

POSTGRADUATE STUDENTS' DIGITAL LITERACY

Zannatul Israh
israhiis@gmail.com
Universitas Negeri Jakarta

Siti Drivoka Sulistyanningrum
drivoka@unj.ac.id
Universitas Negeri Jakarta

ABSTRACT

The rapid advancement of technology in the twenty-first century encouraged students to use communication tools and digital resources in their classroom learning activities. Some students must complete sophisticated tasks, so they must be able to manage files, including creating, editing, uploading videos, and using web-based tools. In order to complete those tasks in a satisfactory way, students must have good digital literacy. This study investigates postgraduate students' digital literacy. The aim of this study is to explore postgraduate students' digital literacy. The instruments used to gather data were a questionnaire and an interview. A total of 30 postgraduate students participated in this research. The finding was highlighted in terms of students' ability to use computers, students' internet skills, and students' ability to seek and retrieve information and information resources.

Key Words: Communication Tools, Digital Literacy, Postgraduate Students

INTRODUCTION

The rapid growth of technology in the 21st century has encouraged students to use communication tools and digital resources in their learning activities at school (Kong, 2014). Students are asked to express their ideas through digital media (Chan, Churchill, & Chiu, 2017). Some students also must complete sophisticated tasks, so they have to be able to manage files, including creating, editing, uploading videos, and using web-based tools (Frydenberg, 2015). In order to complete those tasks in a satisfactory way, students must be good at digital literacy.

Digital literacy among students is very important to discuss because, in the present day, students cannot be separated from the technology tools that help their learning process. Long ago, students were not allowed to bring and utilize technology tools to school, but nowadays, in the learning process, teachers and students are required to utilize technology, as contained in our government regulations. Because of this, it is very important to measure the digital literacy of students.

Numerous researchers have studied digital literacy among the students (Chan et al., 2017; Covello, 2010; Krishnamurthy & Shettappanavar, 2019; Patmanthara & Hidayat, 2018; Perdana, Yani, Jumadi, & Rosana, 2019; Powell, 2017; Shopova, 2014). Patmanthara and Hidayat (2018) discovered that implementing blended learning improved students' digital literacy skills in their study, "Improving Vocational High School Students' Digital Literacy Skill through Blended Learning Model." They also found that students were very familiar with the digital world; hence, the implementation of the learning model that combines the conventional learning model (face-to-face) with the blended learning model (online) was the right breakthrough. However, their research only focused on students in vocational schools. Chan, Churchill, & Chiu (2017) studied digital literacy learning in higher education through a digital storytelling approach and found that students had improved in terms of three aspects of digital literacy skills: digital competence, digital usage, and digital transformation, regardless of their prior knowledge and levels of digital literacy. However, their study only focused on improving digital literacy skills in higher education.

Krishnamurthy & Shettappanavar (2019) study digital literacy among female postgraduate students of Karnatak University, Dharwad, Karnataka, India: a study. The purpose of their study was to determine the literacy of female postgraduate students at Karnatak University, Dharwad, in using digital resources. Their studies reveal that students lack the searching skills required to find the information. However, their study is only focused on female students. Shovopa (2014) studies the digital literacy of students and its improvement at the university. She focuses on several aspects, one of which is the level of students' digital literacy at the South-West University. Shoyopa found that improving the digital literacy of students and their skills in using ICTs is an

important condition for successful performance and achieving better results in the learning process. However, this research needs further information in investigating students' digital literacy.

Perdana et al.'s (2019) study on assessing students' digital literacy skills in senior high school Yogyakarta They found that students' digital literacy skills are at a deficient level. Their research also showed that knowledge assembly is the most challenging aspect of students' digital literacy skills, and internet searching is a natural aspect. However, their study only focused on assessing digital literacy skills in senior high school, and it needs further research to investigate other levels of students.

Hence, this present study investigates postgraduate students' digital literacy. The aim of this study is to determine postgraduate students' digital literacy. The following is the formulation of the research question for this study: What is the digital literacy of postgraduate students?

LITERATURE REVIEW

Paul Gilster, in his book titled "Digital Literacy," defined digital literacy as the ability to understand and use information in various forms from a wide range of resources accessed through computer devices. Bawden (2001) offers a new understanding of digital literacy that is rooted in computer literacy and information literacy. Computer literacy flourished in the 1980s, when microcomputers were widely used, not only in business contexts but also in the community. However, new information literacy was widespread in the 1990s, when information was more readily compiled, accessed, and disseminated through networked information technology. Referring to Bawden's opinion, digital literacy is much more attributed to the technical skills of accessing, arranging, understanding, and disseminating information.

It is not easy to give an exact definition of "digital literacy," since this term has been used for various meanings in the literature (Güneş & Bahçivan, 2018). The United Nations Educational, Scientific, and Cultural Organization (2018) defines digital literacy as the ability to define, access, manage, integrate, communicate, evaluate, and create information safely and appropriately through digital technologies and networked devices for participation in economic and social life. Calvani, Cartelli, Fini, & Ranieri (2008) defined digital literacy as a framework for a number of complex and integrated sub-disciplines—or "literacies"—that include skill, knowledge, ethics, and creative outputs in the digital network environment.

Digital literacy is the knowledge and skill to use digital media, communication tools, or networks in discovering, evaluating, using, making information, and utilizing it healthily, wisely,

intelligently, carefully, appropriately, and legally in order to foster communication and interaction in daily life. Digital literacy is also the ability to use information and communication technology to communicate content and information with cognitive and technical prowess. Digital literacy is more likely in matters related to technical skills and focusing on the cognitive and social aspects of the world and the digital environment.

Covello (2010) states that there are various sub-disciplines of digital literacy: information literacy, computer literacy, media literacy, communication literacy, visual literacy, and technology literacy. Information literacy refers to finding and locating sources, analyzing and synthesizing the material, evaluating the credibility of the source, using and citing the source ethically and legally, focusing topics, and formulating research questions in an accurate, effective, and efficient manner. Computer literacy is defined as an understanding of how to use computers and application software for practical purposes. Media literacy refers to a series of communication competencies, including the ability to access, analyze, evaluate, and communicate information in a variety of forms, including print and non-print messages.

Communication literacy refers to the requirement that learners be able to communicate effectively as individuals and work collaboratively in groups using publishing technologies (word processors, databases, spreadsheets, drawing tools, etc.), the Internet, as well as other electronic and telecommunication tools. Visual literacy means the ability to "read," "interpret," and "understand" information presented in pictorial or graphic images; the ability to turn information of all types into pictures, graphics, or other forms that help communicate the information; a group of competencies that allows humans to discriminate and interpret the visible action, objects, and/or symbols, natural or constructed, that they encounter in the environment. The last, technology literacy, refers to computer skills and the ability to use computers and other technology to improve learning, productivity, and performance.

According to Covello (2010) the terms "digital literacy" and "ICT literacy" can be used interchangeably. There are seven components of ICT literacy: proficiency to define, access, manage, integrate, evaluate, create, and communicate. "Define" refers to using ICT tools to identify and appropriately represent an information need. Access means collecting and/or retrieving information in digital environments. Manage refers to the use of information technology tools to implement an existing organizational or classification scheme for information. Integrate refers to interpret and represent information, such as by using ICT tools to synthesize, summarize, compare, and contrast information from multiple sources. Evaluate means judging the degree to which information satisfies the needs of the task in ICT environments, including determining authority, bias, and timeliness of materials. Create refers to adapting, applying, designing, or

inventing information in ICT environments. The last, "communicate," refers to properly communicating information in its context (audience, media) in ICT environments.

METHOD

This part describes how the study was carried out, which includes details about the questionnaire, the interview, the participants, and the procedure. A questionnaire was used as an instrument (supported by a Google Form) that aimed to collect data for investigating postgraduate students' digital literacy. The questionnaire had a total of 20 questions.

The survey was personally given by sending the Google Form link to each postgraduate student. The participants of this study were 30 postgraduate students. Participants who become part of the study remain anonymous. After the completion of the survey, the Google form will automatically count the statistical data from the questionnaires by showing a pie chart.

The questions for the questionnaire were adopted from Shopova (2014). The first set of questions related to the computer literacy of students. The second set of questions was to understand the students' access to the Internet and the skills they needed to use the Web and participate in the Internet environment. The third set of questions was related to establishing the ability of students to search independently and effectively find relevant information and information resources. The last set of questions concerned the students' skills for critical and reflexive attitudes towards information and responsible use of information technology as a prerequisite for social adaptation and work in the digital society.

This study used the interview to confirm the data, get deep information, and cover the possible weaknesses of the data from the questionnaire. The interview was a telephone interview. According to Creswell (2012), a telephone interview is a process of gathering data through the telephone by asking a small number of general questions. This instrument was used since it may not be possible for the researcher to gather groups of individuals for an interview or to visit one-on-one with single individuals due to the global pandemic. In addition, this interview was conducted in June 2020, and the participants were chosen randomly from the sample.

RESULT AND DISSCUSSION

A. Ability of students to work with computer / ICT

Based on the findings, the study showed that the majority of respondents positively evaluated their ability to work with computers to access information, as 66.7% of them indicated that these skills were very good, 25% excellent, and 8.3% good. Respondents used computer tools for word processing; the findings showed that 50% were very good and 50% were good. They were able to create and format documents, tables, pictures, and images (83,3% assessed these skills as very good and 16,70% as excellent). As for the ability to create presentations and present a slide

show, 41.7% of students were very good, 33.3% were excellent, and 25% were good. The table 1 displays the results:

<i>Ability of students to work with computer / ICT</i>	Excellent	Very good	Good	Poor
Using the operating system to access the information	50%	41,70%	8,30%	0
Working with computers to access the information	25%	66,70%	8,30%	0
Using the Microsoft Excel, databases, etc	0	50%	50%	0
Creating and formatting documents, tables, pictures and images	16,70%	83,30%	0	0
Creating presentations and slideshow presentation	33,30%	41,70%	25%	0

Table 1: Computer/ICT skills of students

Most students are "very good" in terms of creating and formatting documents, tables, pictures, and images. Most of them use applications provided by Microsoft. When formatting documents, they commonly use Microsoft Word since it is easy to operate. When students have to create a table chart and analyze some statistical data, they usually use Microsoft Excel since it is easy to use. Also related to pictures and images, they use Corel Draw.

B. Internet access and basic internet skills

The data showed that all the students have access to the internet every day. Regarding their basic internet skills, most of the students indicated they used some search tools without difficulty to find and retrieve information (75%). They were able to use e-mail (100%), create and send emails (91.7%), and work with attachments (91.7%), but 8.30% of students only did these activities partially. Only 8.3 percent of students can create their own web page. The table 2 shows the result:

	Every day	At home	At the University
<i>Internet Access</i>	100%	0	0
<i>Basic Internet Skill</i>	Yes	Partly	No
Using WWW	58,30%	33,30%	8,40%

Using search tools to find and retrieve information	75%	25%	0
Using E-mail	100%	0	0
Creating and sending emails, and working with attachments	91,70%	8,30%	0
Creating own web pages with text, images, and hyperlinks	8,30%	41,70%	50%

Table 2: Internet access and basic students` internet skills

The reason why students access the internet every day is to access and get information that they want to acquire for their study and to support their work outside the classroom. They also use the internet to entertain themselves when they are bored with activities on campus or at work. They also access the internet for social media and interact with their colleagues. In addition, there is much information they can retrieve from the internet, most of it related to their study, and it is helpful to support their collage activity.

C. Students` ability for seeking and retrieving information

Regarding students` information literacy, data showed that 100% of them have effective and efficient access to information, and most of them are satisfied with the information (66,70%), while the rest of them (33,3%) were partially satisfied when searching for information. They are satisfied with the information because in this digital era, they can access so much information and so much knowledge that we want to know in an easy way. 66,70% of students construct strategies for locating information, 25% do it partially, and 8,30% never construct strategies for locating information. 58,30% did not have difficulties determining the type and format of potential sources of information (e.g., multimedia, databases, audio/video, books). In addition, all students used "Google" as a search engine to find information in order to support their learning. It shows in the table 3:

	Google	Yahoo	Others
Using Search Engines to find information	100%	0	0
<i>Ability for seeking and retrieving information</i>	Yes	Partly	No

Effective and efficient access to information	100%	0	0
Satisfaction with information search	66,70%	33,30%	0
Construction of strategies for locating information	66,70%	25%	8,30%
Determination of different types and formats of potential sources of information (eg, multimedia, databases, audio / video, book)	58,30%	41,70%	0

Table 3: Students` ability for seeking and retrieving information

When locating information, some students utilize Google Drive as an app. They use it because it provides them with a lot of storage so that they can save and locate their information. By utilizing that app, the information will never be lost or vanish. The information will always be there as long as the account is active.

D. Use of information resources by students

Most students (50%) rarely use print media (newspapers, magazines, books, encyclopedias, etc.); 41,70% sometime read print media; and the rest (8.3%) regularly use print media as resources. Regarding electronic media, most students (50%) regularly access electronic media (newspapers, magazines, books, encyclopedias, etc.). 50% of students use online video as a resource, 47% use it occasionally, and 8.3% never use it. 16.7% of students regularly use electronic audio records, and 58.3% of students use the digital library as a resource. These are shown in Table 4 below.

<i>What resources do you prefer to use?</i>	Regularly	Sometimes	Rarely
Print media - newspapers, magazines, books, encyclopaedias, etc.	8,30%	41,70%	50%
E-media - newspapers, magazines, books, encyclopaedias, etc.	50%	41,70%	8,30%
Online video	50%	41,70%	8,30%
Electronic audio records	16,70%	50%	33,30%
Digital libraries	58,30%	25%	16,70%

Table 4: use of information resources by students

Students rarely access print media; this finding is in line with Shopova (2014). Students rarely access print media; this finding is in line with Shopova (2014). This occurs because it is easier to obtain information from a smartphone than from printed media in the digital age. It is also more expensive and more difficult to obtain in electronic media. This situation also affects traditional libraries; most people would rather access digital libraries than go to the library. Students also use video as one of their information sources; it is one of the additional ways to gather knowledge and information to support their study.

CONCLUSION AND RECOMMENDATION

Based on the results and discussion, the findings were differentiated into four parts. First, in terms of students' ability to use computers; second, students' internet skills; third, students' ability to seek and retrieve information; finally, information resources used by students in order to support their learning activities.

Regarding the limitation of the study, this study only had 30 postgraduate students as participants. Hence, the results of this study cannot be used to generalize postgraduates' digital literacy in a broader context.

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