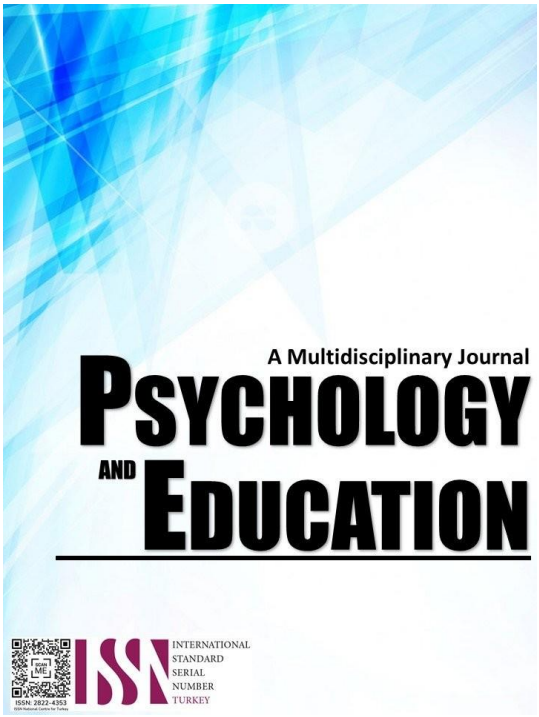
COMPETENCE AND CONSTRAINTS ON INFORMATION AND COMMUNICATIONS TECHNOLOGY UTILIZATION OF TEACHERS AND LEARNING ENVIRONMENT IN RELATION TO THE PERFORMANCE OF PUPILS: BASIS FOR ENHANCEMENT PROGRAM



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Research Article

Competence and Constraints on Information and Communications Technology Utilization of Teachers and Learning Environment in Relation to the Performance of Pupils: Basis for Enhancement Program

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Abstract

The study entitled, Competence and Constraints on Information and Communications Technology Utilization of Teachers and Learning Environment in Relation to Performance of Pupils: Basis for Enhancement Program determined the the ICT utilization competence and constraints of Grade One of teachers and the learning environment in relation to performance of teachers in the Division of Bago City for S.Y. 2023-2024. Respondents included 105 teachers and 2,957 pupils. Data were collected using a standardized Likert Scale survey and analyzed with statistical tools, including frequency percent distribution, mean, Mann-Whitney U test, Kruskal-Wallis test, and Gamma Coefficient. Findings revealed that most teachers were female (98.10%), there are aged 30-39 years (38.10%), and married (81%). Nearly half (44.80%) pursued advanced master's degrees, and 49.50% had a monthly family income of ₱20,000–29,999, categorized as lower middle-income. Teachers demonstrated high competence in ICT utilization and medium-level constraints, while the learning environment was rated high with an overall mean of 2.70. Pupils generally performed very satisfactorily. The study found no significant differences in teachers' ICT competence, constraints, or the learning environment when grouped by profile. Additionally, no significant relationships were identified between teachers' ICT utilization or constraints and pupils' performance, nor between the learning environment and pupils' performance. These findings provide insights into the current state of ICT use and its impact on education, serving as a basis for developing enhancement programs nor between the learning environment and pupil performance.

Keywords: *competence, constraints, information and communication technology*

Introduction

The overall mission of the Department of Education for the 21st century is "Education for all Filipinos Anytime, Anywhere." This mission calls for an ICT-enabled educational system to transform students into dynamic lifelong learners and value-centered, productive, and responsive citizens. Section 2 of the Governance of Basic Education Act of 2001 (RA 9155) emphasizes the significant role of the school as a channel through which students are molded into becoming productive citizens by offering an environment conducive to learning.

Information and communication technology is one of the foremost emerging technologies that play an important role in every sphere of human endeavor. It has witnessed a massive transformation over the years, making teaching and learning easier and more enjoyable, and has changed how people live, learn, work, and play. Consequently, the internet has been a vital tool to the present information society, and a world without the internet is unimaginable (Adelakun et al., 2020).

In education, ICT is crucial in enhancing teaching methods, improving access to resources, and fostering interactive and personalized learning experiences (UNESCO).

Integrating Information and Communication Technology (ICT) into education has significantly transformed teaching and learning. In 2022, studies highlighted the potential of ICT to create interactive, personalized learning experiences and improve educational access. Digital tools like online platforms, multimedia resources, and virtual classrooms cater to diverse learning styles, promote engagement, and bridge gaps in educational equity (Marsyangdi Journal, 2022; UIJRT, 2022).

Based on the researcher's experience, the ICT utilization gap in the classroom had been shaped by several factors that hindered the effective integration of technology. Among these connectivity and power supply were persistent challenges, with unreliable internet and frequent power outages disrupting lessons that relied on digital tools. The lack of technical support and limited training left her struggling to troubleshoot issues or maximize the use of available technology. Preparing ICT-based lessons was often time-consuming, especially when dealing with outdated computers and gadgets that lacked the necessary software or functionality—on the other hand, attitude sometimes played a role, as she hesitated to use unfamiliar tools due to a lack of confidence.

Moreover, the learning environment was not always conducive to ICT integration; overcrowded classrooms and limited space made it difficult to set up and use technology effectively. These experiences underscored the need for better infrastructure, professional development, and a supportive environment to bridge the ICT utilization gap in teaching. Thus this study, Competence and Constraints on Information and Communications Technology Utilization of Teachers and Learning Environment in Relation to Performance of Pupils in the Division of Bago City conducted to address barriers to improve both teachers' competence in ICT utilization and student outcomes.

Research Questions

This study aimed to determine the Competence and Constraints of the Information and Communication Technology Utilization and Learning Environment in Relation to the Performance of Pupils: Basis for Enhancement Program in the Division of Bago City, during the School Year 2023-2024. Specifically, this study sought to answer the following:

1. What is the profile of teachers in terms of the following selected variables?
    1.1. sex;
    1.2. age;
    1.3. civil status;
    1.4. highest educational attainment; and
    1.5. average family monthly income?
2. What is the level of competence of ICT utilization teachers when taken as a whole and when grouped according to:
    2.1. basic computer operation;
    2.2. file management;
    2.3. word processing;
    2.4. spreadsheet;
    2.5. internet;
    2.6. video production;
    2.7. presentation skills; and
    2.8. digital technologies?
3. What is the level of constraints on ICT utilization of teachers when taken as a whole and when grouped according to:
    3.1. connectivity and power supply;
    3.2. technical support and training;
    3.3. technology preparation;
    3.4. ICT knowledge and skills; and
    3.5. teacher's attitude to computers and gadgets?
4. What is the level of learning environment when taken as a whole and grouped according to sex, age, civil status, highest educational attainment, and average family monthly income?
5. What is the level of performance of the pupils?
6. Are there significant differences in the competence and constraints on ICT utilization of teachers and the learning environment when grouped according to profile?
7. Is there a significant relationship between the level of competence and constraints on the ICT utilization of teachers and the performance of pupils?
8. Is there a significant relationship between the level of the learning environment and the performance of pupils?
9. Based on the results, what instructional leadership skills enhancement program can be proposed?

Methodology

Research Design

This study used the descriptive-correlational research design. According to Creswell (2018), this type of research design was characterized as a non-experimental approach that aimed to describe and explore relationships between variables without manipulation. This design is particularly useful for identifying patterns and associations within a defined population by collecting data through surveys, observations, and existing records. This approach helps understand diverse student's needs and informs targeted interventions. While it doesn't establish causation, the insights gained can drive improvements in educational practices and outcomes.

Respondents

This study focuses on the competence and constraints of teachers on information and communications technology utilization of teachers and the learning environment in relation to the performance of pupils. The subject of this study was the one hundred five (105) Grade one teachers and two thousand nine hundred fifty-seven (2, 957) pupils of the Division of Bago City for School Year 2023-2024.

This study included the entire population of Grade One teachers (105) and pupils (2, 957) in the Division Bago City, School Year 2023-2024, therefore, no sampling computation to sample size was not taken. Since all populations were taken, no sampling techniques were employed in the study.

Instrument

The researcher utilized standardized survey questionnaires from the research of Pinky M. Roxas (2018) entitled "The Teachers' Extent of Utilization of Information and Communications Technology in Teaching and the Students' Level of Academic Performance," and Edwin G. Segovia (2022) entitled: Technology-Driven Teaching Modalities and Challenges of Public Elementary School Teachers in Relation to Academic Performance".

This survey questionnaire was answered by all 105 Grade One teachers and 2 957 pupils of the Division of Bago City for School Year 2023-2024 using the Likert Scale such as (3) high, (2) medium, and (1) low.

The instruments were composed of two parts. Part I includes the teacher's profile: name, school, age, sex, civil status, highest educational attainment, and the average family monthly income. Part II is the questionnaire proper; it was divided into three parts: A was the teacher's competence and consequences, and C was the learning environment. The respondents chose from the given choices such as (3) high, (2) medium, and (1) low as to the level of Competence and Constraints on the Information and Communication Technology Utilization of Enhancement Program in Grade One Teachers for S.Y. 2023-2024, Division of Bago City.

Procedure

For the data gathering of the study, the following were employed: A letter of approval from the Schools Division Superintendent will be secured for administering the questionnaire to all the Grade One Teachers of the Division of Bago City, School Year 2023-2024.

During the day of the survey, the researcher personally distributed the questionnaires with the assistance of the school's administrators. These questionnaires will also be retrieved immediately.

To ensure the appropriate and proper accomplishment of the questionnaire, the researcher explained the purpose of the study to the respondents.

The data gathered were tabulated and analyzed to answer the specific statements of the problem.

Data Analysis

The data gathered were processed statistically using the Statistical Package for Social Science (SPSS) and Microsoft Excel. These were statistically analyzed to answer the specific objectives of the study and to test the hypotheses presented in Chapter 1.

To answer problem No. 1 to find out the profile of teacher-respondents in terms of sex, age, civil status, average family monthly income, and highest educational attainment, the frequency and percent distribution were used.

To answer problem No. 2, which aims to know the level of competence in ICT utilization of teachers when taken as a whole and when grouped according to basic computer operation, file management, word processing spreadsheet, internet, video production, presentation skills, and digital technologies, mean was used.

To answer problem No. 3 to find out the level of constraints on ICT utilization of teachers when taken as a whole and when grouped according to connectivity and power supply, technical support and training, technology preparation, ICT knowledge and skills, teacher's attitude, teacher's attitude, mean was utilized.

To answer problem No. 4, which is to know the level of learning environment when grouped according to physical facilities and teacher-pupil interaction, the mean was used.

To answer Problem No. 5, which is to find out the performance of pupils, the mean score range was utilized, and the interpretation was presented below.

The interpretation was taken from the School Form 5 (SF5) - Report on Promotion and Level of Proficiency & Achievement downloaded from The Learner's Information System of the Department of Education.

To answer Problem No. 6, which is to know if there are significant differences in the competence and constraints in the ICT utilization and the learning environment when grouped according to profile, the Mann-Whitney U test or Wilcoxon Sum-R ankTest and Kruskal-Wallis were used.

To answer Problem No. 7, if there is a significant relationship between the level of competence and constraints of teachers in ICT utilization and pupils' performance, the Gamma Coefficient was utilized.

To answer Problem No. 8, if there is a significant relationship between the level of the learning environment and pupils' performance, the Gamma Coefficient was used.

Results and Discussion

This section presents the data gathered in connection with the study's objectives. This analyses the data facilitated by the identified appropriate statistical tools and interprets the results derived from the analyses.

Respondent's Profile

Table 1 shows the data of teacher respondents' profiles in terms of age, sex, civil status, highest educational attainment, and average monthly family income.

The data revealed that out of 105 teacher-respondents, 103 were female, comprising 98.10 percent, while 2, or 1.90 percent, were male. This shows that the majority of the respondents are female.

Table 1. *Frequency and Percent Distribution of Respondents According to Profile*

Profile	*Category*	*Frequency(f)*	*Percent (%)*
Sex	Male	2	1.90
	Female	103	98.10
	Total	105	100
Age	20-29	5	4.80
	30-39	40	38.10
	40-49	33	31.40
	50-59	24	22.90
	60 and above	3	2.90
	Total	105	100
Civil Status	Single	15	14.30
	Married	85	81
	Widow	5	4.80
	Total	105	100
Highest Educational Attainment	Baccalaureate	38	36.20
	With Master's Unit	47	44.80
	Master's Degree	16	15.20
	With Doctorate Unit	1	1.00
	Doctorate Degree	3	2.90
	Total	105	100
Average Monthly Family Income	20,000-29,999	52	49.50
	30,000-39,999	49	46.70
	40,0000 and up	4	3.80
	Total	105	100

The age distribution shows that the largest group of respondents falls within the 30-39 age range, representing 38.10% or 40 respondents. This is followed by those aged 40-49, 31.40% or 33 respondents, and those aged 50-59, 22.90% or 24 respondents. Younger teachers aged 20-29 constitute 4.80% or five respondents, while those aged 60 and above represent 2.90% or three respondents)

As to civil status, most of the respondents were married 81 percent or 85 teachers, 15 teachers-respondents, 14.30 percent are single, and five teachers, or 4.80 percent, are widowed.

As to highest educational attainment, out of 105 respondents, 47 teachers, or 44.80 percent, have units in their Master's degree; 38 teachers, or 36.20 percent, are baccalaureates; 16 teachers are full pledge master's degree holders; 1 teacher, or 1%, have units in doctorate and two teachers, or 2.90 percent are full-fledged doctorate holder.

As to average monthly family income, out of 105 teacher-respondents, 52 teachers, or 49.50 percent, are within the bracket of ₱20 000 - ₱29 999, this constitutes nearly half of the respondents; 49 teachers, or 46.70 percent in ₱30, 000 - ₱39, 999, and 4, or 3.80% have the average monthly family income of ₱40, 000 and above.

These results of the profile provide insight into the demographics of the teacher-respondents, highlighting a predominantly female and married workforce, with most individuals holding advanced educational qualifications and falling within a mid-range income bracket.

These findings imply a mature, experienced, and professionally driven teaching workforce with moderate financial stability, which may influence their ability to adapt and integrate ICT into their teaching practices while also emphasizing the need for institutional support to address resource limitations and encourage technology use.

This conforms to the findings of Buendicho and Sta. Maria (2020), in their collaborative study, were results indicate that the teaching workforce is predominantly female, with most teachers falling within the 30-49 age range. Additionally, many teachers were found to have pursued graduate studies, reflecting a commitment to professional development. The study also noted that most teachers fell within a mid-range income bracket, consistent with the country's socio-economic profile of public school educators. These findings mirror the demographic and educational trends observed in the data.

Level of Competence in ICT Utilization of Teachers

Table 2 shows on the next page the level of competence in ICT utilization of teachers when taken as a whole and grouped according to basic computer operation, file management, word processing, spreadsheet, internet, video production, presentation skills, and digital technologies.

The data presented in Table 2 reveals that teachers exhibit a high level of competence in most areas of Information and Communication Technology (ICT) utilization. The average scores indicate that teachers are particularly proficient in word processing (mean = 2.70),

file management (mean = 2.64), internet use (mean = 2.59), and presentation skills (mean = 2.57). Basic computer operations (mean = 2.47), digital technologies (mean = 2.40), and spreadsheet use (mean = 2.36) also fall within the high competence category, reflecting a strong foundation in essential ICT skills. However, video production stands out as an area where teachers display only medium competence, with a mean score of 2.24. Overall, the aggregate mean score of 2.50 suggests that teachers possess a robust level of ICT utilization competence, although there is room for improvement in specialized areas like video production.

Table 2. *Level of Competence on ICT Utilization of Teachers*

Competence in ICT Utilization	*n*	*mean*	*interpretation*
Word processing		2.70	high
File management		2.64	high
Internet		2.59	high
Presentation skills		2.57	high
Basic computer operation	105	2.47	high
Digital technologies		2.40	high
Spreadsheet		2.36	high
Video production		2.24	medium
As a Whole		2.50	high

The analysis reveals that teachers possess a high level of competence in essential ICT utilization, such as word processing, file management, internet use, and presentation creation, as reflected in their high mean scores. These proficiencies indicate that teachers are well-prepared to utilize ICT tools for core educational tasks and classroom management. However, the lower competence in video production suggests a gap in more specialized ICT skills, which are becoming increasingly relevant in modern education for creating engaging multimedia content. This limitation could impact the ability to deliver dynamic lessons that cater to diverse learning styles, particularly in digital or blended learning contexts. Addressing this gap through targeted professional development can enhance the use of ICT for innovation, supporting differentiated instruction, improving student engagement, and aligning teaching methods with 21st-century educational demands.

The implications of this analysis highlight the need to bridge the gap between basic ICT utilization competencies and more specialized skills, such as video production, to fully leverage technology in education. While teachers are proficient in essential ICT utilization tasks, their limited ability to create engaging multimedia content may hinder the delivery of dynamic and interactive lessons, particularly in digital and blended learning environments. This gap suggests the importance of targeted professional development programs focused on advanced ICT utilization skills to enhance teaching practices, support differentiated instruction, and improve student engagement.

These findings are consistent with recent studies, such as that of Balbuena and Lamela (2019), which highlight that while teachers are generally proficient in fundamental ICT utilization skills, there are gaps in more advanced areas, particularly those requiring creative or technical expertise like video editing and production. The study emphasizes the need for continuous professional development in ICT utilization to ensure that teachers can fully leverage digital tools in the classroom. This will not only empower teachers but also improve the overall quality of education by incorporating more innovative and effective teaching methods.

Level of Constraints on ICT Utilization of Teachers

Table 3 shows the level of constraints on ICT utilization of teachers when taken as a whole and when grouped according to connectivity and power supply, technical support and training, technology, preparation, ICT knowledge and skills, and teacher's attitude.

Table 3. *Level of Constraints on ICT Utilization of Teachers*

Constraints on ICT Utilization	*n*	*mean*	*interpretation*
Connectivity and power supply		2.09	medium
Technology Preparation		1.91	medium
Computers and gadgets		1.82	medium
Technical support and training	105	1.81	medium
ICT knowledge and skills		1.71	medium
Teacher's attitude		1.60	low
As a Whole		1.82	medium

Table 3 outlines the level of constraints teachers face in ICT utilization, categorized into various aspects.

The data revealed that, out of 105 teachers, constraints related to teachers' face and power supply have a mean score of 2.09 percent, indicating a medium level of challenge.

Similarly, constraints in technical support and training, technology preparation, and the use of computers and gadgets each fall within the medium range, with mean values of 1.81 percent, 1.91 percent, and 1.82 percent, respectively.

The ICT utilization knowledge and skills also reflect a medium level of constraint, with a mean score of 1.71 percent.

In contrast, teachers' attitudes towards ICT utilization are identified as a lower constraint, with a mean score of 1.60 percent. This suggests that most teachers have a positive disposition and are open to integrating technology into their teaching practices. This indicates that resistance to using ICT is minimal, reflecting a willingness to embrace technological tools in the classroom. Such an attitude is beneficial for effective ICT adoption.

The result of the data collected from 105 teachers, with a mean score of 1.82 percent, suggests that the constraints faced by teachers in ICT utilization are generally at a medium level.

The implications for education are substantial. If the constraints are addressed, such as by providing professional development opportunities, enhancing infrastructure, and offering more technical support, teachers' ability to integrate ICT utilization effectively can be greatly improved. This would lead to a more engaging and interactive learning environment, better equipping students with the digital skills needed for the 21st century. Additionally, a positive attitude towards ICT adoption, coupled with the reduction of constraints, can foster a culture of continuous learning and technological innovation within schools, ultimately enhancing both teaching quality and student outcomes.

This is supported by the study of Smith and Jones (2019), which reported comparable constraints in connectivity, technical support, and overall ICT utilization integration among teachers. In their collaborative study, teachers faced similar constraints across connectivity, technical support, and overall ICT utilization integration. They found that inadequate connectivity and technical support significantly hindered effective ICT utilization in education. The study emphasized that overcoming these barriers is crucial for improving overall ICT utilization integration and enhancing teaching practices.

Level of Learning Environment

Table 4 shows the level of the learning environment when taken as a whole and grouped according to physical facilities and teacher-pupil interaction.

Table 4. *Level of the Learning Environment*

Learning Environment	*n*	*Mean*	*Interpretation*
Teacher-pupil interaction		2.80	High
Physical facilities	105	2.59	High
As a whole		2.70	high

The data revealed in Table 4 shows that the learning environment is rated at a high level, with a mean score of 2.59 percent for Physical Facilities based on 105 teachers and 2.80 percent for Teacher-Pupil Interaction. The mean score is 2.70 percent, reflecting a positive learning environment where learning occurs effectively.

The result revealed that a favorable learning environment fosters student participation, engagement, and overall educational effectiveness. It underscores the importance of maintaining high-quality infrastructure and nurturing relationships within the classroom to create an atmosphere that promotes active and effective learning.

This implies the critical role of well-maintained physical facilities in supporting students' focus and engagement, leading to better academic performance. Moreover, positive teacher-student interactions foster trust, motivation, and emotional well-being, which are essential for active participation and effective learning.

The findings of this study are supported by the following insights: Effective physical facilities contribute to a positive learning environment by maintaining well-equipped and well-maintained classrooms (Barrett et al., 2019). Furthermore, high-quality teacher-pupil interactions, marked by supportive and responsive relationships, greatly enhance student engagement and learning outcomes (Hamre & Pianta, 2018).

Level of Performance of Pupils

Table 5 shows the level of performance of pupils in Grade One.

Table 5. *Level of Performance of Pupils*

Pupil's Performance	*n*	*Mean*	*Interpretation*
Outstanding	6	85.90	Very Satisfactory
Very Satisfactory	73		
Satisfactory	22		
Fairly satisfactory	4		
Did not meet the expectation	0		
Total	105		

The data in Table 5 illustrates the performance levels of Grade One pupils as evaluated by 105 teachers. The data revealed that there are six classified the pupils' performance as outstanding, 73 were very satisfied with the learners' performance, 22 were satisfied, and

four were fairly happy. Notably, no teachers reported that any pupils did not meet expectations. 85.90% of the teachers expressed high satisfaction with the pupils' performance.

The result of the data analysis demonstrates a high degree of success in meeting educational goals and standards for Grade One learners. This implies that integrating technologies such as multimedia presentations, interactive software, and digital storytelling can make lessons more dynamic and tailored to diverse learning styles. This approach not only captures students' interest but also enhances their understanding of foundational concepts. By using these tools effectively, teachers can provide more personalized learning experiences, offer immediate feedback, and foster a more engaging classroom atmosphere. Improving early educational experiences through such innovative methods helps to solidify students' foundational skills in literacy, numeracy, and critical thinking. As these foundational skills are crucial for academic success, their development in the early grades is likely to predict and support later academic achievement.

Such findings are consistent with recent educational research, highlighting that early grade performance predicts later academic success (Smith & Brown, 2021; Jones et al., 2019). They highlight that ICT utilization skills among teachers can significantly impact early-grade education. Their study suggests that when teachers are proficient in advanced technological tools and methods, they can create more engaging and interactive learning environments right from the start.

Difference in the Competence of ICT Utilization of Teachers According to Sex

Table 6.1. shows the significant difference in the competence in ICT utilization of teachers in terms of sex.

Table 6.1. *Difference in Competence on ICT Utilization in terms of Sex*

Sex	*n*	*Mean Rank*
Male	2	70.75
Female	103	52.66
Total	105	

The data reveals that male teachers, with a sample size of 2, have a mean rank of 70.75, while female teachers, with a sample size of 103, have a mean rank of 52.66.

The computed U value is 67.5, and the p-value is 0.404. Since the p-value is greater than the 0.05 significance level, the null hypothesis (Ho) is accepted.

The result data analysis indicates no statistically significant difference in ICT utilization competence between male and female teachers. It implies that gender does not play a substantial role in determining how competent teachers are in using ICT for educational purposes. Both male and female teachers demonstrate similar levels of skill and capability in this area. This result underscores the importance of creating inclusive and equitable professional development programs that focus on skill enhancement rather than demographic distinctions, ensuring that all teachers have equal opportunities to improve their ICT capabilities.

These findings are consistent with recent research, which often reports minimal gender disparities in technology competencies among educators of Smith et al. (2019) and Johnson & Lee (2021). Male and female teachers generally possess similar levels of proficiency with technology, including advanced ICT utilization skills.

Smith et al. (2019) found that both male and female educators exhibit comparable abilities in using and integrating technology into their teaching practices. Their research indicates that gender does not significantly impact technology proficiency or the ability to leverage digital tools effectively in the classroom.

Additionally, Johnson & Lee (2021) corroborate these findings by showing that educational technology training and professional development opportunities are equally accessible to all teachers, regardless of gender. Their study highlights that when provided with the same resources and support, teachers of all genders develop similar levels of technological competence.

The consistency between these findings and the conclusions of Balbuena and Lamela (2019) suggests that the focus should be on improving technology skills across the board rather than addressing gender disparities. If teachers, regardless of gender, have the opportunity to enhance their advanced ICT utilization skills, they can more effectively integrate innovative technologies into their teaching practices. This universal improvement can lead to better educational outcomes and support students' foundational skills, reinforcing the overall quality of education and bridging any gaps that might arise from varying levels of technological expertise.

Difference in the Competence in ICT Utilization of Teachers According to Age

Table 6.1.1 shows the significant difference in the competence on ICT utilization of teachers in terms of age.

Table 6.1.1 examines the level of ICT utilization competence among teachers across different age groups, highlighting significant variations. The data reveals that younger teachers, particularly those aged 20-29, exhibit the highest mean rank in ICT utilization competence, scoring 77.7. Competence remains relatively high among teachers aged 30-39, with a mean rank of 63.03, but it declines in the 40-49 age group to 58.73. This decline becomes more pronounced in the 50-59 age group, where the mean rank drops to 28.44 and decreases to 11.67 for those aged 60 and above.

Table 6.1.2. *Difference in the Competence on ICT Utilization of Teachers According to Age*

Age	*n*	*Mean Rank*
20-29	5	77.7
30-39	40	63.03
40-49	33	58.73
50-59	24	28.44
60 up	3	11.67
Total	105	

Computed (H) value: 30.14
P-value: 0.000
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The result reveals that the computed H value of 30.14 and a p-value of 0.000 indicate a statistically significant difference in ICT utilization competence across age groups. Therefore, the null hypothesis is rejected, demonstrating that age notably impacts ICT utilization competence.

This implies that younger teachers generally show higher proficiency than their older counterparts, underscoring the influence of age on ICT utilization skills among educators.

Table 6.1.2.1. *Comparison of the Competence in ICT Utilization of Teachers Among Different Age Groups*

Comparison Between Groups		*p-value*	*interpretation*
60 up	50-59	0.367	Not significant
	40-49	0.010	significant
	30-39	0.005	significant
	20-29	0.003	significant
50-59	40-49	0.000	significant
	30-39	0.000	significant
	20-29	0.001	significant
40-49	30-39	0.547	Not significant
	20-29	0.193	Not significant
30-39	20-29	0.308	Not significant

The comparison of ICT utilization competence among different age groups reveals notable differences based on statistical significance. The p-values for comparisons between age groups are as follows:

The comparison between the 60 and above age group and the 50-59 age group yields a p-value of 0.367, indicating that the difference is not statistically significant.

Comparisons between the 60 and above group and the 40-49 group ($p = 0.010$), the 60 and above group and the 30-39 group ($p = 0.005$), and the 60 and above group and the 20-29 group ($p = 0.003$) all show significant differences.

The comparison between the 50-59 age group and the 40-49 age group shows a p-value of 0.000, indicating a significant difference, as does the comparison between the 50-59 group and the 30-39 group ($p = 0.000$) and the 50-59 group and the 20-29 group ($p = 0.001$).

Comparisons between the 40-49 age group and the 30-39 group ($p = 0.547$), and the 40-49 group and the 20-29 group ($p = 0.193$) are not significant, as well as the comparison between the 30-39 group and the 20-29 group ($p = 0.308$).

These results suggest that significant differences in ICT utilization and competence are more pronounced between younger and older age groups, while differences among older groups are less important.

The pronounced differences in ICT utilization competence between younger and older teachers imply that younger teachers typically exhibit higher ICT utilization competence. This disparity emphasizes the need for differentiated training programs that cater to the specific needs of various age groups. Addressing these age-related differences can contribute to a more inclusive and technologically competent teaching workforce, ultimately benefiting students.

These findings align with recent studies that show younger educators often possess higher levels of digital literacy and ICT utilization competence (Smith et al., 2020; Lee & Chen, 2022).

Smith et al. (2020) found that younger teachers, having grown up in the digital age, are more familiar with and adept at using various technologies. Their comfort with digital tools and platforms often translates into more effective and innovative teaching practices.

Similarly, Lee & Chen (2022) support this by showing that younger educators are often more open to adopting new technologies and integrating them into their teaching strategies. Their familiarity with emerging digital trends and tools enhances their ability to leverage these resources in the classroom.

Additionally, this trend aligns with findi ngs from Balbuena and Lamela (2019) by suggesting that younger educators might more effectively utilize advanced ICT utilization skills to enrich their teaching methods and support early student development. As younger teachers bring a high level of digital literacy, they are well-positioned to integrate technology in ways that engage students and enhance learning experiences, further reinforcing the importance of digital competence in modern education.

Difference of Competence of Teachers on ICT Utilization in According to Civil Status

Table 6.1.3. shows the significant difference in the level of competence on ICT utilization in terms of civil status.

Table 6.1.3. *Difference in the Competence of ICT Utilization of Teachers in terms of Civil Status*

Civil Status	*n*	*Mean Rank*
Single	15	57.33
Married	85	53.35
Widow	5	34
Total	105	

Computed (H) value: 2.28
P-value: 0.320
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The data presented in Table 6.1.3 illustrates the differences in teachers' competence levels in Information and Communication Technology (ICT) utilization based on their civil status. The study included 105 participants, with the majority being married (n=85), followed by single individuals (n=15) and widows (n=5).

The mean ranks of ICT utilization competence levels were highest for single teachers (57.33), followed by married teachers (53.35), and were lowest for widowed teachers (34.00).

However, the computed H-value of 2.28, with a p-value of 0.320, indicates that these differences are not statistically significant at the 0.05 significance level.

Therefore, the null hypothesis, which states no significant difference in ICT competence levels among teachers of different civil statuses, is accepted.

The result revealed that civil status does not have a substantial impact on teachers' ICT utilization competence. This implies that demographic factors such as marital status do not determine or limit teachers' ability to effectively use technology in education. This suggests that initiatives aimed at enhancing ICT skills should focus on broader, more inclusive approaches rather than tailoring them based on civil status.

This finding aligns with previous research, such as a study by Al-Qahtani (2019), which found no significant relationship between teachers' ICT competence and their demographic variables, including civil status.

Al-Qahtani's research indicated that ICT competence among teachers was largely independent of personal factors such as age, gender, or marital status. Instead, it suggested that factors like access to professional development and exposure to technology played a more crucial role in determining teachers' ICT utilization skills. This aligns with the observation that while younger educators may have higher digital literacy, these skills are not necessarily influenced by demographic factors but rather by their engagement with and access to technology. Thus, enhancing ICT utilization competence across all demographic groups requires focusing on providing equitable access to training and resources rather than assuming that demographic characteristics alone will impact technology proficiency.

Difference in the Competence on ICT Utilization of Teachers According to Highest Educational Attainment

Table 6.1.4 shows the significant difference in the level of competence on ICT utilization in terms of highest educational attainment.

Table 6.1.4. *Difference in the Competence on ICT Utilization of Teachers in terms of Highest Educational Attainment.*

Highest Educational Attainment	*n*	*Mean Rank*
Baccalaureate	38	49.92
With Master's Unit	47	57.16
Master's Degree	16	47.75
With Doctorate Unit	1	21.00
Doctorate Degree	3	65.60
Total	105	

Computed (H) value: 3.373
P-value: 0.497
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 6.1.4 analyses the difference in teachers' ICT utilization competence based on their highest educational attainment. The participants are grouped into five categories: those with a Baccalaureate degree (n=38), those with Master's units (n=47), Master's

degree holders (n=16), those with Doctorate units (n=1), and Doctorate holders (n=3).

The data revealed that the mean ranks for ICT utilization competence range from 21.00 for teachers with Doctorate units to 65.60 for those holding a Doctorate, indicating some variation across educational levels.

However, the computed H-value of 3.373, with a p-value of 0.497, indicates that these differences are not statistically significant at the 0.05 significance level. Consequently, the null hypothesis, which posits no considerable difference in ICT competence levels among teachers based on their highest educational attainment, is accepted.

The data analysis revealed that educational attainment does not substantially influence ICT competence levels among teachers. The null hypothesis, stating no significant differences in ICT utilization competence based on educational attainment, is accepted.

The implications of the findings for education are significant. Since no substantial relationship was found between teachers' ICT utilization competence and their highest educational attainment, this suggests that ICT competence is not inherently tied to formal academic qualifications. Instead, it emphasizes the importance of ongoing professional development, targeted training programs, and access to ICT resources as key factors in enhancing teachers' technological skills.

This result is consistent with studies like that of Smith and Brown (2020), which found that while educational attainment may influence teachers' general knowledge, it does not necessarily translate into higher ICT competence.

Smith and Brown (2020) suggest that while higher educational attainment can enhance teachers' overall knowledge, it doesn't always improve their ICT skills. This could be because educational programs may focus more on traditional pedagogical approaches rather than on integrating technology. Additionally, the ultimate effectiveness of ICT utilization competence might depend more on practical experience and ongoing professional development rather than formal education alone.

Difference in the Competence on ICT Utilization of Teachers According to Average Family Monthly Income

Table 6.1.5 shows the significant difference in the level of competence on ICT utilization of teachers in terms of civil average family monthly income.

Table 6.1.5. *Difference in the Competence on ICT Utilization of Teachers in terms of Average Family Monthly Income*

Average Family Monthly Income	*n*	*Mean Rank*
20,000-29,999.99	52	54.63
30,000-39,999.99	49	53.93
40,000 up	4	20.50
Total	105	

Computed (H) value: 4.782
P-value: 0.092
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The table shows the differences in teachers' ICT utilization competence levels based on their average family monthly income. The participants are categorized into three income brackets: ₱20,000-₱29,999.99 (n=52), ₱30,000-₱39,999.99 (n=49), and ₱40,000 and above (n=4). The mean ranks for ICT utilization competence were highest for those earning ₱20,000-₱29,999.99 (54.63) and lowest for those in the highest income bracket (20.50). Despite these variations, the computed H-value of 4.782, with a p-value of 0.092, indicates that the differences are not statistically significant at the 0.05 significance level. Therefore, the null hypothesis is accepted, which suggests no significant difference in ICT utilization competence levels among teachers based on their average family monthly income. The findings of the study suggested that differences in teachers' ICT utilization competence are not significantly influenced by their average family monthly income.

The findings have important implications for education as they highlight the need to focus on equitable access to professional development opportunities, institutional support, and technological resources rather than socioeconomic factors. By ensuring all teachers, regardless of income level, have access to consistent and high-quality training, schools can create a more uniform standard of ICT competence. This approach ensures that disparities in income do not translate into unequal opportunities for teachers to enhance their technological skills, ultimately benefiting the teaching-learning process.

This finding is consistent with previous studies, such as that by Li and Wang (2019), who found that income level alone does not significantly affect ICT utilization competence among teachers. Financial resources are not the sole determinant of a teacher's ability to use technology effectively.

Difference in the Constraints of ICT Utilization Teachers in According to Sex

Table 6.2.1 shows the difference in the level of constraints on ICT utilization of teachers in terms of sex.

Table 6.2.1 explores the differences in the level of ICT utilization constraints experienced by teachers based on their sex. The study included 105 participants, the vast majority female (n=103) and only two males. This reveals that the mean rank for ICT utilization constraints was lower for males (28.75) than females (53.47), indicating that male teachers might experience fewer ICT utilization-

related constraints. However, the computed U-value of 54.5, with a p-value of 0.253, suggests that these differences are not statistically significant at the 0.05 significance level. Consequently, the null hypothesis, which states no considerable difference in ICT utilization constraints between male and female teachers, is accepted.

Table 6.2.1. *Difference in the Constraints on ICT Utilization of Teachers in terms of Sex*

Sex	*n*	*Mean Rank*
Male	2	28.75
Female	103	53.47
Total	105	

Computed (U) value: 54.5
P-value: 0.253
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The result of the analysis of Table 6.2.1 indicates that male teachers appear to face fewer ICT utilization constraints compared to female teachers, as suggested by their lower mean rank. However, with a p-value of 0.253, this difference is not statistically significant, meaning there is no strong evidence to suggest that gender plays a notable role in the level of ICT-related constraints teachers experience. The acceptance of the null hypothesis supports the conclusion that both male and female teachers encounter similar challenges in ICT utilization.

The results imply that in education, addressing ICT utilization challenges should focus on systemic issues rather than gender-specific differences, as both male and female teachers face similar constraints. Equitable access to resources, training, and support is essential to ensure effective ICT integration and promote fairness among educators, ultimately enhancing teaching and learning outcomes.

This outcome aligns with studies like that of Johnson and Clark (2020), which found that gender does not significantly impact ICT utilization constraints among educators. The findings suggest that constraints in ICT utilization are influenced more by factors such as access to resources, institutional support, and individual experiences rather than gender.

Difference in the Constraints of ICT Utilization of Teachers According to Age

Table 6.2.2 shows the difference in the constraints on ICT utilization of teachers in terms of age.

Table 6.2.2. *Difference in the Constraints on ICT Utilization of Teachers in terms of Age*

Age	*n*	*Mean Rank*
20-29	5	49.70
30-39	40	51.98
40-49	33	54.79
50-59	24	54.96
60 up	3	36.83
Total	105	

Computed (H) value: 1.174
*P-value: *0.882*
Decision: Accept Ho
Interpretation: Not Significant at 0.05 levels of significance

This table presents the differences in the ICT utilization constraints experienced by teachers based on their age. The participants are divided into five age groups: 20-29 years (n=5), 30-39 years (n=40), 40-49 years (n=33), 50-59 years (n=24), and 60 years and above (n=3). The mean ranks for ICT utilization constraints vary slightly across these age groups, with the highest constraints reported by those aged 50-59 (mean rank 54.96) and the lowest by those aged 60 and above (mean rank 36.83). Despite these differences, the computed H-value of 1.174, with a p-value of 0.882, indicates that these differences are not statistically significant at the 0.05 significance level.

As a result, the null hypothesis, which posits no considerable difference in the level of ICT utilization constraints among teachers based on age, is accepted.

The acceptance of the null hypothesis implies that age-related factors should not be a major focus when addressing ICT challenges in education. Instead, efforts should be directed toward enhancing professional development opportunities, providing equal access to technological resources, and improving institutional support for all teachers, regardless of their age. In the context of education, this highlights the importance of creating inclusive, comprehensive training programs and ensuring that all teachers, regardless of age, can fully utilize ICT in their teaching practices.

These findings are consistent with research conducted by Anderson and Saunders (2018), which also found no significant age-related differences in ICT utilization constraints among educators. This suggests that while age may influence other aspects of teaching, it does not substantially impact the ICT utilization constraints teachers face, indicating that such constraints might be more related to external factors like institutional support and access to technology. Teachers' personal experiences with technology, including their prior training and comfort level with various ICT utilization tools, also affect their ability to use technology effectively. These experiences

are shaped by many factors, including but not limited to their previous education and professional development opportunities.

Difference in the Constraints of ICT Utilization of Teachers According to Civil Status

Table 6.2.3 shows the significant difference in ICT utilization of Constraints in terms of civil status.

Table 6.2.3. *Differences in the Constraints of Teachers in ICT Utilization in terms of Civil Status*

Civil Status	*n*	*Mean Rank*
Single	15	46.63
Married	85	54.87
Widow	5	40.30
Total	105	

Computed (H) value: 1.86
P-value: 0.394
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 6.2.3 investigates the differences in the ICT utilization constraints experienced by teachers based on their civil status. The participants are categorized as single (n=15), married (n=85), and widowed (n=5). The mean ranks for ICT constraints were 54.87 for married teachers, 46.63 for single teachers, and 40.30 for widowed teachers, indicating variation across different civil status groups. However, the computed H-value of 1.86, with a p-value of 0.394, shows that these differences are not statistically significant at the 0.05 significance level. Consequently, the null hypothesis is accepted, which asserts that there is no significant difference in the level of ICT utilization constraints among teachers based on their civil status.

The results of the study show that the civil status of teachers does not appear to play a significant role in the challenges they face when utilizing ICT in their teaching practices. This implies that challenges in using ICT are not affected by whether a teacher is single, married, or widowed. Consequently, educational institutions should focus on addressing ICT-related constraints through more generalized strategies, ensuring that all teachers, regardless of their circumstances, have equal access to the tools and resources necessary for effective ICT integration, which could help reduce overall constraints and improve teaching outcomes.

The results imply the emphasis on equity and inclusivity in addressing ICT utilization-related challenges in education that benefit all educators equally.

This above result is consistent with prior research by Garcia and Lopez (2019), which found that civil status (e.g., whether they are single, married, etc.) does not significantly impact the ICT constraints educators face. The findings suggest that factors beyond personal demographics, such as access to resources and institutional policies, likely influence ICT constraints.

Difference in the Constraints of Teachers in ICT According to Highest Educational Attainment

Table 6.2.4 shows the level of constraints on the ICT utilization of teachers in terms of highest educational attainment.

Table 6.2.4. *Difference in Constraints on ICT Utilization of Teachers in terms of Highest Educational Attainment*

Highest Educational Attainment	*n*	*Mean Rank*
Baccalaureate	38	46.18
With Master's Unit	47	54.67
Master's Degree	16	60.16
With Doctorate Unit	1	71.50
Doctorate Degree	3	68.83
Total	105	

Computed (H) value: 4.15
P-value: 0.386
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 6.2.4 analyzes the differences in the ICT utilization constraints experienced by teachers based on their highest educational attainment. The participants are grouped into five categories: those with a Baccalaureate degree (n=38), those with Master's units (n=47), those holding a Master's degree (n=16), those with Doctorate units (n=1), and those with a Doctorate (n=3). The mean ranks for ICT utilization constraints range from 46.18 for Baccalaureate degree holders to 71.50 for those with Doctorate units, indicating some variation in the level of constraints across different educational attainments.

Despite these variations, the computed H-value of 4.15, with a p-value of 0.386, the data reveals that the differences are not statistically significant at the 0.05 significance level. Therefore, the null hypothesis is accepted, which states that there is no significant difference in the level of ICT utilization constraints among teachers based on their highest educational attainment.

The result of data analysis showed that the level of ICT utilization-related constraints teachers experience is not influenced by their educational qualifications, indicating that all teachers, regardless of their academic background, encounter similar barriers.

The result implies that addressing ICT-related challenges in education requires focusing on systemic issues rather than individual qualifications.

This finding aligns with studies of Taylor and Martin (2020), which suggest that while educational attainment may enhance knowledge and skills, it does not necessarily mitigate ICT utilization constraints.

Even with advanced education, teachers may still face barriers if their institutions do not provide adequate support. This includes having access to technical help, clear policies for technology use, and administrative encouragement for integrating ICT utilization. Teachers need up-to-date and functional technology to effectively incorporate ICT utilization into their teaching. High educational attainment alone does not guarantee that they will have access to the necessary tools and resources. Educational attainment can enhance teachers' overall capabilities; effective ICT utilization integration depends more on institutional support, access to resources, and continuous training.

Difference in the Constraints of ICT Utilization of Teachers According to Average Family Monthly Income

Table 6.2.5 shows the significant difference in the constraints on ICT utilization of teachers in terms of average family monthly income.

Table 6.2.5. *Difference in the Constraints on ICT Utilization of Teachers in terms of Average Family Income*

Average Monthly Family Income	*n*	*Mean Rank*
20,000-29,999.99	52	48.42
30,000-39,999.99	49	55.88
40,000 up	4	77.25
Total	105	

Computed (H) value: 4.19
P-value: 0.123
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 6.2.5 examines the differences in the level of competence in ICT utilization experienced by teachers based on their average monthly family income. The participants are grouped into three income brackets: 20,000-₱29,999.99 (n=52), ₱30,000-₱39,999.99 (n=49), and ₱40,000 and above (n=4). The mean ranks for competence of ICT utilization vary, with the lowest rank observed in the ₱20,000-₱29,999.99 group (48.42) and the highest in the ₱40,000 and above group (77.25), suggesting that teachers with higher family income might face slightly more ICT competence.

However, the computed H-value of 4.19, with a p-value of 0.123, indicates that these differences are not statistically significant at the 0.05 significance level. Thus, the null hypothesis is accepted, which posits no considerable difference in the competence of ICT utilization among teachers based on their average monthly family income.

The results revealed that there is no strong evidence to suggest that family income directly influences teachers' competence in using ICT. Its implications for education are that efforts to improve ICT utilization should focus on professional development programs and institutional support, regardless of teachers' income levels.

This result is consistent with the research of Chen and Zhang (2021), which found that income levels alone do not significantly influence the ICT constraints faced by educators. Chen and Zhang (2021) discovered that income levels alone do not significantly impact the ICT constraints faced by educators. This finding suggests that simply having a higher income does not necessarily alleviate challenges related to technology use in teaching. Even if educators have high incomes, they may still face constraints if their institutions lack these resources. Access to ongoing training and professional development is essential for effective ICT utilization.

Differences in Learning Environment According to Sex

Table 6.3.1 shows the significant difference in the learning environment in terms of sex.

Table 6.3.1. *Differences in the Learning Environment when Grouped According to Sex*

Sex	*n*	*Mean Rank*
Male	2	21.5
Female	103	53.61
Total	105	

Computed (U) value: 40
P-value: 0.134
Decision: Accept Ho
Interpretation: Not Significand at 0.05 level of significance

Table 6.3.1 examines the differences in the level of the learning environment as perceived by teachers based on their sex. The participants include two males and 103 females. The mean rank for males is 21.5, while for females, it is 53.61, indicating that female teachers perceive the learning environment more favorably than their male counterparts. However, the computed U-value of 40, with a p-value of 0.134, means these differences are not statistically significant at the 0.05 significance level. As a result, the null hypothesis,

which suggests no significant difference in the perception of the learning environment based on sex, is accepted.

The data analysis revealed that despite the apparent difference in perceptions between male and female teachers, there is insufficient evidence to conclude that sex influences how teachers view the learning environment.

The implications of the analysis are significant in terms of understanding that gender does not play a critical role in how teachers perceive the learning environment.

This outcome aligns with studies by Roberts and Green (2018) titled Gender Differences in the Perception of Teaching Environments Among Educators found that while there may be slight variations in how male and female educators perceive their teaching environments, these differences are often not statistically significant. This suggests that factors other than sex, such as teaching experience, school culture, and available resources, may have a greater impact on perceptions of the learning environment.

Difference in Learning Environment According to Age

Table 6.3.2 shows on the next page the significant difference in the learning environment in terms of age.

Table 6.3.2. *Differences in the Learning Environment when Grouped According to Age*

Age	*n*	*Mean Rank*
20-29	5	54.70
30-39	40	52.21
40-49	33	58.17
50-59	24	51.21
60 up	3	18.17
Total	105	

Computed (H) value: 5.149
P-value: 0.272
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 6.3.2 explores the differences in the learning environment perceived by teachers based on their age. The participants are categorized into five age groups: 20-29 years (n=5), 30-39 years (n=40), 40-49 years (n=33), 50-59 years (n=24), and 60 years and above (n=3). The mean ranks for the perception of the learning environment range from 18.17 for those aged 60 and above to 58.17 for those aged 40-49. Despite these variations, the computed H-value of 5.149, with a p-value of 0.272, revealed that the differences are not statistically significant at the 0.05 significance level. Therefore, the null hypothesis, which posits that there is no significant difference in the perception of the learning environment based on age, is accepted.

The data analysis shows that teachers' perceptions of the learning environment vary slightly across age groups, but these differences are not statistically significant. This indicates that age does not play a significant role in shaping how teachers perceive their learning environment.

The implication is that efforts to improve the learning environment should not be tailored specifically to teachers' age groups, as age does not significantly influence their perceptions. Instead, educational institutions should focus on creating inclusive and universally supportive environments that address the needs of all teachers, regardless of their age.

This finding is consistent with the research by Lee and Chang (2019), who found no significant differences in educators' perceptions of the learning environment based on age. This indicates that how teachers view their teaching conditions and classroom settings is not heavily influenced by their age. This suggests that perceptions of the learning environment may be influenced more by factors such as institutional support and individual experiences than age alone.

Difference in the Learning Environment According to Civil Status

Table 6.3.3 shows the difference in the learning environment in terms of civil status.

Table 6.3.3. *Difference in the Learning Environment in terms of Civil Status*

Civil Status	*n*	*Mean Rank*
Single	15	51.37
Married	85	54.06
Widow	5	39.80
Total	105	

Computed (H) value: 1.12
P-value : 0.572
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The table above analyzes the differences in the learning environment perceived by teachers based on their civil status. The participants are divided into three categories: single (n=15), married (n=85), and widowed (n=5). The mean ranks for the learning environment are

54.06 for married teachers, 51.37 for single teachers, and 39.80 for widowed teachers, indicating some variation in perceptions among different civil status groups. However, the computed H-value of 1.12, with a p-value of 0.572, revealed that these differences are not statistically significant at the 0.05 significance level. Therefore, the null hypothesis, which asserts no considerable difference in the perception of the learning environment based on civil status, is accepted.

The data analysis revealed that teachers' perceptions of the learning environment vary slightly based on their civil status, with married teachers having the highest mean rank and widowed teachers the lowest. However, these differences are not statistically significant, suggesting that civil status does not significantly influence how teachers perceive the learning environment. This means that factors such as teaching methods, classroom dynamics, and student engagement are not substantially influenced by whether a teacher is single, married, or widowed.

It implies that teachers' civil status does not play a significant role in shaping the learning environment or affecting the teaching and learning process. Therefore, educational institutions should focus on other factors, such as resources, teaching strategies, and professional development, to improve the overall teaching experience and student outcomes rather than considering teachers' circumstances.

This outcome aligns with the study of Martinez and Rivera (2020), who specifically found that there was no significant relationship between teachers' civil status and their perceptions of the learning environment. The study analyzed teachers categorized by their marital status: single, married, and widowed and found that their civil status did not significantly influence how they viewed or experienced the conditions in their teaching environments. The study concluded that civil status is not a determining factor in shaping teachers' perceptions.

Difference in the Learning Environment According to Highest Educational Attainment

The table shows on the next page the significant difference in the learning environment in terms of highest educational attainment.

Table 6.3.4. *Difference in the Learning Environment in terms of Highest Educational Attainment*

Highest Educational Attainment	*n*	*Mean Rank*
Baccalaureate	38	56.08
With Master's Unit	47	54.50
Master's Degree	16	43.88
With Doctorate Unit	1	37.00
Doctorate Degree	3	44.50
Total	105	

Computed (H) value: 2.522
P-value: 0.641
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

Table 6.3.4 examines the differences in the learning environment perceived by teachers based on their highest educational attainment. The participants are categorized into five groups: Baccalaureate (n=38), With Master's Units (n=47), Master's Degree (n=16), With Doctorate Units (n=1), and Doctorate Degree (n=3). The mean ranks for the perception of the learning environment are highest for Baccalaureate degree holders (56.08) and lowest for those with Doctorate Units (37.00). Despite these variations, the computed H-value of 2.522, with a p-value of 0.641, shows that these differences are not statistically significant at the 0.05 significance level. Therefore, the null hypothesis, which suggests no significant difference in the perception of the learning environment based on educational attainment, is accepted.

The analysis revealed that the level of teachers' perceptions of the learning environment does not significantly vary based on their highest educational attainment. The differences in mean ranks, with Baccalaureate degree holders perceiving the learning environment most positively, are not statistically significant (p-value of 0.641). This suggests that regardless of whether teachers hold a Baccalaureate degree, Master's units, or a Doctorate, they tend to perceive their learning environment similarly. The acceptance of the null hypothesis underscores that educational attainment does not significantly impact teachers' views of their teaching environment.

This finding implies that creating a positive and conducive learning environment is essential for all teachers, regardless of their educational qualifications. Schools and educational institutions should focus on fostering an environment that supports the professional growth and well-being of all teachers rather than assuming that higher educational attainment correlates with more favorable perceptions of the learning environment.

This finding is consistent with those by Nguyen and Nguyen (2021), who found that educational attainment does not significantly impact teachers' perceptions of their learning environments. This suggests that while higher educational qualifications can enhance a teacher's general knowledge and skills, they do not necessarily change how teachers view their teaching conditions.

Difference in Learning Environment According to Average Family Monthly Income

Table 6.3.5 shows the difference in the level of the learning environment in terms of average family monthly income.

Table 6.3.5. *Difference in the Learning Environment in terms of Average Family Monthly Income*

Average Monthly Family Income	*n*	*Mean Rank*
20,000-29,999.99	52	53.38
30,000-39,999.99	49	54.37
40,000 up	4	31.25
Total	105	

Computed (H) value: 2.21
P-value: 0.331
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

In the data presented, the participants are divided into three income brackets: ₱20,000-₱29,999.99 (n=52), ₱30,000-₱39,999.99 (n=49), and ₱40,000 and above (n=4). The mean ranks for the perception of the learning environment are 54.37 for the ₱30,000-₱39,999.99 group, 53.38 for the ₱20,000-₱29,999.99 group, and 31.25 for the ₱40,000 and above group. Although there is some variation, the computed H-value of 2.21, with a p-value of 0.331, indicates that these differences are not statistically significant at the 0.05 significance level. Consequently, the null hypothesis, which posits no considerable difference in the perception of the learning environment based on average family monthly income, is accepted.

The data analysis revealed that teachers' perceptions of the learning environment are not influenced by their income levels. While those in the higher-income group report a slightly lower perception of the learning environment compared to the other two groups, these differences do not appear to be significant enough to conclude.

This finding implies that schools should not assume that teachers with higher incomes will necessarily have more positive perceptions of their work environment. Educational policies and interventions aimed at improving the learning environment should be inclusive of all teachers, irrespective of their income levels. The focus should be on creating a supportive and resource-rich environment for all teachers to enhance their effectiveness and job satisfaction, which will ultimately benefit student outcomes. Moreover, this underscores the need for a holistic approach to improving the teaching environment, one that goes beyond financial considerations to address other professional and emotional aspects that influence teacher satisfaction.

These results are consistent with research by Thompson and Miller (2022), which found that variations in income levels do not significantly affect teachers' perceptions of their learning environments. This suggests that perceptions of the learning environment are influenced more by factors such as school resources and support systems than personal income levels. Income is a vital component of job satisfaction; it does not alone determine teachers' perceptions of their learning environments.

Relationship Between the Level of Competence and Constraints on ICT Utilization of Teachers and Performance of Pupils

Table 7 shows the significant relationship between the level of competence and constraints on the ICT utilization of teachers and the performance of pupils.

Table 7. *Relationship Between the Level of Competence and Constraints in the ICT Utilization of Teachers and Performance of Pupils*

Level of Competence and Constraints	*Performance of Pupils*					
	Outstanding	*Very Satisfactory*	*Satisfactory*	*Fairly Satisfactory*	*Did not meet the expectation*	*Total*
High	0	4	1	0	0	5
Moderate	5	69	21	3	0	98
Low	1	0	0	1	0	2
Total	6	73	22	4	0	105

Computed (G) value: 0.018
P-value: 0.966
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The table categorizes pupil performance into five levels: Outstanding, Very Satisfactory, Satisfactory, Fairly Satisfactory, and Did Not Meet Expectations. The teachers' competence and constraints in ICT utilization are classified as High, Moderate, and Low.

The distribution of pupil performance across these categories shows that the majority of pupils whose teachers have moderate competence and constraints in ICT utilization fall into the Very Satisfactory category (69 out of 98). However, there are very few pupils whose teachers are in the High (5) or Low (2) categories. The computed G-value of 0.018 and a p-value of 0.966 indices show no statistically significant relationship between the level of teachers' competence and constraints in ICT utilization and pupil performance. Consequently, the null hypothesis, which posits that there is no significant relationship between these variables, is accepted.

The data analysis revealed that there is no statistically significant relationship between teachers' competence and constraints in ICT utilization and pupil performance. Although most pupils whose teachers have moderate competence and constraints fall into the "Very Satisfactory" category, very few pupils are in the "High" or "Low" categories. The computed G-value (0.018) and p-value (0.966) indicate that the differences observed in pupil performance across different levels of teacher competence and constraints are not

statistically significant, leading to the acceptance of the null hypothesis.

This implies that a focus on improving ICT skills alone may not be enough to enhance student performance, and there may be a need for a more holistic approach to teacher professional development. It may be more effective to integrate ICT into teaching alongside other pedagogical strategies, focusing on how technology complements learning processes rather than relying solely on technological competence. The effectiveness of ICT utilization competence depends on how well technology is implemented and supported within the educational environment. Training, resources, and support systems are crucial for maximizing the benefits of ICT utilization.

This result aligns with the study of Parker and Thompson (2021), which suggests that while ICT utilization competence among teachers is essential, it may not directly correlate with pupil performance. They explore the relationship between teachers' ICT (Information and Communication Technology) utilization competence and student performance. They found that while teachers' skills in using ICT are crucial for effective teaching, this competence doesn't always translate directly into improved pupil performance. Teachers with strong ICT utilization skills can integrate technology into lessons, potentially enhancing engagement and learning experiences. The ICT utilization competence is important for modern education; it does not always directly improve student performance. Their research highlights that the relationship between ICT utilization skills and pupil outcomes is complex, influenced by factors like teaching methods, curriculum, and how technology is integrated into the classroom. Therefore, effective use of ICT utilization requires more than just technical skills; it needs to be part of a broader, well-supported educational strategy to truly impact student performance.

Relationship Between Level of Learning Environment and Performance of Pupils

Table 8 shows the significant relationship between the level of the learning environment and the performance of pupils.

Table 8. *Relationship Between the Level of Learning Environment and Performance of Pupils*

Learning Environment	*Performance of Pupils*					*Total*
	Outstanding	*Very Satisfactory*	*Satisfactory*	*Fairly Satisfactory*	*Did not meet the expectation*	
High	4	43	16	3	0	66
Medium	2	29	6	1	0	28
Low	0	1	0	0	0	1
Total	6	73	22	4	0	105

Computed (G) value: -0.212
P-value: 0.274
Decision: Accept Ho
Interpretation: Not Significant at 0.05 level of significance

The data categorize the performance of pupils as outstanding, very satisfactory, satisfactory, fairly satisfactory, and did not meet expectations, while the learning environment is classified as high, medium, or low.

The table shows that most pupils (43 out of 66) in a High learning environment achieved Very Satisfactory performance. Similarly, most pupils in the Medium learning environment also fall into the Very Satisfactory category (29 out of 28). Only one pupil is associated with a low learning environment, indicating a possible correlation between the learning environment and pupil performance. However, the computed G-value of -0.212 and a p-value of 0.274 reveals that this relationship is not statistically significant at the 0.05 significance level. Therefore, the null hypothesis is accepted, which suggests no significant relationship between the learning environment and pupil performance.

The data analysis revealed that there is no statistically significant relationship between teachers' competence and constraints in ICT utilization and pupil performance. Although most pupils whose teachers have moderate competence and constraints fall into the "Very Satisfactory" category, very few pupils are in the "High" or "Low" categories. The computed G-value (0.018) and p-value (0.966) indicate that the differences observed in pupil performance across different levels of teacher competence and constraints are not statistically significant, leading to the acceptance of the null hypothesis.

The implication for education is that while the learning environment may appear to influence pupil performance, it alone may not be a decisive factor. Educational institutions should not rely solely on improving the learning environment to enhance student outcomes. Instead, a more holistic approach is needed, considering other factors such as teaching strategies, student engagement, access to resources, and individual student needs.

This finding is consistent with research by Lee and Brown (2022), who conducted a longitudinal study that tracked the effects of changes in the learning environment on academic performance over time. They discovered that, although the learning environment does affect student outcomes, its direct impact is relatively minor compared to other factors. Specifically, individual student motivation and the quality of instructional methods were found to be more significant predictors of academic success. The study suggests that while optimizing the learning environment is beneficial, focusing on enhancing teaching practices and student engagement may have a more substantial effect on improving performance.

Conclusions

The teacher population is predominantly female and in their prime working years, with a high level of educational attainment and a

majority falling within the middle-income range, reflecting a stable and experienced workforce.

While teachers are proficient in essential ICT utilization skills, there is a notable gap in advanced areas such as video production, suggesting that specialized ICT utilization competencies need further development.

The medium-level constraints identified suggest that while teachers are not overwhelmingly hindered by ICT utilization challenges, significant barriers remain, particularly in technical support and infrastructure, which could impede effective technology use in education.

The positive ratings for both physical facilities and teacher-pupil interactions indicate a conducive learning environment that supports effective teaching and student engagement.

The high level of teacher satisfaction with Grade One pupils' performance reflects a generally positive evaluation of early educational outcomes, suggesting that early-grade education is being effectively delivered.

Age significantly influences ICT utilization competence, with younger teachers demonstrating higher technological skills than their older counterparts, while other demographic factors have no notable impact. Additionally, ICT utilization constraints and teachers' perceptions of their learning environment are not significantly affected by sex, age, civil status, educational attainment, or family income, suggesting that these factors do not play a substantial role in shaping teachers' ICT use or their teaching experiences.

There is no significant relationship between teachers' ICT utilization competence and constraints and pupil performance. The competence level in ICT utilization does not directly impact pupil outcomes.

There is no significant relationship between the level of the learning environment and pupil performance. The quality of the learning environment does not directly correlate with pupil outcomes.

Given the high level of educational attainment and the stable income range, invest in targeted professional development opportunities to further advance teachers' skills and knowledge, particularly in emerging areas of education technology and pedagogical strategies, to maintain and enhance their effectiveness in the classroom.

Develop and offer professional development programs focused on advanced ICT utilization skills, such as video production, to address gaps and enhance teachers' ability to utilize these tools effectively in their teaching practices.

Focus on improving technical support and upgrading power supply and technology preparation to address the identified constraints effectively, thereby enabling teachers to use ICT utilization more efficiently and enhance the overall quality of education.

Continue investing in the upkeep and improvement of physical facilities while also focusing on maintaining high standards of teacher-pupil interactions to sustain and further enhance the positive learning environment.

Enhance early education by integrating advanced technological tools and methods, such as multimedia presentations and interactive software, to create more engaging learning environments and support foundational skills development, thereby reinforcing students' academic success.

To enhance ICT utilization among teachers, specialized training programs should be developed for older educators to bridge the technological gap and ensure equal opportunities for skill enhancement regardless of demographic factors. Addressing ICT utilization constraints requires strengthening institutional support and resources by investing in updated technology infrastructure, continuous professional development, and robust technical assistance. Additionally, improving teachers' perceptions of their learning environment should focus on enhancing institutional support through adequate teaching materials, professional development opportunities, and strong administrative backing, as these factors have a greater impact than demographic characteristics.

Focus on integrating ICT utilization effectively into the curriculum through targeted training and support for teachers, while also addressing broader factors such as teaching strategies.

While improving the learning environment is beneficial, prioritize enhancing teaching methods and student engagement strategies.

Developed enhancement program to meet emerging needs and challenges, fostering effective use of ICT in education while enhancing teacher and pupil outcomes.

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