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TEACHERS' COMPETENCE OF USING INFORMATION IN TECHNOLOGY IN TEACHING IN SABANG CENTRAL ELEMENTARY SCHOOL

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ABSTRACT
This study evaluated teachers' competence in using information technology (IT) at Sabang Central Elementary School, focusing on gender, teaching experience, age, educational attainment, IT training, skills, and classroom integration. Seven female respondents participated, most with 11–20 years of teaching experience and advanced educational attainment. Data analyzed through descriptive statistics revealed that while all respondents could use computers, their skills were limited to basic applications. Advanced IT proficiency, pedagogical integration, and training participation were generally rated "Not Competent" to "Fairly Competent," with a grand mean of 1.66. Findings highlight insufficient training and exposure as major barriers, emphasizing the need for stronger IT-related professional development to enhance teachers' competence and improve instructional practices in an evolving educational landscape..
KEYWORDS: *Remote Camera Multicasting; Raspberry Pi Surveillance; People Counting System; Statistical Analysis in Monitoring*

1. INTRODUCTION

Education continually evolves to meet societal needs, with Information and Communication Technology (ICT) emerging as one of the most transformative developments. ICT reshapes teaching methods, classroom roles, and administrative practices, offering opportunities for interactive, student-centered learning. However, effective integration remains a challenge, largely due to teachers' limited competence and insufficient professional development. Research highlights that without adequate training in both technical skills and pedagogical strategies, teachers struggle to maximize technology's potential in enhancing instruction. Thus, equipping educators with the necessary knowledge, confidence, and IT skills is essential to improve teaching effectiveness and adapt to the demands of modern education.

The integration of ICT requires teachers to move beyond traditional, teacher-centered approaches and embrace student-centered learning models. Technology empowers learners to access information independently, collaborate with peers, and engage in interactive activities that foster critical thinking. Teachers, therefore, must adopt new roles as facilitators of inquiry and designers of technology-enhanced learning experiences.

Despite these opportunities, barriers persist. Many educators lack access to sustained professional development programs that address both technical competencies and pedagogical applications. Without such training, teachers often remain confined to basic computer use, unable to fully integrate ICT into classroom instruction. This underutilization limits the potential benefits of technology for student engagement and achievement.

Self-efficacy also plays a crucial role in ICT adoption. Teachers who feel confident in their technological abilities are more likely to experiment with new tools and integrate them into lessons. Conversely, those with low self-efficacy may avoid technology altogether, even when resources are available. Building teachers' confidence through training and exposure is therefore essential to successful ICT integration.

Teacher education programs must also prioritize technology as a core component of their curriculum. Pre-service teachers should be equipped with both technical skills and pedagogical strategies to ensure they are prepared to integrate ICT effectively in their future classrooms. Treating technology as optional undermines its importance in modern education and leaves new teachers unprepared for the demands of digital learning environments.

Ultimately, the success of ICT integration depends on teachers' competence and willingness to adapt. Schools must provide access to resources, ongoing training, and institutional support to ensure that educators can harness technology to improve teaching practices. By addressing these challenges, ICT can be fully utilized to enhance learning outcomes and prepare students for the demands of a technology-driven society.

I.1. Theoretical Framework

This study is anchored on three major theoretical foundations: the Technology Acceptance Model (TAM) by Davis (1989), the Information Systems Success Model by DeLone and McLean (2003), and the concept of Computer Self-Efficacy by Compeau and Higgins (1995).

The Technology Acceptance Model (TAM) explains user acceptance of technology through two primary constructs: Perceived Usefulness and Perceived Ease of Use. Perceived

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Usefulness refers to the degree to which individuals believe that using technology enhances their performance, while Perceived Ease of Use refers to the degree to which individuals believe that technology is free from effort. In the context of this study, TAM provides the lens for evaluating how teachers perceive the practicality, efficiency, and usability of IT tools in their teaching practices.

Complementing TAM, the Information Systems Success Model emphasizes six interrelated dimensions: System Quality, Information Quality, Service Quality, Use, User Satisfaction, and Net Benefits. This framework is relevant to the study as it highlights the importance of system reliability, accuracy of information, and overall benefits derived from IT integration in teaching. By incorporating these dimensions, the study ensures that the evaluation of teachers' competence goes beyond technical proficiency to include satisfaction and the broader educational impact of technology use.

The concept of Computer Self-Efficacy further strengthens this framework. Self-efficacy refers to an individual's belief in their ability to perform tasks using technology. Teachers with high computer self-efficacy are more likely to experiment with IT tools, integrate them into their lessons, and model effective technology use for students. Conversely, teachers with low self-efficacy may avoid using technology, limiting its potential benefits in the classroom. This construct is critical in understanding how confidence and prior training influence teachers' competence in IT integration.

Together, these theoretical models provide a comprehensive foundation for assessing teachers' competence in using IT. TAM captures the behavioral aspect of acceptance, the IS Success Model addresses the technical and organizational outcomes, and Computer Self-Efficacy explains the psychological dimension of confidence and willingness to use technology. This integrated framework ensures that the study evaluates teachers' competence holistically, considering usability, system quality, satisfaction, and self-belief in technology use.

I.2. Review of Related Literature

The integration of Information and Communication Technology (ICT) in education has been widely studied, emphasizing its potential to transform teaching and learning. Banoglu (2011) noted that ICT reshapes instructional delivery, administrative processes, and curriculum design, requiring teachers to adapt to new roles as facilitators of inquiry and designers of technology-enhanced learning experiences. Similarly, Koc and Bakir (2010) highlighted that effective ICT integration demands teachers to move beyond traditional methods and embrace student-centered approaches supported by digital tools.

Despite these opportunities, barriers remain. Levin and Wadmany (2008) argued that inadequate professional development hinders teachers' ability to integrate technology effectively, leaving many unprepared to use ICT tools in classrooms. Bauer et al. (2005) further observed that while teachers often possess basic computer literacy, they lack advanced training in pedagogical applications of ICT, limiting its impact on student learning.

The role of teacher competence is central to ICT adoption. Compeau and Higgins (1995) introduced the concept of computer self-efficacy, stressing that teachers' confidence in their technological abilities strongly influences their willingness to integrate ICT. Zhao and Cziko (2001) added that pre-service teachers must develop high levels of computer competence to ensure successful technology use in their future careers.

Gender and experience have also been examined in relation to ICT integration. Norris, Sullivan, Poirot, and Soloway (2003) found that gender is not a strong determinant of ICT adoption, while Kay (2006) reported that initial differences in computer attitudes between male and female teachers diminish after training. Teaching experience, however, has been linked to greater confidence in ICT use, as experienced teachers often demonstrate stronger pedagogical foundations for technology integration.

Overall, the literature underscores that teacher competence in ICT is shaped by training, confidence, and institutional support rather than demographic factors alone. Effective professional development and access to resources remain critical in ensuring that teachers can integrate technology meaningfully into classroom practices.

2. METHOD

Research Design

The study utilized the Descriptive Research Method, which is designed to describe and summarize data. In this approach, information is collected through a personal information sheet given to the respondents. The focus of the study was to assess and describe the teachers' competence in using information technology (IT) at Sabang Central Elementary School. By gathering relevant data from teachers, the study aimed to provide a clear picture of their skills and capabilities in integrating IT into their teaching practices. This method helped to capture a comprehensive overview of the current state of technology use within the school.

Sample Technique and Sampling Size

The study involved a sample of teachers who used computers in their teaching at Sabang Central Elementary School. A non-probability sampling method was employed, specifically purposive sampling, to select participants. Only teachers who regularly integrated computers into their instructional practices were included. The inclusion criteria consisted of teachers who actively used IT tools in their teaching, while the exclusion criteria applied to teachers who did not use computers in their lessons. This selection ensured that the study focused on teachers with relevant experience in utilizing technology for teaching, thereby providing insights into their competence in using IT effectively.

Research Instrument

The study utilized a structured questionnaire as the primary research instrument. It was divided into four parts: (1)

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respondents' profile, including age, gender, teaching experience, and educational attainment; (2) IT skills, focusing on basic and advanced computer applications; (3) IT training and development, covering participation in formal and informal ICT programs; and (4) IT classroom integration, assessing the extent of technology use in lesson planning and delivery.

Responses were measured using a Likert scale ranging from Not Competent (1) to Highly Competent (5). The instrument was validated by experts in education and ICT, and a pilot test was conducted to ensure clarity and reliability.

Data Gathering Procedure

Data gathering for this study was conducted by the researcher using instruments specifically adapted for the purpose of assessing teachers' competence in using information technology (IT) in their teaching at Sabang Central Elementary School. The researcher personally distributed and collected the instruments from the respondents to ensure accuracy and completeness. These instruments included personal information sheets, which gathered data related to the teachers' demographics, such as age, sex, teaching experience, educational attainment, and IT training. In addition, the instruments included questions designed to evaluate the teachers' proficiency in using IT tools, such as computers, educational software, and online resources.

Once the data were collected, the researcher tabulated and totaled the responses to organize the information. Descriptive statistics, such as frequencies, percentages, and mean scores, were used to analyze the data. This allowed for a clear understanding of the teachers' level of competence in using IT in the classroom. The analysis also involved interpreting the data to identify any patterns or relationships between teachers' IT skills and their personal profiles, such as experience and training. The findings were then interpreted to provide insights into how teachers' competence in using IT may be influenced by various factors, and to better understand its impact on their teaching effectiveness. This process of data gathering, tabulation, analysis, and interpretation ensured that the study's objectives were met and provided valuable insights into the teachers' technological proficiency.

Ethical Considerations

The researcher ensured that the study adhered to ethical standards in the conduct of research. Participation was strictly voluntary, and respondents were informed of the purpose of the study prior to data collection. Informed consent was obtained, and confidentiality of responses was guaranteed by withholding personal identifiers. Data gathered were used solely for academic purposes and were treated with integrity and respect. The study also avoided any form of bias or coercion, ensuring that respondents' rights and welfare were protected throughout the research process.

Data Analysis

In this study, both descriptive and inferential statistical tools were used to analyze the gathered data and answer the research objectives. Descriptive statistics, including mean and frequency distribution, were employed to summarize and organize the data. The mean was used to determine the average level of competence in using information technology (IT) among the teachers, while frequencies helped identify the number of teachers in different categories, such as age, experience, and IT training.

Additionally, percentage was used to quantify the proportion of respondents in various categories. These descriptive tools provided a clear overview of the teachers' demographic profiles and their competence in using IT for teaching.

Inferential statistics were used to draw conclusions or make inferences about the broader population of teachers. These tools allowed the researcher to examine relationships or patterns, such as the potential impact of IT training or teaching experience on IT competence. By analyzing the data in this way, the researcher could identify trends and correlations that are significant to the research objectives, providing a comprehensive understanding of the factors influencing teachers' use of IT in their teaching practices.

3. RESULT AND DISCUSSION

The study revealed that all respondents were female teachers, with the majority having 11–20 years of teaching experience and belonging to the 36–45 age group. Most held a Bachelor's degree with Master's units, indicating a relatively high level of educational attainment.

In terms of IT training and development, the overall competence was rated as Fairly Competent (grand mean = 1.66). Respondents showed limited skills in advanced applications, internet use, and equipment-specific training, though they demonstrated moderate competence in multimedia use and school-provided ICT training.

The findings emphasized that while teachers were able to use computers, their proficiency in applying and integrating IT into classroom instruction remained limited. The lack of advanced training and exposure hindered their ability to maximize technology for teaching. This aligns with prior studies (e.g., Bauer et al., 2005; Levin & Wadmany, 2008) which noted that insufficient professional development is a major barrier to effective ICT integration.

Furthermore, the discussion highlighted that gender was not a significant factor in ICT competence, consistent with Norris et al. (2003) and Kay (2006), who found that training and institutional support outweigh gender differences. Instead, experience, access to resources, and confidence (self-efficacy) were identified as more critical determinants of teachers' ability to integrate technology effectively.

4. CONCLUSION

Based on the findings the following conclusion were drawn:

1. Personal Profile

1.1. According to the respondents' profiles, it was found that all of the teachers are female, as the majority of the teaching staff at Sabang Central Elementary School is composed of women.

1.2. The respondent teachers have extensive

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experience, which means they can be considered seasoned educators.

1.3. Among the seven respondents, their ages range from 36 to 45 and 46 to 55, indicating that most of the teachers are millennials.

1.4. Most of the respondents have a Bachelor's degree (BS) along with a Master's degree, reflecting a high level of education and quality in their teaching.

2. Teacher's Competence

2.1. The teachers' competence in terms of IT training and development is applied moderately. This means that, when it comes to using technology, the teachers are not highly proficient in using computers for multimedia or social media activities.

2.2. The overall mean value computed was 3, indicating that the teachers are moderately competent. It was found that the competence of individual teachers in handling computers is quite low, and most of them lack both educational and technical training.

2.3. In terms of integrating technology into the classroom, the teachers are not well-equipped or competent, particularly when it comes to enhancing student learning.

Recommendations

The results of the study provide valuable insights into the current competencies of teachers, particularly in their use of technology. These findings serve as the foundation for the following recommendations aimed at various stakeholders who stand to benefit from these conclusions:

1. To Teachers

Teachers should dedicate more time and effort to learning and enhancing their skills in computer applications. The study revealed that many teachers at Sabang Central Elementary School lack proficiency in using technology, particularly in multimedia tools and educational software. By acquiring additional training in these areas, teachers can significantly improve their effectiveness in the classroom. For example, becoming proficient in using presentation tools such as Microsoft PowerPoint, Google Slides, or other multimedia applications can enhance lesson delivery and make learning more engaging for students. Additionally, becoming familiar with educational apps and platforms can help teachers create interactive and dynamic lessons that cater to various learning styles.

Teachers can also benefit from gaining knowledge of social media platforms and how they can be integrated into educational practices. Social media tools, such as educational blogs, Twitter, and Facebook, can be used to share resources, create virtual classrooms, and engage students in discussions outside regular school hours. This will not only improve teachers' competency in technology but will also prepare them for the digital demands of modern education.

2. To School Heads and Administrators

School heads and administrators have an essential role to play in addressing the gaps in teachers' technological competencies. They should consider organizing and facilitating regular training sessions that focus on improving teachers' skills in using computers for educational purposes. As the study suggests, many teachers are not yet fully equipped to integrate technology into their classrooms effectively. Regular workshops on various educational tools and platforms can address this issue.

Training programs could cover a wide range of topics, from basic computer skills to advanced techniques such as integrating technology into lesson plans, using educational software for student assessments, and exploring innovative teaching methods. In addition, administrators should ensure that teachers have access to updated technological resources, such as computers, projectors, and other multimedia tools, to facilitate learning. The availability of these resources is crucial for the successful integration of technology in the classroom. Furthermore, administrators should encourage a culture of continuous professional development where teachers are motivated to improve their skills and share their experiences with their peers.

3. To Future Researchers

For future researchers, it is recommended to expand the scope of the study by conducting similar research in other schools. This will provide a broader perspective on the technological competence of teachers in different educational settings. A larger sample size across various regions will help determine whether the findings observed in Sabang Central Elementary School are consistent with those in other schools. Future studies could also explore the factors influencing teachers' competence in using technology, such as their personal motivation, the availability of resources, and their access to professional development opportunities.

Additionally, researchers could investigate the impact of technology training on student learning outcomes. It would be valuable to examine how teachers' increased competence in using technology influences their students' engagement, performance, and overall learning experience. By conducting such research, future studies could offer deeper insights into the relationship between technology, teacher competence, and student achievement.

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