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Teachers' Digital Literacy Skills and Their Impact On Learners' Classroom Engagement In Cabiao, Nueva Ecija

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Abstract

This study examined the relationship between teachers' digital literacy skills and their learners' classroom engagement in four selected public elementary schools in Cabiao, Nueva Ecija. In today's digital age, the teachers' ability to effectively integrate digital resources significantly contributes to learners' engagement and a stimulating classroom environment. Using a descriptive quantitative research design, the study surveyed 96 elementary school teachers through a structured questionnaire. The study focused on four dimensions of engagement: instructional, social, collaborative, and resilience.

Results showed that educators mainly possessed a high level of digital literacy, especially in using commonly accessible platforms such as Facebook, Messenger, PowerPoint, and Microsoft Word. However, tools like SurveyMonkey and bubbl.us are less frequently used, indicating gaps in training on lesser-known digital tools. The findings also showed a significant positive correlation between teachers' digital literacy and learners' classroom engagement. The Teachers who demonstrated strong digital proficiency appeared a higher level of student participation, motivation, and collaboration.

The study underlines the importance of strengthening teachers' digital skills by targeted professional development programs. Developing these skills can improve learner's classroom engagement and surely lead to more effective teaching and learning.

Article Info

Keywords:
Polytechnic University of the Philippines–Cabiao Campus, Bachelor in Elementary Education, digital literacy skills, instructional, Social, Collaborative, Resilience Engagement

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INTRODUCTION

In the rapidly growing digital era, the integration of technology into classrooms became important. For teachers, being digitally literate became a key factor in creating engaging and interactive learning experiences for their students. This was especially important in primary education, where children built their foundational skills. When teachers were adept at using digital tools, it not only improved the quality of their instruction but also helped to actively involve and engage students in their learning journey. This connection between technology and teaching made a significant difference in how young learners approached and acquired new information.

This study focused on the digital literacy of teachers and its impact on learners' classroom engagement in Cabiao, Nueva Ecija. As educational practices continued to evolve, it was important to recognize how teachers' digital skills contributed to student engagement, motivation, and interaction. Although there was growing recognition of the importance of digital competence in teaching, limited research had examined how such skills directly affected learner engagement in actual classroom settings.

Despite studies highlighting the importance of teachers' digital literacy, there was a gap in understanding how these skills impacted student engagement. Research by Babatunde (2024) showed the role of digital literacy in shaping learning outcomes, but few studies addressed its effect on student participation, motivation, and attention. While studies suggested that technology improved learning, they did not explore how teachers' ability to integrate digital tools affected student engagement. The results of this study aimed to contribute to the improvement of teachers' digital literacy skills in instruction and served as a useful reference for educators and future researchers. This gap presented an opportunity to examine the impact, particularly in Cabiao. To ensure the study's legitimacy, proper permission to conduct the research was obtained from the school authorities in Cabiao, Nueva Ecija.

LITERATURE REVIEW

Teachers' digital literacy has been validated as a crucial 21st-century competency, empowered educators to integrate technology effectively into instruction and promote interactive learning environments. Frameworks of European DigCompEdu highlights the progressive skill levels that guide teachers in developing professional engagement, digital resource use, and technology-enabled assessment (Redecker, 2017). It show that the higher digital competence of teachers leads to more creative, engaging, and student-centered instruction, although a gaps remain in use of less familiar tools, showing the need for continual professional development (Mattson and Curran, 2018; Sánchez-Cruzado et al., 2021). Classroom engagement, enclosing cognitive, behavioral, emotional, and social dimensions, is strongly linked to student achievement (Fredricks et al., 2004). Theories such as Self-Determination Theory and Engagement Theory explained how autonomy, competence, and relatedness contribute to sustained participation and motivation (Deci & Ryan, 1985; Kearsley & Shneiderman, 1998). The used of technology with teaching pedagogy has been shown to enhance engagement dimensions by promoting collaboration, interactivity, and resilience (Landers, 2014; Cooper et al., 2014).

METHODOLOGY

Our research design in the form of a descriptive approach is meant to effectively assess how teachers' online literacy abilities affect students' classroom participation in Cabiao, Nueva Ecija. The design is organized into the following major stages:

1. Objective Definition

The primary objective of this study was to understand the relationship between teachers' digital literacy skills to learners' classroom engagement in the four selected public elementary schools in Cabiao, Nueva Ecija. This also persued to assess teachers' proficiency in utilizing different digital tools and platforms, and to examine how these skills influenced the four dimensions of classroom engagement: instructional, social, collaborative, and resilience. The study aimed to identify strengths and gaps in teachers' digital skills, and provide evidence of their impact on learners participation and motivation, and provide recommendations for increasing the integretion of technology to foster more interactive and effective learning environments.

2. Scenario Development

This study was take place in four randomly selected public elementary schools in Cabiao, Division of Nueva Ecija: San Roque Elementary School, Sta. Rita Elementary School, Concepcion Elementary School, and San Vicente Elementary School. These public elementary schools were chosen using a random selection method to ensure fairness and representation across the district. The total number of respondents were 96 ,they are all teachers from the selected schools, representing various grade levels and subject areas. The research context reflects a setting where technology integration in teaching is increasingly necessary, while teachers' digital skills are vary. Although many educators are proficient in commonly used platforms like Facebook Groups, Messenger, Microsoft Word, and PowerPoint, but only fewer are familiar with tools like SurveyMonkey, Google Slides, and bubbl.us. This variation provided an opportunity to examine how differing levels of digital literacy affect learners' engagement. The scenarios manage the study included classroom practices that strengthen digital tools to support deliveration of instruction, encourage collaboration, strengthen social interaction, and build learners' resilience through overcoming challenges.

3. Setup and Configuration

In a four randomly selected public elementary schools in Cabiao. A total of 96 public elementary teachers were selected using quota sampling was used by the researchers in determining the number of teacher respondents from each school. Data were gathered using a researcher-made questionnaire validated by experts in educational research. The instrument had three parts: demographic profile, teachers' digital literacy skills, and learners' engagement in cognitive, behavioral, emotional, and social dimensions. A six-point Likert scale(1-Newcomer to 6-Pioneer) and a five-point Likert scale (1–Strongly Disagree to 5–Strongly Agree) was used to measured responses, and reliability testing using JAMOVI software yielded a Cronbach's alpha of 0.87, indicating high internal consistency. Permissions to conduct the study were granted by Dr. Ronaldo A. Pozon, Division Superintendent of Nueva Ecija, Dr. Noemi C. Sagcal, District Supervisor, and all participating school principals. Ethical clearance was secured from the University Research Ethics Committee. Parental consent and school approval ensured that student rights and privacy were protected.

4. Step-by-Step Execution

The extensive examination adhered closely to the methodical directions so as to assure validity and clarity. Initially, the researchers collaborated with the scholastic leadership to orchestrate data aggregation occasions and to obtain the fundamental authorizations. The chosen respondents were then furnished with the survey questionnaire individually amid ordinary class hours subsequent to getting clear directions. The researchers were available to help the respondents and gave some opportunity to answer the study questionnaire.To avoid data loss or modification, completed questionnaires were promptly retrieved. After that, the data was encoded and ready for statistical analysis, with an emphasis on the relationship between teachers digital literacy skills and each engagement dimensions.

5. Data Collection

Primary data were obtained from the completed questionnaires, while secondary information, such as school profiles, provided contextual background. The researchers recorded weighted mean scores for each engagement dimension and calculated Pearson's r correlation coefficients with corresponding p-values to assess statistical significance. Data collection adhered to ethical standards, ensuring accuracy, completeness, and confidentiality.

6. Evaluation and Iteration

The data analysis revealed significant positive correlations between the respondents' digital literacy and all four engagement dimensions: learners' instructional ($p = .002$), social ($p < .001$), collaborative ($p = .001$), and resilience ($p < .001$) engagement. This suggests that higher levels of teachers' digital literacy contribute to improved student participation, motivation, peer interaction, and adaptability in classroom activities. These findings align with prior studies and inform the development of recommendations tailored to different resource availabilities and learner needs.

7. Conclusion and Next Steps

The demonstration concluded with reflections on the significance of the research and its instructional implications. Teachers' digital literacy skills such as proficiency in educational technology, digital content creation, online collaboration, and multimedia integration received ratings "Strongly Agree" across all dimensions of learners' engagement. Statistical analysis revealed significant positive correlations between teachers' digital literacy and learners' instructional, social, collaborative, and resilience engagement. These findings confirm that higher digital literacy among teachers contributes to increased participation, motivation, peer collaboration, and adaptability in the classroom. The results also highlight the need to strengthen digital literacy alongside other evidence-based teaching strategies to address diverse learning styles and promote inclusivity. Recommendations include regularly incorporating technology-enhanced learning activities, utilizing both advanced and low-tech tools to suit varying resource contexts, and fostering opportunities for collaboration and interactive learning. The report further calls for sustained professional development in digital pedagogy and partnerships with educational organizations and local government units to support technology integration, resource development, and the wider implementation of digital literacy practices in schools.

RESULTS & DISCUSSION

(Present findings and their interpretation, comparing with other studies.)

Teachers in selected public elementary schools in Cabiao, Nueva Ecija exhibited a high level of digital literacy (WM = 4.26, Leader), excelling in commonly used tools such as Facebook Groups, Messenger, PowerPoint, and Microsoft Word, while showing lower proficiency in platforms like SurveyMonkey and bubbl.us. Integration of digital tools was perceived to significantly enhance learners' instructional (WM = 4.63), social (WM = 4.59), collaborative (WM = 4.57), and resilience (WM = 4.54) engagement. Pearson correlation analysis confirmed a significant positive relationship ($p < 0.05$) between teachers' digital literacy and all engagement dimensions, indicating that higher digital competence fosters more engaged, motivated, and adaptable learners. These findings support earlier research (Fredricks et al., 2004; Sánchez-Cruzado et al., 2021; Vidal et al., 2022) highlighting the role of digital skills as both a technical and pedagogical asset and suggest targeted training in less familiar tools to further enhance classroom engagement.

CONCLUSION

Elementary teachers in Cabiao Nueva Ecija exhibit a high level of digital literacy. This proficiency significantly impacts learners' engagement across instructional, social, collaborative, and resilience domains. The study highlights the need for ongoing training and development in both common and emerging digital tools to further enhance educational outcomes.

RECOMMENDATIONS

Teachers must continue enhancing their digital literacy skills by exploring and integrating more advanced, interactive, and student-centered digital tools. Teachers shall undergo regular training in educational technology to ensure they can implement diverse digital strategies that support different types of learner engagement. Future researchers must conduct more in-depth studies over time to better understand how teachers' digital skills impact learners' classroom engagement. They should also look into other factors like school facilities, students' digital readiness, and specific tools used in different subjects to get a fuller picture of digital learning in schools.

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