Improving Students' Digital Literacy Skills Using Structured Assignments

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ABSTRACT

Academic culture with digital literacy skills is indispensable in 21st-century learning and the current new normal era. The ability of students to use various application programs on the internet and find references to learning videos and video tutorials is needed to make it easier to do learning tasks. The purpose of this study is to improve students' digital literacy skills using learning videos and video tutorials in completing structured tasks. This research method is a qualitative case study, using 25 students as research subjects. Data were generated from interviews, observations, and documentation and then analyzed using Miles and Huberman's theory. The results showed: 1) students' digital literacy skills improve by giving structured tasks in a very limited time, 2) structured tasks can improve time management and the seriousness of student learning, 3) learning using references and video tutorials makes it easier for students to understand the material provided by lecturers, 4) students are more active in learning and doing their assignments using digital literacy, 5) students are able to learn quickly and develop questions or assignments independently or in groups, 6) students who finish doing their work are immediately assessed and do the next assignment, so students who are able to learn quickly will complete their coursework more quickly, 7) more emphasis on assessing the learning process rather than learning outcomes, while the assessment of the learning process and student learning outcomes is carried out independently and in groups, 8) students who are less able to learn quickly are guided by their group mates, so it is expected that the study group will help and provide support to students to complete their independent assignments, and 9) students are encouraged to learn quickly and actively.

Keywords: Digital Literacy, Structured Assignments, Learning Videos, Video Tutorials, Active Learning.

1. INTRODUCTION

Digital technology is increasingly becoming part of everyday life, including children's lives. Portable digital devices are ubiquitous and integrated into all activities. Related skills are often referred to as 21st-century skills, which are a new type of literacy: digital literacy [1]. Individuals living in the 21st century have become consumers of digital innovation that is evolving very quickly. They must adopt, and adapt to new norms to survive and thrive in a digital society [2]. Facing the rapid development of technology, digital literacy is the main key that must be owned [3].

While young children these days are routinely and extensively exposed to digital devices and tools, the efficacy of the methods for fostering digital skills in the early childhood classroom has not always been closely considered [4]. Now, a great challenge for most universities to adopt online teaching and learning models at the beginning of the pandemic is literacy digital [5]. Digital competence is a demand for 21st century learning [6]. Digital skills are important and should form part of educational policy. ICT skills can help people succeed in the labor market and improve communication with public administration [7]. Digital skills are one of the essential parts of e- Government, so people can use e-Government services in communicating with public administration [7]. Digital competence has become increasingly important in modern societies and is today central to the possibility

of participating on equal terms as a citizen in a contemporary democracy [6, 8].

The education sector has seen technology as a powerful catalyst for extensive changes in the education system and the stakeholders experiencing the evolution of education from Education 1.0 to Education 4.0 [2]. Many factors, such as preparedness, limited resources including financial means, low digital literacy, internet connectivity, and suitable physical and virtual infrastructure affected this transition. However, the findings also show that the COVID-19 pandemic created new opportunities for educators and practitioners to explore various professional development activities by trying out different digital pedagogies through practice and reflection [5].

Student attributes in Education 4.0, include cybersecurity knowledge, producing new information and using appropriate technologies, using technology effectively, the ability to differentiate between right and wrong information and distributing information safely using various online platforms. The collective shaping of individuals is referred to as digital literacy, which has become one of the essential surviving skills in the 21st century [2]. Globally, studies on digital literacy have shown the digital literacy competencies of individuals, the frameworks of digital literacy, the contributions of digital literacy in education.

Digital literacy is now stressed as a crucial learning objective, nationally as well as internationally. [6]. The Indonesian Ministry of Education, Culture, Research, and Technology continues to strengthen digital at each level of education. Digital literacy explained Hasan Chabibie, not only how to get information, but how to sort and choose information to be good for students. So that students are able to increase productivity, enthusiasm for learning and cooperate in a positive direction. The positive impact is that learning becomes more meaningful, easier and practical [3]. Digital culture will make individuals and organizations to remain relevant and competitive according to the demands of the times. *The Organization for Economic Co-operation and Development* (OECD) in 2019 and the results of World *Economic Forum* (WEF) research in 2021, explained that digital culture helps organizations stay relevant in three ways, namely (1) adaptation to change quickly, (2) effective use of technology, and (3) continuous message delivery and real impact on stakeholders [9].

2. LITERASI DIGITAL

The term digital literacy has been defined as skills or competencies, or abilities of an individual to use digital technologies and knowledge of norms and practices that revolve around the appropriate use of

relevant digital technologies [2]. Digital literacy is the knowledge and ability to use digital media, communication tools, or networks in finding, evaluating, using, creating information, and utilizing it in a healthy, wise, intelligent, careful, appropriate, and law-abiding manner in accordance with its usefulness in order to foster communication and interaction in daily life. Digital literacy is defined as a skill or competency, or an individual's ability to use digital technology and knowledge of norms and practices that revolve around the appropriate use of relevant digital technology [2]. Digital literacy is the ability to use information and communication technology to find, evaluate, create, and communicate information, which requires cognitive and technical skills [10].

Digital literacy is also the ability to use information and communication technology (ICT) to communicate content/information with cognitive and technical skills. It can be said that digital literacy is a response to technological developments in using media to support people to have the ability to read and increase people's desire to read. With digital literacy, people can also read how technology application machines work such as: *programming, artificial intelligence, engineering principles* and others.

Digital literacy is a 21st Century learning demand. Not only students, teachers are also required to be skilled in using digital literacy in the learning process. Digital literacy is a very important demand in today's technological era. People are required to master and be skilled in using technology in everyday life. Digital literacy increases people's ability to think critically in receiving information and analyzing it before using the information, so that there are no mistakes in using information [2]. There are many conveniences felt by students, teachers and schools in using digital literacy, especially for the learning process. Students and teachers can surf in cyberspace looking for the information needed. No need to leave the house, just stay at home or somewhere to find information in the form of knowledge and skills. This condition has been proven by online learning.

Digital skills can be used as an investment for students and faculty to improve their abilities in individual and organizational digital literacy. Skills that can be improved are: improving teaching, learning, research, and organizational management. The benefits of individuals and organizations are: (1) provide quality education in a flexible and innovative way; (2) meet the expectations and needs of student diversity through enhanced learning experiences ; (3) enhancing employability and higher skills in the digital economy; (4) attracting more students in the global education market; (4) improve processes, systems and build organizational capacity; and (5) maximizing the

value of investments in technology, content, and learning services [11].

Digital literacy is the knowledge and ability to use digital technology, communication tools, or networks in the process of finding, evaluating, using, and creating information, and utilizing it in a healthy, wise, intelligent, careful, appropriate, and law-abiding manner [8]. Supangkat explained, the level of digital literacy ability is grouped into 3, namely: 1) basic level, where individuals have limited ability to use basic media. Users know the basic functions of digital literacy and are used for more specific purposes and the ability to analyze the information received is still very limited; 2) The medium level, namely the communicative ability of individuals through digital media is still very limited, but fluent in using media. Users know its function and are able to operate more complex digital media. Media users know how to obtain and assess the information needed, are able to evaluate and improve information search strategies; and 3) advanced level, where the individual has an in-depth knowledge of digital techniques and languages, and can analyze, and change the conditions that affect his communicative relationship with the creator of the message [8].

Intellectual processes in digital literacy are grouped into three categories, namely: 1) locating and consuming digital content; 2) creating digital content; and 3) communicating digital content. In detail seen in figure-1. [8]
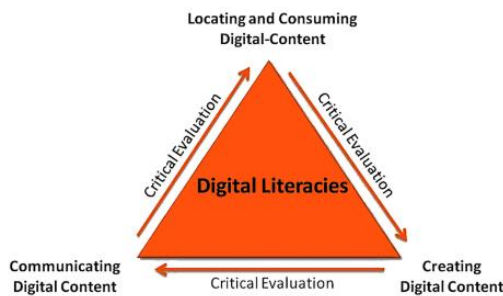

Figure 1. Digital Literation [12].

Digital literacy serves to improve technology and information (IT) skills. IT skills describe a richer set of digital behaviors, practices, and identities. This means that digital literacy changes over time and across contexts, so digital literacy is essentially a set of academic and professional practices supported by diverse and changing technologies. The 7 elements of the digital literacy model described JICS.ac.uk (2014) are media literacy, information literacy, communication and collaboration, digital scholarship, career management & identification, study skills, and ICT literacy. In detail can be seen in figure-2 [12].
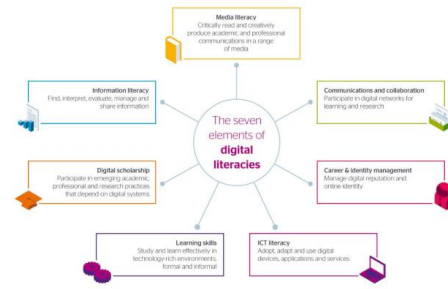

Figure-2. 7 elements model Digital Literacies [14].

Education 4.0 is best described as promoting life coping skills such as leadership, collaboration, creativity and innovation using digital technology, information and media literacy, knowledge about cyber-physical systems, artificial intelligence, Internet of Things (IoT), cloud computing, mobile technologies, open and smart education and blockchain [2] . Reddy, groups Education 4.0 into 4 categories, namely: Smart Education Tools, Life-copying skills, transformation technologies, and smart learning models. The four categories are described in figure 3.
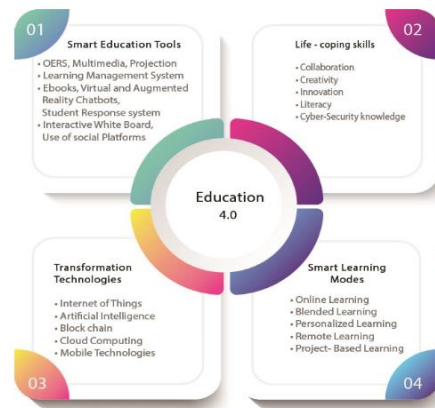

Figure-3. Educational 4.0 summarized .

Digital literacy and Education 4.0 have a strong relationship [2]. Digital literacy is also a manifestation of classroom performance, staff and student readiness for learning using technology and lifelong learning [13]. Students who have relevant digital literacy characteristics, then he will achieve the goals set by educational institutions of the 21st century. Relationship between Education 4.0 and digital literacy described can be seen in figure-4 [13].

Figure 4. Relationship between Education 4.0 and digital literacy.

The Digital Literacy Skills element consists of 8 elements, as follows: 1) Access, is the ability to identify data sources, including the ability to obtain and collect data, and use data repeatedly, 2) Manage, i.e. the ability to use correct and easy resources for assessment, 3) Integration, is the ability to identify data sources, including the ability to obtain and collect data for repeated use, and relate to all other constituents, 4) Evaluating, is the ability to assess the timeliness and usefulness of information, 5) Creation, is the ability to understand and apply the advantages offered by appropriate media making tools, 6) Communication, which is the ability to contact and interact with other individuals in the digital environment, 7) Analysis, which is the ability to understand the process, logic, and purpose of the media created, and 8) Synthesis, is the ability to combine information to create new knowledge [14] & [2].

Digital literacy has three levels, namely: 1) digital competence, including skills, concepts, approaches, and behaviors; 2) digital use, referring to the application of digital competencies related to a particular context; and 3) digital transformation, requiring creativity and innovation in the digital world [8,15]. In detail, the level of digital literacy can be seen in Figure 5.
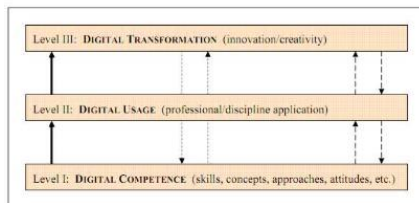

Figure-5. Level of Digital Literacy [15].

3. RESEARCH METHOD

This research uses qualitative methods with a case study approach. The subjects of the study were students of the Department of Civil Engineering Education Class of 2019 – 2022 with a total of 25 people. The object of research is to improve students' ability to use digital literacy in structured tasks, in applied statistics, learning strategies, learning and learning, and Micro Teaching and Wood Practice.

The research was conducted for 4 months, from January – May 2023.

Qualitative data collection using interviews, in-depth observation and documentation. Data collection is focused on the learning process. During the learning process, lecturers use student-centered learning (SCL). The learning models used are case studies and problem-based learning. Students are given structured tasks and look for answers using digital literacy, such as: looking for references to discussion materials, learning media videos, video tutorials, learning to use applications on the internet, etc. Searching references and video tutorials under the guidance of course lecturers. Qualitative data analysis uses interactive data analysis from Miles and Huberman, namely data collection, data reduction, data display, and conclusion drawing.

4. RESEARCH AND DISCUSSION

The results of this research are grouped into two, namely theoretical and practical learning. Of these two types of learning, the results showed:

1) Students' digital literacy skills improve by giving structured tasks in a very limited time. Very limited time in completing assignments makes students have to work hard to do assignments. Students study in their own groups and then complete their assignments independently. The results of group assignments and self-study are presented in class.
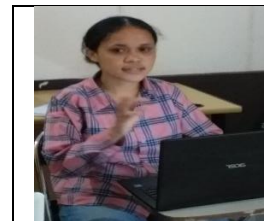

| **Figure 6.** Self-paced assignment presentation. | **Figure 7.** Group assignment presentation. |

2) Structured tasks can improve time management and the seriousness of student learning. Students learn to do structured assignments independently and in groups

| **Figure 8.** Students look for references using digital literacy. | **Figure 9.** Student teaching exercises. |

3) Learning using references and video tutorials makes it easier for students to understand the material provided by lecturers. Students hone their knowledge and skills over and over again using video tutorials. As a result, students are able to work faster and the results are better.

Figure 10. Students explain the construction of wooden joints.	**Figure 11.** Students present the results of the practice of making wooden shelves.

4) Students are more active in learning and doing their assignments using digital literacy. Learning using various references and video tutorials improves students' learning skills. Students become more active in learning, and doing their assignments. Learning to use references and video tutorials can be done repeatedly until students understand and are able to do their tasks.

Figure 12. Work on independent assignments guided by references and video tutorials.	**Figure 13.** Learn from video tutorials.

5) Students are able to learn quickly and develop questions or assignments independently. Studying and doing independent assignments will be faster if using references or video tutorials, this method is used to guide students to learn indirectly. Students can work on assignments, develop questions and supplement them with reference guides and video tutorials.

Figure 14. Learn guided video tutorials.	**Figure 15.** Reference-guided learning.

6) Give grades to students who complete their assignments correctly. Lecturers give grades to students who have completed their assignments correctly. If it is still wrong then the task must be corrected until it is correct. Grading is given for assignment grades and final grades. Students who do their assignments faster will get grades faster, then they do other assignments. Students who are late in completing assignments from the specified time will be penalized by reducing the value of their assignments.

7) Assessment of the learning process and student learning outcomes is carried out independently and in groups. Student activeness is assessed from the start of the learning process to the final assessment. Assessment of the learning process is very important because in this learning process there is a transfer of knowledge and skills to students. Students who are active during the learning process are usually more active in independent learning, and these are the students who have better grades than students who are less active in the learning process.

8) Students who are less able to learn quickly are guided by their group mates. Study groups will help and provide support to students to complete their independent tasks. Completing structured tasks is usually done outside of lecture hours. The way to do the task is, each group member looks for references or video tutorials via the internet. During discussions on campus and off-campus, they discuss references and tutorials and then work on assignments together. If they have difficulty meeting, usually the discussion is carried out using zoom or video call.

9) Students are encouraged to learn quickly and actively. Working on structured assignments using digital literacy requires students to learn faster and more actively. Using digital literacy can improve students' ability to find references to knowledge and skills. Students read more references, learn from video tutorials and other learning videos, making students more skilled and active in learning.

Figure 16. Students complete independent assignments in groups.

Figure 17. Student group assignment presentations.

5. CONCLUSION

Based on the results of interviews, observations and documentation, the results of this study can be concluded as follows:

1. Students' digital literacy skills improve by giving structured tasks in a very limited time.
2. Structured tasks can improve time management and the seriousness of student learning.
3. Learning using references and video tutorials makes it easier for students to understand the material provided by lecturers. Students can improve their knowledge and skills repeatedly using video tutorials.
4. Students are more active in learning and doing their assignments using digital literacy.
5. Students are able to learn quickly and develop questions or assignments independently or in groups.
6. Students who finish doing their assignments are immediately graded and work on the next assignment. Students who are able to learn quickly will complete their coursework faster.
7. More emphasis is placed on assessing the learning process than on learning outcomes. Assessment of the learning process and student learning outcomes is carried out independently and in groups.
8. Students who are less able to learn quickly are guided by their group mates. Study groups will help and provide support to students to complete their independent tasks.
9. Students are encouraged to learn quickly and actively. Working on structured assignments using digital literacy requires students to learn faster and more active.

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