

## INVESTIGATING THE READINESS OF EFL PRE-SERVICE TEACHERS IN IMPLEMENTING TECHNOLOGY-BASED TEACHING: A PHENOMENOLOGICAL STUDY

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Article Info	Abstract
<b>Article History</b> Received: January 2025 Revised: March 2025 Published: July 2025	<i>This study aims to investigate EFL pre-service teachers' readiness to use technology in English Language Teaching (ELT) classrooms and identify the factors that influence their readiness. A phenomenological research design was employed, involving 30 final-semester EFL pre-service teachers enrolled in a teacher education program, selected through purposive sampling. Data were collected through open-ended surveys and interviews and analyzed thematically to extract key themes related to readiness, technological competence, and influencing factors. Findings demonstrated a high level of readiness among participants, supported by strong technological competence and confidence. Participants showed proficiency in using Learning Management Systems (LMS), Canva, and game-based applications like Kahoot to create interactive and engaging learning environments. Internal factors (such as self-confidence and technological skills) and external factors (such as institutional support, courses, and workshops) influenced their readiness. The findings provide a framework for enhancing teacher training curricula and suggest ways to improve student engagement and learning outcomes through effective technology integration. This study contributes to the limited literature on technology integration readiness among EFL pre-service teachers in Indonesia.</i>
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### INTRODUCTION

State Technology integration in education has become increasingly prevalent, with educators recognizing its potential to enhance teaching and learning processes. This integration will require a transformative approach in 21st-century classrooms, leveraging technology to enrich student learning and the standard curriculum through innovative teaching and learning strategies (Lambert & Gong, 2010). Technology provides numerous advantages by making teaching more engaging and productive in advancements (Gilakjani, 2017). Technology tools like interactive boards, tablets, smartphones, the internet, and computers in education can make lessons more engaging and productive, enhance learning effectiveness, and boost student motivation (Yigit & Gunuc,

2017). As technology becomes more integrated into the education field, more attention is paid to using it in classroom settings and learning experiences.

Technology has been incorporated into various subjects as part of 21st-century learning, such as its integration into English Language Teaching (ELT). Computer technology transforms language classes into dynamic environments filled with meaningful tasks for students (Dawson et al., 2008). (Tinio, 2020) mentions that the integration of Information and Communication Technology (ICT) in English language education frequently enhances both teaching and learning. Various technologies have influenced how teachers deliver English lessons, specifically through electromechanical systems as a mode of instruction (Cahyani & Cahyono, 2012). Print, film, and the internet enable students to collect information and provide diverse resources for language analysis, interpretation, and contextual understanding. Syathroh et al. (2021) state that Introducing technology into ELT is highly significant for enhancing basic language skills such as listening, reading, speaking, and writing. Therefore, this integration is used by many teachers in their teaching activities.

The importance and effectiveness of technology in ELT require Indonesian EFL teachers to be able to integrate technology into the teaching process. This aligns with Indonesian government regulation concerning Standards for Primary and Secondary Education Processes which mandates the utilization of information and communication technology to enhance the efficiency and effectiveness of learning (Minister of Education and Culture of Indonesia Regulation, 2024). This regulation means that teachers nowadays must be able to use technology for teaching and learning activities. Researchers have emphasized that the teacher is a key element in achieving effective technology integration in the classroom (Rhema & Miliszewska, 2010). Therefore, as the candidate teacher, Pre-service teachers should be concerned with this requirement.

According to (Hew & Brush, 2007), pre-service teachers are required to have technological knowledge. Technological knowledge is the key to successfully implementing technology in the teaching process. According to Pelgrum (2001), the success of technology integration in education is mainly influenced by teachers' technological skills and knowledge, with a lack of these factors being the most significant obstacle to using computers in schools. Technological knowledge refers to teachers' understanding and skills in integrating technology into classroom activities, whether in traditional or online learning environments (Schmidt et al., 2009). Before beginning teaching practices, pre-service teachers must master technological knowledge and skills.

Exploring the readiness for technology-based teaching among pre-service teachers who will be becoming future educators is an important overlooked area. The effective integration of digital technology into the curriculum largely depends on teachers' preparedness and willingness to embrace its use (Singh, 2014). According to Lynch et al. (2017), high levels of teachers' readiness are associated with effective teaching and improvement in student outcomes. Pre-service teachers' preparedness for technology-based teaching is crucial for successfully integrating technology into the teaching and learning process (Ranawaka et al., 2020). Teacher readiness to incorporate ICTs into learning and teaching is a complex and multifaceted issue, as possessing technical knowledge and skills alone does not guarantee a teacher's preparedness for integrating technology in the classroom (Cuhadar, 2018).

Various studies have explored the readiness of pre-service teachers to integrate technology into classroom practice. For example, Cuhadar (2018) highlighted the insufficient ICT training and support pre-service teachers often receive during their education programs. Similarly, Öztürk et al. (2024) found a strong relationship between pre-service teachers' technological pedagogical content knowledge and their readiness for blended teaching. Additionally, a comparative study by

Bugis and Larkins (2020) examined pre-service teachers in Saudi Arabia and the U.S., revealing differences in their technology use knowledge, skills, and attitudes, with U.S. teachers showing higher levels of preparedness.

However, research focusing specifically on the readiness of English as a Foreign Language (EFL) pre-service teachers remains limited. Many previous studies have discussed pre-service teachers' readiness in general. Therefore, this research aims to bridge this gap by investigating the readiness among EFL pre-service teachers for using technology in ELT and identifying the factors that influence their readiness. The findings of this study will provide valuable insights for teacher education programs, policymakers, and other stakeholders in education. By understanding the readiness and the influencing factors, stakeholders can develop comprehensive strategies to enhance pre-service teachers' preparedness for technology-enhanced teaching in ELT, thereby improving the overall quality of education. This study addressed the following research questions: How prepared are EFL pre-service teachers to implement Technology-based teaching? And what factors significantly influence their readiness to integrate technology into their teaching?

## RESEARCH METHOD

### Research Design

This research employed a phenomenological research design to answer the research questions regarding EFL teachers' readiness to implement technology-based teaching and the factors that influence their readiness. According to Creswell & Creswell (2018), phenomenological research is a qualitative strategy in which the researcher identifies the essence of human experiences about a phenomenon as described by participants in a study. This method allowed the researchers to explore and describe teachers' subjective experiences, feelings, and perceptions about their readiness for technology-based teaching.

### Research Participants

This research involved 30 EFL pre-service teachers studying in a teacher education program. The participants were selected using purposive sampling to ensure that the participants matched the criteria of the study. Inclusion criteria ensure a uniform group of participants, allowing for a deeper understanding of what an experience represents for a specific group (Patton, 2002). Participant criteria are (1) participants must be enrolled in a teacher education program, (2) participants must have completed a technology integration course in language teaching, and (3) participants must be in their final semester of study.

Table 1  
Participants' Demographics

Characteristic	Description
Number of Participants	30
Gender	20 Female, 10 Male
Study program	English Education
Semester	Final Semester

### Instruments

An open-ended survey was distributed to all the participants through Google Forms to collect the data. The questionnaire contained 21 questions that scrutinized their general readiness, pedagogical readiness, technological competence, technical competence, attitude toward technological training, and factors influencing their readiness. After that, an interview guideline consisting of 13 items was developed based on technological readiness in teaching practice. The interview was conducted online via Zoom meeting application.

## Data Analysis

The data was analyzed thematically using Braun & Clarke's (2006) framework, which consists of six data analysis steps. In the first step, the researchers familiarized themselves with the data by repeatedly reading the open-ended questionnaire responses and the interview transcript. After that, the researchers generated codes by identifying and marking significant statements made by the participants, thereby capturing key information. The third step was searching for a theme. The researchers grouped the similar code to identify the initial theme. The fourth step required a review of these initial themes to ensure that they accurately represented the data. The next step was defining and reviewing the theme. The researchers defined and refined the final theme for analyzing the data. Finally, the researchers produced a detailed report that synthesized the findings, illustrating how the identified themes relate to the research questions and offering interpretations grounded in the data.

## RESEARCH FINDINGS AND DISCUSSION

### Research Findings

Through a comprehensive analysis of open-ended survey responses and interview transcripts, the researcher uncovered key themes that illustrate the preparedness of EFL pre-service teachers to implement technology-based teaching and the factors shaping their readiness. These themes encompass perceived readiness for technology integration, technological competence, and external and internal factors influencing technological readiness. Each theme is richly substantiated with evidence from participants' responses, offering deeper insights into their experiences and perspectives. The subsequent sections provide a detailed exploration of these themes, highlighting the critical elements that define and influence pre-service teachers' readiness to embrace technology in their teaching practices.

Table 2  
Themes of Findings

Research Question	Themes of Findings	Code
How prepared are EFL Pre-service teachers to implement Technology-based Teaching?	Perceive Readiness for Technology Integration	-High Readiness -Familiarity with technology tools, -Comfort in using technology devices.
	Technological Competence	-Proficiency in basic ICT tools. -Proficiency in making digital material -Proficiency in making game-based material
What factors may significantly influence their readiness to integrate technology into their teaching	External Factors	-Institutional support. -Access to training program
	Internal Factors	-Technological competence. -Self-confidence in using technology.

### Perceived Readiness in Technology Integration

Perceived readiness with technology refers to pre-service teachers' self-assessed confidence and preparedness to use technology effectively in the teaching context. Based on responses in the survey and interview, our participants generally expressed a high level of readiness to incorporate technology in their English language teaching, with many indicating familiarity and comfort using devices such as laptops, smartphones, educational applications, and

educational websites. For example, Participant 7 noted,

*"I am very comfortable using digital tools like computers, tablets, and smartphones in teaching English." (P7).*

Another statement from Participant 8 indicated she felt 95% ready to use technology in English language teaching, attributing this confidence to their regular use of technology in preparing teaching materials. In the interview section, P1 stated

*"I would say that I am fairly well-prepared and skilled in implementing technology in teaching, for example, creating materials using PowerPoint or various media like quizzes or similar tools. I am already quite proficient in using them." (P1)*

*"I am quite ready to implement technology in teaching, especially English language teaching because in the lecture there is also a course to implement technology in teaching." (P2)*

P1 confidently says he is well-prepared to implement technology in his teaching activity. He is skilled in operating several technology tools and applications. He can create material presentations in PowerPoint and make games for their students using quiz applications. Another participant, P2, reports that he is quite ready to implement technology in his English language teaching. He had learned technology-based teaching in his college. He took the course regarding implementing technology in teaching.

The participants reported a strong confidence in their readiness to implement technology-based teaching, underpinned by their prior experience using technology specifically for English language teaching. They demonstrated proficiency in operating a range of technological tools and applications relevant to language instruction, such as digital presentation tools, learning management systems, and language-specific applications. This combination of confidence, experience, and technical skill suggests that these pre-service teachers are well-prepared to leverage technology in innovative ways to enhance student engagement and support language acquisition in the classroom.

### **Technological Competence**

Technological competence is the ability to effectively understand, utilize, and adapt to various forms of technology in the teaching context. All the participants in the survey and interview reveal that they are proficient in using technology tools for teaching, such as laptops, handphones, projectors, and applications like Quizzes, Kahoot, Google Classroom LSM, Grammarly, ChatGPT, and so on. Participants 9 expressed

*"I am skilled in using learning management systems such as Learning Management System (LMS) to organize teaching materials, conduct assessments, and monitor student learning progress". (P9)*

Meanwhile, Participant 7 also stated, "I can make games in quizzes and Wordwall". Besides that, they also mentioned that they can create digital content, such as learning video, audio, and eBooks. As expressed by participant 20

*"I can use technology in the classroom well; I am used to using online learning platforms to manage materials and assignments; I can also create content such as videos and presentations that are interesting for students." (P20)*

*“I can operate several technologies such as projectors, prepare learning materials from PowerPoint such as Canva and others, and search for other materials from YouTube and journals available on the internet”. (P2)*

Participant 2 was technologically competent in operating several technologies in his teaching, such as using the projector. He also could make material presentations using the Canva application. Meanwhile, participant 1 was technologically competent in using game-based applications to assess or evaluate his students.

*“I can use PowerPoint to deliver materials or some things that need to be displayed. Maybe it can use PowerPoint. Then for assessment or just practice, I use game-based applications and similar applications. So, it can provide variation in learning activities so that they are not monotonous.” (P1).*

Technological competence forms the foundational basis for determining the readiness of pre-service teachers to implement technology-based teaching effectively. This competence is evident in various digital skills pre-service teachers demonstrate, including creating digital content such as instructional videos, audio resources, and e-books. Additionally, they can integrate game-based applications into their teaching, enhancing classroom engagement and interactivity. These skills serve as essential assets, equipping pre-service teachers with the necessary tools to implement and manage technology-based teaching environments successfully.

### **External and Internal Factors Influencing Readiness in Implementing Technology-Based Teaching**

Factors Influencing Readiness in Implementing Technology-Based Teaching refers to the various elements that affect how prepared and willing Pre-service teachers feel to integrate technology effectively into their teaching practices. Based on the survey and interview, two factors influence pre-service readiness in implementing technology-based teaching. The first is an internal factor, and the second is an external factor. Some participants in the survey and the interview revealed that technological competence was the factor that affected their readiness to implement technology-based teaching. Because technological competence is the key to operating the technology. As expressed by participant 27

*“Ability to use technology has become the key factor affecting my technological readiness”. (P27)*

Meanwhile, participant 8 stated different factors influencing her readiness to implement technology-based teaching. She revealed that self-confidence influenced her readiness. If the self-confidence in using technology is high, the readiness will be good enough.

*“I have high confidence in using technology; therefore, I feel ready to implement technology in my teaching”. (P8)*

Another factor that can influence readiness to implement technology-based teaching is institutional support. Institutional support can be college courses or training related to technology use. As Participant 21 stated, her institution has provided a good foundation in preparing her to use technology through technology integration courses.

*“My department has provided a good foundation for me to use technology in teaching English. Through the technology application course, I gained first-hand experience in using technology in the classroom. This helped me understand the challenges and benefits of using technology in real-*

*world situations.” (P21).*

On the other hand, participant 24 revealed that besides courses in the classroom, additional training, such as workshops and seminars about technology integration in teaching, can be helpful in preparing the pre-service teacher to implement technology-based teaching.

*“Study programs have provided a good foundation but lack depth in providing additional training for the practical and integrative use of technology in language teaching, such as Workshops on making videos and content for teaching.” (P24).*

The participants identified various factors influencing their readiness to implement technology-based teaching, which can be classified into internal and external factors. Internal factors include their technological competence and self-confidence in using technology, which are intrinsic qualities that contribute to their individual readiness. On the other hand, external factors consist of institutional support provided by their education programs, such as specialized courses, training sessions, workshops, and seminars focused on technology integration. Together, these internal and external factors play a significant role in shaping pre-service teachers' readiness to incorporate technology into their teaching practices effectively.

## Discussion

The findings of this study reveal that EFL pre-service teachers are highly ready to implement technology-based teaching. They demonstrate high perceived readiness and technological competence, underpinned by internal factors, such as self-confidence and technological skills, and external support from their educational institutions. These results confirm that the research objectives were met, showing not only the current level of readiness but also identifying the factors that enhance or limit it. This discussion will explore how these findings align with existing literature and highlight implications for teacher training programs and educational institutions.

In addressing the first research question of how prepared EFL pre-service teachers are to implement Technology-based Teaching, the findings reveal that all participants express confidence in using various digital tools for instructional purposes. The participants' self-reported confidence and comfort levels with devices and applications align with previous studies that associate pre-service teachers' readiness with prior exposure to technology and frequent usage in academic settings (Liza & Andriyanti, 2020). However, unlike the previous studies, this research highlights a broader range of technological applications, including tools like LMS and Canva and game-based applications such as Quizzes and Kahoot that are frequently employed in participants' lesson preparation and classroom activities. These findings emphasize the increasing familiarity with advanced, versatile tools that allow pre-service teachers to create dynamic learning environments and support language acquisition.

Participants' technological competence, as detailed in section 4.2, was a major strength, demonstrated by their ability to create interactive learning materials such as videos, audio, eBooks, and digital presentations. This aligns with the work of (Perifanou et al., 2021), who found that such digital skills are essential for effective ICT integration in classrooms. By incorporating these interactive methods, the pre-service teachers in this study appear to be better prepared than those in earlier research, where technology integration was often limited to basic tasks (Perifanou et al., 2021). Moreover, participants' skills in utilizing tools like PowerPoint, Canva, and online platforms reflect a level of competence that goes beyond simple operational skills, illustrating a shift towards more pedagogically meaningful uses of technology.

Regarding the second research question, which is what factors significantly influence their readiness to integrate technology in their teaching, this study identifies a combination of internal and external factors. Technological competence and self-confidence emerged as internal factors that are crucial in determining the participants' readiness. Previous studies similarly note that competence and confidence are key determinants of teachers' willingness to integrate technology effectively (Antonietti et al., 2022; Baturay et al., 2017). The findings extend this understanding by showing how institutional support provided through technology courses, workshops, and training also significantly influences pre-service teachers' readiness. This is consistent with studies like those of Nelson et al. (2019), which emphasize the impact of institutional support in building technical skills and overcoming potential challenges in the classroom.

An important new finding in this study is the nuanced role of external factors. While previous studies identified institutional support as important, this study provides more specific insights into the types of support that contribute most to readiness. Institutional provisions, such as courses on technology application and practical training workshops, directly support technological skill development, enabling pre-service teachers to experience and overcome real-world challenges associated with classroom technology integration. This research underscores the need for educational institutions to offer more targeted training that includes real-life applications, ensuring that pre-service teachers are proficient in using digital tools and adept at troubleshooting and adapting to varied instructional contexts.

Significant implications arise from these findings. First, educational institutions should continue to offer and expand technology integration courses and complementary practical workshops to prepare pre-service teachers effectively. Such targeted programs would support technological competence and confidence development, enabling new teachers to implement technology to enhance student engagement and learning outcomes. Second, self-confidence in using technology emerges as a critical factor in readiness, suggesting that pre-service teacher programs should incorporate activities that foster this quality. Finally, these findings offer valuable insights into how internal and external factors shape readiness. They present a model that can guide future studies in examining teacher preparation programs and their effectiveness in supporting technology-based instruction.

Although this study provides valuable insights into EFL pre-service teachers' readiness for technology-based teaching, it is not without limitations. The research was conducted using a phenomenological design with 30 participants from a single teacher education program, which may limit the transferability of the findings to other educational contexts or regions. Additionally, data were gathered through open-ended surveys and online interviews, which rely on self-reported perceptions and may be subject to social desirability bias. Participants might have over- or underestimated their readiness or competence due to personal or contextual influences. Furthermore, the study did not include triangulation with classroom observations or document analysis, which could have enriched the findings. Future studies are encouraged to involve more diverse institutions, incorporate multiple data sources, and explore longitudinal perspectives to better understand how readiness evolves over time and across different teaching contexts.

## **CONCLUSION**

This study explored the readiness of EFL pre-service teachers to implement technology-based teaching and the factors influencing their readiness. The findings revealed that participants demonstrated high perceived readiness, supported by significant technological competence and confidence in utilizing digital tools for instructional purposes. The participants' proficiency extended beyond basic skills to include advanced use of tools such as LMS platforms, Canva, and



game-based applications, enabling them to create interactive and engaging learning environments. These findings underscore the critical role of internal factors (technological skills and self-confidence) and external factors, particularly institutional support, in shaping pre-service teachers' readiness for technology integration.

The research highlights that institutional support plays a multifaceted role, from offering technology integration courses to providing practical workshops and seminars. These initiatives enhance technological competence and address real-world challenges, fostering adaptive and innovative teaching practices. This study adds to the existing literature by identifying specific forms of institutional support that significantly influence readiness, emphasizing the importance of experiential learning opportunities in teacher training programs. This research carries two significant implications. For teacher education programs, it underscores the necessity of embedding comprehensive technology training that combines theoretical knowledge with practical application. Institutions should focus on designing curricula that build technical skills and boost pre-service teachers' confidence in using technology. Additionally, educational policymakers and stakeholders should consider investing in professional development programs that prepare future teachers for the evolving demands of technology-enhanced education.

Furthermore, teacher education curricula could be enhanced by integrating structured modules on digital pedagogy and simulation-based teaching practices. For example, microteaching sessions using LMS, multimedia content creation tools (such as Canva and video editors), and assessment platforms like Kahoot or Quizziz should be included as course requirements. At the policy level, institutions and education authorities should consider establishing national standards for digital teaching readiness and support consistent implementation across teacher education institutions. Strategic investment in digital infrastructure, especially in under-resourced programs, and continuous in-service training opportunities would further improve long-term readiness. This study contributes to the broader discourse on ICT integration in education by offering insights into the preparedness of future educators in Indonesia, a context where such research remains limited. By identifying the internal and external factors that influence readiness, this research provides a framework for developing effective teacher training strategies. Future studies could build on this work by exploring how these factors influence readiness across diverse educational contexts and examining the long-term impacts of technology integration on teaching practices and student outcomes.

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### Interview Guideline:

#### Interview Question

1. Can you describe how ready you feel to implement technology in your future English teaching practice?
2. In your opinion, what does "readiness" to use technology in teaching mean for an EFL teacher?
3. How do you plan to integrate technology into your teaching methodology? Can you give examples of tools or strategies you might use?
4. What challenges do you anticipate in aligning technology with your teaching objectives?
5. What technological tools or platforms are you most proficient in for English teaching? Why?
6. Can you describe any specific training or experiences that have improved your competence in using technology for teaching?
7. How confident are you in handling technical problems (e.g., internet connection, software issues) when using technology for teaching?
8. How do you feel about the increasing role of technology in the classroom? Do you see it as an opportunity or a challenge? Why?
9. How well do you think your teacher education program has prepared you to integrate technology in future teaching? What could be improved?
10. What additional training or resources do you think would help you become more effective in using technology in the classroom?
11. What factors (e.g., access to resources, personal interest, institutional support) do you think most influence your readiness to integrate technology in teaching?
12. How do you think your practicum experience has affected your readiness to use technology in the classroom?
13. How do you envision using technology in your teaching five years from now?