and leadership roles within the school community. In addition, the emphasis on integrating 21st-century skills in teaching practices highlights teachers' pivotal role in preparing students for success in a knowledge-based economy. Schools can enhance support systems by fostering interdisciplinary collaboration, promoting digital literacy initiatives, and providing access to cutting-edge technological resources that empower teachers to innovate and adapt to emerging educational trends.

In conclusion, it emphasizes the collective commitment among teachers with diverse educational backgrounds to prioritize and integrate 21st-century skills into their instructional practices. By leveraging the insights and implications identified, educational institutions can cultivate a dynamic learning environment that equips students with essential competencies for success in an increasingly interconnected and technologically advanced society. Schools can empower teachers to continue advancing their pedagogical practices and preparing students for future academic and professional endeavors through strategic investments in professional development and educational resources.

Furthermore, the findings of this study align with the study of Esman et al. (2023); the high 21st-century skills among teachers with graduate degrees can be attributed to several factors related to 21st-century skills. The results indicate that those with graduate degrees are more satisfied than those without advanced education. Studies support this, suggesting that graduate degree graduates experience higher job satisfaction. The attainment of advanced degrees gives these educators a more profound sense of purpose and fulfillment in their profession. Nyamubi (2017) further suggests that graduate degrees equip teachers with the direction and competence needed to excel in their professional roles, emphasizing continuous learning and skill development in fostering satisfaction and effectiveness in teaching practices aligned with 21st-century demands.

Level of Academic Performance of Pupils

The table below shows the academic performance of pupils when taken as a whole and when grouped according to grade level. Table 9 provides a comprehensive view of the academic performance across different grade levels, highlighting notable variations in achievement among students.

Table 9. *Level of Academic Performance of Pupils when taken as a whole and grouped according to Grade Level*

Grade Level	*Mean*	*Interpretation*
Grade 1	83.97	Satisfactory
Grade 2	84.90	Satisfactory
Grade 3	86.36	Very Satisfactory
Grade 4	84.74	Satisfactory
Grade 5	85.56	Very Satisfactory
Grade 6	84.70	satisfactory
As a Whole	84.91	Satisfactory

Table 9 provides a comprehensive overview of the academic performance of pupils across different grade levels, characterized by mean scores and corresponding interpretations. Grade 1, comprising 31 students, achieved a mean score of 83.97, categorized as satisfactory. This indicates a solid foundational level of academic achievement for students in their early years of primary education. Grade 2 closely follows with 30 students and a mean score of 84.90, similarly falling within the satisfactory range, suggesting consistent performance as students' progress.

Grade 3 stands out with a mean score of 86.36, classified as very satisfactory. This indicates a higher level of academic performance among the 14 students in this grade compared to their peers in Grades 1, 2, 4, and 6. Grade 5 also demonstrates strong performance with a mean score of 85.56, categorized as very satisfactory, reflecting continued academic growth and achievement among its 27 students.

Conversely, Grades 4 and 6 show mean scores of 84.74 and 84.70, respectively, both falling within the satisfactory range; while these grades maintain adequate performance levels, there may be opportunities to explore strategies that could potentially elevate their academic outcomes to align more closely with Grades 3 and 5.

The overall mean score for the entire student body, calculated across all grades, is 84.91, indicating an overall satisfactory level of academic performance. This holistic view underscores the consistency in performance across most grade levels, with Grades 3 and 5 demonstrating solid achievements.

In conclusion, the data provides valuable insights into the academic performance trends across different grade levels. Educators and administrators can leverage these insights to identify successful instructional practices and areas for improvement. By enhancing teaching methodologies, fostering student engagement, and providing targeted support where needed, schools can further enhance academic outcomes and ensure continuous growth and success for all students.

Difference in the Level of Media Literacy of Teachers when grouped according to Age

Table 10.1 on the next page provides a structured comparison of teachers' media literacy levels categorized by age groups. Each row represents a distinct age bracket, allowing for a clear assessment of how media literacy varies across different stages of professional experience.

Table 10.1. *Difference in the Level of Media Literacy of Teachers when grouped according to Age*

Age	*n*	*Mean Rank*
51 and Above	49	52.91
41-50	36	73.93
31-40	45	85.36
21-30	14	96.07

Computed value (H): 19.61
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The findings presented in Table 10.1 reveal substantial insights into the media literacy levels of teachers across different age groups, as determined by a Kruskal-Wallis test. The computed H value of 17.88, coupled with a remarkably low p-value of 0.000, indicates significant differences in media literacy among the age-diverse teachers. This statistical outcome underscores the nuanced influence of age on teachers' media literacy competencies, suggesting varying levels of familiarity, proficiency, and critical engagement with media platforms and information sources across generations.

Furthermore, the implications of these findings are far-reaching. Firstly, they highlight the evolving landscape of media consumption and technological adaptation among educators. Younger teachers, likely more immersed in digital technologies and contemporary

media, may demonstrate higher levels of media literacy than their older colleagues, who may have been exposed to different technological environments during their formative years. This disparity underscores the importance of tailored professional development initiatives that cater to the specific needs of different age groups, aiming to enhance media literacy uniformly across the teaching profession.

In addition, identifying significant age-related differences in media literacy levels prompts a critical reassessment of educational practices and curricular frameworks. Integrating media literacy education more comprehensively into teacher training programs and ongoing professional development can empower educators with the skills needed to navigate and critically assess the vast array of media content available today. By fostering a more informed and discerning teaching cohort, educational institutions can better prepare students to navigate the complexities of digital information, thus promoting media literacy as an essential competency in the 21st-century classroom.

In conclusion, the statistical findings underscore the diverse media literacy capabilities among teachers grouped by age and advocate for proactive measures to bridge these gaps through targeted interventions and curriculum enhancements. Embracing these insights can pave the way for a more media-literate teaching community equipped to navigate and harness the transformative potential of media in education and beyond.

In contrast with the research findings, Mcnelly's (2021) study emphasized that no significant difference was observed in media literacy skills across different age groups. This suggests that age alone does not significantly influence individuals' proficiency in understanding and utilizing media effectively. This finding underscores the notion that media literacy skills can be developed and maintained irrespective of age, highlighting the potential for continuous learning and adaptation in navigating media landscapes. It also emphasizes the importance of considering factors beyond age, such as education, experience, and exposure, when assessing and promoting media literacy among individuals.

Difference in the Level of Media Literacy of Teachers when grouped according to Sex

Table 10.2 below provides a detailed analysis of the variance in media literacy levels among teachers categorized by sex. This categorization allows for a comprehensive examination of how media literacy differs between male and female educators.

Table 10.2. *Difference in the Level of Media Literacy of Teachers when grouped according to Sex*

Sex	*n*	*Mean Rank*
Male	11	77.41
Female	133	72.09

Computed value (U): 677.5
P-Value: 0.685
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 10.2 thoroughly analyzes the media literacy levels among teachers categorized by sex, employing a Mann-Whitney U test to ascertain differences. The computed U value of 677.5, accompanied by a p-value of 0.685, leads to the acceptance of the null hypothesis (Ho), indicating no statistically significant difference in media literacy levels between male and female educators at the conventional significance level of 0.05.

This statistical outcome provides an understanding of media literacy dynamics within the teaching profession, suggesting that gender alone may not significantly predict differences in media literacy competencies among educators. Based on the analyzed data, these findings highlight the relatively equitable distribution of media literacy skills between male and female teachers.

While the results show no significant disparity based on sex, they underscore the need for ongoing efforts to monitor and enhance media literacy skills across all educators. This includes considering other potential factors such as educational background, professional experience, and exposure to evolving digital technologies, which may influence media literacy levels independently of gender. Moreover, the findings emphasize the importance of comprehensive strategies for integrating media literacy education into teacher training and professional development programs. By equipping educators with robust skills to critically navigate and utilize media, educational institutions can better prepare students to engage thoughtfully with digital information and media content.

In conclusion, while results reveal no statistically significant difference in media literacy between male and female teachers, these results prompt continued exploration into the broader determinants of media literacy within educational contexts. They advocate for inclusive approaches that promote universal access to media literacy skills, fostering a knowledgeable and adaptable teaching workforce capable of leveraging media for effective educational outcomes.

In contrast, the study of Celebi and Cupor (2019) stated that a significant difference was observed in media literacy skills based on sex/gender. Their finding indicates that males and females exhibit varying proficiency levels in understanding and utilizing media. Such differences underscore the need for tailored educational strategies and interventions to address gender-specific disparities in media literacy. By recognizing and addressing these variations, educators and policymakers can better equip individuals of all genders with the necessary skills to engage with media content and navigate digital environments effectively and critically. This approach promotes

a more equitable distribution of media literacy competencies, fostering informed and empowered media consumers across diverse demographic groups.

Difference in the Level of Media Literacy of Teachers when grouped according to Length of Service

Table 10.3 below provides a detailed analysis of the variations in media literacy levels among teachers categorized by length of service.

Table 10.3. *Difference in the Level of Media Literacy of Teachers when grouped according to Length of Service*

Length of Service	*N*	*Mean Rank*
36 years and above	5	65.10
31-35	11	56.68
26-30	15	33.40
21-25	18	70.72
16-20	32	66.89
11-15	16	73.63
10 years & below	47	93.59

Computed value (H): 27.57
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

Table 10.3 examines the variation in media literacy levels among teachers categorized by length of service, using a statistical test (likely a Kruskal-Wallis or ANOVA test) to assess differences. The computed H value of 27.57, coupled with a p-value of 0.000, leads to the rejection of the null hypothesis (Ho), indicating that there are statistically significant differences in media literacy levels across different lengths of service among educators at the 0.05 significance level.

This statistical finding underscores professional experience's impact on teachers' media literacy competencies. It suggests that educators with varying years of service exhibit distinct levels of familiarity, proficiency, and critical engagement with media platforms and information sources. Younger teachers or those newer to the profession may demonstrate different media consumption habits and technological proficiency compared to more experienced colleagues.

Furthermore, the implications of these findings are profound for educational institutions and professional development initiatives. Recognizing the significant differences in media literacy tied to length of service can inform targeted interventions to enhance media literacy skills throughout educators' careers. Tailored training programs could focus on updating skills, integrating new technologies, and fostering critical thinking to ensure that all educators can effectively navigate and utilize media resources in their teaching practices.

In conclusion, the results highlight professional experience's critical role in shaping teachers' media literacy levels. They emphasize the need for ongoing support and training to equip educators with the necessary skills to adapt to evolving media landscapes and effectively prepare students for the digital age.

Moreover, these findings conform to the study of Celebi and Cupor (2019), stating that there is a notable difference in media literacy skills based on teachers' length of service or tenure. This indicates varying proficiency levels in understanding and using media among educators with different years of experience. These findings underscore the impact of professional tenure on media literacy, suggesting that educators with longer careers possess more excellent knowledge and skills in media consumption, analysis, and critical engagement. This emphasizes the importance of continuous professional development and training initiatives to enhance media literacy skills throughout educators' careers.

Difference in the Level of Media Literacy of Teachers when grouped according to Rank

Table 10.4 presents a comprehensive analysis of the differences in media literacy levels among teachers categorized by their rank.

Table 10.4. *Difference in the Level of Media Literacy of Teachers when grouped according to Rank*

Rank	*N*	*Mean Rank*
Teacher 1	56	87.86
Teacher II	20	65.50
Teacher III	54	63.00
Head Teacher I	2	57.50
Master Teacher I	9	57.61
Master Teacher II	3	58.17

Computed value (H): 12.725
P-Value: 0.026
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

Table 10.4 provides a detailed examination of the disparities in media literacy levels among teachers categorized according to their rank within the educational hierarchy. Through statistical analysis, employing a likely Kruskal-Wallis or ANOVA test, the findings reveal a computed H value of 12.725 and a p-value of 0.026, which leads to the rejection of the null hypothesis (Ho). This signifies a

significant difference in media literacy when grouped according to different ranks of educators at the conventional significance level of 0.05.

These results underscore the influential role of professional rank in shaping educators' media literacy competencies. Educators in higher hierarchical positions may possess more advanced media skills, possibly due to increased access to professional development opportunities, leadership responsibilities, and exposure to evolving digital platforms. Conversely, lower-ranking educators may exhibit varying familiarity and proficiency in navigating media landscapes and critically evaluating digital content.

Furthermore, the implications of these findings extend to educational policy and practice. Recognizing the significant disparities in media literacy linked to rank emphasizes the need for tailored professional development initiatives. These initiatives should address the specific needs of educators at different hierarchical levels, aiming to enhance digital literacy, promote critical engagement with media, and foster effective integration of media resources in teaching and leadership roles. Moreover, results underscore the importance of equitable access to training and resources across all ranks of educators. By fostering a culture of continuous learning and skill development in media literacy, educational institutions can empower educators to effectively navigate the complexities of digital information and leverage media tools to enhance student learning experiences.

Lastly, the findings highlight the critical intersection between professional rank and media literacy within the teaching profession. They advocate for strategic interventions that support educators at all levels in acquiring and refining essential media literacy skills, strengthening their ability to meet the evolving demands of 21st-century education.

In addition, the results of this study confirm the study of Maningo & Hliang (2024), that no significant difference was observed in media literacy skills across different ranks or positions. Their study indicated that teachers, regardless of their professional rank or position within the educational hierarchy, demonstrate similar levels of proficiency in understanding and utilizing media. This finding suggests that factors other than rank, such as individual capabilities, educational background, or personal interest, may significantly influence media literacy skills among educators. It underscores the importance of inclusive educational strategies and continuous professional development efforts to enhance media literacy skills across all levels of the teaching profession.

Difference in the Level of Media Literacy of teachers when grouped according to Highest Educational Attainment

Table 10.5 shows the difference in the level of media literacy of teachers when grouped according to highest educational attainment.

Table 10.5. *Difference in the Level of Media Literacy of Teachers when grouped according to Highest Educational Attainment*

Highest Educational Attainment	*n*	*Mean Rank*
Bachelor's Degree	81	74.62
Master's Degree	60	68.53
Others	3	94.67

Computed value (H): 1.60
P-Value: 0.449
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 10.5 analyses differences in media literacy levels among teachers based on their highest educational attainment. The computed H value of 1.60 with a p-value of 0.449 leads to the decision to accept the null hypothesis (Ho). This indicates that the observed differences in media literacy levels across different educational attainment groups are not statistically significant at the 0.05 significance level.

This finding implies that teachers' media literacy does not vary significantly based on whether they hold a Bachelor's Degree, Master's Degree, or other qualifications. In practical terms, this suggests that, despite varying levels of formal educational attainment, teachers' exhibit comparable proficiency in understanding and utilizing media in their professional capacities. Furthermore, the implications of this non-significant result suggest that efforts to enhance media literacy among teachers should not primarily focus on differences in formal educational credentials. Instead, strategies should consider universal training and professional development opportunities that cater to all educators, regardless of their academic backgrounds. By addressing media literacy through inclusive and comprehensive approaches, educational institutions can ensure a consistent and effective integration of media in teaching practices, fostering a digitally competent teaching workforce.

In conclusion, the findings underscore the homogeneity of media literacy levels among teachers across different levels of educational attainment. This supports the notion that while formal education is essential, other factors, such as professional development and experiential learning, may significantly shape teachers' media literacy skills. Future research and educational policies should thus prioritize holistic approaches to enhancing media literacy, focusing on universal competencies that benefit all educators in their diverse instructional contexts.

Furthermore, according to Tanucan et al. (2021), there is a noticeable trend where teachers with higher educational qualifications exhibit more sophisticated levels of media literacy and technological adaptation than their counterparts with lower educational attainment. This disparity can be attributed to the more profound theoretical knowledge and exposure to progressive teaching methodologies acquired through advanced education. Conversely, educators with lower educational qualifications may benefit from

additional support and tailored training initiatives to enhance their proficiency in media literacy and effectively integrate technology into their teaching practices.

Difference in the Extent of Technological Adaptation of Teachers when grouped according to Age

Table 11.1 on the next page shows the difference in the Extent of Technological Adaptation of teachers when grouped according to age.

Table 11.1. *Difference in the Extent of Technological Adaptation of Teachers when grouped according to Age*

Age	*n*	*Mean Rank*
51 and Above	49	52.91
41-50	36	73.93
31-40	45	85.36
21-30	14	96.07

Computed value (H): 19.61
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The results presented in Table 11.1 indicate a significant difference in the extent of technological adaptation among teachers when grouped according to age. The computed test statistic (H) of 19.61 and a p-value of 0.000 suggest a rejection of the null hypothesis, implying that there is indeed a statistically significant difference in technological adaptation levels across different age groups of teachers.

This finding holds implications for educational practices and policies. Firstly, it underscores the importance of considering age-related factors when designing professional development programs aimed at enhancing technological skills among educators. Younger teachers possess a higher degree of technological proficiency, potentially requiring different types of support than older colleagues, who may need more targeted assistance in adopting new technologies effectively.

Additionally, these results highlight the need for personalized approaches to training and support within educational institutions. Tailoring interventions based on age demographics can ensure that resources are allocated efficiently and effectively, maximizing the impact of professional development initiatives on teaching practices and student learning outcomes. Furthermore, the study's findings suggest a broader implication for integrating technology in education. As digital tools become increasingly prevalent in classrooms, addressing age-related disparities in technological adaptation becomes crucial for fostering inclusive learning environments and maintaining pedagogical relevance across diverse teacher cohorts.

In conclusion, the significant difference in technological adaptation observed among teachers grouped by age emphasizes the importance of proactive measures to bridge these gaps through targeted professional development strategies. By doing so, educational institutions can better equip teachers of all ages with the skills and support necessary to effectively leverage technology in their teaching practices, ultimately benefiting educators and students alike in the digital age.

However, in contrast with the study of Jorge-Vasquez et al. (2020), the survey data indicates no significant differences in the overall level of digital skills based on age among university faculty. However, when categorizing faculty according to generational cohorts, slight variations emerge. Specifically, the youngest teachers from the millennial generation show a notable proficiency, with 51% possessing an advanced digital skills profile, compared to 49% demonstrating an intermediate level. Conversely, among the Baby Boomers and Generation X cohorts, there is a smaller contingent of teachers who exhibit beginner-level proficiency. In the case of the Baby Boomers, this beginner-level group comprises nearly 10% of the total faculty surveyed. These findings suggest that while age alone may not determine digital skill levels uniformly across all faculty, generational differences highlight varying degrees of digital proficiency among different age groups within the academic community.

Difference in the Extent of Technological Adaptation of Teachers when grouped according to Sex

Table 11.2 shows the difference in the extent of technological adaptation of teachers when grouped according to sex.

Table 11.2. *Difference in the Level of Extent of Technological Adaptation of Teachers when grouped according to Sex*

Sex	*n*	*Mean Rank*
Male	11	77.41
Female	133	72.09

Computed value (U): 677.5
P-Value: 0.685
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The results from the analysis of technological adaptation among teachers grouped according to sex reveal a computed test statistic (U) of 677.5 and a corresponding p-value of 0.685. Based on the decision criteria of a 0.05 significance level, it accepts the null hypothesis (Ho), indicating no significant difference in technological adaptation between male and female teachers.

This finding suggests several implications for understanding and addressing technology integration in education. Firstly, it implies that factors other than sex may play a more significant role in determining the extent of technological adaptation among teachers. These factors could include individual interest, prior experience with technology, access to resources, and institutional support.

However, from a practical standpoint, the non-significant difference between male and female teachers in technological adaptation suggests that professional development efforts to enhance technological skills can be broadly inclusive across gender lines. Instead of focusing on gender-specific approaches, efforts could prioritize universal strategies that cater to diverse needs and contexts within the teaching profession.

Moreover, this finding encourages educational policymakers and administrators to adopt a holistic approach to support all teachers in adopting and integrating technology effectively in their classrooms. This approach could involve comprehensive training programs, ongoing mentorship, and equitable access to technological resources to ensure that all educators have the opportunity to enhance their teaching practices through technology.

Lastly, while the analysis indicates no significant difference in technological adaptation between male and female teachers, it underscores the importance of nuanced approaches to professional development and support in fostering a technologically adept teaching workforce. By addressing diverse needs and contexts comprehensively, educational institutions can better equip teachers with the skills and resources needed to meet the evolving demands of 21st-century education effectively.

Furthermore, similar to the study of Jorge–Vasquez et al. (2020), the implication of the analysis reveals that there are no significant differences in the average level of digital competencies among university faculty based on gender. Similarly, there were no differences in the average scores across various levels of technological adoption (acquisition, deepening, and creation of knowledge) based on gender. These findings underscore the equitable distribution of digital competencies among faculty members regardless of gender, suggesting that institutional efforts to promote digital literacy and proficiency should focus on inclusive strategies that benefit all educators equally.

Difference in the Extent of Technological Adaptation of Teachers when grouped according to Length of Service

Table 11.3 shows the difference in the extent of technological adaptation of teachers when grouped according to length of service.

Table 11.3. *Difference in the Level of Extent of Technological Adaptation of Teachers when grouped according to Length of Service*

Length of Service	*n*	*Mean Rank*
36 years and above	5	65.10
31-35	11	56.68
26-30	15	33.40
21-25	18	70.72
16-20	32	66.89
11-15	16	73.63
10 years & below	47	93.59

Computed value (H): 27.57
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The findings presented in Table 11.3 indicate a significant difference in the level of technological adaptation among teachers when grouped according to their length of service. The computed test statistic (H) of 27.57 and a p-value of 0.000 lead to the rejection of the null hypothesis (Ho), suggesting that there are indeed statistically significant differences in technological adaptation levels across different lengths of service among teachers.

This result holds several implications for educational practices and policies. Firstly, it highlights the need for targeted professional development programs that cater to the varying technological needs of teachers at different stages of their careers. Teachers with shorter tenures may require foundational training in basic technological skills. In contrast, those with more extended service might benefit from more advanced or specialized training to stay current with emerging technologies.

Additionally, the significant differences in technological adaptation based on length of service underscore the importance of ongoing support and upskilling opportunities throughout teachers' careers. Providing continuous learning opportunities can help bridge the gap between novice and experienced educators, ensuring all teachers have the necessary skills to integrate technology into their teaching practices effectively. Furthermore, these findings suggest implications for educational institutions' workforce planning and retention strategies. Understanding the technological needs and capabilities associated with different lengths of service can inform policies aimed at recruiting, retaining, and developing a diverse and technologically proficient teaching workforce.

In conclusion, the significant differences observed in technological adaptation among teachers grouped by length of service emphasize the importance of tailored professional development and support approaches. By addressing the specific needs of teachers at various career stages, educational institutions can enhance teaching quality, promote innovation in pedagogy, and ultimately improve student learning outcomes in an increasingly digital educational landscape.

Furthermore, the findings of this study contradict the study of Gokmen & Gokmen (2023); there is no significant relationship between teachers' years of seniority and their acceptance of technology. Despite observing varying mean ranks among different seniority groups—the highest for teachers with 1-5 years and the lowest for those with 10-15 years. The finding underscores the duration of teachers' tenure within the profession does not necessarily influence their openness or acceptance of technological advancements in educational practices.

Difference in the Extent of Technological Adaptation of Teachers when grouped according to Rank

Table 11.4 shows the difference in the extent of technological adaptation of teachers when grouped according to rank.

Table 11.4. *Difference in the Extent of Technological Adaptation of Teachers when grouped according to Rank*

Rank	*n*	*Mean Rank*
Teacher 1	56	87.86
Teacher II	20	65.50
Teacher III	54	63.00
Head Teacher I	2	57.50
Master Teacher I	9	57.61
Master Teacher II	3	58.17

Computed value (H): 12.73
P-Value: 0.026
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

Table 11.4 analyses the extent of technological adaptation among teachers categorized according to their rank. The computed H value of 12.73 and a p-value of 0.026 indicate a significant result, leading to the rejection of the null hypothesis (Ho). This outcome suggests significant differences in how teachers adapt to technology based on their rank within the educational hierarchy.

Upon deeper analysis, it becomes evident that higher-ranked teachers exhibit varying levels of technological adaptation compared to their lower-ranked counterparts. This disparity underscores potential differences in access to resources, administrative support, or professional expectations across different ranks. Higher-ranking teachers may have greater autonomy and responsibility in technology integration initiatives, whereas lower-ranked teachers might face more constraints or varying levels of institutional support.

The implication of these findings is twofold. Firstly, educational institutions need to consider rank differentials when designing policies and initiatives aimed at enhancing technological adaptation among teachers. Tailored professional development programs and resources should be provided to support teachers at all levels, ensuring equitable opportunities for skill development and technology integration in teaching practices. Secondly, these results emphasize the importance of fostering a collaborative environment where knowledge sharing and mentorship between different ranks can promote collective growth in technological proficiency.

In conclusion, it highlights significant disparities in technological adaptation among teachers based on rank and underscores the potential for targeted interventions to bridge these gaps. By acknowledging and addressing these differences, educational institutions can cultivate a more inclusive and supportive environment conducive to effective technology integration across all levels of the teaching profession. This approach not only enhances teaching quality but also prepares educators to effectively meet the evolving demands of modern education.

However, in contrast with Gokmen & Gokmen (2023), higher-ranking educators may benefit from advanced training in leadership and innovative technology integration strategies, while lower-ranking teachers could benefit from foundational skills training. There is a clear need for equitable resource allocation and support mechanisms to ensure all teachers can access the necessary tools and support systems for effective technology integration. This includes revising policies to promote equal opportunities and collaboration among educators at all levels. Lastly, fostering a culture of continuous learning and adaptation to technological advancements is crucial for preparing teachers to meet evolving educational challenges and enhance student learning outcomes through innovative pedagogical approaches.

Difference in the Extent of Technological Adaptation of Teachers when grouped according to Highest Educational Attainment

Table 11.5 shows the difference in the Extent of Technological Adaptation of teachers when grouped according to Highest Educational attainment.

The analysis presented in Table 11.5 examines the extent of technological adaptation among teachers grouped according to their highest educational attainment. The computed test statistic (H) of 1.60 and a p-value of 0.449 lead to a decision to accept the null hypothesis (Ho), indicating no significant difference in technological adaptation levels based on varying levels of educational attainment among teachers.

This result suggests several implications for understanding the relationship between educational background and technological proficiency among educators. Firstly, it implies that while educational attainment is essential, it may not be the sole determinant of technological adaptation. Other factors such as personal interest in technology, professional development opportunities, and

institutional support likely play significant roles in shaping teachers' technological skills regardless of their highest degree earned. Additionally, the non-significant difference in technological adaptation across different levels of educational attainment suggests that professional development efforts aimed at enhancing technological skills can be broadly inclusive. Instead of focusing solely on formal educational qualifications, efforts could prioritize providing relevant training and support that meets the diverse needs of teachers at various educational levels.

Table 11.5. *Difference in the Extent of Technological Adaptation of Teachers when grouped according to Highest Educational Attainment*

Highest Educational Attainment	*n*	*Mean Rank*
Bachelor's Degree	81	74.62
Master's Degree	60	68.53
Others	3	94.67
Total	144	

Computed value (H): 1.60
P-Value: 0.449
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The analysis presented in Table 11.5 examines the extent of technological adaptation among teachers grouped according to their highest educational attainment. The computed test statistic (H) of 1.60 and a p-value of 0.449 lead to a decision to accept the null hypothesis (Ho), indicating no significant difference in technological adaptation levels based on varying levels of educational attainment among teachers.

This result suggests several implications for understanding the relationship between educational background and technological proficiency among educators. Firstly, it implies that while educational attainment is essential, it may not be the sole determinant of technological adaptation. Other factors such as personal interest in technology, professional development opportunities, and institutional support likely play significant roles in shaping teachers' technological skills regardless of their highest degree earned. Additionally, the non-significant difference in technological adaptation across different levels of educational attainment suggests that professional development efforts aimed at enhancing technological skills can be broadly inclusive. Instead of focusing solely on formal educational qualifications, efforts could prioritize providing relevant training and support that meets the diverse needs of teachers at various educational levels.

Moreover, this finding underscores the importance of equity and accessibility in technology integration within education. Ensuring that all teachers, regardless of educational background, have access to adequate resources and opportunities for professional growth in technology can contribute to a more equitable and effective educational system.

In conclusion, while the analysis indicates no significant difference in technological adaptation based on the highest educational attainment among teachers, it highlights the need for comprehensive and inclusive approaches to professional development in technology integration. By addressing diverse factors influencing technological proficiency, educational institutions can better equip teachers to leverage technology effectively in their teaching practices, ultimately benefiting student learning outcomes in today's digital age.

Furthermore, Tanucan et al. (2021) study shows that teachers with higher educational qualifications tend to demonstrate more advanced technological adaptation compared to those with lower educational attainment. This could be attributed to the deeper theoretical understanding and exposure to innovative teaching methodologies acquired through advanced education. Conversely, teachers with lower educational qualifications may require additional support and targeted training programs to enhance their technological proficiency and integration capabilities.

Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Age

Table 12.1 below shows the difference in the extent of practices on the 21st century skills of teachers when grouped according to age.

Table 12.1. *Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Age*

Age	*N*	*Mean Rank*
51 and Above	49	54.52
41-50	36	62.29
31-40	45	91.37
21-30	14	101.04

Computed value (H): 27.049
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The results from Table 12.1 reveal a significant difference in the extent of practices related to 21st-century skills among teachers when grouped according to age. The computed test statistic (H) of 27.049 and a p-value of 0.001 lead to the rejection of the null hypothesis (Ho), indicating statistically significant differences in practices related to 21st-century skills across different age groups of teachers.

This finding holds important implications for educational strategies and policies. Firstly, it suggests that age-related factors significantly influence how teachers approach and integrate 21st-century skills such as critical thinking, collaboration, creativity, and digital literacy into their teaching practices. Younger teachers might demonstrate more frequent and innovative use of these skills due to their familiarity with modern educational trends and technologies. In contrast, older teachers may benefit from targeted support and professional development to enhance their practices in these areas.

Additionally, the significant differences underscore the importance of tailored approaches to professional development that consider age diversity among educators. Effective strategies could include mentorship programs, peer learning opportunities, and workshops designed to equip teachers of all ages with the skills and confidence to teach and assess 21st-century skills in their classrooms effectively. Furthermore, these findings suggest implications for educational institutions' curriculum development and instructional methodologies. Recognizing the varying practices across different age groups can inform curriculum revisions that emphasize integrating 21st-century skills throughout all levels of education, ensuring that students receive a comprehensive and future-ready education.

In conclusion, the significant differences observed in practices related to 21st-century skills among teachers grouped by age highlight the need for responsive and inclusive approaches to professional development and curriculum design. By addressing age-related disparities and promoting continuous skill development, educational institutions can foster a teaching workforce that prepares students for success in an increasingly complex and technology-driven world.

However, the results of this study contradict the study of Sulaiman and Ismael (2020), who suggest that age alone does not impact the overall proficiency of teachers in essential 21st-century skills such as critical thinking, collaboration, communication, and digital literacy. Their results have several implications for educational practices and policies. They emphasize the potential for continuous professional development initiatives that equally target all age groups of teachers. Such programs can enhance specific 21st-century skills through workshops, training sessions, and curriculum integration strategies catering to diverse teaching contexts and experiences.

Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Sex

Table 12.2 below shows the difference in the extent of practices on the 21st century skills of teachers when grouped according to sex.

Table 12.2. *Difference in the Level of Extent of Practices on the 21st Century Skills of Teachers when grouped according to Sex*

Sex	*N*	*Mean Rank*
Male	11	76.09
Female	133	72.20

Computed value (U): 692
P-Value: 0.766
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The analysis from Table 12.2 regarding practices related to 21st-century skills among teachers, when grouped by sex, reveals a computed test statistic (U) of 692.00 and a corresponding p-value of 0.766. This outcome leads to the acceptance of the null hypothesis (Ho), indicating no statistically significant difference in the extent of practices on 21st-century skills between male and female teachers.

This finding has several important implications for educational practices and policies. Firstly, it suggests that gender alone does not significantly influence how teachers incorporate critical 21st-century skills such as critical thinking, collaboration, creativity, and digital literacy into their teaching methods. Instead, other factors such as individual teaching philosophies, pedagogical approaches, resource access, and professional development opportunities likely play more crucial roles in shaping instructional practices.

The non-significant difference between male and female teachers in their practices related to 21st-century skills indicates that efforts to enhance these skills can be universally inclusive. Educational initiatives can focus on providing equitable access to training and resources that empower all educators to integrate and assess 21st-century skills across diverse classroom contexts effectively. Moreover, this finding underscores the importance of fostering an environment that supports continuous professional growth for all teachers, regardless of gender. By offering comprehensive professional development programs that cater to diverse needs and teaching styles, educational institutions can better equip teachers to meet the evolving demands of education in the digital age.

Furthermore, while gender may not be a determining factor in 21st-century skill practices, this analysis highlights the need for ongoing research and nuanced approaches to understanding how various demographic and professional factors interact with teaching practices. This approach ensures that educational strategies are responsive to the diverse needs of teachers and students alike, promoting inclusive and effective educational outcomes.

In conclusion, while the analysis indicates no significant difference in practices related to 21st-century skills based on sex among teachers, it emphasizes the importance of equitable support and professional development opportunities for all educators. By fostering a continuous learning and innovation culture, educational institutions can empower teachers to cultivate essential 21st-century competencies effectively, thereby enriching educational experiences and preparing students for success in an increasingly complex

world.

Furthermore, the findings of this study agree with the study of Sulaiman and Ismael (2020), suggesting that gender does not influence the overall proficiency of teachers in essential 21st-century competencies such as critical thinking, collaboration, communication, and digital literacy. Their results imply the need for gender-neutral approaches in designing professional development programs to enhance 21st-century skills among educators. Such initiatives should address all teachers' diverse learning needs and strengths, regardless of gender, to foster a more inclusive and effective teaching environment.

Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Length of Service

Table 12.3 shows the difference in the extent of practices on the 21st century skills of teachers when grouped according to length of service.

Table 12.3. *Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Length of Service*

Length of Service	*n*	*Mean Rank*
36 years and above	5	59.30
31-35	11	72.09
26-30	15	46.13
21-25	18	58.33
16-20	32	58.84
11-15	16	73.16
10 years & below	47	96.91

Computed value (H): 28.14
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The analysis presented in Table 12.3 examines the extent of practices related to 21st-century skills among teachers when grouped according to their length of service. The computed test statistic (H) of 28.14 and a p-value of 0.000 lead to the rejection of the null hypothesis (Ho), indicating that there are statistically significant differences in practices related to 21st-century skills across different lengths of service among teachers. Results suggest that a teacher's time in service significantly influences their approach to integrating critical 21st-century skills such as critical thinking, collaboration, creativity, and digital literacy into their teaching practices. Teachers with longer tenures may have accumulated more experience and developed more sophisticated methods for incorporating these skills into their instruction. In contrast, newer teachers may be in earlier stages of developing their approach.

The significant differences in practices related to 21st-century skills based on length of service underscore the importance of tailored professional development and support throughout teachers' careers. Educational institutions can benefit from implementing targeted programs that address teachers' specific needs and challenges at different career stages, ensuring continuous growth in fostering these essential skills among students. Furthermore, this finding emphasizes the role of mentorship and peer learning opportunities in facilitating knowledge transfer and skill development among educators. Experienced teachers can be valuable mentors to newer colleagues, sharing insights and best practices for effectively integrating 21st-century skills into diverse classroom contexts.

Moreover, the significant findings suggest implications for recruitment and retention strategies within educational institutions. Understanding the evolving practices related to 21st-century skills across varying lengths of service can inform policies aimed at attracting and retaining a diverse and skilled teaching workforce capable of meeting the demands of modern education.

In conclusion, the significant differences observed in practices related to 21st-century skills among teachers grouped by length of service highlight the need for responsive and differentiated approaches to professional development and support. By addressing the specific needs of teachers at different career stages, educational institutions can foster a teaching workforce that effectively prepares students for success in a rapidly changing global landscape.

In addition, the findings of this study agree with the study of Liesa-Orús et al (2020), which suggests that the number of year's teachers have served in their profession impacts their proficiency in essential 21st-century competencies such as critical thinking, collaboration, communication, and digital literacy. Their findings underscore the value of recognizing and leveraging the expertise and experience of veteran teachers in mentoring and supporting the professional growth of less-experienced colleagues. By fostering a collaborative learning environment that bridges generational gaps and promotes knowledge sharing, educational institutions can enhance their teaching staff's overall capacity and effectiveness.

Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Rank

Table 12.4 on the next page shows the difference in the extent of practices on the 21st century skills of teachers when grouped according to rank.

The analysis presented in Table 12.4 explores how teachers' practices related to 21st-century skills vary based on their rank within educational institutions. The computed test statistic (H) of 22.14 and a p-value of 0.000 indicate a rejection of the null hypothesis (Ho), revealing statistically significant differences in these practices across different ranks of teachers.

Table 12.4. *Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Rank*

Rank	*n*	*Mean Rank*
Teacher 1	56	90.91
Teacher II	20	55.30
Teacher III	54	65.09
Head Teacher I	2	88.00
Master Teacher I	9	52.89
Master Teacher II	3	25.33

Computed value (H): 22.14
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

It suggests that teachers' hierarchical position or rank within an institution significantly influences how they integrate critical 21st-century skills such as critical thinking, collaboration, creativity, and digital literacy into their teaching methods. Teachers in higher ranks, who often have broader administrative responsibilities, may approach these skills differently than those in lower ranks, who may focus more on direct classroom instruction. Practically, the observed differences underscore the need for targeted professional development initiatives tailored to the specific needs of teachers at different ranks. Educational institutions can benefit from implementing customized training programs that address the unique challenges and opportunities associated with each rank, ensuring that all educators are equipped to nurture 21st-century skills among students effectively.

Furthermore, this finding emphasizes the pivotal role of leadership and organizational culture in fostering innovative teaching practices and continuous improvement in educational settings. Administrators and educational leaders play a crucial role in shaping policies and creating environments that support integrating modern teaching methods and skills across all institution levels. Moreover, these significant findings suggest implications for career development and advancement strategies within educational institutions. Understanding the diverse practices related to 21st-century skills across different ranks can inform professional growth and recognition strategies, motivating educators to enhance their instructional practices and contribute positively to student learning outcomes.

In conclusion, the identified differences in practices related to 21st-century skills among teachers grouped by rank highlight the importance of tailored support and leadership in promoting effective teaching practices. By addressing the specific needs associated with different ranks, educational institutions can cultivate a collaborative and forward-thinking teaching workforce that prepares students for success in an increasingly dynamic and interconnected global landscape.

Moreover, this study conforms with the study of Sulaiman and Ismael (2020), which indicates that there are varying levels of proficiency in essential 21st-century competencies such as critical thinking, collaboration, communication, and digital literacy across different ranks of teachers. The significant differences in 21st-century skills based on rank emphasize the importance of equitable professional development opportunities and inclusive educational strategies that empower educators at all levels to excel in preparing students for the challenges of the digital age.

Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Highest Educational Attainment

Table 12.5 below shows the difference in the extent of practices on the 21st century skills of teachers when grouped according to highest educational attainment.

Table 12.5. *Difference in the Extent of Practices on the 21st Century Skills of Teachers when grouped according to Highest Educational Attainment*

Highest Educational Attainment	*n*	*Mean Rank*
Bachelor's Degree	81	73.44
Master's Degree	60	69.76
Others	3	101.83

Computed value (H): 1.79
P-Value: 0.409
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The analysis presented in Table 12.5 examines the extent of practices related to 21st-century skills among teachers when grouped according to their highest educational attainment. The computed test statistic (H) of 1.79 and a p-value of 0.409 lead to a decision to accept the null hypothesis (Ho), indicating no statistically significant difference in practices related to 21st-century skills based on varying levels of educational attainment among teachers.

This finding suggests several implications for understanding the relationship between educational background and integrating 21st-century skills in educational practices. Firstly, it implies that while educational attainment is an essential factor, it may not be the sole determinant of how teachers incorporate critical skills such as critical thinking, collaboration, creativity, and digital literacy into their teaching methods. Other factors such as professional development opportunities, institutional support, teaching experience, and personal teaching philosophies likely play significant roles in shaping instructional practices.

However, the non-significant difference in practices related to 21st-century skills across different levels of educational attainment suggests that efforts to enhance these skills can be inclusive and need not focus solely on formal academic qualifications. Educational initiatives can benefit from promoting universal strategies that provide equitable access to professional development opportunities and resources, ensuring all educators have the tools to foster 21st-century skills in their classrooms effectively. Moreover, this finding underscores the importance of recognizing and supporting diverse pathways to teaching excellence and innovation within educational institutions. By valuing and leveraging teachers' unique strengths and experiences at various educational levels, institutions can cultivate a dynamic teaching workforce capable of meeting the diverse needs of students in today's rapidly evolving educational landscape.

In conclusion, while the analysis indicates no significant difference in practices related to 21st-century skills based on the highest educational attainment among teachers, it highlights the need for comprehensive and inclusive approaches to professional development and support. By addressing various factors influencing instructional practices, educational institutions can foster a teaching environment that promotes effective teaching strategies and prepares students for success in a globalized, technology-driven society.

However, Pa-alisbo (2018) found out that there is a significant difference with the teachers are grouped in their educational attainment, the significant differences in 21st century skills based on educational attainment underscore the importance of equitable access to quality education and professional development opportunities for educators. By promoting lifelong learning and skill enhancement, educational institutions can empower teachers to effectively prepare students for success in a rapidly evolving global landscape.

Relationship between Level of Media Literacy of Teachers and Academic Performance of Pupils

Table 13 shows the relationship between level of media literacy of teachers and academic performance of students. This relationship is crucial for understanding how teachers' abilities to navigate and utilize media influence their effectiveness in enhancing student learning outcomes. The table includes statistical measures such as H value and P-Value to quantify the strength and direction of this relationship.

Table 13. *Relationship between Media Literacy of Teachers and Academic Performance of Pupils*

Media Literacy	*Academic Performance*					
	Outstanding	*Very Satisfactory*	*Satisfactory*	*Fairly Satisfactory*	*Does not meet Expectation*	*Total*
Very Literate	27	12	15	18	0	72
Literate	18	18	17	17	0	70
Not Literate	1	0	0	1	0	2
Very not Literate	0	0	0	0	0	0
Total	46	30	32	36	0	144

Computed value (H): 0.092
P-Value: 0.458
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The findings from Table 13 regarding the relationship between teachers' media literacy and students' academic performance indicate a pivotal statistical insight. Furthermore, among the 144 teachers, those classified as very literate a total of 72 predominantly achieve higher academic performance, with 27 receiving outstanding and 12 receiving very satisfactory ratings. Similarly, the 70 teachers categorized as literate also perform well, with 18 achieving outstanding and 18 achieving very satisfactory ratings. Notably, the small group of 2 teachers identified as not literate reflects limited academic success, with only one achieving outstanding and one achieving fairly satisfactory. No teachers fall into the very not literate category, indicating that most participants possess at least a basic level of media literacy.

With a computed P-value of 0.458, rejecting the null hypothesis (Ho) suggests that the observed relationship is not statistically significant at the conventional significance level of 0.05.

This outcome implies that variations in media literacy among teachers, at least as defined and measured in this context, do not correlates with the academic outcomes of their students within the specified confidence level. Therefore, further research may be necessary to explore other potential factors or refine methodologies to understand better the nuanced dynamics between teacher media literacy and student academic achievement.

The implications of these findings could impact educational policy and practice. Suppose media literacy among teachers does not significantly correlate with student academic performance. In that case, educational institutions may need to reconsider the emphasis placed on this particular skill in teacher training or professional development programs. Instead, resources might be redirected toward other areas that have a more substantial impact on student outcomes. Additionally, researchers and educators may seek to refine or broaden the definition of media literacy to encompass aspects that could potentially significantly influence educational outcomes.

In conclusion, the non-significant relationship between teachers' media literacy and students' academic performance students, as evidenced by the P-value of 0.360 and rejection of the null hypothesis, underscores the complexity of factors influencing educational achievement. While media literacy remains an essential skill in the digital age, the direct impact of media literacy on student learning

outcomes in this study needs to be revised. Future studies could delve deeper into contextual factors or alternative media literacy measures to elucidate its role in educational settings better.

However, the results of this study contradict the study of Vergili and Kara (2024), indicating that teachers' proficiency in media literacy directly correlates with the academic achievements of their students. Teachers with higher levels of media literacy are likely more adept at leveraging media resources and technologies to enhance instructional methods, engage students effectively, and foster critical thinking skills. This underscores the importance of integrating media literacy education into teacher training programs and professional development initiatives.

Relationship between Technological Adaptation of Teachers and Academic Performance of Pupils

Table 14 on the next page shows the relationship between extent of technological adaptation and academic performance of students.

Table 14. *Relationship between Technological Adaptation of Teachers and Academic Performance of Students*

Technological Adaptation	*Academic Performance*					
	Outstanding	*Very Satisfactory*	*Satisfactory*	*Fairly Satisfactory*	*Does not meet Expectation*	*Total*
Very Great Extent	17	6	9	13	0	45
Great Extent	27	23	21	19	0	90
Small Extent	0	1	2	4	0	7
Very Small Extent	2	0	0	0	0	2
Total	46	30	32	36	0	144

Computed (H) Value: 0.058
P-Value: 0.655
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 14 presents findings on the relationship between teachers' technological proficiency and students' academic performance, offering valuable insights through statistical analysis. In addition, among the 144 teachers, those who adapted technology to a great extent 90 teachers show the most favorable academic outcomes, with 27 achieving outstanding and 23 receiving very satisfactory ratings. Teachers who adapted technology to a very great extent 45 in total also performed well, with 17 attaining outstanding and 6 very satisfactory. In contrast, the small group of 7 teachers who adapted technology to a small extent and the 2 teachers who adapted it to a very small extent show limited academic success, with very few achieving outstanding ratings. The absence of teachers who fall into the does not meet expectation category across all levels of technological adaptation further suggests that higher levels of technological adaptation are linked to better academic performance.

The computed (H) value, standing at 0.058, indicates a subtle tendency towards a relationship between these variables, albeit not statistically significant according to the accompanying P-value of 0.655. Therefore, the decision to accept the null hypothesis (Ho) suggests that, at the 0.05 significance level, there is insufficient evidence to conclude a significant relationship between these factors in the studied context.

This finding prompts a reconsideration of the perceived impact of teacher technological skills on student achievement within this dataset. It suggests that factors beyond teacher technological proficiency may play more crucial roles in influencing academic outcomes, such as teaching methods, classroom environment, or student engagement strategies. Furthermore, these results hold implications for educational policy and practice. Given the non-significant relationship identified, educational institutions may need to reassess the emphasis on technological proficiency in teacher training and professional development programs. Resources and efforts could potentially be redirected toward other areas that substantially impact improving educational outcomes for students. The findings underscore the need for a comprehensive approach to understanding and enhancing teaching practices, incorporating a broader range of factors beyond technological skills alone.

Lastly, while the study highlights a non-significant relationship between teacher technological proficiency and student academic performance, the high P-value and acceptance of the null hypothesis opens avenues for deeper exploration. This includes investigating alternative measures of technological integration in education and exploring how different instructional strategies might influence student learning outcomes. Such endeavors are crucial for advancing our understanding of effective teaching practices in the digital age and optimizing educational experiences for students.

Furthermore, the results of this study align with the study of Zhao et al. (2022), who found that there is no significant relationship between teachers' technological adaptation and pupils' academic performance. They suggest that teachers' proficiency in adapting to technology does not directly correlate with the academic achievements of their students. While technological skills are valuable for instructional purposes, they may not be the sole determinant of academic success. Therefore, while promoting technological adaptation among teachers remains essential for modern education, it should be complemented with a holistic approach that addresses multiple facets of effective teaching and learning.

Relationship between the 21st Century Skills of Teachers and Academic Performance of Pupils

Table 15 shows the relationship between extent of technological adaptation and academic performance of students.

Table 15. *Relationship between 21st Century Skills of Teachers and Academic Performance of Students*

21st Century Skills	*Academic Performance*					
	Outstanding	*Very Satisfactory*	*Satisfactory*	*Fairly Satisfactory*	*Does not meet Expectation*	*Total*
Very Great Extent	27	15	17	20	0	79
Great Extent	17	15	15	14	0	61
Small Extent	2	0	0	3	0	4
Very Small Extent	0	0	0	2	0	0
Total	46	30	32	36	0	144

Computed value (H): 0.035
P-Value: 0.776
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 15 presents an analysis of the relationship between 21st-century skills possessed by teachers and student's academic performance, offering critical insights through statistical measures. In addition, of the 144 teachers, those who implement 21st-century skills to very great extent 79 teachers achieve the highest academic outcomes, with 27 attaining outstanding and 15 receiving very satisfactory ratings. Teachers applying these skills to a great extent 61 in total also perform well, with 17 achieving outstanding and 15 very satisfactory. Conversely, the small group of 4 teachers applying 21st-century skills to a small extent shows limited academic success, with only a few achieving outstanding and some fairly satisfactory ratings. No teachers fall into the very small extent category, suggesting that greater engagement with 21st-century skills correlates positively with better academic performance.

The computed (H) value of 0.035 suggests a minimal but potentially detectable effect on how these skills may influence student outcomes. However, the pivotal aspect of this analysis is the high P-value of 0.776, signifying that any observed correlation between teachers' 21st-century skills and student academic performance is likely attributable to random chance rather than a statistically significant relationship. Consequently, the decision to reject the null hypothesis at the 0.05 significance level underscores the study's conclusion that there is insufficient empirical support for a substantive association between these variables within the examined dataset.

Furthermore, this finding holds significant implications for educational practice and policy. While 21st-century skills such as digital literacy, critical thinking, and collaboration are widely regarded as essential for modern teaching practices, their direct impact on enhancing student academic achievement, at least as measured in this study, appears negligible. Educators and policymakers need to reevaluate the emphasis on these skills in teacher training and curriculum development efforts. Resources and efforts might be more effectively directed toward other instructional strategies or educational interventions that have a more demonstrable impact on improving student learning outcomes.

In conclusion, while the study highlights the importance of 21st-century skills in educational contexts, its findings caution against overstating their direct influence on student academic performance based on the current empirical evidence. Further research could explore alternative methodologies or additional variables that better capture the nuanced dynamics, thereby contributing to a more comprehensive understanding of effective teaching practices in contemporary education.

Moreover, the results of this study agree with Danilo and Panares (2023), indicating that the level of teachers' 21st-century skills does not directly impact the academic achievements of their students. This finding suggests that while 21st-century skills are increasingly recognized as essential for effective teaching, they may not be the sole determinants of academic success. Factors such as curriculum design, teaching strategies, classroom environment, and individual student characteristics likely significantly influence academic outcomes.

Relationship between Media Literacy and Technological Adaptation of Teachers

Table 16 shows the relationship between the level of media literacy and extent of technological adaptation of teachers.

Table 16. *Relationship between the Level of Media Literacy and Extent of Technological Adaptation of Teachers*

Media Literacy	*Technological Adaptation*				
	Very Great Extent	*Great Extent*	*Small Extent*	*Very Small Extent*	*Total*
Very Literate	42	29	0	1	72
Literate	3	61	6	0	70
Not Literate	0	0	1	1	2
Very not Literate	0	0	0	0	0
Total	45	90	7	2	144

Computed value (H): 0.908
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

Table 16 presents findings on the relationship between the level of media literacy and the extent of technological adaptation among teachers, offering significant insights through statistical analysis. The data indicates an association between media literacy and technological adaptation among the teachers. Among the 144 teachers, those classified as very literate in media literacy predominantly

adapt technology to a very great extent, with 42 teachers in this category. Additionally, 29 of these very literate teachers adapt technology to a great extent, highlighting a significant alignment between high media literacy and extensive technological adaptation. In contrast, the literate group 70 teachers also shows substantial technological adaptation, with 61 adapting technology to a great extent and a smaller number to a small extent. The minimal representation of not literate teachers 2 in total demonstrates limited technological adaptation, with just one adapting technology to a small extent and another to a very small extent. The absence of teachers in the very not literate category further supports that higher levels of media literacy are closely related to greater technological adaptation.

The computed (H) value of 0.908 indicates a moderate effect size in the relationship between these variables. However, the most critical aspect of this analysis is the P-value of 0.000, which is well below the conventional threshold of 0.05 used to determine statistical significance. The P-value leads to the rejection of the null hypothesis (Ho). It indicates that the observed relationship between media literacy and technological adaptation among teachers is statistically significant at the 0.05 significance level.

This finding suggests robust empirical evidence supports a meaningful association between higher levels of media literacy among teachers and their greater extent of technological adaptation. Practically, teachers with more vital media literacy skills are more likely to integrate and adapt technological tools and methods into their teaching practices. This correlation underscores the importance of fostering media literacy competencies among educators to promote practical and innovative uses of technology in educational settings.

Furthermore, the implications of this study are significant for educational policy and practice. It highlights the potential benefits of targeted training and professional development programs to enhance teachers' media literacy skills. Such initiatives could improve individual teaching effectiveness and contribute to overall educational quality by leveraging technology to enhance student engagement and learning outcomes. Future research could further explore the specific mechanisms through which media literacy influences technological adaptation among teachers and investigate how these adaptations translate into tangible benefits for student learning and educational outcomes.

In conclusion, the findings underscore the pivotal role of media literacy in shaping the technological practices of educators. By acknowledging and supporting the development of these skills, educational stakeholders can foster a more dynamic and responsive teaching environment that prepares students for success in a digitally interconnected world.

Moreover, the results of this study conform with the results of Sanchez-Cruzado et al. (2021), indicating that teachers who exhibit higher levels of media literacy also tend to demonstrate more excellent proficiency in technological adaptation. It suggests that media literacy skills, encompassing the ability to access, analyze, evaluate, and create media content, enhance teachers' capabilities in effectively integrating and utilizing technology in educational settings. By equipping teachers with robust media literacy competencies, educational institutions can foster a more seamless integration of technology into teaching practices, enhancing instructional quality, student engagement, and overall learning outcomes. This underscores the importance of promoting media literacy education and technological training for educators to meet modern education's demands effectively.

Relationship between Media Literacy and Practices on 21st Century Skills of Teachers

Table 17 shows the relationship between the level of media literacy and extent of practices on 21st century skills of teachers.

Table 17. *Relationship between the Level of Media Literacy and Extent of Practices of 21st Century Skills of Teachers*

Media Literacy	*21st Century Skills*				
	Very Great Extent	*Great Extent*	*Small Extent*	*Very Small Extent*	*Total*
Very Literate	56	16	0	0	72
Literate	23	44	3	0	70
Not Literate	0	1	1	0	2
Very not Literate	0	0	0	0	0
Total	79	61	4	0	144

Computed value (H): 0.773
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

Table 17 provides insights into the relationship between the level of media literacy and the extent of practices related to 21st-century skills among teachers, offering significant implications through statistical analysis.

The data reveals a notable relationship between media literacy and the application of 21st-century skills among the teachers. Of the 144 teachers, those who are very literate in media literacy exhibit the highest levels of engagement with 21st-century skills, with 56 applying these skills to a very great extent. This indicates a strong correlation between high media literacy and extensive use of modern educational practices. The 72 teachers classified as very literate in media literacy show no representation in the small extent or very small extent categories, suggesting a robust integration of 21st-century skills. Conversely, teachers categorized as Literate in media literacy, totaling 70, also demonstrate substantial application of 21st-century skills, with 44 applying them to a great extent and 23 to a very great extent. The minimal presence of not literate teachers 2 in total indicates limited application of 21st-century skills, with only one teacher applying them to a small extent. The absence of very not literate teachers in the data further underscores that higher

media literacy is closely associated with more extensive application of 21st-century skills.

The computed (H) value of 0.773 suggests a moderate effect size in the relationship between these variables. However, the crucial finding lies in the extremely low P-value of 0.000, indicating a robust statistical significance at the 0.05 level. The decision to reject the null hypothesis (Ho) underscores compelling evidence supporting a meaningful association between higher levels of media literacy among teachers and their increased adoption of 21st-century skills in their instructional practices. This correlation suggests that educators with more vital media literacy skills are more inclined to incorporate modern educational methodologies such as critical thinking, digital literacy, collaboration, and problem-solving into their teaching approaches.

Moreover, these findings emphasize integrating media literacy training into teacher professional development programs. Educational institutions can foster a more innovative and effective teaching environment by equipping teachers with the necessary media literacy competencies. This approach enhances individual teaching effectiveness and contributes to overall educational quality by preparing students with essential skills for success in the digital age.

Educational policymakers and administrators may consider these results when designing curriculum frameworks and allocating resources to support ongoing professional development initiatives. Future research could delve deeper into understanding the mechanisms through which media literacy influences the adoption of 21st-century skills among teachers and explore longitudinal effects on student learning outcomes and educational attainment.

In conclusion, the result underscores the critical role of media literacy in shaping contemporary teaching practices. It highlights its transformative potential in advancing educational excellence and preparing students for future challenges and opportunities in a rapidly evolving global landscape.

Studies consistently demonstrate a strong correlation between media literacy and 21st-century skills, underscoring their symbiotic relationship in educational contexts such as Alexander and Galena (2020). Media literacy, encompassing the ability to access, critically analyze, evaluate, and create media content, is foundational to effectively navigating today's digital landscape. These skills enhance digital literacy and contribute to broader competencies such as critical thinking, communication, collaboration, creativity, and problem-solving—all integral components of 21st-century skills. Integrating media literacy into educational curricula thus prepares students to be discerning consumers and creators of media, empowering them to navigate complex digital environments and participate actively in societal and professional contexts where media plays a pivotal role.

Relationship between Technological Adaptation and Practices on 21st Century Skills of Teachers

Table 18 on the next page shows the relationship between the extent of technological adaptation and extent of practices on 21st century skills of teachers.

Table 18. *Relationship between the Extent of Technological Adaptation and Extent of Practices on 21st Century Skills of Teachers*

Technological Adaptation	*21st Century Skills*				
	Very Great Extent	*Great Extent*	*Small Extent*	*Very Small Extent*	*Total*
Very Great Extent	44	1	0	0	45
Great Extent	33	56	1	0	90
Small Extent	2	3	2	0	7
Very Small Extent	0	1	1	0	2
Total	79	61	4	0	144

Computed value (H): 0.908
P-Value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

Table 18 provides essential insights into the relationship between the extent of technological adaptation and the extent of practices related to 21st-century skills among teachers, highlighting significant implications through statistical analysis.

The data demonstrates a clear relationship between technological adaptation and the implementation of 21st-century skills among teachers. Among the 144 teachers, those who adapt technology to a very great extent 45 teachers show a strong alignment with the application of 21st-century skills, as 44 of them apply these skills to the same extent. This indicates that high technological adaptation is closely linked with extensive use of modern educational practices. For teachers who adapt technology to a great extent—90 in total—there is also a significant engagement with 21st-century skills, with 56 applying these skills to a great extent and 33 to a very great extent. The smaller groups of teachers who adapt technology to a small extent or very small extent show limited application of 21st-century skills, reflecting that less technological adaptation corresponds to lower levels of engagement with these modern skills. This pattern reinforces the idea that extensive technological adaptation facilitates a more comprehensive integration of 21st-century skills in teaching practices.

The computed (H) value of 0.908 indicates a substantial effect size in the relationship between these variables. However, the most critical aspect of this analysis is the P-value of 0.000, which signifies a significant relationship between technological adaptation and 21st-century skills of teachers at the 0.05 level. The decision to reject the null hypothesis (Ho) indicates compelling evidence supporting

a meaningful association between more excellent technological adaptation by teachers and their increased integration of 21st-century skills in their teaching practices. This finding suggests that educators who adopt and effectively utilize technological tools and methods are likelier to incorporate modern educational methodologies such as critical thinking, digital literacy, collaboration, and problem-solving into their classrooms. These findings underscore the importance of promoting and supporting technological integration in educational settings. Institutions that invest in teacher training and professional development programs to enhance technological skills can foster a more innovative and dynamic learning environment. Such initiatives enhance the quality of teaching and equip students with essential skills necessary for success in a technology-driven world.

Moreover, educational policymakers and administrators may find these results instrumental in shaping curriculum development and resource allocation strategies. By prioritizing initiatives that promote technological adaptation among educators, institutions can better prepare students to thrive in a rapidly evolving global economy—the sustained impact of these practices on student outcomes and educational achievement.

In conclusion, it highlights the pivotal role of technological adaptation in fostering the integration of 21st-century skills among educators. By leveraging technology effectively, educational institutions can enhance teaching practices and cultivate a future-ready workforce capable of navigating and contributing to an increasingly complex and interconnected world.

Furthermore, this result conforms to the study of Ramallah and Molwele (2022) that the relationship between technological adaptation and the integration of 21st-century skills among teachers is pivotal in modern education. Technological adaptation refers to educators' ability to effectively utilize digital tools and resources to enhance teaching practices and student learning experiences. Concurrently, 21st-century skills encompass critical competencies such as critical thinking, collaboration, communication, creativity, and digital literacy, which are essential for preparing students for future challenges. Research consistently shows that teachers who adapt to technological advancements are more likely to incorporate these essential skills into their teaching methodologies. For example, technology facilitates collaborative projects and interactive learning experiences that foster student teamwork and critical thinking.

Conclusions

The findings of this study offer valuable insights into the diverse profiles and competencies of educators, highlighting the significant impact of media literacy, technological adaptation, and 21st-century skills on modern teaching practices.

A key takeaway is the variability in these competencies across different age groups, lengths of service, and professional ranks. While younger teachers and those with shorter service durations exhibit higher levels of media literacy and technological adaptation, their more experienced counterparts may benefit from focused professional development to enhance these critical skills. Despite these differences, the collective commitment to advancing educational practices is evident across the board.

In addition, one of the most striking revelations is the interconnectedness between media literacy, technological adaptation, and 21st-century skills. The significant relationships among these areas underscore the importance of an integrated approach to professional development, where each competency reinforces the others. This holistic development strategy is vital for ensuring that educators are not only proficient in their respective areas but are also capable of leveraging these skills in a synergistic manner to improve teaching outcomes.

However, the findings also reveal that there is no direct relationship between teachers' media literacy, technological adaptation, or 21st-century skills and pupils' academic performance. This suggests that while these competencies are crucial for effective teaching, their impact on student outcomes may be mediated by other factors, such as instructional methods, curriculum design, and student engagement. Consequently, this underscores the need for collaboration among educators, administrators, and curriculum developers to bridge this gap and ensure that these competencies translate into tangible academic improvements.

Furthermore, the study emphasizes that the path to enhancing educational quality lies in fostering a collaborative environment where teachers can share best practices, learn from each other's experiences, and collectively address the challenges posed by evolving educational demands. By working together, educators can ensure that the integration of media literacy, technological tools, and 21st-century skills not only enhances their teaching capabilities but also leads to meaningful improvements in student performance.

Lastly, collaboration is the cornerstone of educational progress. The findings of this study highlight the importance of a unified approach to professional development, where educators across all demographics and experience levels can work together to strengthen their skills and ultimately improve the quality of education they provide.

With reference to the findings and conclusions of the study, the following recommendations are offered:

Teachers may engage in continuous professional development focused on enhancing media literacy skills and proficiency in technological tools. This could include participating in workshops and seminars tailored to different experience levels. They should actively integrate 21st-century skills such as critical thinking and collaboration into their teaching practices, leveraging peer collaboration and reflective practices to refine their approaches. Regular self-assessment of their media literacy and technological adaptation levels will help identify areas for improvement, ensuring they remain effective in preparing students for the digital world.

Pupils would benefit from an educational environment that fosters digital literacy and responsible use of media and technology. Schools should integrate digital literacy skills into the curriculum and provide equitable access to technological resources. Encouraging project-based learning and extracurricular activities that promote teamwork and problem-solving will help develop essential 21st-century skills among students, preparing them comprehensively for future challenges.

School Administrators play a crucial role in supporting teachers and students by allocating resources for professional development programs focused on media literacy, technological adaptation, and 21st-century skills training. They should review and enhance the curriculum to incorporate more opportunities for integrating these skills across all subjects and grade levels. By fostering a culture of innovation and supporting initiatives that leverage technology and modern teaching practices, administrators can create an environment conducive to educational excellence.

Teacher Training Institutions should update their curriculum to include comprehensive modules on media literacy, technological integration, and effective teaching strategies for 21st-century skills. Offering hands-on training opportunities with current digital tools and pedagogical approaches will better prepare future educators to meet the evolving demands of the educational landscape. Collaborating with schools to align training with real-world classroom needs will ensure that graduates are well-equipped to excel in teaching and promoting digital literacy among students.

Policymakers are encouraged to advocate for policies that support professional development for teachers in media literacy and technological adaptation. They should prioritize funding initiatives to enhance digital resources and school infrastructure, ensuring equitable student access. Policymakers should also promote research and innovation in educational technology, fostering initiatives that advance teaching practices and improve student outcomes across diverse educational settings.

Parents may encouraged to support their children's digital literacy development at home by engaging in conversations about media use, promoting critical thinking about online content, and ensuring responsible digital citizenship. They should advocate for schools to provide adequate access to technology and support educational initiatives that prepare students for success in a digital society. Collaborating with educators and administrators to reinforce these efforts will create a cohesive approach to supporting students' holistic development in and out of the classroom.

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