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Research Article

Exploring Digital Literacy Skills of Prospective Indonesian EFL Teachers

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ABSTRACT

Understanding EFL students' levels of digital literacy is a vital step to improve the quality of English teaching and learning. This paper explored the levels of digital literacy skills of prospective Indonesian EFL teachers in the matter of their readiness for the integration and implementation of digital tools in their language learning practices. The respondents were three hundred thirty-six students majoring in the English Language Education department across cultural regions in Indonesia. A questionnaire was distributed online to gather data. The data were then tabulated and interpreted descriptively. The analysis results reported that the prospective Indonesian EFL teachers' level of digital literacy was moderate. The discussion in this paper focuses on their digital literacy skills in terms of creative, technological, personal security, internet safety, problem-solving, information, communication or netiquette, and navigation. The findings of this study will provide a useful reference to improve learning practices and the integration and implementation of digital tools in English teaching and learning contexts.

Keywords: *digital literacy, digital skills, English learning, prospective EFL teachers*

Introduction

In today's online learning setting, students are expected to make meaning from course materials that are presented digitally and come in multiple modes. In this learning mode, In an environment where online learning occurs, internet-integrated tools are used to facilitate all learning aspects, including delivering and accessing learning resources, interacting with teacher and other peers, and getting feedback or support for their learning process (Ally, 2008; Piskurich, 2004; Shank & Sitze, 2004).

One way to prepare students to become successful learners in this digital age is to make sure they are equipped with adequate digital literacy skills. Digital literacy skills in this research are a set of competencies or skills the prospective EFL teachers perform when using internet-integrated technologies in online learning context. They are digitally literate if

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they know how to use internet-integrated technologies to search for and store essential information for long-term learning use. They use gadget to manage and filter irrelevant information, use it in environment-friendly way such as limiting the video streaming or autoplay and using mobile network rather than Wi-Fi, and solve technical problems during learning that may occur during that process (Law, Woo, de la Torre, & Wong, 2018; Jenkins, 2015; Heick, 2013; Bawden, 2008).

Furthermore, prospective teachers are digitally literate when they are able to recognize and use features in their social media platform to create and re-create information from internet sources into meaningful new information. They only share trusted information through their social media and messaging platform and are considerate enough to recognize situational appropriateness before sharing that information on their social media accounts. In addition to that, prospective EFL teachers who are digitally literate possess skills they require to secure their personal data. They must also be skilled in navigating the internet to confirm or critically evaluate information across websites, as well as creating new learning pathways for them during online learning (Law, Woo, de la Torre, & Wong, 2018; Jenkins, 2015; Heick, 2013; Bawden, 2008; Eshet-Alkalai, 2004; Gilster, 1997).

Digital literacy skills has become a focus in the field of online learning where pandemic crisis has emphasized the urgent need for both teachers and students to upgrade their former literacy skills to adequate digital literacy skills. Akayoğlu, Satar, Dikilitaş, Cirit, and Korkmazgil (2020) explored the understanding of 111 Turkish students majoring in the Departments of Foreign Language Education of digital literacy and the practice of digital literacy skills in their future teaching experiences. The results reported that the participants were already aware of the use of various digital tools for their personal, educational, and professional use. Furthermore, they were also aware that being digitally literate means being able to critically evaluate digital tools available around us for safer, wiser, and more productive use. Their results highlighted three points of suggestion: 1) creating environment in teacher education that allows teacher students to modify existing digital content for their own purpose; 2) emphasizing on university professors as role model in using digital tools in their practicum and future teaching, and 3) integrating social media into undergraduate teacher training degrees. Similarly, a research conducted by Saud (2021) on 426 Nepalese EFL teachers who held master's degree and PhDs revealed that they had adequate digital literacy skills to support their online teaching during lockdown and pandemic time setting. Although 53% of the respondents were from rural areas of Nepal, they had shown enthusiasm in improving their skills through taking training and self-teaching.

A growing body of research conducted on exploring how well the Indonesian educators and learners perform a set of digital literacy skills in online learning before and during pandemic time showed various results. Prior to pandemic time, Eryansyah, Erlina, Fiftinova, and Nurweni (2019) reviewed the digital literacy skills of EFL students majoring in English Education study program and found that their skills were low due to the limited use and access of internet integration tools in language learning. Another research conducted during pandemic time proved that EFL students in their second, third and fourth year had inadequate skills in criticizing and evaluating information presented digitally (Silvhiany, Hufaizah & Ismet, 2021). Similarly, several language teachers faced challenges surrounding digital and navigation skills such as searching for information and authenticating the information (Darwanto, Rini & Herusatoto, 2021). Those findings are in contrast to research carried out by Liza and Andriyanti (2020) who proved that EFL teachers who were also graduate students showed high level on digital literacy skills and were ready to implement digital tools and technologies in their teaching practice during pandemic time. Likewise, a research conducted by Eryansyah, Petrus, Indrawati, and Ernalida (2020) presented that EFL preservice teachers in the fourth year of their undergraduate education possessed digital literacy skills above acceptable level.

Each of the findings above-mentioned needs more research because of varied results. Research on the Nepalese EFL teachers showed

adequate level of digital literacy skills with focus more on how they operated internet-integrated or networked digital devices such as laptop and smartphones. Likewise, research on the Turkish EFL students showed they were aware of the use of various digital tools yet must be carefully evaluated if being used in learning. Meanwhile, bodies of research on Indonesian EFL teachers and students focus more on their readiness in using digital tools and their skills in criticizing and evaluating information presented digitally. However, the scope of this focus is still limited to certain regions only. Therefore, more information is required on how well the prospective EFL teachers perform their digital literacy skills in online learning setting across regions in Indonesia. This present study was carried out to get more information needed on prospective Indonesian EFL teachers' digital literacy skills in the matter of their readiness for the integration and implementation of digital tools in their language learning practices. Prospective teachers who have a high level of digital literacy skills will perform better in digital learning environment compared to those with a low level of digital literacy skills. Hence, the higher their level of digital literacy skills is, the better and more ready they are in implementing digital tools in their language learning practices now and their teaching practices later.

Methods

Three hundred thirty six prospective teachers (or teachers candidate) agreed to participate in this research were learners in their first, second, and third year from seven universities in Indonesia (universities in Koe, Med, Pon, Pos, Sid, Sin, Sog) in the 2020-2021 academic year, majoring in English Language Education. Before conducting a survey, a 25-questionnaire was developed and tried out for testing its validity and reliability. It was distributed to 79 students who shared similar characteristics with the intended respondents. The version of the questionnaire consisted of 22 valid items in eight subscales: creative (4 items); technological (3 items); personal security (4 items); internet safety (3 items); problem solving (2 items); informational (2 items); communication or netiquette (2 items), and; navigation (3 items). The responses were measured with four-point Likert scale, where 4 = strongly agree/always and 1 = strongly disagree/never for 13 positive items and reversely for 9 negative items. The questionnaire had a reliability at 0.706 or satisfactory. Ultimately, the final version of questionnaire was then administered to 336 intended respondents via Google Forms. To analyze the data, the findings gained from online survey were statistically processed and descriptively presented. The data were later presented in the themes based on the theoretical framework and results of previous research.

Results and Discussion

The questionnaire results on the respondents' profile and their performance of each indicator are presented in Table 1 and Table 2.

Table 1. Participant profile

Variable	N	%
Owning internet-integrated gadget (laptop, smartphone)	336	100%
Gender		
Female	275	81.8%
Male	59	18.2%
Undefined	2	0.6%
Age		
< 19	36	10.7%
19	121	36.0%
> 19	179	53.3%
Province		
Koe, East Nusa Tenggara	75	22.3%
Med, North Sumatra	41	12.2%

Variable	N	%
Pon, West Kalimantan	46	13.7%
Pos, Central Sulawesi	45	13.4%
Sid, East Java	57	17.0%
Sin, Bali	43	12.8%
Sor, West Papua	29	8.6%

As seen in Table 1, the respondents were dominated by female students (n=275, 81.8%), mostly above 19 years old (n=179, 36%), and had either smartphone or laptop to facilitate their learning experiences (n=336, 100%). Results of the respondents' performance of each indicator are presented in Table 2.

Table 2. Findings summarized

No	Indicators	Mean	SD	Levels
1	Using smartphone for internet browsing	3.63	0.5941	High
2	Connecting my gadget to WIFI without assistance	1.76	1.06918	Low
3	Confused of website's sudden change appearance	2.84	0.76615	Moderate
4	Solving technical problems (i.e. troubleshooting)	3.16	0.77136	High
5	Using mobile data at home instead of home internet	2.77	1.12874	Moderate
6	Storing private data on the internet (email, drive, or other cloud storages)	2.01	0.90261	Moderate
7	Setting video on social media and website (i.e. YouTube, Facebook) to autoplay	2.68	1.02744	Moderate
8	Locating information on the internet right away	3.49	0.58328	High
9	Storing important information on the internet for long term use	3.31	0.813	High
10	Confident in browsing across websites to choose information that best suits my needs	3.36	0.59636	High
11	Confident in sharing thoughts or opinions on other's social media post	2.43	0.8949	Moderate
12	Creating digital content for social media from music, images, or videos available on the internet	2.40	0.88192	Moderate
13	Creating digital content for social media using apps or tools	2.54	0.96416	Moderate
14	Creating digital content for social media by editing another content already available on the internet (adding music, images, or videos)	2.55	0.93878	Moderate
15	Sharing posts on social media using existing template	2.57	0.84033	Moderate
16	Sharing posts on social media using template available on apps/tools (i.e. Canva)	2.79	0.78905	Moderate
17	Comparing information on different websites to verify information	3.24	0.76676	High
18	Recognizing fake information on the internet	3.41	0.66723	High
19	Blocking junk emails	2.87	0.70019	Moderate
20	All information seen on social media and messaging can be trusted	2.90	0.69917	Moderate
21	All information shared on my social media is trusted	2.71	0.86703	Moderate
22	Taking into account the appropriateness of information before sharing on my social media	3.76	0.48864	High

Based on the data displayed in Table 2, the respondents' level of all 22 indicators in digital literacy skills was moderate (n=13 items, 59.1%). To get a better look on the respondents' performance in each city, the results were presented in figure 1 to 8. For the purpose of this research, 50% was set as the baseline percentage for the frequency of respondents who had the highest response in each skill.

Creating information from internet sources

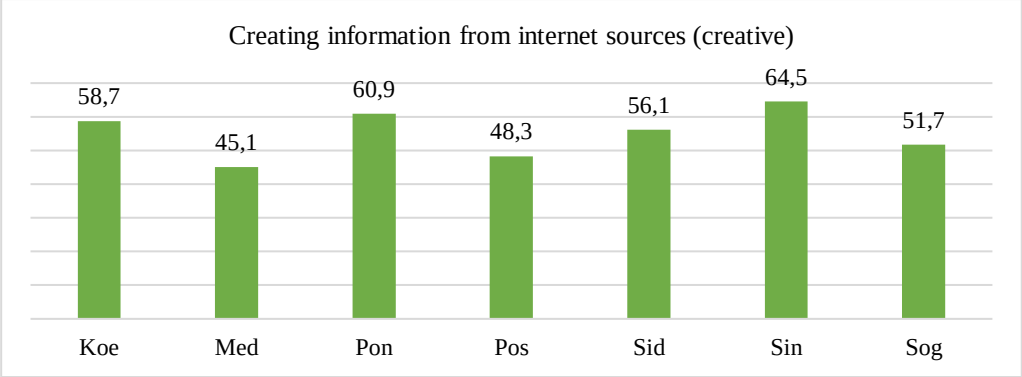

Figure 1. Creative

The first skill shown in Figure 1 is *creating information from internet sources* or creative skill. This figure shows that more than half of respondents in five cities were literate in this skill. The respondents in city Sin showed the highest percentage on this skill compared to respondents in other cities, while the respondents in city Med showed the lowest percentage. This finding means that respondents in city Sin were more creative in creating information from internet sources (item 11) than the respondents in other cities. They were more able to create digital content for their social media to share their opinions by using applications or digital tools (item 12) yet cautious enough when comes to editing another content already available on the internet (item 13 and 14).

Using internet-integrated technologies

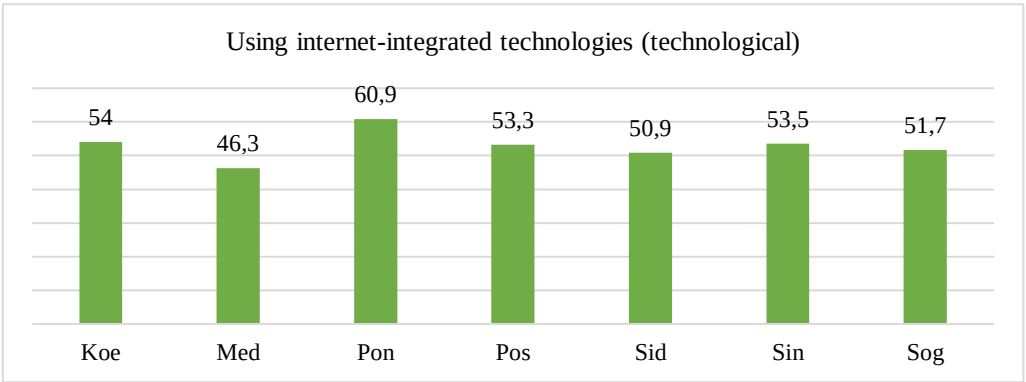

Figure 2. Technological

Figure 2 shows the respondents' response on the skill *using internet-integrated technologies* or technological skill. It is seen that respondents in city Pon showed the highest percentage on this skill, while respondents in city Med showed the lowest percentage. More than half of respondents in city Pon (60.9%) were skilled in storing important information

on the internet for long term use (item 9) and locating information on the internet right away (item 8) compared to the respondents in other cities. They were also skilled enough to know that setting video on social media and website (i.e., YouTube and Facebook) to autoplay mode is unfriendly to the environment.

Being trusted and protecting personal data

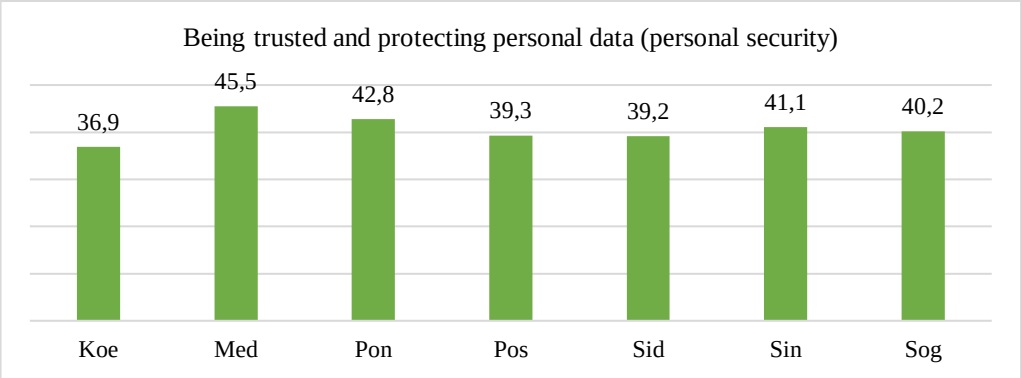

Figure 3. Personal Security

Figure 3 shows the frequency of respondents who were skilled in *being trusted and protecting personal data* or personal security skill. From the data, it is seen that less than half of respondents in all cities were skilled in this aspect. Respondents with the highest response on this aspect were respondents in city Med (45.2%) while the lowest response were from respondents in city Koe. That means less than half of respondents in city Med knew the risk of storing private data on the internet using cloud storages (item 6). They were also capable of sharing trusted information on their social media (item 21), and using mobile data at home instead of home internet to avoid the risk of Wi-Fi password leak (item 5).

Evaluating the value of information

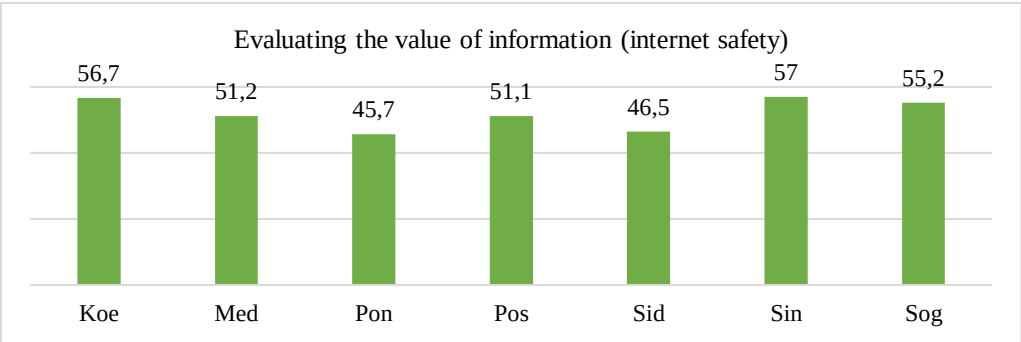

Figure 4. Internet safety

The next skill is *evaluating the value of information* (or internet safety skill) shown in Figure 4. From the findings, more than half of respondents from five cities responded that they were skilled in internet safety. The highest frequency was shown by respondents in city Sin (57%), followed by respondents in city Koe (56.7), and the last city was respondents in city Pon (45.7%). More than half of respondents in city Sin were the most skilled in using internet safely. They were able to verify information that is presented across websites (item 17), recognize fake information on the internet (item 18), and block junk emails they received (item 19).

Solving technical problems

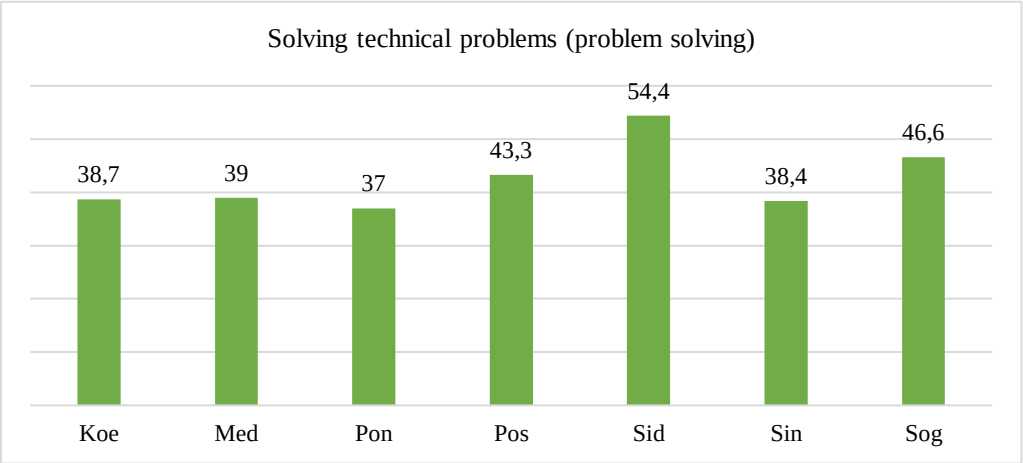

Figure 5. Problem solving

Figure 5 shows respondents' skill in *solving technical problems* or problem solving. From Figure 5, it is seen that only city Sid was able to achieve above 50% as the baseline percentage. The technical problems meant were connecting their gadget to Wi-Fi without assistance (item 2) and troubleshooting their gadgets (item 4). More than half of respondents in city Sid were skilled in solving technical problems they experienced during online learning (54.4%) compared to the rest of respondents. Meanwhile, respondents in city Pon showed the lowest response for this skill (37%).

Managing, filtering, sharing, and storing information for long-term use

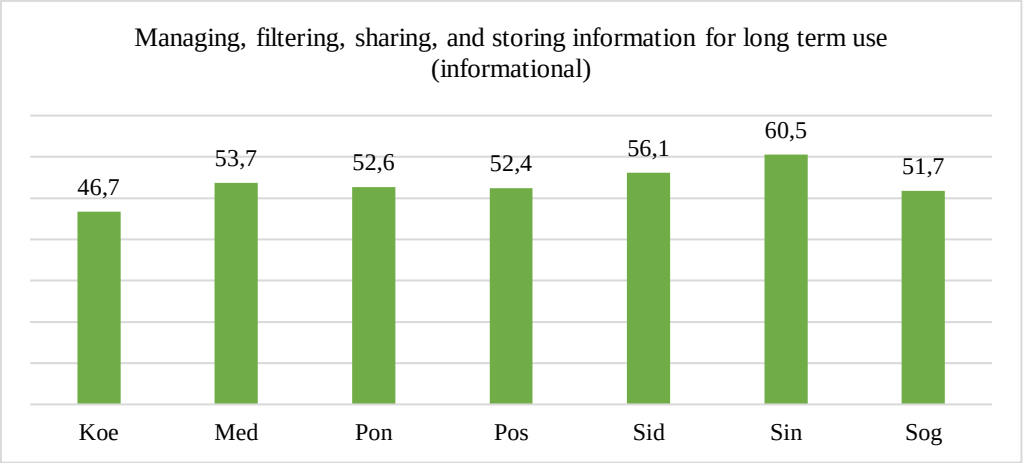

Figure 6. Informational

Figure 6 shows the frequency of respondents who were capable in *managing, filtering, sharing, and storing information for long-term use* (or informational skill) using existing template provided by their social media platform (item 15) or using their own created template (item 16). More than half of respondents in city Sin (60.5%) were skilled in this as they showed the highest percentage of response to this skill, while respondents in city Koe were the lowest percentage of all respondents.

Behaving properly and sensibly in digital environment

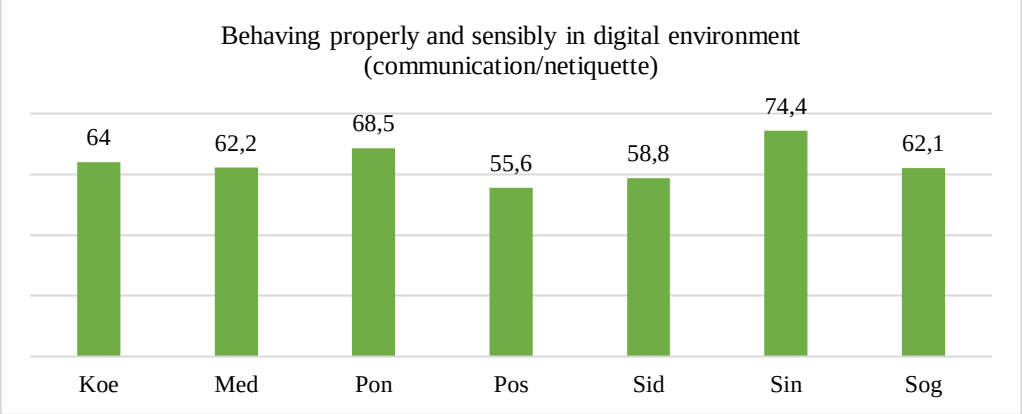

Figure 7. Communication or netiquette

Figure 7 shows the frequency of respondents who were skilled in *communicating in digital environment* or possessing netiquette skill. They were said to be skilled in this if they were able to share only trusted information on their social media or messaging accounts (item 20), and if they were able to situational appropriateness before sharing information on their social media accounts (item 22). As seen in Figure 7, more than half of respondents in all cities responded that they were able to behave properly and sensibly in their digital environment. Respondents in city Sin showed the highest frequency (74.4%) in this skill, while respondents in city Pos showed the lowest frequency (55.6%).

Navigating the internet and creating new pathway

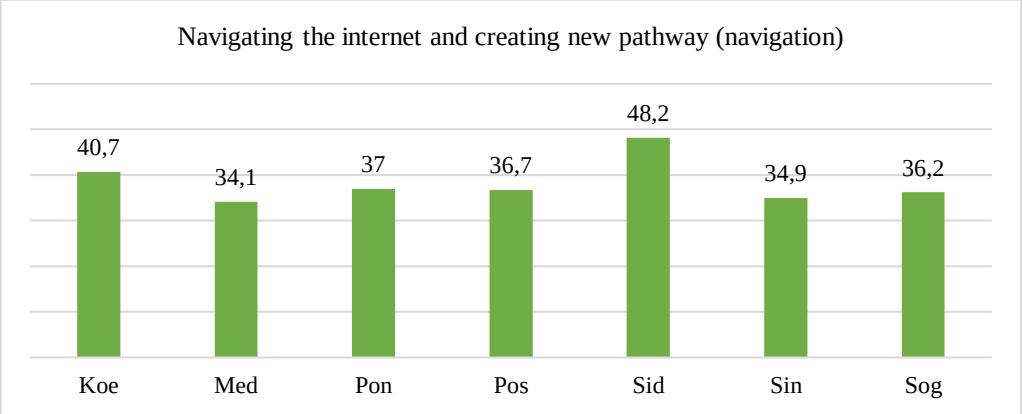

Figure 8. Navigation

Navigating the internet and creating new pathway, or navigation skill, is the last skill explored in this research. As seen in Figure 8, none of the seven cities' respondents achieved 50% as the baseline percentage in this skill. Of all the respondents, respondents in city Sid showed the highest response, while respondents in city Med showed the lowest response. That means, only less than 50% of respondents in all cities were skilled in navigating the internet through their smartphone browser (item 1), confident in creating new pathway to that suited their needs or navigating (item 10), and not easily deceived by the appearance of fake links which could lead them to unwanted apps or website (item 3).

The results of this research indicated that the prospective EFL teachers across seven cities in Indonesia had moderate level. That means they were ready to learn in online learning environment facilitated and assisted with digital tools, although still faced some difficulties. Top two skills with the highest percentage of respondents are *behaving properly and sensibly in digital environment* and *creating information from internet sources*. The prospective teachers were highly skilled in behaving properly and sensibly in their digital learning environment, as they were able to consider the appropriateness of information before sharing it on their social media accounts, and make sure that all information shared on their social media post is valid and can be trusted. In addition to that, they were also skilled in creating information from internet sources. This result is consistent with the results of research by Liza and Andriyanti (2020), Eryansyah, Petrus, Indrawati, and Ernalida (2020), Akayoğlu, Satar, Dikilitaş, Cirit and Korkmazgil (2020), and Saud (2021).

Next, the bottom two skills with the lowest frequency of respondents are *navigating the internet and creating new pathway*, and *solving technical problems*. The prospective teachers had difficulties in creating their own learning pathway that suited their learning needs. Meanwhile, they still "lost in the internet" caused by the sudden change of appearance of websites they were accessing or led to the unwanted apps or websites. They also showed low skill in using their digital tools to troubleshoot their technology problems during learning. This result supports Silvhiany, Hufaizah & Ismet's (2021) and Darwanto, Rini, and Herusatoto's studies (2021).

In terms of prospective EFL teachers' level of digital literacy skills in each city, the teacher candidates in city Sin showed the highest percentage of respondents with high level on four skills (creative, internet safety, information, and communication or netiquette). The percentage of respondents with high level of digital literacy skills in these four skills was greater than the baseline percentage, which is 50%. On the other hand, the teacher candidates in city Med showed the lowest percentage of respondents with high level on three skills (creative, technological, and navigation), means that the percentage of respondents who had high level in these three skills was less than 50%. This result shows that the prospective EFL teachers in Indonesia had uneven distribution level of digital literacy skills.

As an EFL teacher candidate, prospective EFL teachers were ready to create digital contents to share their opinions on social media platform using applications or digital tools and cautious enough when comes to editing another content already available on the internet. (Law, Woo, de la Torre, & Wong, 2018; Jenkins, 2015; Bawden, 2008; Eshet-Alkalai, 2004; Gilster, 1997). In the context of learning environment, that means they can be ready when being asked to create digital contents to display their understanding of the course content. Unfortunately, there is a high probability that they are not ready when being asked to study independently based on this research result. They still need guided instruction to assist them in creating safe and comfortable learning pathway that suits their personal learning needs. In addition to that, such intensive training or guided instruction is also required to make sure they are able to maximize their gadget to troubleshoot every technical problems or difficulties that may block their learning progress or quality.

Conclusion

This present research explored the level of digital literacy skills of prospective EFL teachers across seven cities in Indonesia and provided baseline information of the prospective Indonesian EFL teachers' performance of digital literacy skills despite its small sample. Most respondents of this research are skilled in using proper tools to communicate in their digital environment, yet still lack of skills in navigating the internet and using their tools to solve technical problems occurred during learning. Based on these findings, it is suggested for future research to investigate factors that influence prospective teachers' performance in those skills. A focus on the implementation of guided instruction would also be suggested to identify the impact of instruction on prospective teachers' problem solving and navigation skills.

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