Teachers' Attitudes and Technological Competence in Teaching-Learning in Malasiqui I District Public Elementary Schools

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Abstract

This study examined teachers' attitudes toward technological tools in teaching and learning and their technological competence in selected public elementary schools in Malasiqui I District. Respondents included 121 teachers and five school heads. Data were statistically analyzed to determine teachers' profiles, attitudes, perceived competence, and relationships among variables. Findings revealed that most teachers had no postgraduate degree, had more than ten years of teaching experience, and attended fewer than three trainings. Teachers demonstrated positive attitudes toward using technological tools. Significant relationships were found between educational attainment, teaching experience, number of trainings attended, and teachers' attitudes toward technology. Teachers perceived their technological competence as high, while school heads rated it as moderate. A significant relationship was also found between teachers' attitudes toward technological tools and their technological competence.

The study concluded that the typical teacher in the selected schools had no postgraduate degree, considerable teaching experience, and limited training participation. Teachers generally maintained positive attitudes toward technology, which were associated with their educational attainment, teaching experience, and training attendance. The difference between teachers' and school heads' assessments emphasized the need to strengthen technological competence and develop a shared understanding of teachers' abilities. Moreover, teachers' attitudes toward technological tools were significantly related to their technological competence.

The study recommends continuous professional development, relevant technology training, and practical opportunities for teachers to use technological tools. These initiatives may strengthen teachers' technological skills, encourage effective technology integration, and improve the teaching and learning process in public elementary schools in Malasiqui I District.

Keywords: Technological Competence; Attitude Towards the Use of Technological Tools; Teachers; Teaching and Learning Process; Public Elementary Schools

Introduction

The rapid advancement of technology has significantly transformed the teaching and learning process, making technological competence an essential requirement for teachers in the modern educational environment. Technological tools provide opportunities to improve instructional delivery, enhance learner engagement, facilitate access to educational resources, and support the development of learners' skills. According to Asagar (2025), the widespread integration of technological tools into daily life emphasizes the importance of technological competence. Similarly, Foulger et al. (2021) highlighted that incorporating technological tools into education promotes learners' engagement and interest in computing. Teachers play an important role in integrating these technologies into classroom instruction. Therefore, developing teachers' technological competence and maintaining positive attitudes toward technological tools are essential in improving the quality of education and preparing learners for an increasingly

technology-driven society. Despite the growing importance of technological tools in education, challenges remain in ensuring that teachers possess adequate technological competence and effectively integrate technology into their instructional practices. Teachers may differ in their educational attainment, teaching experience, training participation, attitudes, and technological skills. These differences may influence their readiness and ability to utilize technological tools in teaching and learning. Moreover, technological competence requires continuous professional development, practical experience, and opportunities to explore emerging technologies. Although technological tools offer various educational benefits, their effectiveness depends largely on teachers' knowledge, skills, and attitudes toward their utilization. These concerns highlight the need to examine teachers' attitudes and technological competence, particularly in the context of selected public elementary schools in Malasiqui I District.

In light of these considerations, this study sought to examine the attitudes toward the use of technological tools in the teaching and learning process and the technological competence of teachers in selected public elementary schools in Malasiqui I District. Specifically, it aimed to determine the teachers' educational attainment, length of teaching experience, and number of trainings attended; assess their attitudes toward technological tools and their technological competence; and identify the significant relationships among these variables. Furthermore, the study considered the perceptions of school heads regarding teachers' technological competence. Ultimately, the findings served as the basis for developing an in-service training program designed to enhance teachers' technological competence and promote the effective integration of technological tools into the teaching and learning process.

METHODOLOGY

Research Design

This study utilized the quantitative-descriptive cross-sectional survey research design. It described the teachers of the selected public elementary schools in Malasiqui I District in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined their attitude towards the use of technological tools in the teaching and learning process, and their technological competence level as perceived by themselves and their school heads. The study was also correlational for it determined if there is a significant relationship between the profile variables of the teachers and their attitude towards the use of technological tools in the teaching and learning process, if there is a significant relationship between the attitude of the teachers towards the use of technological tools in the teaching and learning process and their technological competence level, and if there is a significant difference between the perceptions of the teachers and the school heads on the technological competence level of the teachers.

Sources of Data

Locale of the Study. This study was conducted in five selected public elementary schools in Malasiqui I District during the School Year 2025-2026. These five selected public elementary schools are the big schools in Malasiqui I District

Population. There were two groups of respondents in this study, namely, the teachers and their school heads. In the selected public elementary schools, there are 172 teachers. From these 172 teachers, the sample size of 121 was arrived at using the Slovin’s sampling formula:

Research Participants. As mentioned, 121 sample teachers and five school heads of the selected public elementary schools in Malasiqui I District were made as respondents in the study. The teachers provided data relative to their profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended as well as their attitude towards the use of technological tools in the teaching and learning process, and their technological competence level. Meanwhile, the school heads provided data relative to the technological competence level of the teachers.

Instrumentation and Data Collection

The data utilized in this study were gathered through two survey-questionnaires, one for the teachers and one for the school heads.

The survey-questionnaire for the teachers had two parts. The first part looked into the profile of the teachers; the second part focused on the attitude of the teachers towards the use of technological tools in the teaching and learning process; and, the third part dealt with the technological competence level of the teachers. Meanwhile, the survey-questionnaire for the school heads simply focused on the technological competence of the teachers. The items here are the same with the third part of the survey-questionnaire for the teachers.

The items in the first part of the survey-questionnaire which is about the profile of the teachers is common in researches. Hence, no validation is required.

With respect to the second part of the survey-questionnaire which is about the attitude of the teachers towards the use of technological tools in the teaching and learning process, the items were based from the Teachers' Attitudes Towards New Technology (TANT) questionnaire of Wijnen, Molen, and Voogt (2024). This questionnaire was tested and validated by the researchers. Hence, the items are considered reliable.

In relation to items in the third part of the survey-questionnaire, the items will be based on the survey instrument of Javier (2020) in her study entitled "The Shift towards New Teaching Modality: Examining the Attitude and Technological Competence among Language Teachers Teaching Filipino." The items in relation to the technological competence has a computed Cronbach's alpha of 0.898. Accordingly, the items are considered valid and reliable.

In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the teachers and their school heads giving them three weeks to answer. After three weeks, the researcher retrieved the survey questionnaire.

Tools for Data Analysis

To determine the profile of the teachers in the selected public elementary schools, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

Ethical Considerations

So as not to violate the data privacy of the teachers and the school heads, permission to conduct the study was first secured from the Schools Division Superintendent of Pangasinan I Thereafter, informed consent was taken from the teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

RESULTS

This chapter presents the data gathered and their analysis and interpretation to answer the sub-problems raised in the study.

Table 2. Distribution of the Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	28	23%
Completed academic requirements in the Master's Degree	37	30%
Master's Degree	36	30%
Completed academic requirements in the Doctorate Degree	12	10%
Doctorate Degree	8	7%
Total	121	100%

Table 3.Distribution of the Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage
1 to 5 years	12	10%
6 to 10 years	31	26%
11 to 15 years	34	28%
16 to 20 years	23	19%
More than 20 years	21	17%
Total	121	100%

Table 4. Distribution of the Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings Attended	Frequency	Percentage
Have not attended any training related with technological competence for the past five years	0	0%
Have attended not more than three trainings related with technological competence for the past five years	76	63%
Have attended more than three trainings related with technological competence for the past five years	45	37%
Total	121	100%

Table 5. Attitude of the Teachers Towards the Use of Technological Tools in the Teaching and Learning Process

Assessment Items	Responses					WM	DE
	SD	DI	SO	AG	SA		
1. I think it is crucial that learners understand the role of technological tools in society.	0	0	20	63	38	4.15	

							AG
2. I think it is very important for learners' future that they get the opportunity to learn how to work with technological; tools at school.	0	0	21	62	38	4.14	AG
3. I think it is essential that learners learn how to work with technological tools at school so that they are well-prepared for societal development.	0	0	23	55	43	4.17	AG
4. I think that, with the help of technological tools, I can provide more variety in the assignments I offer my learners.	0	0	22	60	39	4.14	AG
5. I think that, with the help of technological tools, I can more easily differentiate in how I offer the content to be learned.	0	0	24	54	43	4.16	AG
6. I get a sinking feeling when I have to do something new with technological tools in my lessons.*	38	66	17	--	--	4.17	AG
7. I feel nervous about the idea of using technological tools in my lessons.*	33	73	15	--	--	4.15	AG
8. I feel tense when I have to use technological tools in my lessons.*	38	65	18	--	--	4.17	AG
9. I think it requires a lot of effort to use technological tools in my lessons.*	43	59	19	--	--	4.20	AG
10. I think it is very difficult to use technological tools in my lessons.*	73	33	15	--	--	4.15	AG
11. I think it is difficult to use technological tools in my lessons in the way that I want.*	74	33	14	--	--	4.16	AG
12. I am well aware of technological tools that I can use in the subjects I teach.	0	0	16	71	34	4.15	AG
13. I know exactly how I can use technological tools to present concepts from the subject I am teaching in a different way.	0	0	13	74	34	4.17	AG
14. I am quite able to choose technological tools that enhance my learners' learning process.	0	0	16	72	33	4.14	AG
15. I am quire able to choose technological tools that enhance the pedagogy in my lessons.	0	0	15	73	33	4.15	AG
16. I am quite able to choose technological tools that support the lesson content for the subjects I teach.	0	0	17	66	38	4.17	AG
17. I am quite able to provide lessons that appropriately combine content, technology, and pedagogy.	0	0	17	70	34	4.14	AG
18. For me, the availability of a training program determines whether I use technological tools in my lessons.*	34	71	16	--	--	4.15	AG
19. For me, the availability of technical support	34	70	17	--	--	4.14	

determines whether I use technological tools in my lessons.*							AG
20. For me, the availability of content support, in the form of an ICT-coordinator, determines whether I use technological tools in my lessons.*	33	72	16	--	--	4.14	AG
21. I have the feeling that technological tools have an important place in education at our school.	0	0	17	70	34	4.14	AG
22. I have the feeling that there is a clear vision about using technological tools in education at our school.	0	0	18	69	34	4.13	AG
23. I have the feeling that using technological tools in lessons is appreciated by colleagues and administration at our school.	0	0	16	71	34	4.15	AG
24. I have the feeling that my colleagues consider the use of technological tools in education to be important.	0	0	19	64	38	4.16	AG
25. My students often use technological tools to work on challenging problems.	0	0	17	71	33	4.13	AG
26. My students often use technological tools to make a product in my lesson.	0	0	15	73	33	4.15	AG
27. My students often use technological tools to present to each other what they have learned in my lessons.	0	0	17	71	33	4.13	AG
28. My students often use technological tools to delve into a subject that interests them in my lessons.	0	0	18	69	34	4.13	AG
29. I often use technological tools to connect learning in school with learning outside of school.	0	0	15	73	33	4.15	AG
30. I often use technological tools to get students to collect and analyze data in my lessons.	0	0	15	73	33	4.15	AG
31. My students often use technological tools for programming in my lessons.	0	0	14	73	34	4.17	AG
					OWM	4.15	AG

Note: Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
OWM	=	overall weighted mean
*	=	reversed value

Scale:

SD	=	strongly disagree (very negative)	=	1.00 – 1.49
DI	=	disagree (negative)	=	1.50 – 2.49
SO	=	somewhat agree (neutral)	=	2.50 – 3.49
AG	=	agree (positive)	=	3.50 – 4.49
SA	=	strongly agree (very positive)	=	4.50 – 5.00

Table 6. Relationship between the Profile Variables of the Teachers and Their Attitude Towards the Use of Technological Tools in the Teaching and Learning Process

Profile Variables	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	7.31	3.84	S
Length of Teaching Experience	7.11	3.84	S
Number of Relevant Trainings	5.58	3.84	S

Table 7. Technological Competence Level of the Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. I can access various technological resources and tools (e.g. productivity tool, e-books, Content Management System, and others).	0	0	8	63	50	4.35	HI
2. I can organize and present the learning materials in digital format.	0	0	17	55	49	4.26	HI
3. I can develop assessment through online tools and applications.	0	0	14	48	59	4.37	HI
4. I can utilize computers and other digital devices employed in online classes.	0	0	13	53	55	4.35	HI
5. I can trouble shoot internet connection issues, and device-related troubles.	0	0	20	47	54	4.28	HI
6. I can employ appropriate multimedia technologies appropriate for learning activities.	0	0	10	66	45	4.29	HI
7. I can align content with pedagogical approaches an appropriate technology.	0	0	11	66	44	4.27	HI
8. I can use online communication tools.	0	0	18	54	49	4.26	HI
9. I can design learning activities considering available technologies.	0	0	14	59	48	4.28	HI
10. I can use technology to facilitate collaborative creation and peer editing of students work.	0	0	15	56	50	4.29	HI
					AWM	4.30	HI

Table 8. Technological Competence Level of the Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
My teachers can …	VL	LO	MO	HI	VH		
1. Access various technological resources and tools (e.g. productivity tool, e-books, Content Management System, and others).	0	2	2	1	0	2.80	MO
2. Organize and present the learning materials in	0	1	4	0	0	2.80	

digital format.							MO
3. Develop assessment through online tools and applications.	0	2	3	0	0	2.60	MO
4. Utilize computers and other digital devices employed in online classes.	0	1	4	0	0	2.80	MO
5. Trouble shoot internet connection issues, and device-related troubles.	0	1	3	1	0	3.00	MO
6. Employ appropriate multimedia technologies appropriate for learning activities.	0	1	3	1	0	3.00	MO
7. Align content with pedagogical approaches an appropriate technology.	0	1	3	1	0	3.00	MO
8. Use online communication tools.	0	1	4	0	0	2.80	MO
9. Design learning activities considering available technologies.	0	2	2	1	0	2.80	MO
10. Use technology to facilitate collaborative creation and peer editing of students work.	0	1	3	1	0	3.00	MO
					AWM	2.86	MO

Table 9. Relationship between the Attitude of the Teachers Towards the Use of Technological Tools in the Teaching and Learning Process and Their Technological Competence Level

	Computed r Value	Computed p Value at .05 alpha	RM
Attitude Towards the Use of Technological Tools in the Teaching and Learning Process	0.78	0.00	Significantly strong positive correlation

Table 10. Difference between the Perceptions of the Teachers and the School Heads

	Computed p Value	Level of Significance	RM
Technological Competence Level Teachers	0.00	.05	S

Discussion

The study examined the attitudes and technological competence of teachers in Malasiqui I District Public Elementary Schools and explored how teachers' educational attainment, teaching experience, and training relate to their attitudes toward technology integration.

Most teachers had pursued postgraduate education, with the majority having completed or earned master's degrees, while a smaller number had doctoral qualifications. This indicates a strong commitment to professional growth and continuous learning. In terms of teaching experience, most respondents had more than ten years of service, suggesting that they possessed extensive classroom experience and established instructional practices.

Regarding professional development, all teachers had attended technology-related training within the last five years, although most had participated in three or fewer trainings. This highlights the need for more sustained and frequent technology-focused professional development opportunities.

Teachers generally demonstrated a positive attitude toward the use of technological tools, recognizing their value in improving instruction, supporting diverse learning needs, increasing learner engagement, and preparing students for future challenges. They also believed that technology plays an important role in modern education and supports effective teaching and learning.

The study found that educational attainment, teaching experience, and participation in relevant trainings were significantly associated with teachers' attitudes toward technology. This suggests that teachers' professional backgrounds and development experiences influence how they perceive and accept technological tools in the classroom.

Teachers rated their own technological competence as high, indicating confidence in using digital resources, creating learning materials, conducting online assessments, troubleshooting technical issues, and integrating technology into instruction. However, school heads evaluated teachers' technological competence as only moderate, suggesting that teachers still need improvement in the practical application and demonstration of technology skills.

A significant difference existed between teachers' self-assessments and school heads' evaluations. While teachers viewed themselves as highly competent, school heads perceived a lower level of competence. This discrepancy points to the need for clearer standards, performance-based assessments, and opportunities for teachers to demonstrate their technological capabilities.

The study also revealed a strong positive relationship between teachers' attitudes toward technology and their technological competence ($r = 0.78$). Teachers with more favorable attitudes toward technology generally reported higher levels of competence. This finding highlights the close connection between willingness to use technology and the ability to apply it effectively in teaching.

Overall, the findings suggest that while teachers possess positive attitudes and confidence in using technology, there remains a need to strengthen their actual technological competence through targeted professional development. Consequently, the proposed in-service training program should focus on enhancing practical technology skills, technology integration strategies, digital resource development, online assessment, troubleshooting, and continuous support. The program should also consider differences in teachers' educational backgrounds, teaching experience, and training exposure while encouraging collaboration between teachers and school heads to promote a shared understanding of technological competence and effective technology integration in education

Conclusions

Based on the findings made, the following conclusions were drawn:
1. A typical teacher in the selected public elementary schools in Malasiqui I District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with technological competence.
2. The teachers have a positive attitude towards the use of technological tools in the teaching and learning process.
3. The attitude of the teachers towards the use of technological tools in the teaching and learning process is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended.

4. The teachers perceived that they have high technological competence level while the school heads perceived that the teachers only have moderate technological competence level.
5. The technological competence level of the teachers is influenced by their attitude towards the use of technological tools in the teaching and learning process.
6. The teachers and the school heads have different perceptions on the technological competence level of the teachers.
7. The proposed in-service training program will improve the technological competence level of the teachers in the public elementary schools in Malasiqui I District.

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