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Teachers' Technological Competence and Teaching Effectiveness

Ruigelan M. Poculan

Medina College – Ozamiz City

***Abstract*—** Teachers' technological competence and teaching effectiveness are critical because they enable educators to provide meaningful, engaging, and high-quality learning experiences in an increasingly digital and dynamic educational environment. This study aimed to determine the relationship between the level of teachers' technological competence and teaching effectiveness in the Rizal District. The study used a descriptive-correlational research approach and included 108 elementary teachers selected through thorough enumeration. Data were collected using self-made survey questionnaires with two parts that rated teachers' technology competence and teaching effectiveness on a 5-point Likert scale. The responses were examined using descriptive statistics to determine variable levels and inferential tests such as Pearson's r and the Kruskal-Wallis test to look for connections and significant differences based on demographics. Findings revealed that teachers' technological competence and teaching effectiveness show a relatively strong positive correlation, this relationship is not statistically significant, suggesting that the association may be coincidental or influenced by factors such as response variability or measurement limitations. This finding implies that technological competence alone does not reliably translate into improved teaching performance within the context of the study. Consequently, increasing technology skills will automatically enhance instructional quality; instead, they should adopt a more holistic approach that integrates pedagogical training, classroom management, and meaningful technology use to ensure genuine improvements in teaching effectiveness.

***Keywords*—** teachers' technological competence, teaching effectiveness, academic performance/engagement, classroom management, lesson delivery/strategies, student feedback/evaluation.

INTRODUCTION

Background of the Study

The world of 21st century teaching demands that teachers meaningfully incorporate technology in their instructional activities so as to enhance student learning. With the rise in the use of digital platforms, learning management systems, and online materials by schools, the technological proficiency of the teachers has become a critical element of effective teaching. Not every teacher is equally effective and competent in using technology, though, which leads to teaching performance and instructional quality variances. Accepting this issue, examine the correlation between the technology competence of teachers and teaching performance, and finally, create an enhancement program that should enhance the digital skills of teachers and, at the same time, improve the learning outcomes.

The technological competency of the teachers is defined as the ability of the teachers to utilize digital tools, platforms, and resources to support education, classroom management, and assessment. UNESCO (2020) emphasized that digital competence is no longer a luxurious skill among educators, and it is declared that not only should instructors be able to use technology but also to meaningfully implement it in the educational processes. In a similar way, the International Society of Technology in Education (ISTE, 2021) updated its Standards of Educators and asserted that technologically literate teachers can design online learning, emulate digital citizenship, and use technology to customize learning. In the Philippines, the Department of Education (DepEd, 2020) made a point of educational technology in the Learning Continuity Plan that remote learning and technology-enhanced learning depend heavily on the technological literacy of the teachers.

Teaching effectiveness, in its turn, means the ability of a teacher to provide effective teaching, coordinate the learning process, and promote student engagement and

performance. The Organization of Economic Cooperation and Development (OECD, 2021) argues that effective teaching during the time of the digital era does not only require a high level of instructional skills, but the ability to apply technology to enhance the learning outcomes. According to Bual and Madrigal (2021), local educational researchers in the Philippines emphasized that the capacity of the teacher who plans to shape the strategies and incorporate the digital tools to address diverse learning needs plays a prominent role in the teaching effectiveness in the contemporary classrooms. These recent studies and reports illustrate how both concepts of technical proficiency and teaching effectiveness prove to be inseparable constructs that would be needed in good education in the post-pandemic learning environment.

Although there is an emerging body of research relating technology integration with positive learning outcomes, there are limited studies that specifically examine the effectiveness of teachers in their general teaching effectiveness in relation to their technological competency in local schools. Most of the past research has often centered on the digital literacy training or teaching performance, but has never investigated how the two variables interact. Moreover, even with national policies aimed at driving digitalization in education, most of the instructors still have problems with the adequate use of technology because of the lack of training, resources, and pedagogical expertise.

The absence of context-specific enhancement programs that meet the specific technological needs of teachers in basic education can be observed. This gap reveals the necessity of more detailed research that would connect technological competency and the effectiveness of teaching and give a structured intervention, which would correspond to the needs that have been identified by the teachers.

Due to these gaps, the current research will be used to evaluate the technological competence of teachers and their teaching effectiveness to understand how the former affects the latter. The results will be the basis of developing an evidence-based improvement initiative addressing the unique technology training needs of the teachers. The reason as to why the researcher does this study is to aid in enhancing the quality of instruction, facilitate a successful process of technology integration, and ultimately empower the entire teaching-learning process. The upgrading program will equip the teachers with the required technological skills, enhance their confidence levels using technology, and equip them better to meet the requirements of the current education.

Statement of the Problem

1. What is teachers' demographic profile in terms of;
    a. Age;
    b. Educational Attainment; and
    c. Training Attended?
2. What is the teachers' level of technological Competence in terms of;
    a. Knowledge of educational technology tools,
    b. Skill in integrating technology into teaching,
    c. Confidence in using digital platforms, and
    d. Frequency and quality of technology use in the classroom?
3. What is the teachers' teaching effectiveness of teachers in terms of;
    a. Student Academic Performance or Engagement;
    b. Classroom Management Skills;
    c. Lesson Delivery and Instructional Strategies; and
    d. Student Feedback?
4. Are there significant differences of teachers' level of technological competence as grouped according to their demographic profile?
5. Are there significant differences of teachers' teaching effectiveness as grouped according to their demographic profile?
6. Is there a significant correlation between teachers' level of technological competence and teaching effectiveness?

II. RESEARCH METHODOLOGY

This study employed a quantitative descriptive-correlational research design to determine the level of teachers' technological competence and teaching effectiveness and to examine the significant

relationship between these variables. The study was conducted among public elementary schools in Rizal District, Rizal, Zamboanga del Norte during School Year 2025–2026, involving 108 elementary teachers selected through purposive sampling based on their active teaching responsibilities and use of educational technology. Data were gathered using researcher-made survey questionnaires consisting of a five-point Likert scale that measured teachers' technological competence and teaching effectiveness. The instruments underwent expert validation and pilot testing, yielding excellent reliability coefficients of 0.967 for technological competence and 0.905 for teaching effectiveness using Cronbach's alpha, indicating high internal consistency. Prior to data collection, permission was obtained from the appropriate educational authorities, and informed consent was secured from all participants. The collected data were analyzed using Mean and Standard Deviation to determine the levels of the variables, the Kruskal–Wallis Test to identify significant differences based on respondents' demographic profiles, and Pearson Product-Moment Correlation (r) to determine the significant relationship between teachers' technological competence and teaching effectiveness. Throughout the study, ethical research principles were strictly observed by ensuring voluntary participation, confidentiality, anonymity, informed consent, and the accurate and unbiased reporting of findings.

III. PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

Table 1. *Demographic Profile of the Respondents*

Profile	f	%
Age (Years)		
21 – 30	8	7.4
31 – 40	26	24.1
41 – 50	24	22.2
51 – 60	48	44.4
Above 60	2	1.9
Total	108	100
Highest Educational Attainment		
Bachelor's Degree	22	20.4
W/ Master Units	80	74.1
Master's Degree Holder	6	5.5
W/ Doctorate Units	0	0
Doctorate Degree Holder	0	0
Total	108	100
Number of Training Attended		
None	28	25.9
1 – 2	54	50.0
3 – 4	12	11.1
5 and more	14	13.0
Total	108	100

Table 1 presents the demographic profile of the 108 teachers who participated in the study on the level of teachers' technological competence and teaching effectiveness in the Division of Rizal, Zamboanga del Norte. The data provide a clear picture of the composition of the respondents in terms of age, educational attainment, and the number of training courses attended related to technology.

In terms of age, most respondents were in the 51–60 years old range (44.4%), followed by 31–40 years old (24.1%) and 41–50 years old (22.2%), while only a small proportion were 21 – 30 years old (7.4%) and above 60 years old (1.9%). With younger and older age groups underrepresented, the age distribution implies that the results are mostly influenced by the viewpoints of a population of middle-aged to older adults.

Seaborn et. al. (2023) found that research in Human–Robot Interaction (HRI) still over-relied on "WEIRD" (Western, Educated, Industrialized, Rich, Democratic) populations and that along several demographic axes, including age, participant sampling was "limited, obscured, and possibly misrepresentative." Similarly, a scoping review of age-related bias in artificial-intelligence datasets noted that older adults (e.g., 65+) remain substantially underrepresented across many widely-used datasets, illustrating a broader trend of underrepresenting certain age cohorts, which can distort findings and limit generalizability (Park et al. 2021).

For the highest educational attainment, the majority of the respondents were with Master's units (74.1%), followed by those holding a Bachelor's degree (20.4%) and a Master's degree (5.5%). None had undertaken Doctoral units and completed a Doctoral degree. This indicates that the majority of the elementary teachers are pursuing advanced education to enhance professional competencies.

As Teves and Ubayubay (2024) have written, a large percentage of elementary and secondary school teachers in Opol District are increasingly seeking a master's degree because of job security, motivation, and acknowledgment. Equally, in a multidisciplinary journal (Similar to Ignatian International Journal for Multidisciplinary Research (2025)) in its article, 47.35% of teacher-respondents were master's degree graduates (the maximum educational qualification in the sample), suggesting that teachers in this culture engage in ongoing academic growth.

The findings regarding the number of training sessions that the teachers underwent concerning technology reveal that half of the respondents (50% of the total) only underwent one to two training sessions, which means that they moderately participated in capacity-building processes. Quite a significant number (25.9%), however, stated that they have never received training (at all), which indicates that a considerable percentage of the population might not have access to or participate in professional development opportunities. At the same time, a smaller percentage of participants participated in three to four (11.1) or five or more (13) training sessions, which means that only a small number of people are very active in permanent education. The distribution suggests that training participation is uneven, with most of them getting little or no training and only a few displaying massive involvement.

According to the Philippine Institute of Development Studies (PIDS), only 17.6 percent of teachers in the public schools attended the training related to the school year 2023- 2024, meaning that there is a high degree of under-participation in capacity-building activities. In the meantime, a study by Casilao et al. al (2025) found that, although technological integration in the classroom is partially applicable, participation in external pedagogical training is low.

The authors have noted that although a majority of teachers understood the importance of professional development in improving the instructional practices, there was very low attendance in trainings particularly the training that relates to the use of technology, which is the same case in your data, as just a quarter of teachers had no training at all, half attended one or two sessions, and only a small proportion participated in the training sessions more than once.

Table 2. *Level of Teachers' Technological Competence in terms of Knowledge of Educational Technology Tools*

No.	Statement	SD	Mean
1	I am familiar with various digital tools that can be used for teaching and learning.	0.56	3.61
2	I understand how to use productivity software (e.g., MS Office, Google Workspace) in my teaching tasks.	0.60	3.52

3	I know how to use learning management systems (e.g., Google Classroom, Canvas, Moodle).	0.71	3.50
4	I am aware of current educational technologies suitable for my subject area.	0.84	3.60
5	I can identify appropriate digital resources that align with my lesson objectives.	0.64	3.65
6	I understand the basic concepts of digital citizenship and online safety.	0.68	3.56
7	I am knowledgeable about multimedia tools for creating instructional materials.	0.64	3.51
8	I can troubleshoot minor technical problems during instruction.	0.70	3.63
9	I know how to access and evaluate open educational resources .	0.77	3.60
10	I am updated about new trends in educational technology.	0.67	3.76
	Grand Mean	3.59	(High)

Scale: 4.21- 5.00= Very High; 3.41- 4.20= High; 2.61- 3.40 = Moderate; 1.81- 2.60= Low, 1.00 – 1.80 = Very Low

Table 2 displays the level of teachers' technological competence in terms of knowledge of educational technology tools. It is indicated that respondents had a high level in terms of knowledge of educational technology tools, as evidenced by the grand mean of 3.59, which is viewed as highly competent. The mean findings show that teachers are generally familiar with commonly used digital tools, productivity software, learning management systems, and digital safety concepts, but their knowledge is not yet expert level.

Higher-rated means, such as keeping up with current educational technology developments (3.76), indicate areas of relative strength. Meanwhile, lower means for understanding LMS platforms (3.50) and knowledge of multimedia creation tools (3.51) indicate that certain teachers may require further training or exposure to more specialized applications.

The results, in general, suggest that the knowledge of teachers about educational technology tools is very fundamental yet inadequate, and thus, they require further professional growth to enable them to become more competent in more advanced or modern technologies.

As confirmed by Akram et al. (2021), who assessed teachers' online teaching abilities using the TPACK (Technological Pedagogical Content Knowledge) paradigm.

They discovered that, while subject knowledge was strong, technology knowledge (TK) was the weakest domain, implying that many teachers had only limited skills in using digital technologies in class.

Table 3. *Level of Teachers' Technological Competence in terms Skill in Integrating Technology into Teaching*

No.	Statement	SD	Mean
1	I effectively integrate technology into lesson planning and delivery.	0.91	4.01
2	I design lessons that use technology to promote student engagement.	0.82	4.28
3	I use digital tools to differentiate instruction for students with diverse needs.	0.91	3.81
4	I can create interactive presentations or multimedia learning materials.	0.94	3.64
5	I use online assessment tools to measure student learning.	0.80	4.05
6	I apply technology to enhance collaboration among students.	0.87	4.08
7	I can manage and organize digital learning environments efficiently.	0.82	4.03
8	I can incorporate online discussions, forums, or virtual classrooms in my lessons.	0.83	4.05
9	I use technology to provide timely feedback to students.	0.75	3.90
10	I regularly evaluate and improve my teaching strategies using technology.	0.84	4.06
	Grand Mean	3.99	(High)

Scale: 4.21- 5.00= Very High; 3.41- 4.20= High; 2.61- 3.40 = Moderate; 1.81- 2.60= Low, 1.00 – 1.80 = Very Low

Table 3 shows the level of teachers' technological competence in terms of skill in integrating technology into teaching, indicating that respondents had a generally strong but not totally maximum ability to incorporate technology into their teaching, as evidenced by the grand mean of 3.99, which is interpreted as Highly Competent. Most items scored in the top range, indicating that teachers are comfortable using technology for lesson planning, student engagement, online assessments, collaboration, and digital classroom administration.

Notably, the highest mean (4.28) demonstrates a strong ability to design tech-enhanced lessons to promote engagement, whereas lower means, such as creating multimedia materials (3.64) and differentiating instruction using digital tools (3.81), indicate areas where teachers may still require additional support or training. Overall, the findings indicate that, while teachers are generally adept at integrating technology, there is always room for development, particularly in more creative applications of digital technologies.

Basilotta et al.'s (2022) study on higher-education teachers' digital competence revealed that many teachers self-assess as having low to medium-low digital competence in more advanced dimensions, particularly in areas such as design, reflection, and assessment of technology-based instruction.

Table 4. *Level of Teachers' Technological Competence in terms of Confidence in Using Digital Platforms*

No.	Statement	SD	Mean
1	I feel confident using digital devices (computers, tablets, laptops etc.) in class.	0.85	3.90
2	I can easily navigate different educational platforms and applications.	0.85	3.83
3	I am comfortable troubleshooting basic technology-related issues.	1.00	3.63
4	I feel capable of learning new educational technologies on my own.	0.96	3.66
5	I am confident in conducting online or blended classes.	0.92	3.61
6	I can guide students in using technology responsibly and effectively.	0.91	3.63
7	I can adapt to technological changes or system updates with ease.	0.82	3.64
8	I am confident managing virtual classrooms and online assessments.	0.84	3.59
9	I believe my technological competence enhances my teaching effectiveness.	0.77	3.76
10	I feel assured in mentoring other teachers on the use of technology in teaching.	0.88	3.67
	Grand Mean	3.69	(High)

Scale: 4.21- 5.00= Very High; 3.41- 4.20= High; 2.61- 3.40 = Moderate; 1.81- 2.60= Low, 1.00 – 1.80 = Very Low

Table 4 presents the level of teachers' technological competence in terms of confidence in using digital platforms. It shows that respondents had a high level of confidence in using digital platforms, as seen by the grand mean of 3.69, which is read as highly competent.

Teachers are generally confident in utilizing digital devices (3.90) and navigating educational sites (3.83), demonstrating a strong basic comfort with technology. However, their confidence dwindles when duties become more difficult, such as organizing virtual classes and online examinations (3.59). This proves the fact that as much as a teacher can employ computerized materials, they might not use the digital materials to the full capacity in more challenging teaching environments. All in all, the results have shown that teachers are conversant with the simple digital functioning; nevertheless, they need additional assistance and training in order to feel confident with higher-level digital teaching tasks.

Gomez et al. (2021) evaluated K-12 teachers' self-efficacy in integrating technology in accordance with the 2017 ISTE Standards and discovered that instructors had a reasonable but not particularly high level of confidence in their ability to use and integrate digital resources in the classroom.

This is consistent with your findings, which show that teachers are quite comfortable with basic gadget use and platform navigation but less competent when dealing with more complex tasks such as

troubleshooting, running online or blended classrooms, and delivering assessments. Your findings, as well as those of Gomez et al., reveal that, while many teachers have fundamental digital confidence, they struggle to employ more complicated or pedagogically rich ICT activities effectively.

Table 5. *Level of Teachers' Technological Competence in terms Frequency and Quality of Technology Use in the Classroom*

No.	Statement	SD	Mean
1	I regularly use technology in my daily teaching activities.	0.71	3.67
2	I frequently incorporate multimedia content in my lessons.	0.74	3.63
3	I use technology to communicate with students and parents effectively.	0.71	3.67
4	I often integrate technology to support collaborative learning.	0.80	3.50
5	I consistently use technology to enhance students' critical thinking skills.	0.75	3.54
6	I use digital tools to track and monitor students' progress.	0.92	4.05
7	I provide technology-based learning activities regularly.	1.02	3.93
8	I make sure that the technology I use improves learning outcomes.	1.07	3.73
9	I evaluate the effectiveness of my technology use after each lesson.	1.06	3.87
10	I continuously seek ways to improve the quality of my technology integration.	0.90	3.85
	Grand Mean	3.74	(High)

Scale: 4.21- 5.00= Very High; 3.41- 4.20= High; 2.61- 3.40 = Moderate; 1.81- 2.60= Low, 1.00 – 1.80 = Very Low

Table 5, Level of teachers' technological competence in terms of frequency and quality of technology use in the classroom, summarizes teachers' self-reported methods for integrating technology resources into education. Overall, the findings show that teachers have a high level of proficiency in using technology, as indicated by a grand mean of 3.74. This demonstrates that, while technology is available and generally consistent across educational styles, it has not yet reached an excellent level. The assumption is that teachers were utilizing technology in important ways, but they may still require further aid, training, or resources to transition their methods from traditional to revolutionary educational applications.

A particularly interesting conclusion comes from Item 6, "I use digital tools to track and monitor students' progress," which received the highest mean score of 4.05. This suggests that teachers place a higher priority on using technology for assessment and progress monitoring than for other instructional purposes. The high rating suggests that digital assessment systems, learning management platforms, and electronic gradebooks have been shown to be dependable and vital tools for facilitating data-driven instruction. It also demonstrates that teachers may be more comfortable using technology for administrative and evaluative purposes than for more difficult pedagogical goals such as critical thinking or collaborative learning.

The researchers found that educators feel more confident about the use of technology to support assessment and communication than to integrate it deeper into the pedagogy process, which explains the high score in digital progress tracking (Cruz and Sarmiento, 2022).

Likewise, Khoza (2023) has found that, although teachers generally employ technology in the classroom, they are largely driven to use technology in efficiency and accountability, but not to transform the learning experience. In more recent times, Santos and Lee (2024) had identified that moderate competence in integrating technology among instructors is usually due to low levels of professional development aimed at higher levels of pedagogical application, and this would fit in with the overall grand mean of highly competent. These findings prove that even though technology is utilized by teachers fairly often, more creative and student-focused methods are still required.

Table 6. *Summary of Teachers' Level of Technological Competence*

Teaching Effectiveness	Mean	Interpretation
Knowledge of Educational Technology Tools	3.59	High
Skill in Integrating Technology into Teaching	3.99	High
Confidence in Using Digital Platforms	3.69	High
Frequency and Quality of Technology Use in the Classroom	3.74	High
Grand Mean	3.75	High

Scale: 4.21- 5.00= Very High; 3.41- 4.20= High; 2.61- 3.40 = Moderate; 1.81- 2.60= Low, 1.00 – 1.80 = Very Low

Table 6 summarizes the overall teachers' level of technological competence across four major domains. The grand mean of 3.75, which is interpreted as high. A somewhat higher mean score of 3.99 for Skill in Integrating Technology into Teaching suggests that teachers are reasonably competent of incorporating technology into educational activities. Although deemed high, this is the strongest of the four indicators. It implies that teachers can use their technological talents to lesson design and delivery, but may lack proficiency in employing technology in more inventive or revolutionary ways. However, the lowest mean score of 3.59 for knowledge of educational technology tools indicates that, while teachers are familiar with numerous digital resources, there is still space for improvement in completely comprehending and maximizing these tools. This could suggest a lack of exposure to more complex or innovative technologies, as well as a lack of opportunity for professional development centered on digital literacy.

Alcontin (2021) found that professional growth and individual training had a substantial impact on teachers' confidence and competence in digital instruction. Many professors responded that, while they use digital tools, they prefer to interact with students in person whenever feasible. Furthermore, Hizam et al. (2021) revealed that increasing digital competency was linked to a better fit between task and technology ("task-technology fit"), which predicted better platform use and performance. This emphasizes the multifaceted nature of competence (knowledge, skill, and confidence), which matches to the characteristics in your table.

Table 7. *Teaching Effectiveness in terms of Student Academic Performance or Engagement*

No.	Statement	SD	Mean
1	My students consistently achieve high academic performance in my class.	0.59	3.63
2	Students actively participate in class discussions.	0.65	3.61
3	Students regularly complete their assignments and projects.	0.58	3.55
4	Students attend my classes regularly and on time.	0.88	3.41
5	Students can apply what they learn to real-life situations.	0.60	3.56
6	My students show motivation and enthusiasm for learning.	0.62	3.62
7	Most students meet the learning objectives I set for them.	0.77	3.41
8	Students engage actively in online or technology-based activities.	0.82	3.42
9	Students persist in completing challenging tasks.	0.66	3.54
10	There is an improvement in overall class performance over time.	0.96	4.09
	Grand Mean	3.58	(Moderately Effective)

Scale: 4.21- 5.00= Highly Effective; 3.41- 4.20= Moderately Effective; 2.61- 3.40 = Somewhat Effective; 1.81- 2.60= Less Effective, 1.00 – 1.80 = Not Effective

Table 7 demonstrates that the teaching efficacy in terms of student academic performance and student engagement is partially effective, with a grand mean of 3.58. Students demonstrate decent rates of participation, motivation, and accomplishment of tasks, and overall class performance is significantly

better over time (M = 4.09), which proves that the process of learning is also developing slowly.

Nevertheless, other indicators such as attendance, learning objective accomplishment, and involvement in selection of online or technology-based activities had lower mean scores (3.41), showing factual areas where the involvement of the students is irregular.

Overall, though there is a sensible scale of academic performance and involvement in classroom experiences, results show that better methods are necessary to enhance the participation, online interaction, and various performance stability to be able to attain higher levels of efficiency. The study of Gao (2023) shows that student engagement is a strong predictor of retention; the higher the level of engagement, the higher the academic retention. This aligns with what you have seen in terms of the students being moderately engaged as overall performance improves (class performance improves over time).

Table 8. *Teaching Effectiveness in terms of Classroom Management Skills*

No.	Statement	SD	Mean
1	I can maintain discipline and minimize classroom disruptions.	0.76	3.53
2	I use class time effectively to cover all planned lessons.	0.77	3.55
3	I establish clear and consistent classroom rules.	0.83	3.59
4	I manage smooth transitions between lessons or activities.	0.81	3.46
5	I handle behavioral issues promptly and fairly.	0.91	3.71
6	I use positive reinforcement to encourage good behavior.	0.69	3.82
7	I create a respectful and inclusive classroom environment.	0.78	3.82
8	My classroom materials and resources are well-organized.	0.78	3.85
9	I am able to sustain students' attention throughout the lesson.	0.74	3.97
10	My classroom promotes safety and mutual respect.	0.73	4.17
	Grand Mean	3.75	(Moderately Effective)

Scale: 4.21- 5.00= Highly Effective; 3.41- 4.20= Moderately Effective; 2.61- 3.40 = Somewhat Effective; 1.81- 2.60= Less Effective, 1.00 – 1.80 = Not Effective

Table 8 shows that teaching effectiveness in terms of classroom management skills has a grand mean of 3.75, which is interpreted as Moderately Effective, indicating that teachers demonstrate competent but not extraordinary classroom management practices.

The highest-rated indicator, "My classroom promotes safety and mutual respect" (M = 4.17), demonstrates that teachers are excellent at creating a safe and courteous environment, a vital basis for good learning. In contrast, the lowest-rated item, "I manage smooth transitions between lessons or activities" (M = 3.46), indicates that teachers struggle more with moment-to-moment instructional flow, which is critical for reducing disruptions and maintaining momentum.

Comprehensively, the results show that teachers have advanced classroom management competence, yet they need specific support in procedural management and enhancing the effectiveness of instruction time. Even though they excel at promoting positive behavior, maintaining order, and inclusive work environments, their lower score in the areas of transitions and pacing of lessons indicates that they need to improve the structure of instructional flow. Enhancing these points can help to avoid interruptions, enhance the consistency of engagement, and integrate smoother educational experiences. Enhancing procedural competence will most probably increase the total classroom management to a highly effective one.

Paje et al. did not find any significant connection between teacher organization and routine management as predictors of effective classroom settings (Paje et al., 2021), but with comparatively high score on rule-setting and behavior management. Zheng (2023) and Gao (2023) emphasized more recently the importance of flows and organizational structures as the number

of digital and mixed activities as teachers increases, because the transition management scores are relatively low.

Table 9. *Teaching Effectiveness in terms of Lesson Delivery and Instructional Strategies*

No.	Statement	SD	Mean
1	I present lessons in a clear and organized manner.	0.63	3.75
2	I use various teaching strategies to address different learning styles.	0.64	3.60
3	I integrate technology and multimedia effectively in my lessons.	0.60	3.55
4	I maintain appropriate pacing throughout my lessons.	0.74	3.52
5	I relate lessons to students' real-world experiences.	0.67	3.77
6	I encourage students to think critically and creatively.	0.67	3.69
7	I use assessments to monitor and improve student learning.	0.69	3.73
8	I adjust my teaching methods to meet students' needs.	0.67	3.71
9	I explain lessons clearly and answer questions effectively.	0.74	3.62
10	I demonstrate enthusiasm and mastery of my subject.	0.67	3.69
	Grand Mean	3.66	(Moderately Effective)

Scale: 4.21- 5.00= Highly Effective; 3.41- 4.20= Moderately Effective; 2.61- 3.40 = Somewhat Effective; 1.81- 2.60= Less Effective, 1.00 – 1.80 = Not Effective

Table 9 shows the teaching effectiveness in terms lesson delivery and instructional strategies, a grand mean of 3.66, interpreted as Moderately Effective, indicating that teachers generally deliver competent lessons and use a range of teaching tactics, but not at an outstanding level.

The highest-rated statement, "I relate lessons to students' real-world experiences" (M = 3.77), demonstrates that teachers excel at making learning relevant and meaningful, which is vital for enhancing engagement and comprehension. In contrast, the lowest-rated item, "I maintain appropriate pacing throughout my lessons" (M = 3.52), indicates that teachers struggle to manage time, content load, and student response. These findings indicate that, while teachers have great presentation and contextualization skills, they may want further assistance with pacing and technological integration.

This means that teachers can clearly present courses, combine assessments with teaching, change teaching methods, and facilitate thinking in their students; however, these things are not always applied in a regular and exhaustive way. A moderately effective rating is an indicator of instructional competence that leads to increased student learning, but also expresses the necessity to shape the method of instruction to be more coherent and responsive to the evolving needs of learning.

It was also found that teachers often face difficulties in the combined use of digital tools and with classes when introducing them, meaning a lack of technology and pace in the classroom (Paje et al., 2021).

Moreover, it was discovered that the instructional clarity, instructor passion, and responsive teaching methods significantly affected student motivation, thus providing mid-to-high scores in enthusiasm, critical thinking, and adaptability (Rajan et al., 2023). These results show that teachers are very good at the basic instructional skills, but often have problems with timing and use of technology.

Table 10. *Teaching Effectiveness in terms of Student Feedback*

No.	Statement	SD	Mean
1	My students are satisfied with my teaching performance.	0.67	3.69
2	Students find my explanations clear and easy to understand.	0.71	3.57

3	Students feel motivated to learn in my class.	0.63	3.65
4	Students find my lessons interesting and relevant.	0.59	3.59
5	Students perceive my grading and feedback as fair.	0.66	3.91
6	Students say I respond promptly to their questions and concerns.	0.84	4.00
7	Students feel respected and valued in my classroom.	0.78	3.88
8	Students believe I use technology effectively in teaching.	0.82	3.84
9	Students give positive comments in formal evaluations.	0.84	3.65
10	Students show increased interest in the subject I teach.	0.73	3.87
	Grand Mean	3.77	(Moderately Effective)

Scale: 4.21- 5.00= Highly Effective; 3.41- 4.20= Moderately Effective; 2.61- 3.40 = Somewhat Effective; 1.81- 2.60= Less Effective, 1.00 – 1.80 = Not Effective

Table 10 shows the teaching effectiveness in terms of student feedback, with a grand mean of 3.77, indicating Moderately Effective. This suggests that students generally rate their teachers favorably in terms of clarity, fairness, motivation, responsiveness, and overall teaching quality.

The highest-rated item, "Students say I respond promptly to their questions and concerns" (M = 4.00), demonstrates that students value teachers' responsiveness and availability, which is an important aspect of supportive teaching.

In contrast, the lowest-rated item, "Students find my explanations clear and easy to understand" (M = 3.57), indicates that while explanations are typically adequate, clarity may not always be optimal for all students.

In general, the obtained findings suggest that students appreciate the helpful, courteous, and fair learning environment of their professors, which helps them to feel satisfied and motivated. A high rating of responsiveness and fairness suggests excellent affective and interpersonal teaching skills, whereas a moderate rating of clarity, engagement, and interest suggests excellent but not optimum classroom instruction.

The marginally reduced perceptions of clarity in explanation and course relevance demonstrate the necessity of increased improvement of communication strategies and teaching methods that will be more exciting and learner-oriented. The reinforcement of these areas can improve the participation and understanding of the students and change the effectiveness of teaching to a high level.

Paje, etc. al. (2021) found out that high satisfaction with feedback and even grading practices raise student satisfaction, which is consistent with the high fairness in the table.

Zheng et al. (2023) and Campeanu et al. (2023) also found that the clarity of instructions and the relevance of the lesson directly influenced student motivation and perceived the quality of instruction, which is reflected in the medium scores on clarity and interest.

Table 11. *Summary of Teaching Effectiveness*

Teaching Effectiveness	**Mean**	**Interpretation**
Student Academic Performance or Engagement	3.58	Moderately Effective
Classroom Management Skills	3.75	Moderately Effective
Lesson Delivery and Instructional Strategies	3.66	Moderately Effective
Student Feedback	3.77	Moderately Effective
Grand Mean	3.69	Moderately Effective

Scale: 4.21- 5.00= Highly Effective; 3.41- 4.20= Moderately Effective; 2.61- 3.40 = Somewhat Effective; 1.81- 2.60= Less Effective, 1.00 – 1.80 = Not Effective

Table 11 shows a summation of overall teacher effectiveness in four key areas, namely, Student Academic Performance or Engagement, Classroom Management Skills, Lesson Delivery and Instructional Strategies and Student Feedback.

The table shows a grand mean of 3.69, which is understood as Moderately Effective. Student Feedback was the highest in the domains, with a mean of (M = 3.77). Student Academic Performance or Engagement, in turn, had the lowest average (M = 3.58), which reveals that, regardless of the efforts of teachers, the motivation, participation, and constant achievement of students are rather diverse.

The moderate effectiveness in general indicates that the teachers are performing quite well in providing safe, polite, and engaging learning environments, offering courses in an effective manner, making use of instructional materials intelligently, and keeping control of the classroom. Nonetheless, the results indicate the areas that may require specific professional focus, namely, the increase of student involvement and the introduction of measures that will help to guarantee the achievement of scholastic success in the context of consistent academic interventions. Increasing the power of these areas may improve overall effectiveness, which will increase to moderate and high effectiveness.

Johar et al. (2023) argue that the heavy engagement of students and multiple teaching methods are significant predictors of learning outcomes. According to Paje et al. (2021) state that effective teaching implies classroom control, proper course presentation, and feedback.

The studies by Zheng (2023) and Campeanu et al. (2023) contain additional evidence that increased teaching quality is achieved through diversified teaching methods, a good level of communication, and consideration of the needs of students.

In general, these works suggest that even when the work of teachers is characterized by good competencies, it is necessary to use continuous professional growth and targeted interventions to increase teaching efficiency and student achievement to the maximum.

Table 12 shows the considerable variance of the level of technological competences of teachers as clustered according to their demographic profile in terms of age, educational attainment, and number of trainings attended regarding technology.

Table 12. *Test of Significant Difference in the Teachers' Technological Competence when Respondents Are Grouped According to Demographic Profile*

Test Variables	P value	Decision
Teachers' Technological Competence Vs. Age	0.0015	Reject the Ho
Teachers' Technological Competence Vs. Educational Attainment	0.33	Accept the Ho
Teachers' Technological Competence Vs. Number of training attended	0.07	Accept the Ho

Note: If $p \leq 0.05$, with a significant difference

Table 12 shows the considerable variance of the level of technological competences of teachers as clustered according to their demographic profile in terms of age, educational attainment, and number of trainings attended with regard to technology.

Teachers' Technological Competence Vs. Age

The study observed that there was a strong difference between the technological ability across age groups (p = 0.0015, Ho rejected), showing that age is a variable to be taken into consideration. The age effect was huge, which means that the allocation of resources and the professional development of the teachers should depend on the age of the teacher. Specialized assistance, as opposed to general training, might be needed more by older teachers, especially those who are about to retire.

This is aligned with previous studies that have established age-related disparities in digital/technological competence among instructors. Caresosa (2024) found that younger teachers are more

technologically proficient, and this finding is not surprising given the huge age effect that is apparent in the table. Similar to that, Tondor et al. (2024) discovered the difference in the effect of age on digital competence, where younger teachers seem to be more confident in working with technology.

Teachers' Technological Competence Vs. Educational Attainment

The researchers did not detect any significant effect of the level of education to the level of technological competence in teachers (p = 0.33; Ho accepted). This demonstrates that the better the educational qualification, the more technology might not be more proficient.

Educational attainment is not likely to be a good indicator of technical competency of a teacher. That indicates that contextual issues (including resource availability, training, attitudes, as well as school support) might play a larger role in the influence of formal qualifications on technology-based skills. Consequently, programs of promoting digital competence must not be confined to influencing teachers to take higher degrees, but must also incorporate relevant training, provision of resources, and capacity building of all teachers.

This fits in with a study conducted in Palawan (Philippines), which found no significant differences in technological knowledge between senior-high school teachers based on the grouping based on educational attainment (Bato, & Daga, 2025). At the same time, Fernández-Morante et al. (2023) highlighted that educational level does not necessarily correlate well with technological competence, and the outcome of degree level was not significant.

Teachers' Technological ***Competence Vs. Number of trainings attended***

The study (p = 0.07, not significant, Ho accepted) observed no significant distinction in technological competence among teachers based on the number of trainings they have attended. This is in line with remarks in the literature that mere presence in the training/events does not connote competency.

This is the reason why the findings indicate that schools and other educational institutions ought to introduce age-related professional training programs to enable teachers to move to a higher technological level. As training frequency makes no significant difference when it comes to competency, the focus should be on the creation of viable, long-lasting and focused training and not on the number of the sessions.

According to Bagunu (2024), in a research study about the methodologies of integrating technologies in classrooms, researchers found out that the perceived number of technology-related trainings represented in classroom technology integration, or competency, was not significant. Moreover, the quality of training but not its number was proven to predict the technical preparedness by Danso and Ning (2025), which supports the conclusion that the number of trainings did not have significant correlations with competence. These studies justify the necessity of contextual, personal, and relevant professional development that would enhance the digital skills of teachers.

Table 13. *Test of Significant Difference in their Teaching Effectiveness when Respondents Are Grouped According to Demographic Profile*

Test Variables	P value	Decision
Teaching Effectiveness Vs. Age	0.024	Reject the Ho
Teaching Effectiveness Vs. Educational Attainment	0.216	Accept the Ho
Teaching Effectiveness Vs. Number of training attended	0.652	Accept the Ho

Note: If $p \leq 0.05$, with a significant difference

The significant differences in the teaching effectiveness of teachers among demographical profiles in reference to age, the level of education and the number of trainings attended compared to technology are established in Table 13.

Teaching Effectiveness Vs. Age

The findings reveal statistically significant influence of age on teaching effectiveness (p =.024) and the null hypothesis is rejected. This implies that the level of instructional performance between young and old teachers differs. This suggests that the teaching effectiveness is age-dependent, so certain age groups can be stronger in the teaching aspects connected with experience, adaptability, or the teaching style. The school administrators are encouraged to tailor-fit professional development according to the career stage of the teachers, and to train senior educators in instructional innovation and provide mentorship opportunities to young teachers in order to enhance their classroom management and pedagogical richness.

Teaching Effectiveness Vs. Educational Attainment

The fact that there is no strong difference in teaching effectiveness in relation to educational attainment (p = 0.216) suggests that the higher the degree is, the more likely it will lead to the improved teaching performance.

It implies that high academic qualifications do not guarantee excellent performance as a teacher. This demonstrates that the teaching efficacy is influenced more by the practical teaching experience, lifelong learning, pedagogical skills, and adapting to the needs of the students in comparison to academic qualifications.

The evidence behind this is shown by the results of a study conducted by Bato and Daga (2025) indicating that there is no significant correlation between the academic degrees of teachers and their instructional ability. Lamanauskas and Mažeikienė (2024) discovered that teaching is based on instructional strategies, digital readiness, and practice and not on traditional academic credentials. In the meantime, other studies did not find significant association between educational level and pedagogical skills, Soriano et al. (2023) emphasized that higher degrees are not always associated with higher teaching performance, especially when the material taught during degrees has nothing to do with teaching.

Teaching Effectiveness vs. Number of training attended

The observation that teaching effectiveness and the number of trainings attended are not significantly different (p = 0.652) suggests that increased training is not necessarily associated with improved instructional performance.

This means that the mere increase in the level of professional development does not lead to better instructional performance. This indicates that, most of the trainings can be too general, unrelated to what happens in classroom or they can lack a follow up support even afterwards and hence they cannot have much change to the actual teaching practice.

Delos Reyes and Punay (2023) found that most of the trainings are too theoretical and are not applied in the classroom hence having little effects on teacher effectiveness. In addition, some studies like those by Danso and Ning (2025) affirm that the quality of training predicted changes in teaching practices and not the number of the training, which also aligns with the non-significant control of teaching frequency in the table. Moreover, Bagunu (2024) recommended that training is best provided when instructors are trained to meet their needs with follow-up training and also incorporated with the already existing resources.

Taken together, these works confirm the fact that success is influenced more by age or experience than by formal credentials or number of trainings.

Table 14. *Test of Significant Relationship between the Level of Teachers' Technological Competence and Teaching Effectiveness*

Test Variables	Correlation Coefficient	P value	Decision
Level of Teachers' Technological Competence and the Teaching Effectiveness	0.73	0.26	Accept the Ho

Note: If $p \leq 0.05$, with a significant relationship

r value	Strength of correlation
0.00–0.19	Very weak
0.20–0.39	Weak
0.40–0.59	Moderate
0.60–0.79	Strong
0.80–1.0	Very strong

Table 14 shows that the level of technological competence of teachers and their teaching effectiveness is not statistically significantly correlated (p =0. 26), though the correlation coefficient is quite large (0.73). The coefficient means that the relationship is significant, but since it is not statistically significant, it might have been due to chance or some other factors like sample size, response variability or measurement limitations. That is, the technology level of teachers has not been adequately proven to be more effective in their teaching capacity. This result implies that, among the participants of the study, technological proficiency is not an effective predictor of educational performance.

The lack of a statistically significant correlation indicates that the enhancement of the technology skills of teachers might not necessarily lead to increased teaching effectiveness. This highlights the need to realize that successful teaching is reliant on a multiplicity of related factors, such as pedagogical skills, instruction techniques, classroom organization, and students' interaction with each other, not merely technology knowledge. This means that the approach of professional development programs must be more holistic, such that both technological and pedagogical training is integrated to ensure that technology is not applied on a superficial level.

Paje et al. (2021) argue that teachers with good skills in digital technologies are more likely to put their classes under control, as well as offer interesting courses to children. According to Johar et al. (2023), the instruction included technology, which enhances outcomes and student involvement in pedagogy. According to Zheng (2023) and Campeanu et al. (2023), technical proficiency is what allows providing clear instructions, more effective evaluation models, and more participatory learning processes.

IV. CONCLUSION AND RECOMMENDATION

Conclusions

This study has concluded that there is a significant positive correlation between the teaching effectiveness and technological competence of the teachers.

Though the correlation was not found to be significant, it still shows a good trend and indicates that significant relationships may be found when larger samples or more accurate methods of assessment are used.

Instrument sensitivity or variation in responses might have been a factor in the outcome, and this is where future studies can gain a deeper understanding of this relationship and improve it.

Therefore, the growing knowledge in technology will automatically improve the quality of instructions; rather, they must also take a more wholesome approach that involves pedagogical training, managing classes, and meaningful use of technology to guarantee actual changes in the effectiveness of teaching.

Recommendations

Based on the findings and conclusions of the study, it is recommended that Schools Division Officials and school administrators strengthen professional development programs, provide adequate technological resources, and support policies that enhance teachers' technological competence and teaching effectiveness.

Teachers are encouraged to continuously improve their technological, pedagogical, and classroom management skills through relevant training and reflective practice.

Students, parents, and community members should actively support the responsible and meaningful use of technology to promote effective learning.

Future researchers are encouraged to investigate other factors that may influence teaching effectiveness, such as technology availability, professional development, and school support systems, to further enrich the findings of this study.

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