

Analyzing Pre-Service English Teachers' Digital Literacy Skills in EFL Teaching

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ABSTRACT

This study analyses the types of digital literacy skills frequently used and how digital literacy skills support pre-service English teachers' performances. This research used a mixed method with an explanatory sequential design. The data collection method begins with the collection of quantitative data by online questionnaire, then proceed with the collection of qualitative data to help analyze the data obtained quantitatively through observation and interview. The population of this study was pre-service English teachers, the sixth-semester students of the English Education program at Universitas Negeri Makassar who program teaching training including PPL, Kampus Mengajar, and Ajarmi program. One hundred and two pre-service English teachers filled out the questionnaire, while several representatives were chosen for interview. The result showed that (1) various digital literacy skills were used by pre-service English teachers, such as information, technology, media, communication, reproduction, branching, socio-emotional, and real-time thinking skills. However, the use of information literacy has the highest used percentage, which is 54 % in Often category and 0 % in Never category. and (2) pre-service English teachers' use of digital literacy skills supported the teaching performances, including the access to prepare teaching models and media, improving their teaching skills, and producing new creative and innovative teaching content.

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1. Introduction

The era of industrial revolution 4.0 demands quality human resources ready to face technological advances and competition. In creating competitive and adaptive human resources, it is crucial to strengthen personality and character through literacy abilities. The concept of literacy in this era is not only limited to conventional literacy activities but also digital literacy (Rahman, 2018; Rahman & Weda, 2018). Thus, literacy does not only include reading and writing activities but also thinking skills to use knowledge sources in the form of print, visual, digital, and auditory. As crucial human resources in education, teachers should have 21st-century skills, including learning and innovation, life and career skills, information skills, media and technology, and literacy skills (Sulaiman & Ismail, 2020).

Digital literacy skills are the most basic and crucial in today's technological developments. According to UNESCO (United Nations Educational, Scientific, and Cultural Organization), digital literacy is much more than the capacity to handle computers, rather like conventional proficiency and numeracy, it comprises a set of fundamental abilities that incorporate the utilization and generation of digital media, data processing and retrieval, interest in social networks for creation and sharing of information, and a vast extend of professional computing abilities (Law, 2018). It refers to an individual's basic knowledge when using communication and information technologies in the digital world. In addition, the characteristics of digital literacy do not only refer to operating skills and using various information technology and communication technology devices (hardware and software platforms) but also to the process of reading and understanding the presentation of the contents of technological devices and methods of creating and writing into new knowledge.

Bawden (2008) proposed four core digital literacy competencies : (i) internet search, (ii) hypertext navigation, (iii) knowledge assembly, and (iv) content evaluation. According to Eshet, several digital literacy skills include cognitive and functional skills. Those skills are (i) photo-visual literacy, (ii) reproduction literacy, (iii) branching literacy, (iv) information literacy, (v) socio-emotional literacy, (vi) and real-time thinking skills (Eshet-Alkalai, 2012). While Josie et al. identified

five skills of digital literacy : (i) information literacy, (ii) computer literacy, (iii) media literacy, (iv) communication literacy, and (v) technological literacy (Josie et al., 2018).

In some previous studies, perceived convenience, attitude towards computer utilize, and computer self-efficacy directly impact pre-service teachers' technology acceptance, while perceived ease of utilization, mechanical complexity, and favorable conditions influence technology acceptance indirectly (Teo, 2009). It was also found that more than half of the pre-service teachers reported an overall high literacy level in all areas. Their sense of readiness for teamwork and their ethical enthusiasm is heightened. Nonetheless, a shared understanding of willingness is found in the first and advanced order of readiness (Peled, 2021). Most participating pre-service teachers were found to lack a sense of critical thinking and digital culture toward digital literacy; they appeared to possess the competencies of finding information, communication, and functional skills (Nabhan, 2021).

Based on pre-observations on pre-service English teachers from Universitas Negeri Makassar who carried out teaching training with a blended learning environment at schools in 2020-2021, their understanding of digital literacy only covered the use and application of technology. They had not adequately understood digital literacy skills, which made them unaware of their abilities. A short interview was also conducted with one of the pre-service teachers; she said that during the implementation of blended learning, various platforms are used to help facilitate the learning process, which serves as a medium for delivering material, assessment, or collecting assignments such as WhatsApp group, google classroom, and e-mail. However, this information had not been able to describe the digital literacy skills possessed and applied by a pre-service teacher. This research has never been done before. Besides that, analyzing digital literacy skills is essential for pre-service English Teachers as future English teachers in the digital technology era.

2. Methodology

The research was mixed method with an explanatory sequential design. The population of this study was pre-service English teachers, the sixth-semester students of the English Education program at Universitas Negeri Makassar who program teaching training including PPL, Kampus Mengajar, and Ajarmi program. One hundred and two pre-service English teachers filled out the questionnaire, while several representatives were chosen for interview. The sampling technique was purposive sampling (sampling based on objectives). Hence the participants were chosen based on the considerations of research objectives. This sampling is because the sixth-semester English students had already taken the microteaching program and utilized various digital technologies in teaching and learning practices. Data collection techniques were conducted through observation, questionnaires, and interviews.

Content validity was conducted to ensure the questionnaire contents were appropriate and relevant to the study objectives. Content validity indicates content that reflects a complete range related to the attributes studied and is usually carried out by seven or more experts. In addition, the margin of error should be checked to examine the statistical validity of a frequency claim. According to Creswell (2014), qualitative research data emphasizes validity. In addition, to prove the credibility of the findings, the triangulation data will be used in this research. Triangulation includes collecting various data, such as observational data, interviews, and using multiple analysts to collect and analyze data. Meanwhile, the reliability test used the dependability test by conducting an independent audit of overall research activities.

Data were analyzed using SPSS for the types of digital literacy skills and usage frequency. As a result, analyzed data were illustrated quantitatively using tabulations and percentages. Meanwhile, answers obtained from semi-structured interviews are analyzed using qualitative methods.

3. Result and Discussion

3.1. The Types of Digital Literacy Skills Used by Pre-Service English Teachers in EFL Teaching

From the results of distributing the questionnaires to 102 pre-service English teachers as respondents, it can be seen that the average total score of respondents' answers was 73.82352941 with the maximum, minimum, and median total scores respectively 100, 74, and 48. The difference between the highest and the lowest indicates the range of total respondent scores of 52. The mode value indicates that the total score of respondents' answers is 76, above the average total score. The standard deviation value of 11.23062624 is smaller than the average, meaning there is no data deviation. In addition, the data used has a normal curve ($0.154945667 = 0$).

Table 1. Descriptive Statistic of EFL Pre-Service English Teachers' Digital Literacy

Statistic	Statistic
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Mean	73,82352941
Standard Error	1,111997697
Median	74
Mode	76
Standard Deviation	11,23062624
Sample Variance	126,1269656
Kurtosis	-0,412345224
Skewness	0,154945667
Range	52
Minimum	48
Maximum	100
Sum	7530
Count	102

1) Information Literacy

There are three items for information literacy indicators. The highest percentage is in the "often" category, namely 54%. In contrast, the lowest percentage is 0% in the "never" category. From this data obtained, an average of 77%.

Through interviews, it is also known that finding and organizing information in this digital era is a very basic skill and easy to do. Therefore, according to the data, all pre-service teachers involved in this study have information literacy skills.

Yeah, there are a lot of sources that can be accessed (Int./ 250523/AAS /PSET4). Usually, before teaching, we will definitely look for information first, whether it's from the website or from a book (Int./ 250523/FF/PSET5).

In addition, textbooks are now not only the only source of information for teaching EFL teaching but most of the information is obtained via the internet, which can be accessed at any time.

I took the information from a textbook and a website. I also don't forget to always include videos because it is the key to gaining students' attention; they will pay attention. So, in every learning process, I always include videos because it build students' motivation to learn (Int./ 250523/AAS /PSET4).

Yes, I can. Sometimes I usually edit some content to make it understandable for my students (Int./120523/ ADS /PSET2).

So, I had just observation before for a week to see my supervisor teach. The way she collected videos for teaching, she looked for content who have pronouns that were able to be understood by students, interesting animation, and there was a subtitle but in English, not Indonesian. So students can understand easily even if they don't really know about the meaning, but at least they can guess from the animation, from the gesture in the video even though they don't understand the meaning. So, I took the reference from my teaching supervisor to include a video in my teaching (Int./ 250523/AAS /PSET4).

Even so, most of the pre-service English teachers still ignore things such as paraphrasing information obtained from the internet to be presented back in EFL teaching. In addition, they often do not include the source of the reference. I barely write the reference because I just directly put it on PPT as additional materials (Int./ 250523/FF/PSET5).

2) Technological Literacy

There are three items for technological literacy indicators; the highest percentage is in the "often" category, namely 46%. In contrast, the lowest percentage is 0% in the "never" category. From this data obtained, an average percentage of 77%.

Through observation and interviews, almost all pre-service English teachers teach in schools equipped with Smart TVs and projectors. So that technology skills can be learned and developed. In addition, they are also equipped with personal smartphones that can be connected to digital devices at school.

Ah ... I use my laptop. I usually use a laptop, and my students use their phones. In the class, we use Smart TV. I use Smart TV to show material. So if there is some problem on Smart TV, I share the material with my students to read on their phones. Then, I explain the material to my students so they can learn the material from their phones. If the connection still has problems, I usually share the material to students and I use the whiteboard. I write on the whiteboard, or I explain it directly (Int./120523/ APMS /PSET1).

We usually use laptops and Smart TVs because every class in this school provides a Smart TV and LCD. We use Smart TV and show the slide. After that, we also use the smartphone of the students. We usually conduct the formative text, so we use Google Form (Int./120523/ ADS /PSET2).

Besides that, we are supported by the facility at school. We don't use a projector anymore but we use Smart TV, it can connect to our phone. Without bringing our laptop anymore, we can control it through our phone (Int./ 250523/AAS /PSET4).

The internet connection also plays a very important role. Pre-service teachers who are undergoing teaching programs are facilitated by an internet connection so that they can be used for the preparation of learning and the learning process in class.

Yes, it really supports us. Wi-Fi is everywhere, even in the canteen. So, even if they don't have internet data, Wi-Fi was provided in each class (Int./ 250523/AAS /PSET4).

We are in T area (communication provider) the internet is so easy to be accessed. The students like Quizizz. So, every time the learning process is ended, they were given Quizizz; when they access Quizizz, it is easy because they don't usually have a loading page. Maybe it is the effect of good and fast internet here (Int./ 250523/FF/PSET5).

3) Media Literacy

There are three items for media literacy indicators. The highest percentage is in the "often" category, namely 40%. In comparison, the lowest percentage is 0% in the "never" category. From this data obtained, an average of 81 %.

The results of observations and interviews show that pre-service English teachers access at least three references for EFL teaching needs. The source generally comes from the internet, such as websites or blogs. Apart from that, most of them also take advantage of platforms like YouTube.

Maybe two until three sources from internet, like from articles or blog, or YouTube, to show the students (Int./120523/ APMS /PSET1).

I use at least 3 reference sources because sometimes the contents of the information are different. Maybe there is additional information (Int./ 250523/FF/PSET5).

I don't usually try to find material on websites. I prefer YouTube because I like watching on YouTube. Except, I found different content on YouTube, then I'll do a re-check from the internet. But it's just an alternative. Sometimes, I watch other people's microteaching videos to find out how people teach a particular topic (Int./ 250523/AAS /PSET4).

General sources like Google Scholar, Google Forms, Yellow Monkey. Because that's easy to access and free.... (Int./ 240523 / MA /PSET3).

In addition, some pre-service English teachers choose references from popular or official platforms from institutions engaged in teaching English professionally, for example, Ruang Guru, EF (English First), Kampong Inggris channel or ELTiS (English Language). Teaching Training for Islamic Schools).

I just use randomly, it depends on the teaching topic, like I usually just find in any video in YouTube; for website I usually visit Ruang Guru and Cambridge Dictionary. I can't mention all. There are so much (Int./120523/ APMS /PSET1).

Other than that, we usually found the material that provided by EF (English First), or we usually take our material from channel Kampung Inggris Pare. We usually look at their platform, screen shooting, and showing the content of their platform (Int./120523/ ADS /PSET2).

Like I've just said before, use material from internet and social media like ELTiS (English Language Teaching Training for Islamic School). We sometimes upload our content or game in platforms like Quizizz (Int./120523/ ADS /PSET2).

4) Communication Literacy

There are three items for communication literacy indicators. The highest percentage is in the "often" category, namely 45%. The lowest percentage is 1% in the "never" category. From this data obtained, an average of 71 %.

From the interviews, it was found that several pre-service teachers joined the online community to improve their English skills. The online community usually practices English with other foreigners.

It helps me to improve my English, and when I improve my English skill mean I improve my English teaching too. Oh yeah, I have joined in English Learner Community at my university... (Int./120523/ APMS /PSET1).

I joined an app a long time ago to improve my English. We became like a Radio DJ where we can talk or share about anything (Int./ 250523/AAS /PSET4).

I sometimes join Zoom English Café. I know it from the Twitter, and I sometimes join them in the evening. But now they rarely open the session. So, I don't really have time to do it (Int./120523/ ADS /PSET2).

They are all Indonesian, but sometimes the link is provided on Twitter. So, they are many foreigners, especially from India, join the Zoom (Int./120523/ ADS /PSET2).

No, I don't. But, I have a lot of interactions in English with foreigners who have the same interest through Discord. The positive thing about Discord is all the feature is free, but when we have a launch (audio discussion feature), it is hard to manage the speaker's turn to talk. I have some friends from New York (Int./ 240523 / MA /PSET3).

Yes, I use WA even we don't have online classes or blended learning. I also told them to use Twitter space (Int./ 240523 / MA /PSET3).

However, there are no pre-service English teachers involved in collaboration related to EFL teaching, one that has been implemented is to encourage students to communicate with foreigners through online discussions on social media where these activities remain under the supervision of pre-service English teachers like the statement below.

I told students to join Twitter space to interact with foreigners. It's one of my methods (Int./ 240523 / MA /PSET3).

5) Reproduction Literacy

There are two items for reproduction literacy indicators. The highest percentage is in the "often" category, namely 44%. The lowest percentage is 0% in the "never" category. From this data obtained, an average of 72 %.

It can be seen that the information obtained by pre-service English teachers from the internet is used as new content as learning media. They adapted the ideas in the previous content into new content needed in their class. Generally, they are proficient in using editor applications such as Canva.

So, reproduction literacy skill is something like you create new material. We assume it as paraphrasing, while information literacy skill is like summarising, right? (Int./120523/APMS /PSET1).

To be honest, I make content on Twitter, but I stop when I'm entering the third semester. Back then, when I make it, I usually find the material from EF (English First). I focus on the grammar, so I introduce the Noun, Verb, Adverb and etc, and the part of speech. Yes, and I uploaded in one platform. I edited on Canva and then posted it. Sometimes it is crowded by Netizen, but sometimes it was not making a noise (Int./120523/ ADS /PSET2).

For 8th graders, I usually make PPTs from Canva. Sometimes besides using Quizizz, we use paper-based like LKPD (Int./ 250523/FF/PSET5).

From the internet. But I'm just trying to adopt this idea to make an interesting learning experience because if the teaching materials are not interesting, most students don't wanna do it. For instance, the students from in 7th grade, are still kids who just graduated from elementary school. They still have an interest in picture material. They like to play games. So, we try to find something interesting according to their interest and needs (Int./ 250523/AAS /PSET4).

One time, I applied the role-play method. Because the subjects are countable and countable, we pretend they are in restaurants. They make scenarios creatively, like selling food. Some of them even pretend to be arrogant waiters. But, before that, I show them a video on "how to order food in a restaurant" (Int./ 250523/AAS /PSET4).

Skills in recreating and repurposing content are also taught to students to develop their creativity in class, but neither individual nor group assignments can be applied and integrated into a digital society.

In the beginning, I had planned to make a project where they post it on social media and tag us. But, it is unrealizable. I really wanna do it (Int./ 250523/AAS /PSET4).

I had a plan, like other pre-service teachers, to give students a personal experience video on social media, but I don't know how to make it happen. Besides that, it's hard to give them group project homework (Int./ 250523/FF/PSET5).

6) Branching Literacy

There are two items for branching literacy indicators. The highest percentage is in the "often" category, namely 35%. The lowest percentage is 2% in the "never" category. From this data obtained, an average of 65 %.

Most pre-service English teachers lack an understanding of branching literacy skills. The simplest thing is that they can access the internet and integrate activities on several websites to support their teaching, for example, storing databases from various applications on Google such as Google Drive and Google Forms.

About websites and programming, I didn't know about that because last time I used a website (Blog) in my senior high school, but for editing images and videos. I still do that (Int./120523/ ADS /PSET2).

...I use Google Drive to save data when we are in separate places; we can do it together. So I make it like activity programs and shared the link, and some of them can edit it directly even if we are in different places. We also use Google Forms to make exams for students. (Int./120523/ APMS /PSET1).

In addition, implementing the Learning Management System (LMS) in several schools for attendance, giving assignments, and collecting assignments have made pre-service English teachers hone their skills in navigating the program.

LMS (Learning Management System). It's similar to Syam-Ok. But it's called my LMS here. Sometimes, some teachers also use Google Classrooms here (Int./ 250523/AAS /PSET4).

My LMS (Learning Management System) is provided by T (Communication and Internet provider). For example, the teacher cannot attend the class, so they will collect the assignment there (Int./ 250523/FF/PSET5).

More complex in terms of branching literacy skills are those related to navigating websites, such as SEO (Search Engine Optimisation) skills, and programs such as NFT (Non-Fungible Token), Web3, and ChatGPT.

SEO (Search Engine Optimization)? I just know CEO. What is SEO? No, I don't know. Maybe I have ever used that. But I don't know the name because I usually use some applications, but I don't know the name (Int./120523/ APMS /PSET1).

Web3 is not only about NFT for entertainment, but there is also a platform for education. The students can use it for learning. For example, they use my link, so as a teacher, I'm gonna get a little bit of commission as a token (Int./ 240523 / MA /PSET3).

It is for music, education, or learning. I don't usually call this NFT but learning platform for students to use. I'm gonna tell them this game is a learning game and make them interested by saying who have the highest point is the winner. I'll give a bonus or score (Int./ 240523 / MA /PSET3).

...to integrate Web3 with education because the use of Web3 usually starts from simple things like VR (Virtual Reality). That is one example of we can see and interact at the same time. Typical of NFT is we try to face and interact with people in digital world. Semi interaction (Int./ 240523 / MA /PSET3).

Yes, that's quite right. It might take a long way to go, that's why the school and university should be included here (to provide digital tools). UGM and UI begin to apply this technology. Governments like SA also try to include Web3 in our activities (Int./ 240523 / MA /PSET3).

Yes, I do. I use them as references. The weakness of Chat GPT is they are repetitive. I have been using AI for one year now. Human usually uses explore opinions, but AI can't do that. If we take a look carefully, they have a similar repetitive format or template. I use AI to assist me. We have to use all the potential of this technology as long as we don't overuse them. AI is still learning (developed). I believe the percentage of correctness is 60 % and 40% wrong possibilities. We need repetitive samples to test them (Int./ 240523 / MA /PSET3).

7) Socio-Emotional Literacy

There are two items for socio-emotional literacy indicators. The highest percentage is in the "often" category, namely 43%. The lowest percentage is 1% in the "never" category. From this data obtained, an average of 72 %.

This skill refers to self-control and self-awareness in using social media. It is known that most pre-service English teachers experience distraction when using social media and lack the awareness and initiative to develop their digital literacy skills.

One hour. It's so random. No, sometimes it depends on my mood hehe. When it's urgent, I have to do that (Int./120523/ APMS /PSET1).

Distracted hehe. I think I'm always doing like that. When I search for something, but there are some distractions, I will end up doing something else. But at the end up of the day, when the deadline is coming near. It also finishes on time. I usually just focus on my goals, maybe just the task to-do list. Just doing it all day (Int./120523/ ADS /PSET2).

10 % finding the material, the time left is used for scrolling hehe... I don't have. We just keep learning, but there is no regular schedule (Int./ 250523/FF/PSET5).

No, there is no intentional plan. I don't really plan it. Sometimes, I just learn a lot of stuff with the thought that it will be used later. Sometimes, I was right that my skill will be useful. I just think this one is suitable or not for my teaching (Int./ 240523 / MA /PSET3).

In my opinion, we spend more time scrolling than finding the material, but the point is our work is finished. There is no problem (Int./ 250523/AAS /PSET4)

No, but I think every time I use the internet or social media, I learn something new. Information that we haven't learned before. We will always get an update related to entertainment or education topics (Int./ 250523/AAS /PSET4).

I usually didn't tell them in class, but outside the classroom, I often told them that be careful on the content on Instagram or TikTok because it is so harmful. In the classroom, I rarely talk about that (Int./120523/ ADS /PSET2).

In addition, there is still a lack of awareness to educate students about bad influences or activities on the internet, for example, the spread of hoaxes, hate speeches, cyber crimes, etc. However, the pre-service teachers repeatedly reprimanded and reminded them directly if they found students who said bad things.

No, I'm still not aware about that (education about Hoax, hate speech, or to cite references from some sources) (Int./120523/ ADS /PSET2).

Of course, I always inform them about it (Hoax). I told them to find information but reminded them that

not all sources are credible. On the internet, people can freely make false information. People can lie without consequences. In real life, we can lie, and usually, there will be consequences. But on the internet, we can be anonymous. It is educated to all students by all pre-service teachers who teach in this school (Int./ 240523 / MA /PSET3).

8) Real-Time Thinking Skill

There are two items for socio-emotional literacy indicators. The highest percentage is in the "often" category, namely 51%. The lowest percentage is 1% in the "never" category. From this data obtained, an average of 71 %.

The results showed that the pre-service English teachers are up-to-date on technology and general information, such as knowledge about educational news. But some are still unaware of the importance of updating information related to classroom learning, such as media or teaching methods.

Yeah, sometimes. I search what trends, what teaching trends like ice breaking or new material, what skills, or what method trends now to manage the class. So, I sometimes update the teaching trends in Indonesia; for example, nowadays, new curriculum like Merdeka Belajar. Before I teach them in school, I study about it. The differences between Merdeka Belajar and Curriculum 2013 (Int./120523/ APMS /PSET1).

No, because that kind of topic usually keeps coming forward, so I don't really know how we should edit the material or not because sometimes it doesn't have a correlation about the materials (Int./120523/ ADS /PSET2).

I think I cannot really measure what kind of thing I really update. But I think I updated enough; I caught up enough with the technology. But I still don't know about the programming stuff (Int./120523/ ADS /PSET2).

Based on the results of questionnaires, interviews, and documentation, the most frequently used are information skills, media literacy, and technological literacy among the eight digital literacy skills.

usually use information literacy and reproduction literacy; for information literacy, I usually make PPT for students. I usually get information from some sources then I copy to PPT. After that, I explain to my students. Then, for reproduction literacy, I usually got information from internet, then I change it. For example narrative text of Cinderella,

I think the first one is information literacy because I think it is the main of digital literacy that I have. Other skills may be reproduction and socio-emotional literacy (Int./120523/ ADS /PSET2).

3.2. The Supports of Digital Literacy Skills on Pre-Service English Teachers' Performances in EFL Teaching

Pre-service teachers who had been observed receive various supports through facilities such as digital devices and the internet. This support affected their technology skills, where they could learn and practice using digital tools they did not know before. This skill ultimately had a good impact on their performance in EFL teaching.

I believe it's way easier for me to teach them if I know digital literacy skills because it's really helpful for us. You know, like we didn't have time to print all the material. So, we just show them in Smart TV or some kind like that; also, we can share our material through our smartphone. It's way easier and faster than the conventional way (Int./120523/ ADS /PSET2).

Alhamdulillah, from the use of technology in the class, it is easier for me as a pre-service English teacher to prepare teaching material. The school especially has Smart TV. Sometimes, we don't need to bring our laptops because our smartphones can be connected directly. We don't need to download videos anymore; we can just play it directly from a platform like YouTube (Int./ 250523/AAS/PSET4).

The ability to find information on the internet can also improve the performance of pre-service teachers. They could access the internet anywhere, making preparing learning materials and media easier. Relying on textbooks is not enough to present attractive material for students.

My information literacy skills help me to find more detail information, credible information (Int./120523/ APMS /PSET1).

No, I usually find it on the internet. They don't have main textbook here, but UKBM (Unit Kegiatan Belajar Mandiri) it's a module about the material and assignment (Int./120523/ APMS /PSET1).

I usually just send the file or apps. There are a lot of apps that I can use, like Yellow Monkey, and Survey. The simple web, for instance, Learn English Teen from British Council. It has completed materials. It can be accessed by children and adults. For example speaking skills. There is a level, according to CEFR. Each of them has a level. The way I teach them to learn is similar to the method by using a projector. (Showing the web). This video will be played three times. First, there will be two speakers who have a conversation. Second, only one speaker who speaks, then we will be the one who gives responses. Third, it is similar to the second time, but there will be blank words to be completed (Int./ 240523 / MA /PSET3).

Literacy skills include communicating and socializing through learning platforms, online communities, and social media. It improved pre-service English teachers' English skills by continuing to train themselves with native speakers or foreigners. In addition, this was also a forum for exchanging information. Good English language skills will certainly support the pre-service English Teachers' performance in EFL teaching.

Not too big, but that community can help me to improve my teaching and English because I have visited schools. We have to do some activities like English camp. We had the refreshing vacation like that (Int./120523/ APMS /PSET1).

Yeah, we follow each other in social media. I can know their activities (Int./120523/ APMS /PSET1).

Digital literacy skills also train creativity by utilizing various sources of information and digital media, encouraging pre-service English teachers to be more innovative in producing new works and to think critically to adapt to digital technology and information.

Yes, I also learn from students who have special needs how they improve their English. They use the website "Character I", which they share in English. There are many characters that they can choose from. For example, psychology characters. I have ever tried it before. I input the character of psychology and start to share my problem. Then, they will respond to my story in English. The students use it to learn English. You have to try the website (Int./ 250523/AAS /PSET4).

I'm active in TikTok. I like to see the conversation with foreigners. So there will be two speakers, they will play the part of the speaker one, and I will play the speaker 2. Duet. I like to follow the content (Int./ 250523/AAS /PSET4).

I just wanna communicate more with my students about the assignments collection. I want the assignments to be collected in Google Drive or Google Forms because it is safer and more organized. We can review it later. If they collect it on a Whatsapp group, it is easier to be deleted.

The purpose of the teaching program is to train students or prospective teachers to have the ability to demonstrate performance in real situations in teaching and learning activities and other teacher duties. In particular, the objectives of the teaching program (AjarMi, PPL, and Kampus Mengajar) are to know the physical and non-physical (administrative, academic, and socio-psychological) environments of the school, to master various basic teaching skills, to apply various professional teacher abilities as a whole, and integrate real situations, to develop learning competence in the field of study that become their speciality. Therefore, as pre-service English teachers in the digital era, digital literacy skills are important qualifications and basic skills for carrying out learning activities and other tasks.

The description of the pre-service English teachers regarding digital literacy shows that their knowledge is limited to using technology and skills to obtain information from the internet. In contrast, according to UNESCO (Law, 2018), digital literacy equips people with ICT concepts, methods, and skills to enable them to use and exploit ICTs. The related concept of information literacy provides people with concepts and training to process data and transform them into information, knowledge, and decisions. It includes methods to search and evaluate information, elements of information culture and its ethical aspects, and methodological and ethical aspects for communication in the digital world.

First, according to Jones-Jang et al., (2021), information literacy significantly increases the probability of recognizing fake news stories, interpreting the results, and conceptual and methodological clarifications. In this research, information literacy skills of pre-service English teachers were focused on key matters such as (a) source tracing skills

information; (b) citation, (c) plagiarism, (d) intellectual property rights, (e) thinking critically and analytically in the use of information, (e) assessment of sources of information.

Second, the existence of technological literacy skills supported the implementation of learning activities in EFL teaching. The use of technology served teaching and learning activities in a more sophisticated manner by providing a variety of learning media. It is in line with the research (Lestari & Santoso, 2019), which explained that This ability includes understanding the utilization of the most recent technology. For example, audio and video media are displayed on Smart TVs, LCD screens, or smartphones. For example, smartphones provide many features and sophistication utilized by English pre-services such as controlling Smart TVs.

Third, media literacy skills related to the use of the internet. Through the internet, pre-service teachers could easily find material from various sources. Wide accessibility is an important support for curiosity fulfillment. To find various references, pre-service teachers only needed to enter the keywords, and then, in a matter of seconds, it will be presented with information related to the topic. Pre-service English teachers didn't just rely on material from old books. However, they could present new data and information so that they are connected with the latest information and developments.

Fourth, pre-service English teachers joined the community in the digital society; sometimes, they had conversations with native speakers. But they barely tried to collaborate on digital platforms or social media. In line with the research done by Asfihana et al., (2022) explained that through virtual based learning, students can create group discussions that help them share each member's duty, advance collaborative abilities, and deliver an important experience to the students.

Fifth, digital reproduction literacy is the capacity to combine previously unrelated elements of knowledge to produce a meaningful, genuine, and creative work or interpretation (Gilster, 1997; Labbo et al., 1998). Pre-service English teachers were proficient in reproduction and often had strong multi-dimensional synthetic thinking, enabling them to make new connections between previously unrelated knowledge.

Sixth, broadly speaking, branching digital literacy is related to navigation in this context and refers to navigating pages, applications, and websites online. Pre-service teachers generally do not have experience in website management. SEO (Search Engine Optimization) is a soft skill that needs to be mastered. SEO is a technique used to optimize a website to make it easier for search engines to find pages/websites and place them on the first page of search engines with keywords specified by the user (Krrabaj et al., 2017). From this research, the pre-service teacher's interest in developing skills in understanding and managing the website is very low, even though, as a prospective English teacher, knowledge of the website can be very useful in teaching EFL.

Seventh, Internet use can emotionally or psychologically impact a person. Therefore, the digital emotional intelligence of pre-service English teachers has an important role. In this case, the ability to manage emotions when using the internet, empathize, and build good relationships with others online. Through the internet, one can connect or meet with other internet users easily and quickly without any restrictions. Without digital emotional intelligence, someone who can just argue or hate speech easily believes in hoaxes and strangers that cause someone to get caught in fraud, and so on. Therefore, teach children to control themselves when using the internet.

Eighth, pre-service English teachers were required to adapt to changes in mindset and need that are fast-paced, practical, and precise. The presence of technology helped them to keep up to date. The presence of Internet technology also makes implementing the education system easier and more practical. Thus, pre-service teachers can develop online teaching methods, aka virtual learning, that utilizes the internet.

Technology in learning is a need in today's era. Through technology, pre-service English teachers got information and had many new educational opportunities. Technology is a window that opens access to thousands of learning resources. In line with Beardsley et al., (2021) that teacher confidence in utilizing technology for preparing lessons, lesson teaching, evaluating and giving feedback, and communicating with students and families has expanded together with teacher motivation to improve their digital skills and utilize digital technologies for instructing.

Advanced technology can increasingly encourage pre-service English teachers and students to be innovative and creative. The next benefit of information technology is to help pre-service English teachers find a variety of teaching methods that are more varied. Audio and video-containing learning materials to e-learning software are proven to provide innovation in teaching methods.

According to Li et al., (2019), improving EFL teachers' academic, pedagogical awareness and competence in technology-assisted language instruction. In addition, this study also found that digital literacy skills had helped teachers to be more productive, critical and innovative by producing new creative and innovative teaching content.

4. Conclusion

In conclusion, digital literacy skills involve information, technology, media, communication, reproduction, branching, socio-emotional, and real-time thinking skills. However, the most frequently used frequency is media literacy. In addition, several pre-service English teachers chose information and technological literacy as their skills. Data also supports that these two skills have a high frequency of use after media literacy. In addition, pre-service English teachers who could operate digital devices, accessed various credible information, had skills in using editor applications to create new content and could keep up to date showed better performance in EFL teaching. For further study it is recommended that the next researcher investigate further the relationship between improving pre-service teachers' digital literacy skills and students' learning outcomes in EFL teaching. In addition, the researcher also can conduct an experiment or case study to improve pre-service English teachers' digital literacy skills.

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