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Teachers' Instructional Proficiency and Digital Literacy

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Abstract. This study determined the teachers' levels of competencies in terms of digital literacy and subject mastery. It utilized a descriptive quantitative research design and was conducted among four elementary schools located in Bongao Municipality. The respondents were the teachers handling English subjects. The researchers developed a survey questionnaire, which was pilot tested for reliability using Cronbach's Alpha. The questionnaire had a reliability coefficient of .91, which was highly acceptable. Percentage and weighted mean were used to analyze the demographic profile of the teachers. Spearman correlation was used to determine the significant relationships among variables. The study revealed that there is a significant relationship between the demographic profile of the teachers and their subject mastery and digital literacy. Researchers concluded that teachers were very highly competent in both subject mastery and digital literacy. Furthermore, teachers can still be provided with ongoing professional development opportunities to enhance their skills.

Keywords: Digital literacy; Digital competence; English subject teachers; Instructional proficiency; Teaching competence.

1.0 Introduction

Digital literacy contains a broad range of skills related to the use of technology that are defined in different ways by various entities. Until a more universal understanding exists and agreement for how to define digital literacy skills has been determined, professional learning opportunities for teachers that translate into positive classroom experiences for students will continue to bring equity issues to PK-12th grade education (Erwin & Mohammed, 2022). The increasing reliance on digital tools in education has transformed traditional teaching methods, making it imperative for educators to be proficient in using technology to enhance student learning (Ottenbreit-Leftwich, 2019).

English instruction benefits greatly from technology integration, particularly in areas such as language development, reading comprehension, and communication skills (Warschauer, 2020). Research has shown that digital tools like learning management systems, online collaboration platforms, and multimedia applications can significantly improve student engagement and motivation (Mishra & Koehler, 2006; Hew & Brush, 2017). However, despite the advantages of digital literacy in education, many teachers still face challenges in adopting and utilizing technology effectively in their classrooms (Howard et al., 2021; Tondeur et al., 2018). Bongao schools

consist of a diverse population to include Sama-Bajau, Tausug, and other ethnic groups. With this, teachers are expected to be proficient in adapting their instructional methods to accommodate students from different linguistic and cultural backgrounds. While urban centers in the Philippines have integrated digital tools into education, Bongao faces connectivity challenges. Teachers struggle with internet reliability, limiting their access to online resources, training, and digital tools. They primarily use Excel, PowerPoint, Google Classroom, and other basic digital platforms. The Ministry of Basic, Higher, and Technical Education (MBHTE), SUCs, and other local organizations offer training programs and workshops on digital literacy, but consistent hands-on practice and access to updated digital tools remain crucial for improvement.

Thus, while many studies on digital literacy and instructional proficiency focus on secondary or higher education teachers, this study specifically examines elementary school teachers handling English, providing insights into their unique challenges and strengths. Furthermore, this can contribute valuable data on teachers' competencies specifically in the municipality of Bongao. This helps in understanding how contextual factors, such as resources and training availability, impact teachers' digital literacy and subject mastery.

This study aims to assess the instructional proficiency of English teachers in relation to their digital literacy competence. Specifically, it examines their ability to integrate digital tools into teaching, their familiarity with various educational technologies, and the challenges they encounter in utilizing digital resources. Gudmundsdott, et al. (2020) mentioned that the ability of teachers to integrate technology into their instruction is influenced by various factors, including their age, years of teaching experience, and level of education. Thus, the study explores the relationship between demographic factors—such as age, years of teaching experience, and educational attainment—and teachers' digital literacy skills. The findings will provide valuable insights into the current state of technology integration in English instruction and highlight areas where professional development and institutional support are needed (Castañeda & Williamson, 2021; Kimmons, 2020).

By investigating the link between instructional proficiency and digital literacy, this study seeks to contribute to the ongoing efforts to enhance teacher training programs, promote technology-driven teaching strategies, and ultimately improve the quality of English language instruction in schools (OECD, 2019; Teo et al., 2019). The results will serve as a foundation for developing policies and interventions that foster digital competence among educators, ensuring that they are well-equipped to meet the demands of 21st-century education.

2.0 Methodology

2.1 Research Design

The study employed a descriptive-quantitative design to assess teachers' level of digital literacy, which was measured using numerical data. This data was collected through surveys and questionnaires to ensure accuracy and reliability.

2.2 Research Locale

This study was conducted among four (4) elementary schools that are under the supervision of the Ministry of Basic, Higher, and Technical Education (MBHTE). These schools are as follows: Tubig Mampallam Central School, Salamat Elementary School, Datu Halun Laboratory School, and Yusop Dais Elementary School. Tubig Mampallam Central School is located at Brgy. Tubig Mampallam, Salamat Elementary School is located in Bongao Poblacion; Datu Halun Laboratory School is located in the DepEd compound; while Yusop Dais is located in Sanga-Sanga. All these schools are within the municipality of Bongao.

2.3 Research Participants

The respondents of this study were twenty-eight (28) English teachers handling English subjects in the respective schools. There were 6 English teachers in Tubig Mampallam Central School, 8 English teachers in Salamat Elementary School, 8 English teachers in Datu Halun Laboratory School, and 6 English teachers in Yusop Dais Elementary School. The researchers employed criterion-based purposive sampling since only English teachers handling English subjects from grades 1 to 6 were the selected respondents of the study.

2.4 Research Instrument

A researcher-made survey questionnaire was used in this study. It is divided into two parts, with the first part about the socio-demographic profile of the teachers, including age, years of teaching, and highest educational attainment, and the second part consists of statements that determine their level of digital literacy. It was pilot tested for reliability analysis using Cronbach's Alpha, and the instrument had a reliability coefficient of .91, which was highly acceptable.

2.5 Data Gathering Procedure

The researchers pilot tested the questionnaire at Panglima Arasia Elementary School. The teachers were given 1 week to answer the questionnaire. After retrieval, the researchers consulted a statistician for the validation of the items. Upon validation of the instrument, letters were forwarded to the principals of the four (4) schools for approval to conduct. After the request was granted, the researchers coordinated with the teachers at the concerned schools. The questionnaire was administered among the English teachers. They were given 2 weeks to answer. After which, the data was collected, tabulated, computed, and analyzed.

2.6 Ethical Considerations

This research study followed ethical guidelines. This study adhered to ethical research principles to ensure the rights, privacy, and well-being of all participants were protected. Before participation, teachers were provided with a clear explanation of the study's purpose, objectives, and procedures. They were required to sign an informed consent form, ensuring they voluntarily agreed to participate. Moreover, they were also informed that their participation was completely voluntary, and they could withdraw anytime. After retrieval of the questionnaires, all collected data was kept confidential and was stored securely, ensuring that only the researchers could have access to the data. Lastly, the responses of the teachers were used solely for academic purposes, and results were presented objectively without misrepresentation.

3.0 Results and Discussion

3.1 Profile of the Participants

Table 1 shows that most respondents fall within the 30–40 years old category. This suggests that a significant portion of the teachers are in the middle stage of their careers, likely to possess a balance of experience and energy for professional growth. Meanwhile, 42.86% of respondents are aged 41 and above, indicating a substantial number of seasoned educators with extensive experience in the field. This group likely plays a crucial role in mentoring younger teachers and holding leadership positions. Moreover, fewer early-career teachers are present in this study. This could suggest challenges in attracting younger individuals into the profession or indicate that teaching is more commonly pursued as a long-term career by those who have already gained experience in other roles. This finding is similar to the study of Francisco (2020), where she found that among 37 teacher respondents, 40.5% of teachers were aged 20-30, 48.7% were 31-40, and 10.8% were 41-60 years old.

Table 1. *Teachers' Demographic Profile*

Demographic Profile	Category	Frequency	Percentage
Age	30 years old or below	3	10.71%
	30-40 years old	13	46.43%
	41-above	12	42.86%
Years of Teaching	10 years or below	11	39.28%
	11-20 years	8	28.57%
	21 years and above	9	32.14%
Highest Educational Attainment	Baccalaureate	4	14.29%
	with Master's Units	9	32.14%
	Master's Degree	15	53.57%

For the years in teaching, 39.28% of teachers who responded have teaching experience of 10 years and below, which shows a significant proportion of the respondents who are new in teaching. The presence of a good number of teachers in the 30 to 40-year-old age category confirms the above findings, as this age group is likely to have entered this profession. A total of 28.57% have 11–20 years of experience, showing a cluster of mid-career teachers possessing strong instructional skills and pedagogical knowledge. The fact that 32.14% of respondents have 21 years or more experience in teaching shows that almost one-third of the teachers are highly experienced. This

aligns with professionals aged 41 and above, once again confirming the presence of long-term professionals in the sector.

3.2 Teachers' Digital Literacy Competence

Table 2 present the teachers' skills in using technology for teaching, measured by their self-reported ability to use various technologies and teaching techniques. A mean score was obtained for each level of competency, and they were categorized as Very Highly Competent (4.21–5.00), Highly Competent (3.41–4.20), Averagely Competent (2.61–3.40), and Less Competent (1.00–2.60). The teachers, as a whole, are highly competent at the use of technology for education with an overall mean score of 3.53.

Table 2. *Teachers' Digital Literacy Competence*

	Statement	Mean	Interpretation
1	Integrate the use of laptops as instructional aids.	3.29	Averagely Competent
2	Using interactive teaching materials like cellphones and laptops enhances my ability to deliver lessons effectively.	4.32	Very Highly Competent
3	Utilize technology tools to analyze data and generate reports.	4.21	Very Highly Competent
4	Design worksheets for students to complete after watching educational videos.	3.36	Averagely Competent
5	Incorporate projectors and PowerPoint presentations in my lessons.	2.57	Less Competent
6	Open to learning and exploring new technologies to enhance the teaching-learning process.	4.11	Highly Competent
7	Permit pupils to use mobile phones in class, particularly for research and definition-related activities.	2.43	Less Competent
8	Incorporate audiovisual aids into my teaching.	2.96	Averagely Competent
9	Encourage my fellow teachers to adopt and utilize new technological tools in their instruction.	3.68	Highly Competent
10	Integrate platforms like Kahoot and Canva into my teaching strategies.	2.71	Averagely Competent
11	Familiar with connecting to wireless networks such as Starlink and Globe.	4.64	Very Highly Competent
12	Adapt to new technologies with ease.	4.14	Highly Competent
13	Stay updated on significant technological advancements.	4.00	Highly Competent
14	Use Flip and Prezi to engage my students in learning.	2.50	Less Competent
15	Apply Microsoft applications such as Word, Excel, and PowerPoint for assessments and evaluations.	4.04	Highly Competent
Overall Mean		**3.53**	**Highly Competent**

Several areas received a "Very Highly Competent" rating, indicating exceptional skill of the teachers in these areas. Teachers use technology tools to analyze data and generate reports (4.21). This indicates that teachers have good knowledge of technological applications to process information and document their findings.
Teachers seem aware of how to connect with wireless Starlink and Globe (4.64). Since this item was rated much higher than the others, it appears teachers know well how to connect to the Internet for teaching purposes. The competencies indicate that teachers have a high level of expertise in using technology to process data, deliver lessons, and connect to the internet for instructional purposes.

However, as shown in the table, three areas require the most improvement, categorized as "Less Competent": using projectors and PowerPoint (rated 2.57), allowing student mobile phone use for research (2.43), and incorporating Flip and Prezi into lessons (2.50). These low ratings suggest a need for professional development and training to improve teacher competency in these areas, as these tools have the potential to enhance student engagement. The low PowerPoint score may also indicate limited access to projectors. The low mobile phone score likely reflects concerns about misuse or a lack of effective integration strategies. Finally, the scores for Flip and Prezi suggest unfamiliarity or lack of use with these platforms.

This finding is supported by the study of Mattson and Lindsey (2021), which determined that teachers have confusion about what digital citizenship entails and that there are limited high-quality materials available to prepare teachers to teach these concepts at all grade levels. By providing teachers with curriculum materials that engage students in the learning process and support teachers' needs for implementation, digital literacy skills are more likely to be included in the classroom learning experience.

3.3 Relationship between the Profile of Teachers and their Digital Literacy Competency

Table 3 presents the correlation between demographic variables (age, years of teaching, and highest educational attainment) and digital literacy competency using Spearman's rho correlation coefficient (ρ). The interpretation is based on the strength of correlation, statistical significance (p-value), and whether the relationship is meaningful. As shown in the table, there is moderate correlation between digital literacy and age. This implies that, contrary to popular belief, technological competence appears to increase with age. Older teachers may have more experience and training with educational technology, resulting in higher proficiency. This suggests that senior teachers have successfully adapted to technology in education, challenging the stereotype of younger teachers being more tech-savvy.

Table 3. *Significant Relationship between the Demographic Profile of Teachers and their Digital Literacy Competency*

Significant Relationship	r	Interpretation	p	Remarks
Age: Digital Literacy	0.55	Moderate Correlation	0.002	Significant
Years of Teaching: Digital Literacy	0.42	Moderate Correlation	0.03	Significant
Highest Educational Attainment: Digital Literacy	0.03	Negligible Correlation	0.90	Not Significant

This finding is supported by the study of Ballesteros et al. (2017), which stated that there are significant differences in digital skill levels across different age groups, indicating that older teachers can effectively use digital devices and technologies in their teaching practices. While, for the years of teaching, moderate correlation implies that teachers with more years of experience are generally more competent in using technology. This could be due to accumulated exposure to various digital tools over time or continuous professional development in educational technology. However, since the correlation is only moderate, other factors (such as personal interest in technology or access to training) may also play a role in competency levels.

The study of Anggraini et al. (2024) corroborated the findings by indicating that the teaching experience of the teachers significantly influences their pedagogical competence in terms of digitalization. Thus, this underscores the necessity of the promotion of digital literacy in their teaching to enhance the digital outcomes. Lastly, the highest educational attainment showed negligible correlation with digital literacy. This means that having a higher degree (like a master's or bachelor's) doesn't necessarily correlate with increased technology competency in teachers. Formal education level doesn't automatically equate to better tech skills. Instead, hands-on experience, self-learning, and professional development likely play a greater role in developing technology proficiency. Thus, this implies that education level doesn't automatically equate to better technological skills; rather, certain factors like direct hands-on experience and personal and professional developments play a more significant role in strengthening their digital skills. With this, the study of Jung et al. (2024) aligned with findings that stressed the need for continuous professional development and practical experience to enhance the digital literacy among teachers in the elementary.

4.0 Conclusion

Based on the findings of this study, the researchers concluded that, although teachers demonstrate general digital literacy competence, focused training and resources are needed to address specific skill gaps and create a more effective and engaging digital learning environment. Even though there is a basic understanding of digital tools, incorporating technology for differentiated instruction, facilitating interactive teaching and learning processes, and effectively managing digital resources are not well developed. The findings suggest that the pace of change in educational technology presents challenges for teachers that may affect their ability to foster dynamic and engaging digital learning environments.

Elements such as teachers' self-efficacy in technology use, their ability to evaluate the credibility of information offered, and responsiveness to new digital pedagogy are important determinants of teaching effectiveness. These results support the concern about digital literacy in education in more complex ways, especially in developing teaching approaches that promote active learning and better educational results. By exploring more of the challenges and gaps, this study contributes to a more profound understanding of the evolving role of digital literacy in education. Lastly, these findings open the door for future and further research on how to bridge these skill gaps and ensure that teachers have the support they need to use digital tools in their teaching in the most impactful way possible. Thus, administration can prioritize ongoing professional development among the

teachers, improve technology access, and cultivate a culture of innovation to further boost teachers' digital abilities.

5.0 Contributions of Authors

Sole authorship

6.0 Funding

No funding. The researchers covered all the expenses.

7.0 Conflict of Interests

No conflict of interest

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