



Digital Literacy in Pre-Service English Teachers' Professional Development: Perspectives and Challenges

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ABSTRACT

Teachers require technology and digital literacy to enhance their teaching and learning activities. Digital literacy stands as a crucial skill in the preparation of pre-service teachers for their roles in the pedagogical realm. Among the skills emphasized in their professional development, digital literacy assumes significance. Teachers, including pre-service English teachers, should promote digital literacy in teaching and learning activities by providing the use of technology and digital tools to create more interesting, meaningful, and interactive materials, media, and activities. This study aims to investigate the pre-service English teachers' perspectives on their levels of digital literacy and to examine the software tools and applications commonly used by them. It also aims to explore the challenges in promoting digital literacy in pre-service English teachers' professional development. In this study, a mixed-methods research design was employed, integrating both qualitative and quantitative approaches. Data collection involved administering a closed-ended questionnaire to 67 participants and conducting interviews with 10 participants from the same population. Quantitative data were analyzed using descriptive statistical analysis with SPSS 20, while qualitative data were interpreted through descriptive explanations. The results showed that mostly pre-service English teachers have high level and medium level of digital literacy. Microsoft Office Word was the software or application which was the most commonly used by them. The results also showed that there were five challenges faced by pre-service English teachers in promoting digital literacy in their professional development which were: 1) lack of technology facilities and accessibility; 2) lack access of the internet connection; 3) choosing appropriate digital tools for teaching materials and media; 4) not providing sufficient budget to invest on educational technology; and 5) lack of competence to use English educational technology.

Keywords: Digital literacy, pre-service English teachers, teachers' professional development, perspectives, challenges

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INTRODUCTION

Digital literacy has been becoming a popular issue recently in this digital era. People need technology not only to spread information but also to have better digital environment. People with developed digital literacy tend to have more positive attitudes in the use of technology, particularly when it comes to adopting new technology (Matthews, 2021). People are required to have some basic skills of digital literacy so that they not only can store

information but also choose, analyze, evaluate and use the information which they have obtained wisely. Digital literacy refers to an individual's skills, attitudes, and understanding needed to effectively utilize digital tools to identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources (Son et al., 2017).

Teachers, including pre-service English teachers, need technology and digital literacy to support their teaching and learning activities to be more effective and efficient in their teaching practices. Teacher connection between pedagogy and technology cannot be separated each other. To purvey pre-service teachers for professionalism in the field of pedagogy, digital literacy should be promoted as a key component in their professional development (Calderon et al., 2021; Fernández-Batanero et al., 2022; Öngören, 2021). Moreover, incorporating technology in teaching is essential for English language teachers' professional development. Technology integration is a skill that English language teachers should possess since it can improve their professional growth. Educational technologies have the potential to be a continuous resource for professional development and can help cultivate communities of practice within teacher training programs. It's crucial for teachers to remain academically up-to-date by gaining new knowledge and perspectives through professional development (Nazari et al., 2019). Furthermore, Information and communication technologies should be extensively utilized in higher education. To promote digital literacy, institutions should integrate it into their curriculum and incorporate digital technologies extensively, ensuring teacher candidates achieve a high or appropriate level of digital literacy. This also fulfills the responsibility of preparing them for the digital information era (Khan et al., 2022; Matthews, 2021; Özcan, 2021).

Teachers, including pre-service English teachers, should promote digital literacy in teaching and learning activities by providing the use of modern technologies and digital tools or applications to create more interesting, meaningful, and interactive materials, media, and activities. Demir et al., (2022) point out that teachers must possess digital literacy to create a more effective educational environment. Utilizing technology in education enhances the effectiveness of the teaching and learning processes by providing easy access to applications, software tools, and the internet. With internet connectivity, teachers and students can readily utilize a diverse array of applications and software tools, as well as access learning management systems, across their personal computers, laptops, and mobile devices. This enables both teachers and students to employ various teaching approaches, strategies, and procedures effectively in both physical and virtual classroom settings. Similarly, Sulaimani et al. (2017) state that the increased availability of technological tools in educational settings has greatly influenced the integration of technology. The extensive resources and opportunities offered by computers and the internet have ushered in novel approaches, strategies, and tools in the process of language teaching and learning. Therefore, wise usage of technology tools gives positive impact to teaching and learning process. In addition, the use of technology in teaching can stimulate students' engagement and motivation (Muslimin et al., 2022) and it also can enhance students' academic performance (Hossain et al., 2021).

Utilizing technology in English language teaching and learning offers many kinds of advantages both for teachers and students. The use of technology in any form, including software tools, applications, learning management systems (LMS), and other forms of technology in English language teaching leads teaching process becomes more exciting, motivating, and enjoyable. Besides, through the use of technology, teachers can develop instructional materials, media, and activities that are more authentic, engaging, dynamic, and meaningful. Providing authentic teaching materials and activities allows meaningful learning for students by bringing them into their real-life context. Fitriah (2018) highlights technology

serves as a conduit for performing the activity in an authentic setting for meaningful learning. Moreover, students obtain more input by utilizing technology, such as exercising their English language competencies through some applications or learning tools that provide feedback for them in practicing English language skills like speaking or writing. Student can also learn listening skill through songs provided in some website or applications and they can gain input for their speaking through watching film or video from *Youtube* or other platforms. English students can be familiarized with a range of modern technologies aimed at enhancing their proficiency in English (Rintaningrum, 2023).

In accordance to the increasingly issue of digital literacy, some previous studies on digital literacy were conducted. The study conducted by Churchill (2020) examined the development of digital literacy skills through digital storytelling. The findings indicated that using mobile technologies for digital storytelling contributes to the development of students' digital literacy skills. Another study by Johnston (2020) explored the developing of digital literacy frameworks and digital literacy programs for students and staff in some universities library in Australia. As the result of the study, he suggested to develop a training program for the staff and creating module that includes digital literacy elements. Furthermore, McDougall et al. (2018) employed a study about digital literacy using mobile networked technology (tablets) used across school and home for young learners and their parents. This study focused on how the digital literacy community might distinguish digital competences based on various range of capability. Lastly, a study employed by Muslimin et al. (2022) demonstrated that the implementation of a technology-based instructional lesson plan enhanced the microteaching performance and confidence of pre-service English language teachers in utilizing technology for EFL teaching.

Different from those previous studies, this current study focused on the digital literacy in pre-service English teachers' professional development particularly about the perspectives and challenges. In promoting digital literacy, English pre-service teachers should consider their perspectives on the level of digital literacy. They also should have capacity in using digital tools or applications for their teaching. In the process of promoting digital literacy, pre-service English teachers may encounter any challenges. Therefore, this present study aims to investigate:

1. What are pre-service English teachers' perspectives on their levels of digital literacy?
2. What software tools and applications are commonly used by pre-service English teachers?
3. What are challenges of promoting digital literacy in pre-service English teachers' professional development?

LITERATURE REVIEW

Digital Literacy

Digital literacy is the skill of incorporating digital tools, such as software and applications, effectively to identify, access, manage, evaluate, analyze, and build new knowledge from collected information. It also involves creating new media by exploring digital tools resources and communicating with others in specific contexts. Alexander et al., (2016) highlight that digital literacy encompasses a range of skills, from using digital devices and software to consuming and creating digital content, as well as actively engaging in the digital community. Moreover, digital literacy refers to an individual's skills, attitudes, and understanding needed to effectively utilize digital tools to identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources. It also involves constructing new knowledge, creating media content, and communicating with others in specific life contexts,

with the goal of fostering constructive social actions and reflecting on the process (Son et al., 2017).

Promoting Digital Literacy in English Language Teaching

Almost all teachers, including pre-service English teachers, use technology in their teaching and learning process in this digital age to promote digital literacy for their professional development. There are numerous advantages to incorporating technology into English instruction. There are many English sources which are commonly used as teaching materials and can be easily accessed through internet searching. Moreover, by utilizing software tools, applications, and Learning Management Systems (LMS), English instruction can be made more interesting and effective. Teachers can also easily communicate with students by using technology. Technology plays a crucial role in ensuring students' active involvement during teaching and learning. It assists teachers in delivering engaging, interactive, and impactful instructional materials. In addition, technology facilitates the creation of collaborative learning environments where students can interact and learn together through various platforms like Schoology, Edmodo, Google Docs, and more (Muslimin et al., 2022). Moreover, English students can be familiarized with a range of modern technologies aimed at enhancing their proficiency in English (Rintaningrum, 2023).

Technology integration can also be used as the need for both online and offline teaching and learning process in English classes. In online class, English teachers can deliver teaching materials, provide instruction, make discussion and presentation, upload assignment and apply assessment to students. Falahudin (2014) states that online learning is one of teaching ways that makes it possible to deliver learning material to students using internet media. In addition, English teachers and students can interact easily. This kind of interaction can engage students in discussion and presentation. In the context of teacher, it can help teacher to exchange and distribute teaching materials, share e-books, ask students to submit assignments, as well as conduct tests, games, and quizzes. Meanwhile in offline class, teachers can use various kinds of applications which can stimulate students' motivation in learning English such as the use of Kahoot, YouTube, Mentimeter, etc. The incorporation of technology as teaching and learning tool was intended to create an enjoyable learning atmosphere and enhance students' motivation to learn (Merta et al., 2023).

Employing technology in English teaching and learning can stimulates students' critical thinking. Technology integration stimulates students' critical thinking by providing them with opportunities to engage in interactive and thought-provoking activities. Through the use of technology, students can access a wide range of resources, such as online databases, multimedia presentations, and educational applications, which challenge their thinking and encourage them to analyze, evaluate, and synthesize information. The instructional media utilized by English language teachers, such as YouTube videos, Toondoo, E-books, Mind Map, podcasts, and other web browsing applications, prove to be effective in encouraging critical thinking among students (Merta et al., 2023). Furthermore, technology frequently exposes students to real-world problems and situations that demand the application of critical thinking skills for resolution. This can include interactive simulations, virtual labs, or collaborative projects that prompt students to apply their knowledge, think critically, and find innovative solutions. In addition, technology facilitates student communication and collaboration by allowing them to participate in small group and class discussions, debates, and group projects. These collaborative activities require students to think critically, consider different points of view, and effectively articulate their ideas. Utilizing any kinds of technology tool can develop students' critical thinking abilities (Long et al., 2022).

Technology utilization in English language teaching can promote students' autonomous and independent learning. Since each student has unique needs, interests, and learning styles, they can use digital tools and applications to tailor their learning to their preferences. Zhang & Chen (2022) point out that employing technology in teaching instruction promotes learners' autonomous and personalized learning. Students can also learn independently both in the classroom and outside classroom though teacher controlling is still needed in teaching and learning process. As technology has the potential to assist students in becoming independent learners both inside and outside the classroom, it is suggested to consistently encourage English language students and teachers to incorporate it into their instructional practices (Rintaningrum, 2023).

Applying technology in English language instruction promotes teachers' positive attitudes. Raygan & Moradkhani (2020) highlight effective technology utilization necessitates English teachers to possess a positive attitude towards technological progress. Applying technology can stimulate teachers' creativity and self-confidence. The preferences for diverse topics of authentic instructional materials and activities demonstrate teachers' creativity. Asking students to record a *vlog* video in which they converse with a native English speaker while on vacation, for instance, may help them practice their English speaking skill. This allows students to study in a real-world setting. By placing students in their real-world setting, authentic educational materials and activities enable meaningful learning for them. Incorporating technology into English classrooms enables English teachers to broaden their creative capabilities by providing more authentic teaching materials and activities on a variety of topics (Fitriah, 2018). Incorporating technology in English language instruction also stimulates teachers' self-efficacy and self-confidence. Teachers gain confidence in their teaching by using technological tools or applications as teaching media, which can assist teachers in providing a variety of exciting teaching materials and activities. By creating their own instructional materials and media, teachers show their readiness in teaching. Teachers can create English video, audio, slides of Power Points, and any other kinds of teaching materials with different kind of topic. Teachers' confidence can be boosted by their readiness to teach. Technology has the potential to influence English language teachers' psychological and professional readiness such as self-efficacy and self-confidence in adapting to new teaching methods and approaches (Gill & Dalgarno, 2017; Kapici & Akcay, 2020; Muslimin et al., 2022; Zhang et al., 2021).

Pre-service English Teachers' Professional Development

Teachers professional development can be defined as teachers' responsibility to continually develop their knowledge, skills, and experience to improve their teaching practices as. Professional development for teachers is viewed as a crucial way to expand their knowledge and improve their teaching methods (Antoniou et al., 2015). Teachers' professional development also related to some issues about pedagogical skills or other skills needed by teachers which can facilitate teachers to develop their professionalism. Nugroho et al. (2022) highlight that professional development activities are widely acknowledged as ways of dealing with English teachers' problematic issues as they are to keep up with the current development of innovations and changes in the area of English language teaching by making efforts to refresh, update and upgrade their competences covering their pedagogical competences and professional competences. Furthermore, professional development can also defined as the continuous process throughout a teacher's career, including both formal and informal learning to strengthen and expand their professional skills and knowledge (Lei & Medwell, 2020).

There are various facets of teacher professionalism, and teachers can pursue professional development through a variety of ways, activities, and programs to enhance their professional competence. Professional development can take many forms and be delivered through various methods, including in-person sessions, online courses, or a blend of both (Cirocki et al., 2023). Moreover, Brown (2015) classifies teachers' professional development into collaborative and individual development. Based on Brown (2015), collaborative activities for teachers' professional development encompass peer coaching, team teaching, collaborative curriculum development and revision, presenting at professional conferences, joining teacher professional associations, and taking part in informal local teacher support groups. Furthermore, Brown (2015) identifies individual activities for teachers' professional development, including keeping reflective teaching journals, compiling teaching portfolios, engaging in professional reading from journals and books, and contributing to publications.

The purpose of teachers' professional development is both for teacher's teaching skill and competency improvement and also students' achievement. Zein (2016) highlights that effective professional development is thought to improve teachers' instructional methods, which, in turn, is likely to have a positive effect on students' performance. Moreover, professional development programs should also focus on providing practical knowledge and skills that support students in reaching their learning objectives, ultimately aiding and enhancing their learning experience (Harjanto et al., 2018). In other words, this process of developing teachers' professionalism is not only essential for teachers' pedagogical and professional development but also for students' meaningful learning experiences.

The process of professional development is not only a responsibility for teachers but also for pre-service teachers. In English teacher context, pre-service English teachers should develop their skills not only skills which can enhance their English competency but also their pedagogical and professional skills as pre-service English teacher. Therefore, pre-service English teachers' professional development in this study can be defined as ways and activities which the purpose is to develop teachers' skills including English skills and pedagogical and also professional skills employed by pre-service English teachers for better teaching practices.

RESEARCH METHOD

Research Design

Mixed-method was applied as research design of this study through qualitative and quantitative approach. Mixed-method research combines quantitative and qualitative research methods in different ways, with each approach adding something to the understanding of the phenomenon (Ary et al., 2014). Quantitative approach was utilized to obtain pre-service English teachers' perspectives on their levels of digital literacy and to obtain their perspectives on software tools and applications which were commonly used by pre-service English teachers. Meanwhile, qualitative approach was employed to reveal pre-service English teachers' insights about challenges in promoting digital literacy in EFL pre-service teachers' professional development. Qualitative research involves reporting how people talk about things and how describing things, and how they see the world (Creswell, 2016).

Setting and Participants

This study was conducted in one of the state Islamic university in East Java province, Indonesia. The data were gained from 67 students or pre-service English teachers of the seventh semester of *English Language Education* department as the entire population of this

study. They were of an age range 20-23. Digital literacy has been being promoted to those students or pre-service English teachers since they were at the first semester. The process of promoting digital literacy has been practiced in various ways to support their professional development. Some courses like *Internet Based Language Teaching (IBLT)* and *Computer Assisted Language Learning (CALL)* which they joined in are some examples of the courses which promoted digital literacy in the class activities. Besides, other courses like *Spoken English*, *Written English*, *Instructional Materials and Media Development*, etc. are also media in promoting digital literacy through teaching and learning activities and also assignments or projects given in those courses. For instance, pre-service English teachers are used to use many software tools or applications in doing both online and offline teaching and learning activities, in microteaching activities, in real-life teaching practice, in presenting their assignments or projects, in presenting their research, and many others. They are also used to create some teaching materials and media using some different kinds of applications like *Animaker*, *Quizizz*, *Zotero*, *Microsoft Office*, etc.

Data Collection and Data Analysis

Two kinds of data were used in this study. The first data were obtained by addressing a close-ended questionnaire of *Likert-scale* through *Google Form* link to 67 participants of this research. It were utilized to obtain pre-service English teachers' perspectives on their levels of digital literacy and to obtain their perspectives on software tools and applications which were commonly used by pre-service English teachers. These data were analyzed quantitatively using statistical analysis of descriptive statistic using SPSS 20. Meanwhile, the second data were gained from interview using semi-structured interview guideline to 10 participants from the same population of the participants addressed in distributing questionnaire. It was employed to reveal pre-service English teachers' insights about challenges in promoting digital literacy in pre-service English teachers' professional development. This data were in a form of verbal data and were analyzed descriptively using data analysis based on the theory of Ary et al. (2014) in analyzing qualitative data which consists of three steps which are 1) familiarizing and organizing; 2) coding and reducing; 3) interpreting and representing. These procedures are in line with the procedures in mixed method design. A mixed methods research design is a procedure for collecting, analyzing, and "mixing" both quantitative and qualitative methods in a single study (Creswell, 2015).

Research Instruments

Research instruments employed were adapted from the established questionnaire and interview guideline of the research conducted by (Dashtestani & Hojatpanah, 2022). Those two established research instruments were based on the theories and issues about digital literacy in educational and English language contexts. Those ones were applied content validity by applying expert validation from three experts of CALL and educational technology, and also three experts of applied linguistics. Regarding the construct validity of that questionnaire, exploratory factor analysis used and it showed a suitable factorial structure of the instrument. The levels of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy also applied, the Bartlett's test of sphericity (0.00) was also considered with the results was considered as appropriate. An acceptable loading pattern for the questionnaire was achieved and Cronbach's Alpha coefficients also depicted an acceptable level of reliability for the items of the questionnaire. The adapted close-ended questionnaire used in this study using five points of *Likert-scale*. In this present study, the questionnaire was adapted based on some theories and issues about digital literacy in English language context and pre-service English

teachers' professional development. It consists of three parts with two sections. There was 25 items for each section. The first part covered the profile of the participants, the second part (section 1) accommodated pre-service English teachers' perspectives on their levels of digital literacy with *Likert-scale* of: no level of competence (value 1); low level of competence (value 2); average level of competence (value 3); moderately high level of competence (value 4); and high level of competence (value 5). The third part (section 2) grasped pre-service English teachers' perspectives on software tools and applications which were commonly used by pre-service English teachers with *Likert-scale* of: Not using at all (value 1); rarely using (value 2); sometimes using (value 3), using (value 4), and frequently using (value 5). Semi-structured interview guideline with five questions were utilized to obtain pre-service English teachers' insights about challenges in promoting digital literacy in pre-service English teachers' professional development.

RESULTS

Pre-service English Teachers' Perspectives on Their Levels of Digital Literacy

The first research question of this present study investigated pre-service English teachers' perspectives on their level of digital literacy. Based on the result of the administered close-ended questionnaire and statistical analysis using descriptive analysis, it indicates that mostly pre-service English teachers have high level and medium level of digital literacy. This classification is based on the classification of mean value by Al-Nouh et al. (2015) which used in this research. The classification of mean value is: low mean value=1.00-2.33; medium mean value=2.34-3.66; and high mean value=3.67-5.00. Table 1 showed the results of pre-service English teachers' perspectives on their level of digital literacy in terms of the mean and standard deviation.

Table 1 Pre-service English Teachers' Perspectives on Their Levels of Digital Literacy

Item	N	Min	Max	Mean	Std.Deviation
Playing computer games	67	1	5	3.27	.898
Playing online games	67	1	5	3.57	.973
Using English websites	67	2	5	3.99	.769
Using social network sites	67	2	5	4.07	.785
Using Microsoft Office Word	67	2	5	3.99	.826
Using Microsoft Office PowerPoint	67	3	5	3.82	.737
Using computer-based dictionaries	67	2	5	3.64	.773
Using online dictionaries	67	2	5	4.04	.727
Using mobile-based dictionaries	67	2	5	3.90	.837
Using Wikipedia	67	1	5	3.45	1.019
Using search engines	67	1	5	4.06	.952
Using English videos	67	2	5	4.03	.797
Sending and receiving e-mails	67	1	5	3.66	1.008
Using English learning applications	67	2	5	3.88	.749
Using English podcasts	67	1	5	3.51	.975
Using canva	67	2	5	3.99	.826
Using Mentimeter	67	1	5	3.54	.990
Using Kahoot	67	2	5	3.88	.946
Using Quizizz	67	2	5	4.03	.852
Creating Powtoon video	67	2	5	3.51	.877
Creating Animaker video	67	1	5	3.64	.916
Creating Flipbook	67	1	5	3.60	.938

Using Blogs	67	2	5	3.51	.975
Using Video Conferencing	67	2	5	3.85	.803
Using Learning Management System (LMS)	67	1	5	3.94	.875
Valid N (listwise)	67				

Based on the data presented in Table 1, it showed that pre-service English teacher have high level of digital literacy in using social network sites, search engines, online dictionaries, English video and *Quizizz*, English websites, *Microsoft Office Word*, *Canva*, Learning Management System (LMS), mobile based-dictionaries, English learning applications and *Kahoot*, video conferencing, and *Microsoft Office Power Point*. The highest order of high level of pre-service English teachers' level of digital literacy was in using social network sites ($M=4.07$, $SD=0.78$). It was followed the level of digital literacy in using search engines ($M=4.06$, $SD=0.95$); using online dictionaries ($M=4.04$, $SD=0.73$); using English video ($M=4.03$, $SD=0.80$) and using *Quizizz* ($M=4.03$, $SD=0.85$); using English websites ($M=3.99$, $SD=0.77$), using *Microsoft Office Word* ($M=3.99$, $SD=0.83$), using *Canva* ($M=3.99$, $SD=0.83$); using Learning Management System ($M=3.94$, $SD=0.87$); using mobile based-dictionaries ($M=3.90$, $SD=0.84$); using English learning applications ($M=3.88$, $SD=0.75$) and using *Kahoot* ($M=3.88$, $SD=0.95$); using video conferencing ($M=3.85$, $SD=0.80$), and using *Microsoft Office Power Point* ($M=3.82$, $SD=0.74$).

Table 1 also showed that pre-service English teacher have medium level of digital literacy in sending and receiving emails, using computer-based dictionaries and creating *Animaker* video, creating flipbook, playing online games, using *Mentimeter*, using English podcasts, creating *Powtoon* video and using blogs, using *Wikipedia*, and playing computer games. The highest order of medium level of pre-service English teachers' level of digital literacy was in sending and receiving emails ($M=3.66$, $SD=1.01$); using computer-based dictionaries ($M=3.64$, $SD=0.77$) and creating *Animaker* video ($M=3.64$, $SD=0.92$); creating flipbook ($M=3.60$, $SD=0.94$); playing online games ($M=3.57$, $SD=0.97$); using *Mentimeter* ($M=3.54$, $SD=0.99$); using English podcasts ($M=3.51$, $SD=0.97$), creating *Powtoon* video ($M=3.51$, $SD=0.88$) and using blogs ($M=3.51$, $SD=0.98$); using *Wikipedia* ($M=3.45$, $SD=1.02$); and playing computer games ($M=3.27$, $SD=0.90$).

Pre-service English Teachers' Perspectives on Software Tools and Applications which were Commonly Used

The second research question investigated in this current study was pre-service English teachers' perspectives on software tools and applications which were commonly used by pre-service English teachers. Using the same classification of mean value from Nuh et al. (2015) with the classification of mean value is: low mean value=1.00-2.33; medium mean value=2.34-3.66; and high mean value=3.67-5.00. Based on the result of statistical data analysis of descriptive statistic, it indicates that *Microsoft Office Word* was the software or application which was the most commonly used by the pre-service English teachers. Table 2 presented the results of pre-service English teachers' perspectives on software tools and applications which were commonly used in terms of the mean and standard deviation.

Table 2 Pre-service English Teachers' Perspectives on Software Tools and Applications which were Commonly Used

Item	N	Min	Max	Mean	Std.Deviation
Computer games	67	1	5	3.58	1.257

Online games	67	1	6	3.24	1.372
English websites	67	2	5	4.09	.773
Social network sites	67	2	5	4.34	.808
Microsoft Office Word	67	1	5	4.52	.877
Microsoft Office PowerPoint	67	1	5	4.09	.883
Computer-based dictionaries	67	1	5	3.60	1.045
Online dictionaries	67	3	5	4.36	.644
Mobile-based dictionaries	67	2	5	3.94	.936
Wikipedia	67	1	5	3.01	1.022
Search engines	67	3	5	4.49	.704
English videos	67	3	5	4.18	.737
E-mails	67	1	5	3.76	1.060
English learning applications	67	2	5	3.63	.998
English podcasts	67	1	5	2.87	1.057
Canva	67	2	5	3.91	.949
Mentimeter	67	1	5	2.93	.958
Kahoot	67	1	5	3.15	.973
Quizizz	67	2	5	3.42	1.047
Powtoon video	67	1	4	2.76	.836
Animaker video	67	1	5	2.85	.925
Flipbook	67	1	4	2.64	.792
Blogs	67	1	5	2.94	.936
Video Conferencing	67	1	5	3.75	.990
Learning Management System	67	1	5	3.76	1.060
Valid N (listwise)	67				

Based on the data presented in Table 2, it showed that the most frequently software tool or application commonly used by pre-service English teachers was *Microsoft Office Word*. It was followed by search engines, online dictionaries, social network sites, English videos, English website and *Microsoft Office PowerPoint*, mobile-based dictionaries, *Canva*, e-mails and Learning Management System (LMS), video conferencing, English learning applications, computer-based dictionaries, computer games, *Quizizz*, online games, *Kahoot*, *Wikipedia*, Blogs, *Mentimeter*, English podcast, *Animaker* video, *Powtoon* video and Flipbook. *Microsoft Office Word* ($M=4.52$, $SD=0.88$). It was followed by search engines ($M=4.49$, $SD=0.70$); online dictionaries ($M=4.36$, $SD=0.64$); social network sites ($M=4.34$, $SD=0.80$); English video ($M=4.18$, $SD=0.74$); English websites ($M=4.09$, $SD=0.77$) and *Microsoft Office Power Point* ($M=4.09$, $SD=0.88$); mobile based-dictionaries ($M=3.94$, $SD=0.94$); *Canva* ($M=3.91$, $SD=0.95$); *e-mails* ($M=3.76$, $SD=1.06$) and Learning Management System ($M=3.76$, $SD=1.06$); video conferencing ($M=3.75$, $SD=0.99$); English learning application ($M=3.63$, $SD=0.99$); computer-based dictionaries ($M=3.60$, $SD=1.05$); computer games ($M=3.58$, $SD=1.26$); *Quizizz* ($M=3.42$, $SD=1.05$); online games ($M=3.24$, $SD=1.37$); *Kahoot* ($M=3.15$, $SD=0.97$); *Wikipedia* ($M=3.01$, $SD=1.02$); Blogs ($M=2.94$, $SD=0.94$); *Mentimeter* ($M=2.93$, $SD=0.96$); English podcast ($M=2.87$, $SD=1.06$); *Animaker* video ($M=2.85$, $SD=0.93$); *Powtoon* video ($M=2.76$, $SD=0.84$); and Flipbook ($M=2.64$, $SD=0.79$).

Challenges in Promoting Digital Literacy in Pre-service English Teachers' Professional Development

The third research question of this study was dealing with strategies used by pre-service English teachers in promoting digital literacy in their professional development. Based on the data gained from the semi-structured interview, there were five challenges faced by pre-service English teachers in promoting their professional development which were: 1) lack of technology facilities and accessibility; 2) lack access of the internet connection; 3) choosing appropriate digital tools for teaching materials and media; 4) not providing sufficient budget to invest on educational technology; and 5) lack of competence to use English educational technology.

Lack of technology facilities and accessibility

One of the challenges was faced by some pre-service English teachers is the lack of technology facilities and accessibility in using those facilities. From the interview session, two pre-service English teachers confirmed that they were lack of technology facilities in applying their digital literacy skill even they didn't have any proper technology facilities to support them in their professional development as pre-service English teacher. Even though they had technology facilities, those facilities were limited to be used.

"My challenge in promoting digital literacy is the lack of technology facilities." (P4)

"In my own perspective, I think I am as pre-service teacher don't have proper technology to support me." (P7)

"Although there are some facilities in using technology but it is limited to use those facilities." (P3)

Furthermore, the other pre-service English teachers stated that they had difficulty in developing their digital literacy because their laptop or mobile phone didn't have more spaces to install large applications. Limited specification of those tools also made them difficult to download applications which they needed for teaching.

"It is related to the device. I think both my laptop and my mobile phone don't have any larger internal storage. My laptop doesn't support to install large applications." (P5)

"I think the most challenging is the lack of technology facilities since I don't have good facility to develop my digital literacy skills since I have limited specification in my laptop and mobile phone." (P6)

Lack access internet connection

Another challenge was dealing with the limited or bad internet connection. During the interview session, some pre-service English teachers gave statements that they had limited internet connection, unstable speed of the internet, and unavailable signal while they were accessing the internet. Those problems made them difficult to access any information using internet and also to explore new applications which they used for teaching.

"When in the process of teaching learning, I find a difficulty to explore new application because of limited internet connection." (P2)

"I think the internet connection is the most challenge. I think the internet speed is not stable." (P10)

"When I access internet, sometimes it doesn't have a good signal." (P3)

Choosing appropriate digital tools for teaching material and media

Selecting appropriate teaching material and media especially which was integrated with the use of technology or digital tools (applications) was one of the skills which pre-service English teachers must have. Unfortunately, this aspect also was become another challenge for some pre-service English teachers dealing with the process of promoting digital literacy. They said that they found some difficulties in choosing appropriate teaching material and media for their teaching because not all materials were appropriate to certain digital tools. Therefore, it was becoming their concerns in the process of promoting digital literacy.

"My biggest challenge is looking for proper digital sources for teaching." (P1)

"Based on my experience, not all materials are appropriate to certain digital tools." (P8)

Not providing sufficient budget to invest on educational technology

Some pre-service English teachers confirmed that they didn't have any budget to upgrade or buy some applications. The fact, they needed those applications for supporting them in their professional development especially for using those applications in the teaching and learning activities.

"One of the challenges which I face in promoting digital literacy is I am not providing budget of technology to upgrade applications and explore many features of applications." (P2)

"I don't have any budget to buy some applications." (P9)

Lack of competence to use English educational technology

Based on the result of the interview, some pre-service English teachers considered that lack of competence to use English educational technology was also one of the challenges encountered by them in promoting digital literacy in their professional development. They said that they sometimes didn't know or forget how to use or explore applications which they needed for teaching and learning.

"I ever join in some seminars and workshops about digital literacy, but I forget the explanation of the speaker or the presenter." (P5)

"I think the main problem in digital literacy is mostly sometimes I don't know how to use application well." (P10)

DISCUSSION

From the result of questionnaire, it can be seen that mostly pre-service English teachers have high level and medium or moderate level of digital literacy. This finding is in accordance with the finding of previous studies on digital literacy level which showed high and medium level of digital literacy (Kim et al., 2018; León-Pérez et al., 2020; ÖNGÖREN, 2021). Another result based on the analysis of the questionnaire, it showed that *Microsoft Office Word* was the software tools or application which was the most commonly used by pre-service English teachers and they also used all software tools or applications presented in the questionnaire. This finding is in line with previous study which showed that many participants tended to use almost all applications or digital tools word like processing programs, email, the World Wide Web, text chatting and electronic dictionaries frequently, etc (Son et al., 2017). Based on the result of the interview, it showed that there were five challenges faced by pre-service English teachers in promoting their professional development which were: 1) lack of technology facilities and accessibility (Tütüniş et al., 2022); 2) lack access of the internet connection; 3) choosing appropriate digital tools for teaching materials and media; 4) not providing sufficient budget to invest on educational technology; and 5) lack of competence to use English educational technology. Other studies reported the similar challenges regarding to the lack access to digital technology (tools) and internet. Based on this result, pre-service English teachers need more support to cover those challenges by providing more technology facilities and stable internet connection.

CONCLUSION

This study aims to investigate the pre-service English teachers' perspectives on their levels of digital literacy and to examine the software tools and applications commonly used by them. It also aims to explore the challenges in promoting digital literacy in pre-service English teachers' professional development. This study draws a conclusion that pre-service English teachers need to know their level of digital literacy, master some digital tools (digital software and applications) to support their teaching practices. Based on the results of this

study, it is showed that mostly pre-service English teachers have high level and medium level of digital literacy. Pre-service English teachers used various kinds of software tools and applications in teaching and learning process. *Microsoft Office Word* was the most commonly software or application used by them. Besides, they also used all software tools or applications presented in the questionnaire. The results also showed that there were five challenges faced by pre-service English teachers in promoting their professional development which were: 1) lack of technology facilities and accessibility; 2) lack access of the internet connection; 3) choosing appropriate digital tools for teaching materials and media; 4) not providing sufficient budget to invest on educational technology; and 5) lack of competence to use English educational technology.

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