TEACHER DIGITAL LITERACY AND ITS EFFECT ON STUDENT ACADEMIC PERFORMANCE: BASIS FOR A PROPOSED TECHNOLOGY ENHANCEMENT TRAINING PLAN

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ABSTRACT

This study examines the relationship between teachers' digital literacy and students' academic performance, emphasizing the critical role of technology in modern education. Framed within the Technological Pedagogical Content Knowledge (TPACK) model and Diffusion of Innovations Theory, the study investigates the relationships among teachers' digital competencies, academic results, critical thinking, and student engagement. The study utilized a correlational quantitative research design, gathering data from teachers and students at Lakeview Integrated School during the 2024–2025 academic year. The goal of the plan is to create dynamic and equitable learning environments that equip teachers for success in a technologically advanced world by closing digital literacy gaps. Notwithstanding these advantages, obstacles were found, including a lack of funding, inadequate training, and reluctance to embrace new technologies.

The findings reveal that higher levels of teachers' digital literacy are positively associated with improved student engagement and academic performance. However, challenges such as limited funding, insufficient training, and resistance to adoption of technology were identified. To address these issues, a Technology Enhancement Training Plan is proposed to strengthen teachers' digital competencies. The study underscores the importance of continuous professional development and institutional support in promoting effective technology integration, thereby fostering equitable and innovative learning environments.

Keywords: *Teacher Digital Literacy, Student Academic Performance, Technological Pedagogical Content Knowledge (TPACK), Digital Competency of Teachers, Educational Technology Training, Impact of Digital*

INTRODUCTION

Today's teachers and students depend heavily on having a working knowledge of technology in the classroom. Digital literacy encompasses the abilities required to use digital tools effectively, understand digital content, and evaluate digital data critically. For effective teaching and learning, educators and students alike are increasingly relying on digital literacy. In addition to using technology, digital literacy entails assessing digital content critically and incorporating tools to improve teaching. Student achievement and teachers' digital competency are strongly correlated, as research shows that teachers with digital proficiency design more effective and engaging learning environments (Tondeur et al., 2017; Hatlevik et al., 2018). Understanding how content pedagogy and technology intersect is essential for effective integration according to the Technological Pedagogical Content Knowledge (TPACK) framework (Koehler & Mishra, 2009). Despite research showing that digital literacy improves student outcomes, obstacles like restricted access, insufficient training, and change aversion prevent widespread adoption (Ertmer et al., 2012). Furthermore, many educators are insecure about their digital abilities, which hinders

successful implementation. This study fills a crucial knowledge gap by providing a methodical approach to improving teachers' digital literacy to overcome these obstacles and maximize technology-driven learning.

The digital divide remains a significant problem, particularly in underfunded schools, where educational disparities are exacerbated by limited access to technology. Students who lack access to digital resources may find it difficult to succeed academically and lag in their technological skills, according to Warschauer (2003). Since teachers who are proficient in technology create more dynamic and productive learning environments, their digital competency is essential to students' success—obstacles like poor professional development and limited access hamper digital integration. Targeted training and institutional support are crucial for closing this gap because they give teachers the tools they need to create equitable, tech-driven learning environments.

RESEARCH QUESTIONS

This study will seek to determine the relationship of the Teacher's Digital Literacy Student's Academic Performance

Specifically, the study will answer the following questions:

1. How can the teachers be described in terms of the following demographic profile:
    - 1.1 Age
    - 1.2 Sex at Birth
    - 1.3 Highest Educational attainment
    - 1.4 Assigned Grade levels; and
    - 1.5 Number of attended training on Educational Technology?

2. What is the level of digital competency of teachers along the following domains:
    - 2.1 Digital skills;
    - 2.2. Pedagogical use of technology; and
    - 2.3. Integrating technology appropriately?

3. What is the Students' Academic Performance in terms of:
    - 3.1 Learning outcomes;
    - 3.2 Participation and engagement in digital educational activities; and
    - 3.3 Development of digital competencies among students?

4. Is there a significant difference between students' academic performance when group according to their profile?

5. What is the level of Moderating Factors in terms:
    - 5.1. Teacher attitudes and motivation towards technology use;
    - 5.2. Access to digital resources and infrastructure in schools; and
    - 5.3. Support from school administration for technology integration?

6. Is there a significant relationship between digital literacy and students' academic performance?

7. Is there a significant relationship between moderating factors and students' academic performance?

8. Based on the findings of the study, how can a technology enhancement training plan be designed to address the identified gaps in teachers' digital literacy?

HYPOTHESIS/ASSUMPTIONS

The researcher utilized a non-directional hypothesis testing in this study. Specifically, the researcher established the following statements:

Ho1: There is no significant difference in the teacher digital literacy when they are classified in terms of Demographic profile and Moderating Factors.

Ho2: There is no significant relationship between digital literacy and students' academic performance in terms of.

Ho3: There is no significant relationship between moderating factors and students' academic performance in terms of.

METHODOLOGY

This study uses a correlational quantitative research design. The researcher chose this design so that it can be statistically analyze the relationship between teachers' digital literacy and students' academic achievement, because no variables are manipulated. Using quantitative methods, including surveys, standardized test scores, regression analysis and Pearson correlation, the study establishes whether there is a significant relationship between Teachers' Digital Literacy and Student academic performance. Based on the objectives of this study, the researcher established that potential respondents should be teaching personnel of Lakeview Integrated School. Furthermore, the researcher calculated the total number of respondents from the current total number of teaching personnel 145 for the academic year 2024-2025 of Lakeview Integrated School teachers' population. By gathering five percent margin of error with 95 percent confidence level, therefore the computed sample size for this study is 106 respondents with five percent margin of error.

The researcher had undertaken teachers who were officially employed in Lakeview Integrated School, school year 2024-2025. The study used the stratified sampling technique since the study is about Teachers' Digital Literacy and its effect on Student Academic Performance that targets teachers and students from basic education until Senior High School department hence the name of the school, Lakeview Integrated School (LIS). This study used the researcher-made questionnaire instrument and student performance record. The research instruments were validated and approved by the members of panel and thesis adviser as well. It consists of two (2) parts only.

The first part is the researcher-made questionnaire that focuses on the demographic profile of the respondents, level of digital competency of teachers, Students' Academic Performance, level of Moderating Factors, significant difference in the teacher digital literacy, significant relationships among the Teacher digital literacy, and Technology Enhancement Training Plan designed to address the identified gaps in teachers' digital literacy. The second part focuses on student performance record.

To facilitate understanding, the researcher assisted the respondents in answering the questionnaire using a survey form. The researcher perceived that the respondents had no hard time in answering the questionnaire since all the terms used by the researcher are concise and clear to the respondents. With high hopes for positive results, the researcher decided to administer the questionnaire to the respondents through survey form with full support and supervision.

The interpretation of the results of the study is based on the Likert Scale.

Level of digital competency of teachers

Numerical Ranking Scale Range Verbal Interpretation Students' Academic Performance

Strongly Agree (SA)	Agree (A	Disagree (D)	Strongly Disagree (SD)
4	3	2	1

Numerical Ranking Scale Range Verbal Interpretation

Strongly Agree (SA)	Agree (A	Disagree (D)	Strongly Disagree (SD)
4	3	2	1

After the approval of the study proposal by the board of panelists, the researcher obtained a permit from the Graduate School of Pamantasan ng Lungsod ng Muntinlupa (PLMUN) to conduct the study. The research instruments were validated by three (3) experts, namely a Language Expert, a Statistician Expert, and the Information Technology Officer of SDO Muntinlupa. Following this validation, the instruments underwent content validity testing through expert review and pilot testing to ensure reliability and accuracy. A formal request letter was addressed to the Division Schools of Muntinlupa (SDO Muntinlupa), the principal of Lakeview Integrated School, and the department heads of Lakeview Integrated School to request permission to distribute the survey questionnaires to teachers and to gather the academic performance data of students from the Registrar's Office. Ethical approval and informed consent were obtained from each participant, and their participation and information disclosed by them remained confidential. The principal was informed of the proceedings of the study, which involved the Elementary Department, Junior High School Department, and Senior High School Department.

Furthermore, the researcher preferred on-site pen-and-paper data gathering due to time constraints; and considering a limited budget, the questionnaires were compressed into a back-to- back single-paged 8.5 x 11 inches sized paper. The researcher gradually satisfies the proportional quota samples per academic program. The proceedings of the study lasted from February 19, 2025 to February 21, 2025.

RESULTS AND DISCUSSION

This part presents, analyzes, and interprets the data obtained from the targeted respondents. These were arranged according to the questions listed in the Statement of the Problem as follows:

Specifically, the study will sought to answer the following questions:

Table 1

Demographic Profile

Variable	Categories	Frequency (f)	Percentage (%)	Remarks/Interpretation
Age	21–30 years	40	38	Younger, early-career teachers
	31–40 years	40	38	Mid-level professionals
	41–50 years	18	16	Experienced teachers
	51 years and above	8	8	Senior educators
Mean Age	—	—	35 years	Represents energetic, adaptable age group
Sex at Birth	Female	92	87	Teaching remains female-dominated
	Male	14	13	—
Educational Attainment	Bachelor's Degree	69	65	Majority hold undergraduate degrees
	Master's Degree / Units	36	34	Ongoing graduate studies common
	Doctorate / PhD Units	1	1	Very few doctoral-level teachers
Assigned Grade Level	Elementary	52	49	Largest teaching cluster
	Junior High School	41	39	—
	Senior High School	13	12	—
No. of Trainings on Educational Technology	None	15	14	Limited exposure to ICT training
	1–2 Trainings	54	51	Most have minimal training
	3–5 Trainings	22	21	—
	More than 5	15	14	Few highly trained educators
Average Number of Trainings	—	—	3 trainings	Indicates moderate participation in EdTech programs

Most respondents were female (87%), aged 21–40 years (76%), and bachelor's degree holders (65%), with nearly half teaching in the elementary level (49%). The mean

age of 35 years suggests a relatively young and energetic workforce capable of adapting to digital innovations. However, the limited number of teachers who attended more than three ICT-related trainings (only 35%) implies a gap in professional development, which may constrain digital literacy growth.

These findings align with Regalado M. 2017), who noted that teaching in the Philippines remains a female-dominated profession, and with Reyes and Cordero (2022), who emphasized that younger educators are typically more receptive to technology integration. The data highlight the need for continuous digital competency training, particularly among less-trained teachers, to ensure equitable technology integration across grade levels.

Table 2

Summary Level of Digital Competency of the Respondent

Pedagogical Knowledge (PK) Indicators	WM	DR	RANK
1. Content Knowledge	3.34	A	3
2. Pedagogical Knowledge	3.37	A	2
3. Integrating technological Knowledge	3.46	A	1
Grand Mean Average	3.39	Agree	

Legend:

4=3.5-4.0=Strongly Agree (SA)
3=2.5-3.49=Agree (A)
2=1.5-2.49 Disagree (D)
1=1.0-1.49=Strongly Disagree(SD)

Table 2 above portrays the summary level of digital literacy of the teacher respondent. Out of the 3 sub-variables applied by the researcher in conducting this study, integrating technological knowledge obtained a weighted mean value of 3.46 (rank 1), followed by pedagogical knowledge with a mean value of 3.37 (rank 2) and content knowledge with a mean value of 3.34 (rank 3) which all fall on a descriptive rating of agree level category. The grand mean average got by the respondent was 3.39 which still fall on a rating of agrees level respectively. This value revealed that most of the respondent agreed that majority of them are digital literate, knowledgeable and skilled in content, pedagogical and integration of technology that leads to effective and efficient delivery of instructions that are engaging and interesting in the lives of the students.

Teachers feel relatively confident in integrating technology into their instruction, but there is certainly need for improvement, especially in fundamental topic understanding and pedagogical practices that make use of digital resources, even though teachers feel reasonably comfortable using technology into their lessons. It indicates a moderate level of digital fluency, where educators are at ease with technology but might not be taking advantage of all of its educational possibilities just yet. Although the teacher respondents' overall levels of digital literacy are encouraging, there is still much need for improvement, especially in terms of pedagogical and topic knowledge. Teachers should maximize the potential educational benefits that digital tools can bring for enhancing student learning

experiences by improving their digital fluency with focused professional development and a supportive learning environment.

Question No. 3. What is the Students' Academic Performance Development in Digital Competencies ?

Table 3

Summary of Respondent Academic Performance in Terms of Development in Digital Competencies

Summary of Academic Performance Indicators	WM	DR	RANK
1. Learning Outcomes	3.42	A	1
2. Participation and Engagement in digital educational activities	3.22	A	2
3. Development in Digital Competencies	3.17	A	3
Grand Mean Average	3.27	Agree	

Legend:

4=3.5-4.0=Strongly Agree (SA)
3=2.5-3.49=Agree (A)
2=1.5-2.49 Disagree (D)
1=1.0-1.49=Strongly Disagree(SD)

It was presented in Table 3, the summary of the student academic performance as perceived by teacher respondent. Out of 3 sub-variables used by the researcher in conducting this study, learning outcomes obtained a weighted mean value of 3.42 (rank 1) followed by participation and engagement in digital educational activities with a weighted mean value of 3.22 (rank 2) and development in digital competencies with a mean value of 3.17 (rank 3) which are all fall on a descriptive rating of agree category. The grand mean average got by the respondent was 3.27 which still fall on a rating of agrees respectively. This value manifested that teacher respondent agree that their students really are doing their best to learn, passed and be promoted on the next year level. This value further implied that student was really encouraged and motivated by their teacher in doing their part using varied strategies, applications and integration of technology in doing their work.

The correlation between digital literacy and student performance suggests that digitally proficient teachers create more engaging and effective learning environments (Reyes & Cordero, 2022). Schools should incorporate data-driven approaches to evaluate the impact of digital teaching methods on academic achievement. Even while students admit to having some skill development, this lower score can indicate that they feel they need more thorough or organized instruction in digital competences. Respondents largely think that digital competencies have a considerable impact on academic success, as seen by the grand mean average of 3.27 across all metrics. The comparatively low actual competency growth score, however, suggests possible institutional improvement areas, like providing focused digital skills programs and incorporating more participatory, tech-enhanced teaching methods.

Table 4

Significant Difference Between Respondent Academic Performance When Grouped According to their Profile.

Profile	P	Learning Outcomes	Participation and Engagement	Development in Digital Competencies	
Age					Ho: Rejected
61 Years old and Above	1%	-1.67	-6.34	5.07	
51-60	7%	-5.32	-8.34	-4.95	
41-50	16%	-3.34	27.21*	-3.56	
31-40	38%	42.08*	13.65	18.34	
21-30	38%	-.354	-3.56	-4.98	
Sex at Birth					Ho: Accepted
Male	13%	-5.86	-3.68	-6.45	
Female	87%	-8.94	2.90	-2.75	
Others	0				
Prefer not to say	0				
Highest Educational Attainment					Ho: Rejected
Doctorate	1%	-4.98	-3.56	-7.94	
PhD/Unit	1%	-5.98	-5.76	-8.56	
Master's Degree	29%	-5.34	-8.95	26.89*	
Master's Unit	4%	-6.97	-0.47	-6.98	
Bachelors' Degree	65%	37.96*	-4.76	-4.65	
Others	0				
Assigned Grade level					Ho: Accepted
Senior High School	12%	-4.87	-8.67	-2.89	
High School	39%	-12.43	-9.68	-1.43	
Elementary	49%	-2.98	-3.08	-4.74	
Other's	0				
Number of Trainings					Ho: Accepted
5 and above	14%	-7.94	-8.94	-8.65	
3-5	21%	-8.45	-6.45	-8.08	
1-2	51%	-9.68	0.78	-4.56	
Computed Chi-Squared		X^2 =42.08	X^2 =27.21	X^2 =26.89	

Table 4 above reveals, the significant difference between students' academic performance when grouped according to respondent profile. To test its significant difference, the researcher applied Chi-Squared Test of Goodness or Fit (X2). The computed Chi-Squared value of X2 =42.08 and X2 = 27.21 is a manifestation that majority of the

respondent with ages ranges from 31-50 years old brought positive effects on student academic performance specifically in student learning outcomes, participation and engagement in all school activities. This may be due to hard work, dedication and commitment of teacher's respondent in doing their job as a public servant. Likewise, respondent with Masters' Degree brought positive effects on student academic performance specifically in the development of digital competencies where student applied digital integration in conducting research, case study etc. as pointed out by a computed Chi- Squared value of X2 =26.89. This value above were a confirmation that respondent profile as to age and highest educational attainment brought significant difference on the students' academic performance. Therefore, the null hypothesis was rejected. On the other hand, respondent sex at birth, assigned grade level and number of trainings attended has no effect at all.

This further suggests that whereas other demographic and experiential characteristics do not exhibit significant statistical influence, academic maturity (as measured by age) and educational background are important differentiators in digital academic achievement. In order to ensure equal development of digital competence, this insight can assist institutions in more efficiently focusing assistance and training efforts, especially for younger students or those with less formal education.

Table 5

Summary Level of Moderating Factors of the Respondent

Summary Level of Moderating Factors Indicators	WM	DR	RANK
1. Teacher Attitude and Motivation Towards Technology use	3.62	SA	1
2. Access to Digital Resources and infrastructure in School	3.18	A	3
3. Support from School Administration for Technology	3.30	A	2
Grand Mean Average	3.37	Agree	

Legend:

4=3.5-4.0=Strongly Agree (SA)
3=2.5-3.49=Agree (A)
2=1.5-2.49 Disagree (D)
1=1.0-1.49=Strongly Disagree(SD)

Table 5 above reflects the summary level of moderating factors of the respondent. Out of 3 sub-variables, teacher attitude and motivation towards technology use obtained a weighted mean of 3.62 (rank 1) which fall on a descriptive rating of strongly agree level; followed by Support from School Administration for Technology with a mean value of 3.30 (rank 2) and Access to Digital Resources and infrastructure in School with a mean value of 3.18 (rank 3) which all fall on a rating of agree level. The grand mean average obtained by the respondent in this category was 3.37 which still fall on a rating of agrees level respectively. This value manifested that majority of the respondent were agree that all moderating factors brought positive effects on the respondent teaching as well on their way of dealing their students. This may be due to the fact of the support, encouragement and concerned showed by the administration in school including other school stake holders and LGU's.

Teachers' proficiency with technology is greatly impacted by ongoing training programs (Gunter et al., 2020). Regular, organized professional development in digital literacy must be provided by schools. This also shows a generally favorable opinion of the moderating elements influencing the use of technology. The discrepancy in the indicators' rankings, however, suggests that even though attitudes and certain support systems are robust, infrastructure issues can still stand in the way of optimizing the use of technology in the classroom.

Table 6

Significant Relationship Between Digital Literacy And Student Academic Performance

Digital Literacy	Learning Outcomes Computed r-value	Participation and Engagement Computed r-value	Development in Digital Competence Computed r-value	
1.Digital Literacy/Content	0.92	0.86	0.74	Ho:
Knowledge Computed t-test value	9.34	8.74	7.53	Rejected
2. Pedagogical Knowledge	0.86	0.79	0.97	
Computed t-test value	8.74	8.03	9.85	
3. Integrating technological Knowledge	0.85	0.50	0.69	
Computed t-test value	8.64	5.09	7.15	

Interpretation:
1.0= Perfect Positive Corr./Perfect Negative Relationship
+ 0.80- +0.99=Very High Positive Corr./Very High Negative Relationship
+0.60-+0.79=High Positive Corr./High Negative Relationship
+0.40-+o.59=Moderate Corr./Marked Relationship
+0.20-+0.39=Low Corr./Substantial Relationship
+0.01-0.19=Sight Corr./Negligible Relationship
Significant at 0.05 level with a tabular value of 1.960

Table 6 above portrays, the significant relationship between digital literacy of the respondent and student academic performance. To test its significant relationship, the researcher applied Pearson Product moment Correlation Coefficient or simply Pearson r. The computed r=value from 0.97 which fall on a very high positive correlations down to an r= value of 0.50 which fall on moderate relationship is a manifestation that there was a very high positive correlation to moderate relationship between digital literacy of the respondent towards the academic performance of the students. This value revealed that the null hypothesis was rejected.

To test its significance-test was used. The computed t-value from 9.85 down to a t= value of 5.09 is a manifestation and confirmation that the two sub-variables applied by the researcher are significant to each other at 0.05 level with a critical or tabular value of 1.960. This value above further revealed that respondent digital literacy brought very high positive correlation to student academic performance. This may be due to teachers' resourcefulness and creativity in the integration of technology in teaching.

Furthermore, Tondeur et al. (2020) found that teachers who are digitally literate are more inventive and resourceful when creating lessons, which leads to more dynamic and captivating learning environments. In order to ensure that teachers can successfully integrate technology to maximize student outcomes, this emphasizes the significance of ongoing professional development in digital literacy.

Table 7

Significant Relationship Between Moderating factors And Student Academic Performance

Significant Relationship	STUDENT ACADEMIC PERFORMANCE			Decision
Moderating Factors	Learning Outcomes computed r= value	Participation and Engagement computed r= value	Development in Digital Competence computed r= value	
1. Teacher Attitude and Motivation Towards Technology use	0.85	0.90	0.93	Ho: Rejected
Computed t-test value	8.64	9.14	9.44	
2. Access to Digital Resources and infrastructure in School	0.68	0.77	0.89	Ho: Rejected
Computed t-test value	6.92	7.83	9.04	
3. Support from School Administration for Technology	0.59	0.94	0.45	Ho: Rejected
Computed t-test value	6.01	9.55	4.54	

Interpretation:

1.0= Perfect Positive Corr./Perfect Negative Relationship
+ 0.80- +0.99=Very High Positive Corr./Very High Negative Relationship
+0.60-+0.79=High Positive Corr./High Negative Relationship
+0.40-+o.59=Moderate Corr./Marked Relationship
+0.20-+0.39=Low Corr./Substantial Relationship
+0.01-0.19=Sight Corr./Negligible Relationship
Significant at 0.05 level with a tabular value of 1.960

As we can see in Table 7 above, the significant relationship between the level of moderating factors of the respondent towards student academic performance. To test its significant relationship, the researcher used Pearson Product Moment Correlation Coefficient or simply Pearson r. The computed r= value from 0.94 which fall on a very high positive correlation down to an r = value of 0.45 which fall on moderate relationship is an indication that there is a very high correlation to moderate relationship between respondent moderating factors and students' academic performance. Therefore, the null hypothesis was rejected.

To test its significance, t-test was applied. The computed t- value from 9.55 down to a t= value of 4.54 revealed and confirmed that moderating factors of the respondents leads/brought very high positive to moderate relationship towards student academic performance. Therefore, the null hypothesis was rejected at 0.05 level of significance with a critical or tabular value of 1.960. The above value further gleaned due to the fact that student was really motivated to study due to teacher's encouragement and interactive activities provided to student.
The null hypothesis is rejected by the calculated t-values, which range from 9.55 to 4.54 and further demonstrate that these moderating factors are statistically significant at the 0.05 level. According to research by Tondeur et al. (2020), teachers can increase academic success by creating more interactive and student-centered learning experiences when they have access to sufficient digital resources and strong institutional support.

Furthermore, according to Warschauer (2020), teachers can fully implement digital strategies with the support of administrators and equitable access to technology, which increases student participation and competency development. In order to maximize student academic achievement in technology-driven learning environments, these findings highlight the necessity for schools to improve the availability of digital resources, boost teacher motivation, and provide ongoing institutional support.

Based on the findings of the study, how can a technology enhancement training plan be designed to address the identified gaps in teachers' digital literacy?

Based on the findings, the researcher proposed a Technology Enhancement Training Plan that is designed to systematically address the identified gaps in teachers' digital literacy. The training is incorporated with structured professional development programs, progressing from basic digital skills to advanced pedagogical technology integration. The training plan highlights practical workshops and hands-on training sessions focusing on the effective use of digital tools such as Google Classroom, Microsoft Teams, Kahoot, Canva, and other EdTech applications. This allows for a personalized training that caters to different skill levels through blended learning models combining online modules and face-to-face coaching.

Additionally, the said program will be divided into (7) modules: (1) Digital Literacy Foundations- Basic computer skills, online security, data privacy, (2) Learning Management Systems (LMS)- Google Classroom, Microsoft Teams, Moodle, (3) Interactive EdTech Tools- Kahoot, Quizizz, Nearpod, Canva for Education, (4) Technology-Enhanced Teaching Strategies- TPACK framework, Blended Learning, Gamification, (5) Assessment and Data Analytics- Using AI and analytics to track student progress, (6) Overcoming Digital Barriers- Internet connectivity solutions, ICT support strategies and (7) Capstone Project & Certification-Teachers create and present digital lesson plans.

CONCLUSION

The findings of the study confirm that in technology-enhanced learning environments, teachers' degree of digital literacy has a major impact on academic performance, student engagement, and instructional effectiveness. The best possible

integration of educational technologies is still hampered by factors like restricted access to resources which supports the findings of Javier and De Leon (2021), a lack of confidence, and a low level of participation in structured training, even though many educators show a moderate level of familiarity with digital tools Poon et al. (2021). In order to advance transformative, equitable, and future-ready instruction, it is still crucial to strengthen teachers' digital competency with institutional support.

Given these findings, it is advised that DepEd and school officials establish competency-based structured, and ongoing professional development programs in digital literacy to guarantee fair access to digital learning materials, particularly in underprivileged environments. To improve classroom practice, educators are urged to participate in collaborative learning communities, embrace creative instructional designs, and seek ongoing upskilling, which is consistent with Warschauer and Matuchniak's (2020). Using technology at home by taking part in digital literacy programs run by the school. To improve the systemic environment for digital learning, proponents of educational technology must collaborate with legislators and keep creating inclusive, accessible digital resources. To investigate the changing influence of digital literacy on student outcomes in various educational contexts, future researchers are urged to carry out comparative and longitudinal studies.

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