
Integrating Technology in the Classroom, Teacher Instructional Practices and Learners' Performance: Basis for Instructional Supervision Plan

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ABSTRACT

This study investigates the significant relationship between the extent of technology integration in the classroom, the instructional practices of teachers, and the academic performance of learners. The research was conducted at Putingbato Elementary School in the Isabel 1 District of Leyte Division, involving six teachers and 464 students enrolled for the current academic year as respondents. Using a descriptive-correlational research design, the data revealed a moderate significant relationship between the extent of technology integration in the classroom and the academic performance of learners. In contrast, a very strong positive relationship was identified between technology integration and teachers' instructional practices, particularly in terms of planning, delivery, and assessment methods. This significant relationship emphasizes the crucial role of technology integration in effective teaching and the enhancement of academic performance. It also highlights the need for ongoing support and strategic implementation of technology in educational settings to maximize its benefits for both teachers and students.

Keywords — *Integrating Technology, Classroom, teacher Instructional Practices, Learners' Performance, Instructional Supervision Plan*

I. INTRODUCTION

In this educational era, there is significant change that happens in the classroom, especially in teaching the lesson in the most comfortable way. This is the reason why many of the educators have become innovative in how they will deliver the experience effectively and efficiently. Until such time, that educator uses technology, due to its fastest growth in society. The emergence of technology integration provides new opportunities for teaching and learning. Moreover, it opens another door on how the learning process become more conducive, interactive, and fruitful on both teachers and students. A growing number of educators are now exposing themselves in the technological infusion that can support their instructional practices.

Further, technological integration in teaching plays a vital role in attaining a significant improvement in productivity and performance of teachers inside the classroom. This reflects that technology integration succeeds in its mission to give a positive response in the field of education, especially in innovating the present education. Currently, the country continuously implements the K to 12 Education program in which technology integration in teaching is highlighted as one of its salient features in improving the performance and productivity of teachers in public high schools and how technology can be applied in the learning process.

Technology is an opportunity for teachers to differentiate instruction to modify information for the appropriate learning capabilities of their students. The use of technology in the classroom can also allow students to work at their own pace. During this era of education, we cannot reprimand the students in using technology in the classroom. It is

observed that even in the primary grades, most of the learners have cellular phones. As a teacher in the 21st century and an advocate in using technology in the classroom, the researcher makes use of the available gadgets that the students have. She emphasizes the students the positive and negative impact of the technology available in their homes and in the school. With that, she employed technology integration in teaching the lesson to make all students be attentive and participative in the lesson. She even formulated digital stories and activities using the gadgets that the students have. In here, it was observed that most of them are enjoying learning and that the instructional practices of the researcher have become more easier and faster, and attainment of educational objective is successful. Technology-incorporated instructional practices not only enhance the quality of teaching (Akram et al., 2021a) but also enable students to develop their skills, boost their motivation, and enhance their knowledge and information efficiently (Chen et al., 2018).

It is in the rationale that the researcher who is currently a grade schoolteacher in the above mentioned local, would like to delve worthy research undertaking that will benefit herself, the school she is currently teaching and that of her Graduate Program she is enrolled at.

This study determines the significant relationship between the extent of technology integration in the classroom, instructional practices of teachers and academic performance of learners in Putingbato Elementary School, Isabel 1 District, Leyte Division for School Year 2024-2025. The findings of the study were the basis for the proposed instructional supervision plan.

Specifically, this study sought to answer the following questions:

1. What is the extent of technology integration in the classroom?
2. What is the level of instructional practices of teachers while integrating technology in the classroom in terms of the following:
 - 2.1 Instructional planning practices
 - 2.2 Instructional delivery practices, and
 - 2.3 Instructional assessment practices?
3. What is the level of academic performance of the learners in quarter 1?
4. Is there a significant relationship between the extent of utilization of technology integration in the classroom and academic achievement of the students in quarter 1?
5. Is there a significant relationship between the level of instructional practices of teachers while integrating technology in the classroom and academic achievement of the students in quarter 1?
6. What instructional supervision plan can be proposed based on the findings of this study?

II. METHODOLOGY

Design. This study adopted a descriptive-correlational research design to explore the significant relationship between the extent of technology integration in the classroom, instructional practices of teachers and academic performance of learners in Putingbato Elementary School, Isabel 1 District, Leyte Division. Situated in a hilly area accessible by any means of land transportation, the school accommodates 94 pupils across six classrooms, emphasizing community support and academic achievements despite infrastructure challenges like the absence of a library, clinic and lack of chairs. Six teachers, 1 school head and 94 pupils participated in the study for the academic year 2024-2025, selected through complete enumeration. There are two different surveys that the present study is conducting. Part 1 of the instrument is a survey on the extent of technology integration in the classroom. The survey will be rated by the teachers on the extent of technology integration in the classroom. It was taken from the study of Udto & Kusain (2022) entitled, "Integration of Technology in the Classroom Instruction in Relation to Academic Performance". While Part 2 of the instrument is also

a survey on the instructional practices of teachers in terms of instructional planning, delivery and assessment. There are 25-items survey of which the school heads of the teacher-respondents will determine the level of instructional practices of the teachers employed during instructional supervision. The survey was taken from the study of Bibon (2022) the Teachers' Instructional Practices and Learners' Academic Achievement in Science. Finally, to measure the academic achievement of the students, the researcher will gather the Grade Point Average (GPA) of the students in all learning areas in the 1st Quarter of School Year 2024-2025. This research aims to understand how technology integration improves instructional practices of teachers and academic achievement of the learners and proposes an instructional supervision plan based on findings to enhance instructions and performance.

Sampling. The respondents of this study were six (6) teachers, and 94 learners enrolled in the said locale for School Year 2024-2025. Complete enumeration was employed in choosing the respondents of the study.

Research Procedure. After obtaining research approval, data collection commenced. Letters requesting study approval were submitted to relevant authorities. Initially, a request letter was sent to the Schools Division Superintendent for permission to proceed with data collection from identified respondents. Following approval from the SDS, permission letters were also submitted to the Public Schools District Supervisor and School Principal. Upon receiving approvals, the researcher proceeded with data gathering activities. An orientation session was conducted for the respondents, and their consent through permits was obtained to participate in the study. Subsequently, survey questionnaires were distributed, and the researcher guided the respondents in completing them. The researcher also gathered the quarter 1 grades of the learner-respondents. After the survey phase, data were collected, tallied, and submitted for statistical analysis.

Ethical Issues. The researcher properly secured the permission to conduct the study from the authorities through written communication. In the formulation of the intervention materials that was used in the study, the use of offensive, discriminatory, or other unacceptable language was avoided. The respondents' names and other personal data were not included in this study to protect their privacy. Participation of the respondents was also voluntary. Orientation was conducted for the respondents with their parents. In the orientation, issues and concerns were addressed and consent to be included in the study were signed. The researcher-maintained objectivity in analyzing and discussing the results. All authors whose works were mentioned in this study were properly quoted and were acknowledged in the reference.

Treatment of Data. The quantitative responses underwent tallying and tabulation. Statistical treatment involved using specific tools: Simple Percentage and Weighted Mean assessed the extent of technology integration in the classroom, instructional practices of teachers and academic performance of learners. Pearson r was utilized to ascertain the significant relationship between the dependent and independent variables.

III. RESULTS AND DISCUSSION

Table 1
Extent of Technology Integration in the Classroom

	Indicators	Weighted Mean	Description	Interpretation
1	Use of computers in writing a plan.	5.00	Always	Very High
2	Searching activities using google and other networks.	5.00	Aways	Very High
3	Computer-assisted instructions like PowerPoint presentations	5.00	Always	Very High
4	Use of digital forms in assessment	4.10	Often	High
5	Use of digital quiz.	3.00	Sometimes	Average
6	Use of smart TVs in the delivery of the lesson.	5.00	Always	Very High
7	Use of Padlet in some of the learning activities.	1.00	Never	Very Low

8	Use of mentimeter in answering some of the learning activities.	1.00	Never	Very Low
9	Use of video clips	4.75	Often	High
10	Digital Storytelling	4.75	Often	High
11	Use of television in teaching.	5.00	Always	Very High
12	Use of DVD player	1.00	Never	Very Low
13	Use of lapel	2.81	Sometimes	Average
14	Use of computer	5.00	Always	Very High
15	Use of digital classroom and whiteboards	1.83	Rarely	Low
	AVERAGE	3.61	Often	High

Legend:

RANGES	DESCRIPTION	INTERPRETATION
4.21-5.00	Always	Very High
3.21-4.20	Often	High
2.61-3.40	Sometimes	Average
1.81-2.60	Rarely	Low
1.00-1.80	Never	Very Low

Table 1 evaluates the extent of technology integration in classroom teaching and learning, revealing an overall average weighted mean of 3.61, interpreted as "High." This indicates a general success in incorporating technology. However, specific tools, such as padlet and mentimeter, received a weighted mean of 1.00, meaning they have not been used at all by teachers. Additionally, the lack of reliable internet connectivity has led to minimal use of digital classrooms and interactive whiteboards, contributing to significant limitations in the learning experience. The findings highlight the critical need for improved technology infrastructure within the school, as effective integration relies on access to reliable internet and resources. Investments in this area are essential to create an engaging learning environment. Professional development programs should focus on enhancing teachers' skills in utilizing technology effectively, encouraging innovation in lesson planning and delivery. Collaborative efforts among educators can promote sharing of best practices, fostering a supportive culture for technology use. Finally, establishing partnerships with tech companies or educational organizations can provide essential resources and training opportunities, further aiding in the integration of digital tools. Overall, addressing these challenges will enhance instructional quality and prepare students for a technology-driven world.

Table 2
Instructional Practices of Teachers

	STATEMENTS	Weighted Mean	Description	Interpretation
A.	INSTRUCTIONAL PLANNING PRACTICES			
1	Uses and analyzes information of learners to design instruction that meets the diverse needs of learners and leads to ongoing growth and achievement.	4.95	Always	Very High
2	Assesses teaching materials for its relevance to the learning competency attainment and needs of learners.	4.95	Always	Very High
3	Uses present data of learners to design instruction that is differentiated on the individual learning needs of learners.	4.95	Always	Very High
4	Creates and plans strategies that allow multiple learning areas to be integrated in the lesson.	3.75	Often	High

5	Accesses and uses ICT in the design of instruction to engage learners' attention and improve the caliber of teaching.	3.00	Sometimes	Average
6	Selects appropriate content for instruction, resources, examples, and materials that are known and suited to the learners for differentiation of learning.	3.00	Sometimes	Average
7	Uses sociodemographic information regarding learners' background like culture, family structure and status, and communities in planning instruction suited to the needs of the learners.	2.90	Sometimes	Average
8	Develops plans of the lesson based on previous responses and feedback of learners to further improve the planning of the repeated lesson.	5.00	Always	Very High
	AVERAGE	4.06	Often	High
B. INSTRUCTIONAL DELIVERY PRACTICES				
9	Discusses lessons in increasing level of complexity and difficulty.	5.00	Always	Very High
10	Connects prior knowledge of the learners to the new information of the lesson.	5.00	Always	Very High
11	Facilitates a learning environment where sense of belonging of learners through individual differences is respected.	5.00	Always	Very High
12	Uses varying perspectives, theories and methods of investigation and inquiry in instructing the concept of the lesson.	5.00	Always	Very High
13	Provides opportunities for learners to engage in activities of inquiry, critical thinking, and evidence of discipline.	5.00	Always	Very High
14	Demonstrates fluency in technology system, uses technology to support instruction and enhance learning, and designs learning experiences to develop learner skill in the application of technology appropriate to the disciplines. achievement of the students.	4.30	Always	Very High
15	Employs various ways on explaining concepts to scaffold learning while correcting misconceptions ad misunderstandings.	5.00	Always	Very High
16	Ensures that learning experiences of the learners were relevant and connects to other curriculum content areas.	3.50	Often	High
17	Incorporates experiences into instructional practices that relate to a learner's current life.	5.00	Always	Very High
	AVERAGE	4.76	Always	Very High
C. INSTRUCTIONAL ASSESSMENT PRACTICES				
18	Provides opportunities for the development of product-based assessment.	5.00	Always	Very High
19	Provides opportunities for the development of performance-based assessment.	3.60	Often	High
20	Shows relevance and connection between topic discussed vis-à-vis assessment strategy.	4.10	Often	High
21	Uses multiple assessment methods, including adjusted pacing and flexible grouping, to engage learners in active learning opportunities that promote the development of critical and creative thinking, problem-solving, and performance capabilities.	4.00	Often	High
22	Provides multiple assessment strategies for the differentiation and accommodation of individual differences.	4.10	Often	High
23	Provides assessment that allows learners to work individually or in groups through independent/ cooperative learning.	3.50	Often	High
24	Uses learning materials like module, activity sheets, SIM etc. that evaluates learning inside and outside the school.	5.00	Always	Very High

25	Creates assessment method that is sustainable and with continuity to trace behavioral and cognitive changes of learners through time.	5.00	Always	Very High
	AVERAGE	4.29	Always	Very High

Legend:

RANGES	DESCRIPTION	INTERPRETATION
4.21-5.00	<i>Always</i>	<i>Very High</i>
3.21-4.20	<i>Often</i>	<i>High</i>
2.61-3.40	<i>Sometimes</i>	<i>Average</i>
1.81-2.60	<i>Rarely</i>	<i>Low</i>
1.00-1.80	<i>Never</i>	<i>Very Low</i>

Table 2 evaluates the level of instructional practices of teachers in integrating technology in the classroom, focusing on instructional planning, delivery, and assessment. The data shows an average weighted mean of 4.06 for instructional planning, indicating a "High" level of effectiveness in using technology within planning processes. However, the statement regarding the use of sociodemographic information—specifically, "Teachers use sociodemographic information regarding learners' backgrounds to plan instruction that meets their needs"—received a lower mean of 2.90, categorized as "Average." This suggests that while teachers are considering students' backgrounds, there is significant room for improvement. While the overall high mean demonstrates effective technology integration, the average score related to sociodemographic factors indicates a gap in personalizing instruction. To address this, professional development focused on culturally responsive teaching could empower teachers to better tailor their lessons to their students' diverse needs. This approach would enhance inclusivity and improve student engagement and learning outcomes.

The survey results revealed that the level of instructional practices of teachers integrating technology in instructional delivery received an average weighted mean of 4.76, interpreted as "Very High." This indicates a strong commitment to effective technology use in delivering lessons. However, the specific statement regarding teachers ensuring that learning experiences are relevant and connect to other curriculum areas received the lowest mean of 3.50, categorized as "High." This suggests that, while teachers often perform this well, there is room for improvement in creating interdisciplinary connections. The remaining indicators scored between 4.21 and 5.00, all classified as "Very High." Overall, the findings demonstrate that teachers exhibit strong practices in technology integration, but emphasizing relevance and connections across subjects could further enhance the learning experience for students.

Finally, the data indicated that the level of instructional practices of teachers integrating technology into assessment received an average weighted mean of 4.29, interpreted as "Very High." This suggests that teachers are effectively using technology to enhance student learning outcomes through various assessment techniques. Key statements rated as high included the provision of assessments that allow for individual and group work, the development of performance-based assessments, and the use of multiple methods that encourage active learning and foster critical thinking, problem-solving, and performance capabilities. These assessments are also relevant, connecting the topics discussed to the evaluation strategies used, and they offer differentiation to accommodate individual differences among students. The high average score signifies a strong commitment to employing diverse and effective assessment practices. While teachers demonstrate proficiency in using technology to create engaging assessments, there is still an opportunity to refine differentiation and individual accommodations further. The implementation of performance-based assessments and collaborative learning reflects a modern educational approach, promoting not only academic skills but also essential life skills. By continuing to innovate in assessment strategies, teachers can enhance student engagement and outcomes, ultimately enriching the educational experience. Thus, focusing on improving differentiation and personalized support will further benefit diverse learners in the classroom.

Table 3
Academic Performance of Learners

Rank	Description	Range	Frequency	Percentage
5	Outstanding	90-100	101	22
4	Very Satisfactory	85-89	124	27
3	Satisfactory	80-84	127	27
2	Fairly Satisfactory	75-79	112	24
1	Did Not Meet Expectations	Below 75	0	0
		Total	464	100

Table 3 evaluates the level of academic performance of learners in Quarter 1 of the current school year. Among the 464 learners, 101 (22%) received an outstanding rating (90-100), 124 (27%) achieved a very satisfactory rating (85-89), 127 (27%) earned a satisfactory rating (80-84), and 112 (24%) attained a fairly satisfactory rating (75-79). Importantly, all learners passed across all learning areas for their grade level. The results indicate strong overall achievement, with a significant number of students earning high ratings. However, the presence of learners in the satisfactory and fairly satisfactory categories suggests opportunities for improvement. While it is positive that all students passed, a focus on elevating performance for those scoring lower could be beneficial. In conclusion, while the overall academic performance is commendable, targeted efforts to support lower-performing students will foster a more equitable educational environment and promote the growth of all learners.

Table 4
Test of Relationships

Variables Correlated	r	Computed value or t	Table Value @.05	Decision on Ho	Interpretation
Technology Integration and Instructional Practices of Teachers	0.60	0.311	0.273	Reject Ho	Significant Relationship (Moderate)
Technology Integration and Academic Performance	0.72	0.522	0.311	Reject Ho	Significant Relationship (Very Strong)

Table 4 presents the results examining the relationships between the extent of technology integration by teachers in classroom teaching and learning, their instructional practices, and the academic performance of learners. The findings indicate a correlation coefficient ($r = 0.60$), reflecting a moderately positive relationship. Moreover, the computed t-value of 0.311 exceeds the critical table value of 0.273 at a significance level of 0.05, leading to the rejection of the null hypothesis (H_0) and confirming a statistically significant relationship between technology integration and instructional practices. This moderately positive correlation suggests that increased technology integration is associated with improved instructional practices. It indicates that when teachers effectively use technology, they are likely to adopt more innovative teaching methods, enhancing student engagement and learning outcomes. In summary, the significant relationship between technology integration and instructional practices emphasizes the need for educational institutions to foster an environment that supports effective technology use, ultimately benefiting student academic performance.

The findings presented in the table provide substantial insights into the interplay between technology integration in classroom teaching and the academic performance of learners. Notably, the correlation coefficient of ($r = 0.72$) suggests a moderately positive relationship, implying that as the integration of technology in teaching practices increases, there is a corresponding positive trend in the academic performance of students. This is an encouraging indicator that supports the notion that contemporary pedagogical strategies can enhance educational outcomes. The calculated t-value of (0.522), which exceeds the critical value of (0.311) at a significance level of (0.05), allows us to confidently reject the null hypothesis (H_0). This rejection is pivotal as it reinforces the idea that the relationship observed is not merely coincidental but statistically significant. The results imply that importance of training educators in effective technology integration, as it appears to have tangible benefits on learners' academic achievements. Educational institutions might consider investing in professional development programs that enhance teachers' technological proficiency and instructional strategies. Moreover, the findings advocate for a curriculum that embraces technology, suggesting that those responsible for curriculum design should incorporate digital tools and resources actively into teaching practices. This adaptation could foster an engaging learning environment that resonates with today's learners, who are often digital natives accustomed to technology in their daily lives. In conclusion, this study provides compelling evidence for the positive relationship between technology integration in teaching and student academic performance. As education continues to evolve in the digital age, this relationship emphasizes the need for ongoing assessment and adaptation of teaching methodologies to enhance learning outcomes and prepare students for a technology-driven world.

IV. CONCLUSIONS

The study's results demonstrate a significant relationship between the extent of technology integration by teachers in classroom teaching and learning, their instructional practices, and the academic performance of students. A high level of technology integration, combined with strong instructional practices, contributes to commendable academic outcomes for learners. This effective integration of technology enhances instructional approaches, ultimately leading to improved student performance. Moreover, the findings suggest opportunities for further research into the effectiveness of specific technologies and the contextual factors that influence their impact. It is also crucial to address equity in access to technology, ensuring that all students can benefit from these tools. Overall, the significant relationship identified underscores the importance of technology integration as a key component of effective teaching and improved academic performance, highlighting the need for ongoing support and strategic implementation in educational settings.

V. RECOMMENDATIONS

1. Utilize the proposed instructional supervision plan formulated to achieve the desired goal of the study.
2. Provide ongoing training for teachers on effective technology integration to enhance student engagement and outcomes.
3. Invest in modern technology and infrastructure to ensure access for both teachers and students.
4. Integrate technology into the curriculum to foster digital literacy and prepare students for the workforce.
5. Encourage collaborative learning through technology, allowing students to work together on digital projects.
6. Develop programs to ensure all students have equal access to technology, especially in underserved communities.
7. Establish systems for regular feedback from teachers and students to identify successes and challenges in technology use.
8. Assess the effectiveness of technology integration on learning outcomes and adjust practices accordingly, and
9. Future researchers should replicate this study to include different locales and include different variables aside from the mentioned in this study.

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