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# Elementary Teachers' Digital Competencies and Technology Integration in Bauan East Sub-Office, Division of Batangas Province

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**Abstract**

This study aimed to examine the level of digital competencies and extent of technology integration of elementary teachers in Bauan East Sub-Office, Schools Division of Batangas Province, as well as the challenges encountered in integrating technology in the classroom. Specifically, it focused on teachers' digital competencies in terms of professional engagement, digital resources, teaching and learning, and assessment, and their technology integration in terms of substitution, augmentation, modification, and redefinition based on the SAMR model. A descriptive-correlational research design was employed, utilizing a validated 90-item questionnaire to gather data from 112 elementary teachers selected through stratified random sampling from a population of 156. The collected data were analyzed using weighted mean and Pearson product-moment correlation to determine both the levels of competencies and integration and the significant relationships between variables.

The findings revealed that teachers demonstrated highly competent digital competencies in professional engagement but moderately competent in digital resources, teaching and learning, and assessment. Technology integration was moderate across all SAMR levels, with substitution being most frequently practiced and redefinition least frequently practiced. Correlation analysis showed significant positive relationships between all digital competency domains and technology integration, with assessment competency showing the strongest correlation. Teachers also agreed that they encounter challenges related to insufficient devices, inadequate technical support, classroom management concerns, and limited planning time, which affect the consistent integration of technology in the classroom. Based on the findings, Project DIGITEACH was developed as an evidence-based enhancement activity.

**Keywords:** *digital competencies, technology integration, elementary teachers, SAMR model, Philippine basic education.*

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# Introduction

The current educational environment is closely connected with digital technology, a change that has sped up because of worldwide events requiring a quick move towards remote and blended learning methods. This shift has made digital competencies not just an extra skill, but a basic ability for both students and teachers. The Philippine Department of Education (DepEd) has long supported using technology in teaching and learning through its ICT policies, aiming for a future where digital tools are smoothly included in education. However, this national goal needs to be put into practice at the level of individual classrooms, where teachers are the main implementers. Therefore, how well these policies work depends on the digital competencies and teaching flexibility of classroom teachers.

As emphasized by Gacayan (2022), while many Filipino educators recognize the importance of digital tools, a substantial gap exists between their perceived and actual digital competencies. This gap manifests in a reliance on basic presentation software rather than transformative integration that fosters critical thinking and creativity. Scholars like Almerino et al. (2022) argued that digital competencies extend beyond technical proficiency to include critical evaluation of information, collaboration across digital platforms, and understanding of digital safety and ethics.

A recent study by Barte (2023) on Philippine schools highlighted that teacher adaptability in blended learning was heavily influenced by access to reliable infrastructure, ongoing technical support, and collaborative leadership. The Schools Division Office of Batangas Province serves as a vital bridge transforming DepEd's policies into local initiatives. Within this division, the Bauan East Sub-Office represents a community with unique strengths and potential for technology integration in education.
According to the 2022 National Survey on ICT in Education conducted by DepEd, while 78% of public-school teachers reported access to digital devices, only 34% demonstrated confidence in designing technology-enhanced lessons promoting higher-order thinking skills. Teachers in provincial areas like Batangas reported 40% less participation in sustained, pedagogy-focused training compared to their counterparts in National Capital Region schools.

This study aimed to understand how competent teachers in Bauan East are in digital competencies and how they use technology in their teaching. By examining both aspects, the research pinpointed where teachers need the most help, whether improving basic technical skills, learning pedagogical integration strategies, or accessing appropriate digital tools.

Generally, the study aimed to analyze and assess the elementary teachers' digital competencies and technology integration in Bauan East Sub-Office, Schools Division of Batangas Province. Specifically, this study aimed to answer the following questions:

1. What is the level of digital competencies of elementary teachers as assessed by the teachers themselves in terms of:
   1.1 professional engagement;
   1.2 digital resources;

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1.3 teaching and learning;
1.4 assessment?

2. To what extent do the elementary teachers integrate technology in their teaching in terms of:
   2.1 substitution;
   2.2 augmentation;
   2.3 modification; and
   2.4 redefinition?
3. Is there a significant relationship between the assessments on the teacher's level of digital competencies and on their extent of technology integration?
4. What are the challenges experienced by elementary teachers in integrating technology in teaching?
5. Based on the findings of the study, what enhancement activities may be proposed?

***Literature Review***

In the study of Gacayan (2022), it was cited that while many Filipino educators recognize the importance of digital tools, a substantial gap often exists between their perceived and actual digital competencies. This gap can manifest in a reliance on basic presentation software and communication apps rather than a confident integration of technology to foster critical thinking, collaboration, and creativity. As a result, without targeted and continuous professional development, technology is merely used to digitize traditional worksheets and lectures rather than to transform pedagogical approaches as envisioned by national policies.

Digital competencies are affected by multiple factors including access to infrastructure, ongoing technical support, and collaborative leadership. Recent studies highlight the importance of teacher adaptability and its predictors of successful technology integration. Schools and divisions that offer supportive environments with reliable infrastructure and collaborative leadership can aid in closing the digital divide between teachers. To guarantee that every teacher has fair opportunities to develop strong digital competencies from the start of their careers, school administrators, division offices, and policymakers must work together to promote technology integration.

Almerino et al. (2022) emphasized that digital competencies in the 21st century extend far beyond simple technical proficiency, encompassing the ability to locate, evaluate, and synthesize digital information critically, to communicate and collaborate effectively across digital platforms, and to understand issues of digital safety and ethics. This support can take many different forms, such as providing targeted professional development, giving teachers the resources they need for instruction, or simply fostering a culture of innovation where teachers feel safe to experiment and learn from failures.

In the study of Scherer et al. (2021) that investigated the relationship between teachers' digital resource management competence, instructional quality, and student engagement outcomes, the finding shows that there is a significant direct effect of digital resource management on instructional quality, and there is a significant direct effect of instructional

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quality on student engagement. These findings only suggest that empowering teachers' competence in managing digital resources can enhance the quality of instruction and student learning outcomes

Barte (2023) revealed that infrastructure limitations and access inequities bear both positive and negative effects on technology implementation in schools. According to the study, teachers typically exhibit increased confidence and better integration practices when schools provide them with adequate devices, reliable internet connectivity, and prompt technical support. Access to functional equipment and ongoing technical assistance all found to support and improve teachers' technology integration practices. However, the absence of a reliable technological ecosystem can occasionally cause frustration and erode teacher confidence, leading to the decision to abandon technology-dependent lessons.

# Methodology

## Research Design

This study employed a descriptive-correlational research design. The descriptive component characterized the current levels of digital competencies and technology integration practices, while the correlational component examined the relationship between these two variables.

## Participants

The participants comprised 112 elementary teachers from the Bauan East Sub-Office, Schools Division of Batangas Province, during School Year 2025-2026. The total population was 156 teachers across ten public elementary schools. Stratified random sampling was used to select participants proportionally from each school. Slovin's formula with a 5% margin of error determined the sample size. Table 1 presents the distribution of participants.

## Research Instrument

The study utilized both quantitative and qualitative data gathering instruments, primarily a Likert scale survey questionnaire and semi-structured interviews. The survey questionnaire served as the main instrument for collecting data on elementary teachers' digital competencies and technology integration practices, including professional engagement, digital resources, teaching and learning, assessment, substitution, augmentation, modification, redefinition, and the challenges encountered by teachers. The questionnaire underwent face and content validation by three experts consisting of master teachers and principals, and was pilot tested to ensure reliability. Responses were analyzed using weighted mean and interpreted through a four-point scale ranging from Least Competent to Highly Competent for digital competencies, and from Least Integrated to Highly Integrated for technology integration. To enrich the quantitative

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findings, interviews were conducted to gain deeper insights into teachers' experiences and suggested interventions. Proper ethical procedures, including informed consent, confidentiality, and voluntary participation, were observed throughout the administration and retrieval of the instruments.

**Data Collection Procedure**

Upon securing approval from the Schools Division Office of Batangas Province and the Bauan East Sub-Office, the researcher presented letters to the Public Schools District Supervisor and to each school principal to request permission to distribute the questionnaires. Informed consent forms were signed by the respondents, and participation was entirely voluntary. Respondents were assured that their identities and responses would remain confidential. The questionnaires were distributed online via Google Forms over a period of one to two months. Retrieved responses were scored, counted, and statistically analyzed.

**Data Analysis**

The data collected from surveys and interviews were organized and analyzed according to the study's objectives using both quantitative and qualitative approaches. Descriptive statistics were used to describe teachers' digital competencies and technology integration practices, while inferential statistics were applied to determine significant relationships between variables. Specifically, weighted mean was used to determine the level of digital competencies and extent of technology integration, and ranking was used to identify the highest and lowest indicators within each domain and SAMR level. Pearson's r coefficient of correlation was used to assess the strength and direction of the relationship between digital competencies and technology integration, and to test for significant associations. In addition, interview responses were thematically analyzed to identify teachers' challenges and suggested interventions for enhancement activities.

# Results

1. **Level of Digital Competencies of Elementary Teachers**

**Table 2**

**Digital Competencies of Elementary Teachers in terms of Professional Engagement**

| | WM | Rank | Interpretation |
|---|---|---|---|
| 1. Use digital communication tools (e.g., email, messaging apps) to collaborate with colleagues. | 3.71 | 2.5 | Highly Competent |
| 2. Participate in online professional learning communities (e.g., Facebook groups, webinars, forums). | 3.53 | 6 | Highly Competent |
| 3. Use digital platforms to communicate with parents and guardians about student progress. | 3.71 | 2.5 | Highly Competent |

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| 4. Use technology to reflect on and improve my teaching practices. | 3.65 | 4 | Highly Competent |
| 5. Create and share digital resources with other teachers. | 3.75 | 2 | Highly Competent |
| 6. Use technology for my own continuous professional development. | 3.41 | 8.5 | Moderately Competent |
| 7. Observe and learn from other teachers' use of technology. | 3.82 | 1 | Highly Competent |
| 8. Use digital tools to organize my professional tasks and schedule. | 3.46 | 7 | Moderately Competent |
| 9. Contribute to school-wide digital initiatives. | 3.30 | 10 | Moderately Competent |
| 10. Confident in using digital badges or portfolios for my professional growth. | 3.41 | 8.5 | Moderately Competent |
| **Composite Mean** | **3.58** | | **Highly Competent** |

*Legend: 3.50- 4.00 Highly Competent, 2.50- 3.49 Moderately Competent, 1.50- 2.49 Slightly Competent, 1.0-1.49 Least Competent*

Table 2 presents the level of digital competencies of elementary teachers in terms of professional engagement. The composite mean of 3.58, interpreted as Highly Competent, indicates that teachers demonstrate strong digital competencies in professional collaboration and growth. The highest-rated item was observing and learning from other teachers' use of technology (3.82), suggesting that peer observation is a valued practice among teachers. The lowest-rated item was contributing to school-wide digital initiatives (3.30), indicating that while teachers are competent individually, they may be less involved in broader school-level digital transformation efforts.

**Table 3**
**Digital Competencies of Elementary Teachers in terms of Digital Resources**

| | WM | Rank | Interpretation |
|---|---|---|---|
| 1. Can effectively search for digital resources and information online. | 3.54 | 4.5 | Highly Competent |
| 2. Can critically evaluate the quality and credibility of digital resources. | 3.41 | 6.5 | Moderately Competent |
| 3. Can create and edit my own digital learning materials (e.g., presentations, videos, interactive exercises). | 3.59 | 3 | Highly Competent |
| 4. Know how to properly store and organize digital resources for easy access. | 3.54 | 4.5 | Highly Competent |
| 5. Aware of and respect copyright and licensing rules for digital content. | 3.41 | 6.5 | Moderately Competent |
| 6. Can troubleshoot basic technical problems with digital resources. | 2.88 | 10 | Moderately Competent |

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| 7. Use a variety of digital resources (e.g., e-books, educational apps, simulations) in my work. | 2.94 | 9 | Moderately Competent |
| 8. Can adapt existing digital resources to fit my students' needs. | 3.41 | 6.5 | Moderately Competent |
| 9. Feel confident using our school's online platforms (e.g., LMS like Google Classroom, Schoology). | 3.19 | 8 | Moderately Competent |
| 10. Protect my personal data and privacy when using digital resources. | 3.71 | 1 | Highly Competent |
| **Composite Mean** | **3.36** | | **Moderately** Competent |

*Legend: 3.50- 4.00 Highly Competent, 2.50- 3.49 Moderately Competent, 1.50- 2.49 Slightly Competent, 1.0-1.49 Least Competent*

Table 3 presents the level of digital competencies in terms of digital resources. The composite mean of 3.36 (Moderately Competent) indicates that teachers face challenges in managing and utilizing digital resources effectively. The highest-rated item was protecting personal data and privacy (3.71), showing that teachers are aware of online safety and digital citizenship. The lowest-rated item was troubleshooting basic technical problems (2.88), suggesting that technical issues remain a significant barrier, as teachers lack confidence in resolving common problems independently.

**Table 4**
**Digital Competencies of Elementary Teachers in terms of Teaching and Learning**

| *I use technology …* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. to present information in more engaging ways. | 3.47 | 6.5 | Moderately Competent |
| 2. to design learning activities that require students to use technology. | 3.55 | 3 | Highly Competent |
| 3. to differentiate instruction and cater to different learning styles. | 3.59 | 1.5 | Highly Competent |
| 4. to facilitate activities where students use technology to collaborate with each other. | 3.48 | 3.5 | Moderately Competent |
| 5. to support students' development of critical thinking and problem-solving skills. | 3.42 | 8.5 | Moderately Competent |
| 6. to connect my classroom learning to real-world situations. | 3.48 | 4.5 | Moderately Competent |

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| 7. to guide students on how to use technology responsibly and ethically. | 3.42 | 8.5 | Moderately Competent |
| 8. to manage classroom activities (e.g., timers, random name pickers). | 3.24 | 9 | Moderately Competent |
| 9. to create digital learning stations or centers in my classroom. | 3.20 | 10 | Moderately Competent |
| 10. to feel confident in managing a classroom where students are using digital devices. | 3.30 | 7 | Moderately Competent |
| **Composite Mean** | **3.42** | | **Moderately Competent** |

*Legend: 3.50- 4.00 Highly Competent, 2.50- 3.49 Moderately Competent, 1.50- 2.49 Slightly Competent, 1.0-1.49 Least Competent*

Table 4 presents the level of digital competencies in terms of teaching and learning. The composite mean of 3.42 (Moderately Competent) indicates that teachers are reasonably comfortable using technology for instruction but have room for growth. The highest-rated item was differentiating instruction for different learning styles (3.59), showing that teachers leverage technology to meet diverse student needs. The lowest-rated item was creating digital learning stations or centers (3.20), suggesting that logistical challenges and limited devices hinder the implementation of station-based instructional models.

**Table 5**
**Digital Competencies of Elementary Teachers in terms of Assessment**

| *I use technology …* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. to create quizzes and tests (e.g., Google Forms, Quizizz, Kahoot). | 3.13 | 9 | Moderately Competent |
| 2. to provide timely feedback to my students. | 3.47 | 3 | Moderately Competent |
| 3. to analyze student performance data to inform my teaching. | 3.64 | 1 | Highly Competent |
| 4. employ digital portfolios to track and showcase student progress over time. | 3.39 | 4 | Moderately Competent |
| 5. for formative assessment (e.g., exit tickets, polls) during lessons. | 3.15 | 8 | Moderately Competent |
| 6. to interpret data dashboards from educational software to understand student needs. | 3.29 | 6 | Moderately Competent |

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| 7. to facilitate peer-assessment among students. | 3.24 | 7 | Moderately Competent |
| 8. to create rubrics for assessing student work. | 3.19 | 10 | Moderately Competent |
| 9. feel comfortable using digital gradebooks. | 3.25 | 5 | Moderately Competent |
| 10. to communicate progress with students and parents. | 3.04 | 11 | Moderately Competent |
| **Composite Mean** | **3.28** | | **Moderately Competent** |

*Legend: 3.50- 4.00 Highly Competent, 2.50- 3.49 Moderately Competent, 1.50- 2.49 Slightly Competent, 1.0-1.49 Least Competent*

Table 5 presents the level of digital competencies in terms of assessment. The composite mean of 3.28 (Moderately Competent) is the lowest among the four domains, indicating that assessment is the area where teachers need the most support. The highest-rated item was analyzing student performance data to inform teaching (3.64), showing that teachers value data-driven instruction. The lowest-rated item was communicating progress with students and parents (3.04), suggesting that teachers primarily rely on traditional methods like paper report cards rather than digital tools for progress communication.

**2. Extent of Technology Integration of Elementary Teachers**

**2.1 Substitution.**

**Table 6**
**Extent of Technology Integration of Elementary Teachers in terms of Substitution**

| *When I use technology in my teaching ...* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. students type their assignments instead of writing them by hand. | 2.36 | 10 | Slightly Integrated |
| 2. I use a digital PDF worksheet instead of a paper copy. | 2.71 | 8 | Moderately Integrated |
| 3. students read from a digital textbook or PDF instead of a physical book. | 2.54 | 9 | Moderately Integrated |
| 4. I use a projector/Television to display notes instead of a chalkboard/whiteboard. | 3.71 | 2 | Highly Integrated |
| 5. students take an online multiple-choice quiz that is a direct copy of a paper quiz. | 2.78 | 6.5 | Highly Integrated |

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| 6. students use a basic calculator app instead of a physical calculator. | 2.59 | 7 | Highly Integrated |
| 7. I use a PowerPoint presentation to deliver a lecture. | 3.88 | 1 | Highly Integrated |
| 8. students look up definitions in a digital dictionary. | 2.67 | 5 | Moderately Integrated |
| 9. I print out materials I found online for students to use. | 3.44 | 3 | Moderately Integrated |
| 10. students submit their work via email. | 2.30 | 11 | Slightly Integrated |
| **Composite Mean** | **2.90** | | **Moderately Integrated** |

*Legend: 3.50- 4.00 Highly Integrated, 2.50- 3.49 Moderately Integrated, 1.50- 2.49 Slightly Integrated, 1.0-1.49 Least Integrated*

Table 6 presents the extent of technology integration at the substitution level. The composite mean of 2.90 (Moderately Integrated) indicates that teachers have successfully adopted basic digital tools. The highest-rated item was using PowerPoint to deliver lectures (3.88), showing that presentation software is the most common form of technology integration. The lowest-rated items were students typing assignments (2.36) and submitting work via email (2.30), both interpreted as Slightly Integrated, suggesting that digital workflow management is still developing and device access may be limited.

**2.2 Augmentation.**

**Table 7**
**Extent of Technology Integration of Elementary Teachers in terms of Augmentation**

| *When I use technology in my teaching ...* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. students use spell-check or grammar-check features in a word processor. | 2.71 | 8 | Moderately Integrated |
| 2. I use interactive quizzes with immediate feedback (e.g., Kahoot, Quizizz). | 2.72 | 7 | Moderately Integrated |
| 3. students use online graphic organizers or mind-mapping tools. | 2.77 | 5.5 | Moderately Integrated |
| 4. students use "speech-to-text" features to help with writing. | 2.63 | 10 | Moderately Integrated |

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| 5. I embed multimedia (images, short videos) in my presentations. | 3.54 | 1 | Highly Integrated |
| 6. students use cloud storage (e.g., google drive) to save and access their work from anywhere. | 2.61 | 9 | Moderately Integrated |
| 7. I use online polls or surveys to quickly gauge student understanding. | 2.95 | 3 | Moderately Integrated |
| 8. students use digital flashcards (e.g., quizlet) for studying. | 2.67 | 6 | Moderately Integrated |
| 9. I use a digital gradebook that automatically calculates averages. | 3.17 | 2 | Moderately Integrated |
| 10. students use a thesaurus tool to find synonyms and improve their writing. | 2.77 | 5.5 | Moderately Integrated |
| **Composite Mean** | **2.85** | | **Moderately Integrated** |

*Legend: 3.50- 4.00 Highly Integrated, 2.50- 3.49 Moderately Integrated, 1.50- 2.49 Slightly Integrated, 1.0-1.49 Least Integrated*

Table 7 presents the extent of technology integration at the augmentation level. The composite mean of 2.85 (Moderately Integrated) indicates that teachers are beginning to leverage functional improvements of digital tools. The highest-rated item was embedding multimedia in presentations (3.54), the only item at the Highly Integrated level, showing that teachers enhance lectures with visual elements. The lowest-rated item was using speech-to-text features (2.63) and cloud storage (2.61), suggesting that advanced augmentation tools are not yet widely utilized.

**2.3 Modification.**

**Table 8**
**Extent of Technology Integration of Elementary Teachers in terms of Modification**

| *When I use technology in my teaching ...* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. students collaboratively create a single document or presentation (e.g., on google docs/slides). | 2.64 | 8 | Moderately Integrated |
| 2. students create a video or podcast to demonstrate their understanding of a topic. | 2.63 | 9 | Moderately Integrated |
| 3. students engage in online discussions or forums to debate a topic. | 2.64 | 8 | Moderately Integrated |
| 4. students use digital tools to collect and analyze data for a project (e.g., creating graphs from surveys). | 2.78 | 4.5 | Moderately Integrated |

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|---|---|---|---|
| 5. I assign tasks where students give peer feedback through a shared digital platform. | 2.83 | 2 | Moderately Integrated |
| 6. students create a digital portfolio of their learning journey. | 2.81 | 3 | Moderately Integrated |
| 7. students use simulation software to explore a concept (e.g., a virtual science lab). | 2.57 | 10 | Moderately Integrated |
| 8. students blog or create online journals to reflect on their learning. | 2.70 | 6 | Moderately Integrated |
| 9. I use a "flipped classroom" model, where students watch lesson videos at home. | 2.82 | 1 | Moderately Integrated |
| 10. students connect with experts or other classrooms online (e.g., via video call). | 2.77 | 4.5 | Moderately Integrated |
| **Composite Mean** | **2.72** | | **Moderately Integrated** |

*Legend: 3.50- 4.00 Highly Integrated, 2.50- 3.49 Moderately Integrated, 1.50- 2.49 Slightly Integrated, 1.0-1.49 Least Integrated*

Table 8 presents the extent of technology integration at the modification level. The composite mean of 2.72 (Moderately Integrated) indicates that transformative practices are emerging but not yet widespread. The highest-rated item was assigning peer feedback through shared digital platforms (2.83), showing that teachers are redesigning traditional feedback processes. The lowest-rated item was using simulation software (2.57), suggesting that access to or training on simulation tools remains limited.

**2.4 Redefinition.**

**Table 9**
**Extent of Technology Integration of Elementary Teachers in terms of Redefinition**

| *When I use technology in my teaching ...* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. my students collaborate with students from another school/country on a shared project. | 2.53 | 8 | Moderately Integrated |
| 2. my students publish their work for a genuine audience (e.g., on a class website, YouTube channel). | 2.41 | 10 | Slightly Integrated |
| 3. my students use technology to solve a real-world problem in our community. | 2.81 | 4 | Moderately Integrated |
| 4. my students create a complex, multimedia-rich product (e.g., an interactive timeline, a virtual museum). | 2.71 | 6.5 | Moderately Integrated |

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| 5. my students engage in long-term, inquiry-based projects that are entirely coordinated and presented using digital tools. | 2.85 | 2 | Moderately Integrated |
| 6. my students use coding or game design to express their understanding of a subject. | 2.63 | 7 | Moderately Integrated |
| 7. my students participate in global, virtual events or competitions. | 2.69 | 5 | Moderately Integrated |
| 8. my students use AR/VR (Augmented/Virtual Reality) for immersive learning experiences. | 2.76 | 3 | Moderately Integrated |
| 9. my students analyze and contribute to large, real-world datasets (e.g., citizen science projects). | 2.51 | 9 | Moderately Integrated |
| 10. the learning outcomes of my class are fundamentally different and broader because of the technology we use. | 3.00 | 1 | Moderately Integrated |
| **Composite Mean** | **2.69** | | **Moderately Integrated** |

*Legend: 3.50- 4.00 Highly Integrated, 2.50- 3.49 Moderately Integrated, 1.50- 2.49 Slightly Integrated, 1.0-1.49 Least Integrated*

Table 9 presents the extent of technology integration at the redefinition level. The composite mean of 2.69 (Moderately Integrated) is the lowest among all SAMR levels, indicating that transformative integration is least common. The highest-rated item was agreement that learning outcomes are fundamentally different because of technology (3.00), showing that teachers perceive technology as transformative despite limited implementation. The lowest-rated item was publishing student work for a genuine audience (2.41), interpreted as Slightly Integrated, suggesting that concerns about privacy, safety, or lack of knowledge prevent authentic publishing opportunities.

**3. Relationship between the Assessments on the Teachers' Level of Digital Competencies and on the Extent of Technology Integration**

**Table 10**
**Relationship between the Level of Digital Competencies in terms of Professional Engagement and the Extent of Technology Integration of the Teachers**

| Variables | computed r-value | p- value | Decision on Ho | Verbal Interpretation |
|---|---|---|---|---|
| Substitution | 0.526 | < 0.001 | Reject | Significant |
| Augmentation | 0.490 | < 0.001 | Reject | Significant |

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|---|---|---|---|---|
| Modification | 0.573 | < 0.001 | Reject | Significant |
| Redefinition | 0.477 | < 0.001 | Reject | Significant |
| Overall | 0.545 | < 0.001 | Reject | Significant |

*Legend: All computed r-values are significant at p < .001.*

Table 10 shows that professional engagement is significantly correlated with technology integration (r=0.545, p<0.001). This indicates that teachers who actively engage in digital professional networks and collaborative practices tend to integrate technology more extensively across all SAMR levels.

**Table 11**
**Relationship between the Level of Digital Competencies in terms of Digital Resources and the Extent of Technology Integration of the Teachers**

| Variables | computed r-value | p- value | Decision on Ho | Verbal Interpretation |
|---|---|---|---|---|
| Substitution | 0.681 | < 0.001 | Reject | Significant |
| Augmentation | 0.644 | < 0.001 | Reject | Significant |
| Modification | 0.660 | < 0.001 | Reject | Significant |
| Redefinition | 0.587 | < 0.001 | Reject | Significant |
| Overall | 0.672 | < 0.001 | Reject | Significant |

*Legend: All computed r-values are significant at p < .001.*

Table 11 shows that digital resources competency is significantly correlated with technology integration (r=0.672, p<0.001). This indicates that teachers who are skilled in locating, evaluating, creating, and managing digital resources demonstrate higher levels of technology integration, particularly at substitution and modification levels.

**Table 12**
**Relationship between the Level of Digital Competencies in terms of Teaching and Learning and the Extent of Technology Integration of the Teachers**

| Variables | computed r-value | p- value | Decision on Ho | Verbal Interpretation |
|---|---|---|---|---|
| Substitution | 0.616 | < 0.001 | Reject | Significant |

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| | | | | |
|---|---|---|---|---|
| Augmentation | 0.547 | < 0.001 | Reject | Significant |
| Modification | 0.562 | < 0.001 | Reject | Significant |
| Redefinition | 0.380 | < 0.001 | Reject | Significant |
| Overall | 0.545 | < 0.001 | Reject | Significant |

*Legend: All computed r-values are significant at p < .001.*

Table 12 shows that teaching and learning competency is significantly correlated with technology integration (r=0.545, p<0.001). The moderate correlation with redefinition (r=0.380) suggests that pedagogical digital skills are important but other factors may influence transformative integration.

**Table 13**
**Relationship between the Level of Digital Competencies in terms of Assessment and the Extent of Technology Integration of the Teachers**

| Variables | computed r-value | p- value | Decision on Ho | Verbal Interpretation |
|---|---|---|---|---|
| Substitution | 0.802 | < 0.001 | Reject | Significant |
| Augmentation | 0.787 | < 0.001 | Reject | Significant |
| Modification | 0.795 | < 0.001 | Reject | Significant |
| Redefinition | 0.659 | < 0.001 | Reject | Significant |
| Overall | 0.795 | < 0.001 | Reject | Significant |

*Legend: All computed r-values are significant at p < .001.*

Table 13 shows that assessment competency has the strongest significant correlation with technology integration (r=0.795, p<0.001). This indicates that digital assessment literacy is the most critical predictor of overall technology integration. The very high correlations with substitution (0.802), augmentation (0.787), and modification (0.795) suggest that improving teachers' ability to use technology for assessment may have the greatest impact on advancing integration practices.

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**4. Challenges Experienced by Elementary Teachers in Integrating Technology in Teaching**

**Table 14**
**Challenges Experienced by Elementary Teachers in Integrating Technology in Teaching**

| *Indicators* | **WM** | **Rank** | **Interpretation** |
|---|---|---|---|
| 1. My school has sufficient technological devices (e.g., computers, tablets) for my students to use. | 2.64 | 10 | Agree |
| 2. The internet connection in our school is reliable and fast enough for my teaching needs. | 3.12 | 6 | Agree |
| 3. I have access to prompt and effective technical support when I encounter problems. | 2.99 | 8 | Agree |
| 4. I have adequate time to plan lessons that effectively integrate technology. | 3.16 | 4.5 | Agree |
| 5. I have received comprehensive professional training on how to integrate technology in my teaching. | 3.17 | 3 | Agree |
| 6. I feel confident in my ability to use technology for instruction. | 3.22 | 2 | Agree |
| 7. I feel equipped to manage student use of technology and keep them on task. | 3.05 | 7 | Agree |
| 8. I have access to a wide variety of high-quality educational software and digital content. | 3.21 | 4.5 | Agree |
| 9. My curriculum allows for the creative use of technology beyond test preparation. | 3.11 | 5 | Agree |
| 10. I feel well-informed and supported in ensuring student data privacy and online safety. | 3.39 | 1 | Agree |
| **Composite Mean** | **3.11** | | **Agree** |

*Legend: 3.50- 4.00 Strongly Agree, 2.50- 3.49 Agree, 1.50- 2.49 Disagree, 1.0-1.49 Strongly Disagree*

Table 13 presents the challenges experienced by elementary teachers in integrating technology. The composite mean of 3.11 (Agree) indicates that teachers acknowledge experiencing these challenges at a moderate level. The highest-rated item (least challenging) was feeling well-informed and supported in data privacy and online safety (3.39), showing that this is an area of strength. The lowest-rated item (most challenging) was insufficient technological devices for student use (2.64), indicating that lack of devices is the most significant barrier to technology integration. Other notable challenges include inadequate technical support (2.99) and limited planning time (3.16). The null hypothesis is rejected across all domains, confirming significant relationships between digital competencies and technology integration.

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## 1. Proposed Enhancement Activities

**Project DIGITEACH Digital Literacy and Technology Integration Enhancement Program for Elementary Teachers**

**Activity 1: DIGI-Exit (Digital Exit Tickets)**
**Title: DIGI-Exit (Digital Exit Tickets)**
**Objective:**To improve teachers' use of digital formative assessment tools inside the classroom.
**Expected Outcome:** Teacher creates and administers at least 1 digital exit ticket per week. Improvement in identifying student misconceptions within 24 hours.

**Activity 2: COLLAB-Docs (Peer Feedback Using Google Docs)**
**Title: COLLAB-Docs (Peer Feedback Using Google Docs)**
**Objective**: To move technology integration from Substitution to Modification by redesigning the traditional writing feedback process.
**Expected Outcome:** Each student receives feedback from at least 2 peers per writing assignment. Students demonstrate improvement in writing based on peer feedback.

**Activity 3: QUIZ-One (One-Question Kahoot at Start of Class)**
**Title: QUIZ-One (One-Question Kahoot at Start of Class)**
**Objective:** To increase teachers' use of gamified digital assessment tools, addressing low quiz creation skills.
**Expected Outcome:** Teacher creates 1 quiz per day (5 per week). Student response data is used to adjust instruction at least 3 times per week.

**Activity 4: PAD-let Wall (Digital Vocabulary Wall Using Padlet)**
**Title: PAD-let Wall (Digital Vocabulary Wall Using Padlet)**
**Objective:** To increase teachers' use of varied digital resources by transforming a static word wall into an interactive, collaborative digital wall.
**Expected Outcome:** Students demonstrate improved vocabulary retention on assessments. All 5 weekly vocabulary words are documented on Padlet with definition, sentence, and image.

**Activity 5: REFLECT-3-2-1 (Digital Reflection Using Google Forms)**
**Title REFLECT-3-2-1 (Digital Reflection Using Google Forms)**
**Objective:** To improve teachers' use of technology for formative assessment and progress communication with parents.
**Expected Outcome:** Teacher collects reflections daily. Data is reviewed weekly. Parent communication includes student reflections at least once per quarter.

**Activity 6: STORY-Collab (Collaborative Story Writing Using Google Slides)**
**Title STORY-Collab (Collaborative Story Writing Using Google Slides)**
**Objective:** To advance technology integration from Substitution/Augmentation to Modification level through collaborative multimedia creation.
**Expected Outcome:** Each group contributes 2-3 slides to the class story. The final story includes text, images, and optionally audio. The story is shared with an audience beyond the teacher.

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**Activity 7: PLICK-It (Classroom Response Using Plickers)**
**Title: PLICK-It (Classroom Response Using Plickers)**
**Objective:** To conduct digital assessment even when devices for students are insufficient, addressing the most strongly agreed challenge.
**Expected Outcome:** Teacher uses Plickers at least 3 times per week. Teacher makes instructional decisions based on Plickers data. All students participate regardless of device availability.

**Activity 8: CHAT-Minute (Minute Paper Using Chat Feature)**
**Title:CHAT-Minute (Minute Paper Using Chat Feature)**
**Objective:** To improve classroom management during technology use and engage all students simultaneously, especially shy or reluctant participants.
**Expected Outcome:** Every student participates in at least 1 chat response per day. Teacher uses chat responses to adjust instruction at least 3 times per week.

**Activity 9: TIMER-Picker (Digital Timers and Random Name Pickers)**
**Title: TIMER-Picker (Digital Timers and Random Name Pickers)**
**Objective:** To build teacher confidence in using technology for classroom management, addressing moderate confidence.
**Expected Outcome:** Teacher uses timers for at least 3 transitions per day. Teacher uses random name picker for at least 5 call-ons per day. Students respond to timer signals without reminders.

**Activity 10: AUDIO-Fluency (Audio Recordings for Reading Fluency)**
**Title:AUDIO-Fluency (Audio Recordings for Reading Fluency)**
**Objective:** To increase use of varied digital resources for assessment and feedback, particularly for reading and language development.
**Expected Outcome:** Each student completes 2 recordings per week. Students demonstrate improved fluency scores over 4 weeks. Teacher provides voice feedback to at least 5 students per week.

## 4. Discussion

The findings revealed that elementary teachers demonstrated high competency in professional engagement but only moderate competency in digital resources, teaching and learning, and assessment. Teachers operated primarily at the substitution and augmentation levels of the SAMR model rather than modification and redefinition, indicating that technology is mostly used to digitize traditional tasks rather than transform learning. The strongest correlation between assessment competency and technology integration suggests that improving digital assessment literacy may have the greatest impact on advancing overall integration. The primary challenges were insufficient devices, inadequate technical support, and limited planning time.

These findings align with Gacayan, who found a gap between perceived and actual digital competencies among Philippine teachers, and with Barte, who identified infrastructure

limitations as major barriers in Philippine schools. However, the integration levels in Bauan East are slightly lower than reported in urban Philippine studies, reflecting the digital divide between provincial and metropolitan schools.

School administrators may prioritize digital assessment literacy in professional development and consider peer-mentoring models given teachers' strength in peer observation. District officials should advocate for increased technology infrastructure funding and dedicated technical support personnel. Teachers may form professional learning communities focused on digital assessment and resource management.

The study limitations include reliance on self-reported data subject to social desirability bias, limited generalizability to other contexts, inability to control for external factors like infrastructure, cross-sectional design, and measurement of perceived rather than observed practices.

## 5. Conclusion

This study assessed the digital competencies and technology integration practices of 112 elementary teachers in Bauan East Sub-Office, Schools Division of Batangas Province. The findings revealed that teachers demonstrated high competency in professional engagement but only moderate competency in digital resources, teaching and learning, and assessment. Technology integration was moderate across all SAMR levels, with teachers primarily operating at the enhancement stage of substitution and augmentation rather than the transformation stage of modification and redefinition. Significant positive correlations were found between all digital competency domains and technology integration, with assessment competency showing the strongest relationship. The primary challenges identified were insufficient devices for student use, inadequate technical support, and limited planning time. The null hypothesis was rejected, confirming that higher digital competency is associated with greater technology integration.

Based on these findings, future researchers may conduct longitudinal studies to track changes in teachers' digital competencies over time, particularly in response to the implementation of enhancement plans like Project DIGITEACH. Comparative studies between urban and rural districts are recommended to further understand the digital divide in Philippine basic education. Additionally, researchers may investigate the relationship between teacher digital competencies and student learning outcomes to establish direct impact on academic achievement.

For implementation, school administrators may implement Project DIGITEACH activities prioritizing digital assessment literacy through activities such as DIGI-Exit, QUIZ-One, and REFLECT-3-2-1. The Public School District Supervisor and Curriculum Planning Committee may review the proposed enhancement activities for approval and possible implementation. The Schools Division Office may use the findings to advocate for increased funding for technology infrastructure, particularly device acquisition and internet connectivity improvements. Teachers may leverage their existing strength in professional engagement by actively participating in professional learning communities, peer observations, and collaborative

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resource sharing, while seeking basic troubleshooting training to build confidence in resolving common technical issues independently.

**References**

Aldossary, M. (2022). Challenges in technology integration: A meta-analysis of teacher barriers. *Journal of Educational Computing Research*, 60(4), 987-1010.

Almerino, P. M., et al. (2022). Mapping the terrain of 21st-century digital literacy frameworks in teacher education. *International Journal of Instruction*, 15(3), 45-62.

Barte, R. M. (2023). Infrastructure and equity: A study of technology access in Philippine schools. *Asia Pacific Education Review*, 24(1), 123-145.

Cheng, L., et al. (2023). Project-based learning and immersive technologies: Redefining the classroom experience. *Computers & Education*, 190, 104810.

Gacayan, P. Y. (2022). Perceived vs. actual: A comparative study of Philippine teachers' digital literacy skills. *Journal of Educational Technology*, 18(2), 55-78.

Hamilton, E. R., et al. (2021). The SAMR model in practice: A decade of implementation and research. *Journal of Research on Technology in Education*, 53(3), 253-273.

Hamilton, E., & Rosenberg, J. (2022). The SAMR model as a framework for evaluating technology integration in education. In *Handbook of Research on Transforming Teachers' Online Pedagogical Reasoning* (pp. 1-22). IGI Global.

Pinto, M., & Leite, C. (2021). Digital resources in education: A framework for critical evaluation and creative production. *Journal of New Approaches in Educational Research*, 10(2), 231-247.

Scherer, R., et al. (2021). The role of teachers' beliefs, self-efficacy, and technology use in effective technology integration. *Computers & Education*, 173, 104264.

Tondeur, J., et al. (2022). Epistemological beliefs and teacher technology integration: A longitudinal study. *Teaching and Teacher Education*, 109, 103555.

Trust, T., & Pektas, E. (2022). From tool to transformation: The role of coaching in teacher technology integration. *Journal of Digital Learning in Teacher Education*, 38(1), 32-48.

Trust, T., & Prestridge, S. (2021). The rise of the teacherpreneur: How professional learning networks empower educators. *Professional Development in Education*, 47(2-3), 201-216.

UNESCO. (2023). *UNESCO ICT competency framework for teachers* (Version 3.0). United Nations Educational, Scientific and Cultural Organization.

Vaughn, M., & Novak, J. (2023). Digital assessment literacy: Empowering teachers and students through data-driven feedback. *Journal of Formative Design in Learning*, 7(1), 15-29.