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PRE-SERVICE ENGLISH TEACHERS' PERCEIVED READINESS FOR TECHNOLOGY-ENHANCED LANGUAGE LEARNING

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abstract

In 21st century, the use of the Internet and digital technology in second and foreign language learning and acquisition is predominant. Therefore, concern for language teachers' competence in utilizing technology in their classrooms is growing. This study aims to investigate pre-service English teachers' perceived readiness for TELL in Indonesian context. A case study equipped with observations, survey, and semi structured interviews was conducted. The participants were 21 pre-service EFL teachers taking a course on Artificial Intelligence for language learning and teaching in an Islamic State University in Indonesia. The pre-service English teachers' readiness is examined from four components: (1) basic digital skills, (2) didactic ICT competence, (3) learning strategies, and (4) digital bildung. The result suggests that a significant portion of the pre-service teachers involved in this study perceived themselves as competent and ready to implement TELL in their EFL classroom after completing their teacher training program.

INTRODUCTION

The massive and rapid development of Information and Communication Technology (ICT) has changed the way people learn and acquire new skills, including languages. With the current technology, EFL learning has become more accessible for learners of all ages and backgrounds. Technology-Enhanced Language Learning (TELL) has been shown to have promising effects on learners' motivation and engagement (Kubravi, Shah, & Jan 2018; Krystalli, Panagiotidis, and Arvanitis 2020). The use of ICT in EFL learning also offers more personalized learning experiences (Kupchyk & Litvinchuk, 2021), increased authentic language input (Marshall & Kostka, 2020), and chances to practice what students have learned in EFL classroom in real-life contexts through virtual exchanges with other English learners and native speakers (Gonulal, 2019; Namaziandost & Nasri, 2019). The benefits of using ICT in EFL learning can eventually lead to the improvement of learners' language skills.

The integration of ICT in education has become increasingly prevalent and necessary. In fact, ICT skills are regarded as a vital component of 21st century skills (Park & Son, 2022). This has prompted governments across the world to take measures to equip their teachers with ICT skills. In Indonesian context, the newly launched curriculum (Kurikulum Merdeka) emphasizes on differentiated learning (Fadilla et al., 2021; Sutisnawati et al., 2022), in which the day to day instructions are adjusted to the needs and unique capabilities of individual students within a classroom (Mills et al., 2014). Again, technology has a vital role in helping

teachers implement differentiated learning. Generally, the first step to do differentiation is by administering diagnostic assessment on students to determine each student's needs and unique characteristics. The Ministry of Education and Culture of Indonesia has provided the needed diagnostic assessment in a digital platform accessible for every teacher (Sugiarto et al. 2023). Beside the assessment platform to diagnose students' needs and capabilities, technology also supports differentiated learning with: (1) abundant online learning resources that provide students with the learning resources they are interested in (Karatza, 2019), (2) adaptive learning software that can be used to automatically adjust the learning resources for each student (Smyrnova-Trybulska et al., 2022), (3) learning management system (LMS) that helps teacher to track progress, strengths, and weakness of individual students, and (4) assessment tools that also provide real-time feedback to each student (Deeva et al., 2021). Subsequently, teachers, including EFL teachers in Indonesia, should prepare themselves to incorporate technologies in their classroom to be able to optimally implement *Kurkulum Merdeka*.

EFL pre-service teachers are also expected to have the competency to use technology effectively to enhance their teaching and support their students' language learning in the future. To address this challenge, language teacher education programs have started to include courses on the utilization of ICT in language classes. However, research findings reveal that pre-service teachers often feel unprepared to incorporate ICT in their teaching (Ranellucci et al., 2020). Limited opportunities are provided to pre-service teachers to apply technology in their teaching practicum (Tondeur et al., 2017). Further, research also suggests that there is a gap between what the pre-service teachers learn in teacher training programs and what they face when applying the ICT in real classrooms (Park & Son, 2022; Tondeur et al., 2017).

Studies on pre-service teachers' preparedness for integrating technology in English language learning have been conducted. A study investigated pre-service English teachers' readiness for CALL in Hongkong in a selected small samples reveals that most of the participants regarded themselves as competent ICT users; however, they did not seem to be motivated to conduct technology enhanced language learning upon graduation (Park & Son, 2022). Research on Iranian EFL pre-service teachers' obstacles, motivators, and maintenance in a CALL program shows similar results in which the participants was not fully confident in implementing CALL in their classrooms (Fathi & Ebadi, 2020). A case study in Norway also investigated post graduate student teachers on their preparedness to teach English as a second language with ICT (Røkenes & Krumsvik, 2016). The result shows that the student teachers' mastery and ability in teaching ESL with ICT vary.

In Indonesian context, pre-service English teachers are also expected to have the ability to integrate ICT in their teaching practices. This expectation is growing even more post Covid-19 pandemic due to a paradigm transformation on how things can be done: work can be done from home and learning can be done from anywhere and anytime with the right technologies. Hence, technology enhanced language learning (TELL) becomes much more current and relevant. The question is "are our future teachers ready to effectively facilitate students with technology enhanced learning?" The future teachers need to have the ability to use various digital technologies as well as design and choose the right digital tools for their classrooms. They also need to have the awareness of technology's impacts, both the positive and negative ones, on their students. A set of complex skills are required to conduct

technology enhanced learning. Krumsvik's (2014) has developed a model of teachers' digital competence.

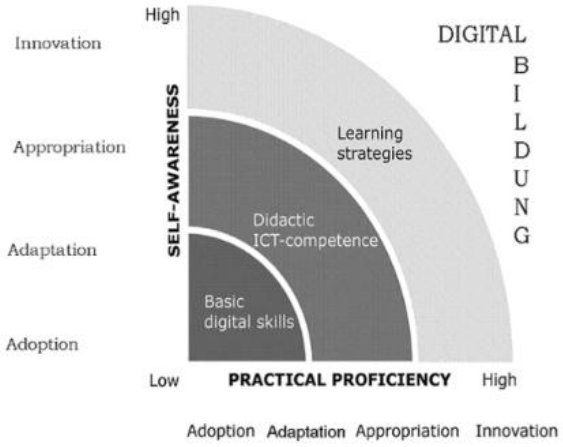

Figure 1. Model of teachers' digital competence

According to the model, digital competence has four core components:

1. Basic digital skills
   This component encompasses the basic use of ICT for communication and leisures (accessing music, news, social media) and basic use of administrative and office software, and tools for teaching (office tools, LMS) (Røkenes & Krumsvik, 2016).
2. Didactic ICT competence
   This component refers to 'reflective pedagogical use and seamless integration of ICT in subject disciplines' (Røkenes & Krumsvik, 2016) such as using various digital tools that is relevant to teach language.
3. Learning strategies
   This component refers to teacher's 'awareness of how to scaffold pupils' development of learning strategies, knowledge construction, and metacognition with ICT'(Røkenes & Krumsvik, 2016)
4. Digital Bildung
   Digital bildung is related to whether teachers are aware of ICT's effect and social impact as well ethical considerations in using ICT in classrooms. This component is also related to how teachers guide students to ethically use ICT in education and minimize the drawbacks of ICT (cyberbullying, plagiarism, privacy invasion, etc.) (Røkenes & Krumsvik, 2016).

This study adapted Krumsvik's (2014) teacher's digital competence to explore pre-service EFL teachers' readiness in conducting Technology Enhanced Language Learning in Indonesian context.

METHOD

This is a case study. This study involved 21 pre-service English teachers taking a course on AI for language learning and teaching in an Islamic state university in Indonesia.

Table 1. Participants' demographic information

Age	**: 20-25 years old**
Gender	
Male	: 33.33%
Female	: 66.67%

To collect the data, this study employed observations, survey (Maxwell 2013), and semi-structured interviews (Kvale & Brinkmann in Røkenes & Krumsvik 2016). The observations were conducted throughout the course of AI for language learning and teaching in one semester from mid to late 2022. Then, the survey employed a 4 point Likert Scale questionnaire (from 1= strongly disagree to 4= strongly agree) adapted from the digital competence model by Krumsvik (2014). 19 items inquiring about participants' perceived basic digital skills, didactic ICT-competence, digital learning strategies, and digital bildung were developed in this study. The questionnaire was distributed to 21 participants through Google Form. The questionnaire's validity and reliability were measured with the Pearson's product-moment correlation and Cronbach's Alpha Correlation. As many as 3 items were dropped after the Pearson's product-moment correlation showed that the 3 items' sig. values> 0.05 (invalid). The other 16 items have sig.values<0.05, which were considered valid. In terms of reliability, all of the items were proven reliable with the Cronbach's Alpha>0.6.

Table 2. Reliability Statistics

Cronbach's Alpha	N of Items
.934	16

Semi structured interviews were then conducted on 5 selected participants. The interviews were conducted to explore more about the data obtained from observations and survey.

FINDINGS AND DISCUSSION

This case study aimed to explore pre-service EFL teachers' perceived readiness in using technology in language teaching and gather in-depth information through multiple data collection techniques. The observation allowed for the capture of non-verbal behaviors and contextual information during a one semester course on technology for language teaching and learning; the survey provided quantitative data on the participants' attitudes and experiences in using technology in their language teaching; and the semi-structured interviews allowed for more in-depth exploration of the participants' perspectives and experiences on this issue.

Pre-service EFL Teachers' Digital Devices and Access to the Internet

All participants have one or more digital devices that they access extensively every day. The digital devices that they access regularly are smartphones (90.5%), laptop or MacBook (85.7%), tablet or iPad (9.5%), and PC (4.8%). All participants also stated that they have internet connection most of the time.

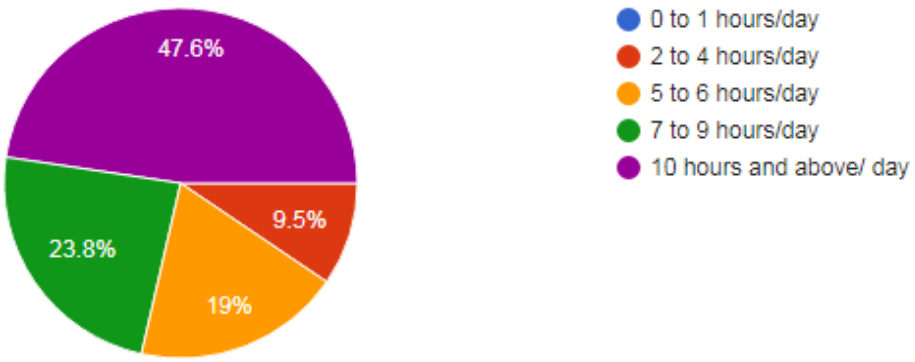

Figure 2. Internet access frequency

Figure 2 shows that a significant portion of pre-service teachers involved in this study (47.6%) access the internet for 10 hours or more per day while only a small portion of participants (9.5%) has less internet access hours per day. These results highlight the importance of the internet access to the involved pre-service teachers on a daily basis.

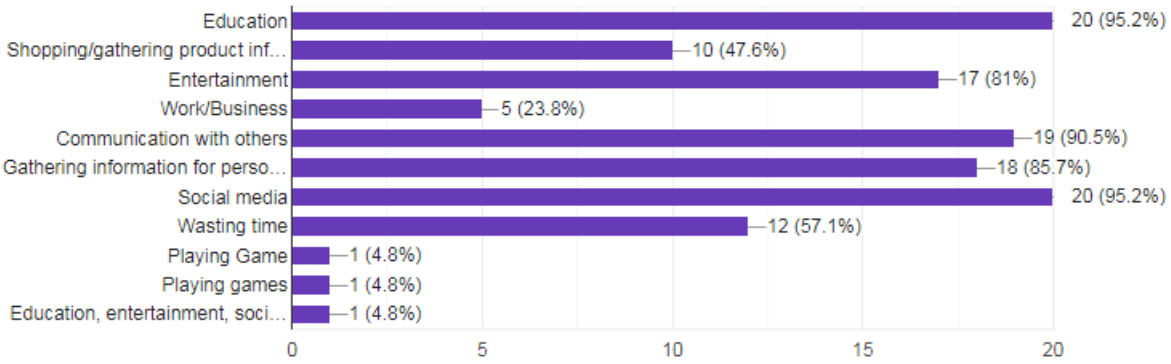

Figure 3. Purposes of accessing the Internet

Based on Figure 3, a significant portion of participants accessed the Internet for educational purposes (95.2%) and social media purposes (95.2%). The high percentage of participants accessing the internet for educational purposes suggest that the Internet has become a vital learning tool for them. Meanwhile, the significant portion of the participants accessing social media also provides potential language learning opportunities through virtual exchanges with other language learners or native speakers through social media. The high intensity of internet access and digital devices used by most of the pre-service teachers are expected to positively impact on their readiness to implement TELL.

Pre-service EFL Teachers' Perceived Basic Digital Skills

There are 4 items that explore pre-service teachers' perceived basic digital skills as parts of their readiness for implementing technology enhanced language learning.

Table 3. Pre-service EFL teachers' perceived basic digital skills

No.	Item	N	Min.	Max.	Mean	Std. deviation
1	I can do basic computer operations with ease (creating and editing documents, managing files and folders).	21	1	4	3.62	.740
2	I can use word processing, power points, web search, multimedia, and communication application with ease.	21	1	4	3.43	.926
3	I can use online collaborative tools (e.g., Google Drive, Dropbox, google slides) with ease	21	2	4	3.48	.602
4	I can install applications in my laptop.	21	2	4	3.52	.602

Table 3 shows the findings of the survey evaluating the ease in which the participants can perform digital technology related task. This basic digital skills are needed for them for daily purposes. The first item's mean score is 3.62, with a standard deviation of .740 indicating that the pre-service teachers on average perceived themselves competent to perform basic computer operations. For the second item, the mean score is 3.43 with a standard deviation of .926 suggesting that the pre-service teachers perceived themselves competent in using applications related to education and work purposes, but not as confident as they are with basic computer operations. The results of the third and fourth items suggest that the participants on average can use collaborative tools and can install applications in their devices with ease. Overall, the data indicates that the participants perceived themselves as competent in completing basic digital technology operations with moderate confidence.

The findings' of the self-reported survey are also in line with the observations during the 16 meetings in course on AI for language teaching and learning. All the participants displayed skills in completing basic digital skills. In each meeting, a group of students were asked to present an assigned topic and they easily prepared all the necessary tools such as connecting their laptops to the LCD projector, searching for and analyzing the information needed for their presentation, and displaying the information and their analysis into a decent power point document. The course required the students to have at least basic digital skills. This basic digital skills are necessary for pre-service teachers if they want to implement TELL in their future EFL classes.

Pre-service EFL Teachers' Perceived Didactic ICT Competence

Didactic ICT competence is related to the teachers' ability, in this case pre-service teachers', in using ICT to enhance their language teaching in the classroom. There are six items exploring this aspect.

Table 3. Pre-service EFL teachers' perceived Didactic ICT Competence

No.	Item	N	Min.	Max.	Mean	Std. deviation
1	I can create e-book (pdf or *epub*) and power point presentation as learning instructional materials.	21	1	4	3.24	.700
2	I can create instructional videos (e.g., lecture video, demonstrations, and tutorial videos).	21	1	4	3.19	.512
3	I can use learning management system with ease (Moodle, Google Classroom, Canvas etc.).	21	2	4	3.52	.750
4	I can create online quizzes and tests.	21	2	4	3.52	.602
5	I can create online assignments.	21	2	4	3.48	.750
6	I can manage grades online with LMS, apps, or software.	21	2	4	2.76	.768

Table 3 shows varying degree of participants' perceived competence in using ICT to design, develop, and manage EFL learning. The tasks included developing digital learning media such as e-book, managing various learning management systems, creating online quizzes, tests, and assignment, as well as managing grades online. The highest confidence is in item number 3 "I can use learning management system with ease" and item number 4 "I can create online quizzes and tests" with mean of 3.52 for both items. However, rooms for improvement are needed for item number 2 (creating tutorial videos) and item number 6 (managing grade online).

During the semi-structured interviews, most of the participants stated that several courses in their 4 year's teacher education program provide valuable insights as well as training to integrate technology into EFL classes.

> *In our department, we have been introduced to various digital learning media. Our lecturers often use PowerPoint, Google Classroom, Google Form, Google Scholar, Canva, Edmodo, etc. The use of digital learning media can help students in learning English in the future (Participant 1).*

> *Actually, several courses at our department asked us to use digital tech [technology] in the learning process, and I think it is in good portion of usage (Participant 5).*

> *After taking several courses, which is either related to technology or not, I started to get to know digital tools to assist my independent learning (Participant 2).*

The relatively low level of confidence in item number 6 (managing grade online) is probably caused by the limited direct experience in administering language assessment and managing grade online. Meanwhile, based on the interviews, the high level of confidence in

item number 3 (I can use learning management system such as Moodle, Google Classroom, and Canvas) is possibly affected by the high exposure of digital tools used by the lecturers in various courses. The students has started to get accustomed to Moodle, Google Classroom, and other LMS since the online learning period during the Covid-19 outbreak. This particular findings are in line with those of Gill et al., (2014) and Røkenes & Krumsvik (2016) that suggest observing the use of ICT for teaching and learning, in this case ICT used by lecturers, provides insights and opportunities for students to reflect on and be critical towards the use of ICT in teaching and learning contexts. This findings suggest that TELL practices modelled by lecturers during the teacher education program are critical to shape the participants' perspective and competence in TELL.

Pre-service EFL Teachers' Perceived Competence in Designing Digital Learning Strategies

Digital learning strategies are related to the teachers' awareness and ability in facilitating their students learning from scaffolding, knowledge construction, to metacognition with the help of digital tools. There are three items used to examine the participants' perceived competence in digital learning strategies.

Table 4. Pre-service EFL teachers' perceived competence in designing digital learning strategies

No.	Item	N	Min.	Max.	Mean	Std. deviation
1	I can conduct brainstorming activities using digital technologies (for example using padlet, AnswerGarden, digital mindmapping etc.).	21	1	4	3.19	.680
2	I can conduct collaborative activities in my classroom using digital technologies (for example writing a story together using Google Slides or Google Docs).	21	1	4	3.19	.750
3	I think I can guide my students to look for informatian and interpret the information from multiple internet sources.	21	2	4	3.38	.740

The data revealed that the majority of participants perceived themselves able to guide students through various stages of learning in digital environment. However, there were several participants who stated unable to conduct brainstorming activities using digital technologies (14.3%), unable to conduct collaborative activities in their classroom using digital technologies (19%), and unable to guide their students to look for information and interpret the information from multiple internet sources (4.8%). The less confident participants might had limited or no opportunities to use ICT during their teaching practicum.

Some participants expressed that they only had few opportunities to design and implement technology enhanced language learning during their teaching practicum.

During the teaching practicum, only few classrooms had electricity due to construction work at that time. So, I only used LCD projectors two times. I did not prohibit my students to use Google Translate. However, many students did not bring their mobile phones because of school regulation banning mobile phones during learning process (Participant 4).

In my teaching practicum, using ICT for language learning and teaching at school was quite difficult because of limited facilities (Participant 2).

Based on the teaching practicum experience, there were several problems when using technology in English classes. Not all students had the ability to operate the technology and the poor internet connection at school also hindered me to use ICT in English classes (Participant 1).

The interview results suggest that limitations in the availability and accessibility of digital devices, internet connection, and even electricity only allows very few opportunities for the participants to orchestrate an integration of ICT in their teaching practicum. When they wanted to be creative despite the absence of LCD projectors and accessible computers, mobile phones were banned (at some schools) during the learning process. This made it even harder for the pre-service teachers to try using ICT to teach English at real classrooms. Although ICT modelling by the lecturers is helpful (Røkenes & Krumsvik, 2016), hands-on experience in designing technology enhanced language learning followed by practicing conducting brainstorming, collaborative activities, and guiding students to look for and analyze information from multiple Internet sources is also important.

Pre-service EFL Teachers' Digital Bildung

Digital bildung is related to whether teachers are aware of ICT's effect and social impact as well as ethical considerations in using ICT in classrooms. This component is also related to how teachers guide students to ethically use ICT in education and minimize the drawbacks of ICT (cyberbullying, plagiarism, privacy invasion, etc.) (Røkenes & Krumsvik, 2016). There are 2 items examining this component.

Table 5. Pre-service EFL teachers' Digital Bildung

No.	Item	N	Min.	Max.	Mean	Std. deviation
1	ICT has positive impacts on language learning.	21	1	4	3.67	.730
2	ICT also has negative effects on students (cyberbullying, plagiarism, privacy, escapism, etc.)	21	1	4	3.29	.784

The first item has the average score of 3.67 with a standard deviation of .730 suggesting that the majority of participants believe that ICT positively impacts EFL learning. The second item also shows similar result with the average score of 3.67 and standard

deviation of .730, indicating most participants recognize the negative sides of ICT in general as well as in learning context.

In a discussion session in Course on AI for language teaching and learning, the majority students stated that they were well aware of dilemmas in using technology in classroom. A student recounted her teaching practicum experience. When she wanted to integrate ICT in English classes, LCD projectors were not always available. Hence, mobile phones (providing that the schools allowed mobile phone access during learning period) were practically the most available digital tools that she could use. The students were excited to use their mobile phones to learn at classroom. However, soon, they were tempted to use the mobile phones for other purposes such as checking their Instagram and Facebook accounts, or playing games.

Other students also brought up a question about whether it is ethical to use paraphrasing tool to assist them write essays for their assignments. The discussion led to a conclusion that technology, specifically AI powered tools and websites has the potential to limit students' creativity and problem solving skills. AI powered tools and websites can provide answers and solutions to any students' questions and problems.

Although they were well aware of the many dilemmas in using ICT in classroom, the pre-service teachers still came to a conclusion that ICT is necessary in today's EFL learning. Teachers are expected to guide students to use ICT in a positive way. Teacher's guidance and clear protocol may prevent over-reliance or dependence on technology.

CONCLUSION

The findings show that the pre-service teachers' perceptions of their preparation for the integration of digital technology into English teaching and learning were positive based on the results on the four components: basic digital skills, didactic ICT competence, digital learning strategies, and digital bildung. They perceived themselves ready to use ICT in their instruction after graduating from the teacher training program. Furthermore, the data from observations and interviews suggest that how their lecturers (teacher educators) model the ICT integration into their courses affect the pre-service teachers' confidence in using various learning tools and implement them (from scaffolding to knowledge construction stage) in their future EFL classes. However, the pre-service teachers had limited opportunities to optimally use ICT during their teaching practicum. These findings could inform the teacher educators and English language teaching department providing teacher training programs to continuously improve the ICT integration into their courses and provide more opportunities for pre-service teachers to practice implementing ICT in EFL classes.

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