

Analysis of Digital Literacy of Pre-service Teachers Involved as Teaching Assistants in Independent Study Programs (Called MBKM) 2022

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Abstract. Digital technology cannot be separated from education as it can support teaching and learning activities. Therefore, pre-service teachers must have digital literacy. This study aimed to determine and analyze the digital literacy of undergraduates involved in the program MBKM as teaching assistants at schools. This descriptive study involved 800 pre-service teachers form the school of education at Tanjungpura University. The authors used surveys and observation. A digital literacy questionnaire was employed as the instrument of this study. The questionnaire is valid with its validity values of r > 0.279 and reliable with its reliability scors of 0.937. The digital literacy questionnaire has three primary constructs: technical, cognitive and social-emotional aspects. The result showed that the pre-service teachers' technical, cognitive, and social-emotional related scores (76.47, 79.10 and 75.69, respectively) in digital literacy belong to the "good" category. In conclusion, the pre-service teachers participating as teaching assistants in the MBKM program 2022 understand using digital resources to support their academic purposes.

Keywords: Digital Literacy · Teaching Assistant · MBKM Program

1 Introduction

The coronavirus has changed all sectors of life, including the world of education in universities. The learning process initially took place face-to-face (offline) into online learning, referring to the Circular Letter of the Ministry of Education and Culture No. 1 of 2020 concerning the prohibition of implementing face-to-face learning and ordering distance learning to be conducted online. Universities are required to be able to organize online learning [1]. The Faculty of Teacher Training and Education (FKIP), Tanjungpura University's followed the circular to prevent the spread of Covid-19, including online learning. Students' familiarization with the digital world is rapid because of the covid case. Students have become accustomed to interacting with information technology during the last two years.

The covid case has begun to subside, and learning at FKIP Untan is starting to take place offline. The easing of covid does not mean student interaction with information technology has stopped because pre-service teachers must be prepared to take control of information technology and apply it in learning. Every department at FKIP Untan had been anticipating the provision of courses related to information technology and utilizing technology-based learning to prepare students to practice teaching in schools in independent learning programs (MBKM).

MBKM Teaching Assistance FKIP Untan is one of the MBKM programs carried out by FKIP Untan. This program takes place at partner schools offline. Students carry out teaching and non-teaching practice activities to assist teachers and schools with the learning process, technology adaptation, and school managerial administration. Students were given knowledge and skills needed in Teaching Assistance MBKM activities before going to partner schools, including debriefing in learning technology.

The development of the global world entering the digital revolution period has fundamentally changed the pattern of human life, work, and learning [2]. It is not enough for students to only be able to use technology cause they must be able to filter or evaluate the incoming technology or the technology used. Many problems often arise related to the misuse of this technology. Critical evaluation and knowledge to select and use technology, as well as academic skills that students do not have, can only take advantage of the technology [3]. For this reason, prospective pre-service teachers must possess digital literacy well and integrate it into learning to achieve learning goals.

The form of interest, attitudes, and individual abilities in utilizing digital communication technology to access, manage data, integrate, analyze and evaluate information, build new knowledge, and create and communicate with others to participate effectively in society is called digital literacy [4]. In this digital era, digital technology plays an important role and has become an integrated part of the world of education, thus changing the way students learn today [5].

Students are generally used to looking for various information via the internet or uploading various daily activities outside of learning in social media or making friends through cyberspace. However, the use of technology in learning is still minimal. The knowledge and competence of students are still low in utilizing new technologies that are effective in the learning process [6]. Students who frequently use information and communication technology aren't guaranteed to understand digital literacy well [7]. That indicates the importance of carrying out an analysis of student understanding of digital literacy.

Digital literacy is one of the skills that have to possess by students who take part in the Teaching Assistance MBKM. This digital literacy will help students conduct teaching and non-teaching activities at partner schools. Through this MBKM program, students as pre-service teachers were expected to assist educators at schools in developing ICT-based learning media. For this reason, it is necessary to analyze the understanding of students' digital literacy through the appropriate instrument to obtain information about the student's digital literacy level. The ICT competency assessment instrument determines how highly students are competent in information and communication technology (ICT) [8]. This study aims to analyze the digital literacy skills of students who participate in the Teaching Assistance MBKM at partner schools offline.

2 Method

The method used in this research is the descriptive quantitative method with data collection techniques using survey methods. The data collection tool used in this study was an online questionnaire via *Google forms* adopted by Ng [9]. The instrument has been tested and obtained a validity of r > 0.279 and a reliable value of 0.937. That means the instrument is feasible to use in research because it is valid and reliable. The subjects of this study were all 1026 FKIP Untan students who participated in the Teaching Assistance MBKM, but only 800 respondents filled out the questionnaire.

3 Results and Discussion

The three primary constructs of digital literacy used as a reference in determining the digital literacy of MBKM students Teaching Assistance FKIP Untan are technical, cognitive, and social-emotional (shown in Fig. 1). FKIP Untan students who participate in MBKM Teaching Assistance are expected to possess the three digital literacy dimensions. Each primary construct with students will be explained in each item below.

The ability of these three dimensions of digital literacy in the 21st century must be possessed by FKIP Untan students as prospective educators. In summary, The explanation between each dimension with students will be explained in each item below.

3.1 Technical Dimension

The technical dimension of digital literacy is expected that FKIP Untan students have the technical skill and operational (basic) skills to utilize ICT daily. That means students pre-service teachers can connect and use input devices and internal and external devices directly connected to computers or digital devices, such as earphones, external speakers, and smartboards.

3.2 Cognitive Dimension

The cognitive dimensions of the digital literacy model [9] are associated with critical thinking skills, evaluating and creating digital information, choosing software, and



Fig. 1. Digital Literacy Concept [9]

understanding ethical, moral, and legal issues. That means students are expected to be able to assess programs that are suitable for study or according to moral ethics (copyright and plagiarism) and law in utilizing information technology to complete specific tasks.

3.3 Social-emotional Dimension

The third dimension of digital literacy [9] is the social-emotional dimension includes social-emotional literacy and critical literacy. That means FKIP Untan students are expected to be able to use the internet responsibly and safely to communicate, interact, and learn.

The three dimensions of digital literacy used to determine the level of digital literacy are then compiled into several indicators and translated into several questions used as research questionnaires. Based on the research, the percentage of each digital literacy dimension for FKIP Untan students is 76.47% in the "good" category on the technical dimension, 79.10% in the "good" category on the cognitive dimension, and 75.69% in the "good" category on the social-emotional dimension. Overall, the average digital literacy ability of students participating in the Teaching Assistance MBKM FKIP Untan is in the "good" category. The percentage of digital literacy levels of FKIP Untan students in the Teaching Assistance MBKM is shown in Fig. 2.

Figure 2 shows that the average percentage of students' digital literacy level categories in all digital literacy dimensions is good. That means FKIP Untan students have a good understanding of utilizing information technology, evaluating programs suitable for study, having a responsible understanding of the internet, or maintaining ethics in doing assignments (copyright and plagiarism) and communicating. Students' digital literacy, including both categories, can be influenced by activities in learning carried out by lecturers.

The lessons are challenging tasks, so students have to search various literature and develop networks, enabling students to become familiar with technology in learning. The lecturer also supported the implementation of project-based learning models and problem-based learning on learning. That will increase students' digital literacy. PjBL (Project Based Learning) learning model and problem-based learning as an effort to support and cultivate numeracy literacy and digital literacy skills in students [10–12].



Fig. 2. Graph of Average Percentage of Digital Literacy Ability Student Pre-Service Teacher

Based on the research results, the highest digital literacy skills of FKIP Untan students are in the cognitive dimension, so it's known that students have good skills when looking for and evaluating information from websites and lectures. They are accustomed to operating software supporting presentations, writing, and data analysis. In the technical dimension, students have good skills in solving technical-related problems using technology and developing a product using ICT. The research results on the social-emotional dimension are the lowest digital literacy dimension among other dimensions, although digital literacy in this dimension is still in the "good" category. That means although students' digital literacy is already good, it still needs to be improved, especially in the use of technology in communicating.

Efforts that can be made include ICT training activities. ICT training programs can increase competence and positive attitudes toward using computers [13, 14]. Training and mentoring can improve students' digital literacy skills because they can create new knowledge and communicate an analysis [15, 16]. For this reason, to increase students' digital literacy skills, students are given matriculation or provision of digital literacy materials before attend of the Teaching Assistance MBKM.

4 Conclusion

This study concluded that the digital literacy of students who participated in the Teaching Assistance MBKM was in the "good" category. This result is affected by innovative learning and supported by ICT facilities, so it is necessary to increase the fulfilment of technology-based learning facilities by an educational institution to maintain students' digital literacy. That is important because the low level of digital literacy allows the future attitude will fade and even disappear due to the development of technology and information.

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