Digital Literacy: a New Culture of Learning in the Era of Digitalization Through Cyber Pedagogy Strategies

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Abstrak

Pandemi Covid-19 yang pernah terjadi di Indonesia menuntut para penyelenggara yang berkecimpung di dunia pendidikan untuk memiliki kemampuan berkreasi dan berinovasi agar pembelajaran tetap berjalan. Salah satu caranya adalah dengan memanfaatkan teknologi dalam pembelajaran, salah satunya pembelajaran online. Pembelajaran online berbeda dengan pembelajaran tatap muka maka diperlukan strategi yang tepat agar pembelajaran dapat dipahami oleh peserta didik. Pembelajaran yang berbasis dan menggunakan media internet disebut dengan pembelajaran berbasis literasi digital, salah satunya dengan menggunakan Cyber Pedagogy. Strategi ini merancang, mengimplementasikan, dan mengevaluasi interaksi yang terjadi dalam pembelajaran siber. Tujuan dari penelitian ini adalah untuk mendeskripsikan literasi digital dalam pembelajaran di era digitalisasi melalui Cyber Pedagogy. Metode penelitian yang digunakan yakni studi literatur melalui pendekatan deskriptif kualitatif. Hasil penelitian menunjukkan bahwa strategi Cyber Pedagogy dapat membantu peserta didik untuk berpikir kritis terhadap materi yang diperoleh dari platform yang ada pada perangkat teknologi.

Kata Kunci: Cyber Pedagogy, Digitalisasi, Literasi Digital

Abstract

The Covid-19 pandemic that occurred in Indonesia requires organizers interested in the world of education to have the ability to be creative and innovative so that learning continues. One way is to use technology in learning, one of them online learning. Online learning is different from face-to-face learning then the right strategy is needed so that learning can be understood by learners. Learning that is based on and uses internet media is called digital literacy-based learning, one of which uses Cyber Pedagogy. This strategy are designing, implementing, and evaluating the interactions that occur in cyber learning. The purpose of this study is to describe digital literacy in learning in the era of digitalization through Cyber Pedagogy. The research method used is literature study using a qualitative descriptive approach. The results research showed that Cyber Pedagogy strategies can help learners to think critically about the material obtained from the platforms on technology devices.

Keywords: Cyber Pedagogy, Digitalization, Digital Literacy

A. Introduction

In the era, technological developments are growing rapidly so as to provide a lot of progress and convenience for human life. All activities can be easily carried out only by utilizing a computer and internet network. Thus, various information can be widely disseminated easily.

The rapid development of information and communication technology requires every human being to have good literacy skills. However, the literacy skills that must be possessed today are not enough just to be able to read and write classically, but must be equipped with other abilities that support 21st century life (Syabaruddin and Imamudin 2022).

As technology develops, the meaning of literacy has an expanded meaning. Literacy was originally interpreted as a person's ability to process and understand information when carrying out the process of reading and writing (R. Hendaryan, Taufik Hidayat 2022). Literacy is also inseparable from language skills, as literacy refers to a person's ability and skills to speak, read, write, calculate and solve problems. Literacy is an individual's linguistic abilities and skills including reading, writing, speaking, arithmetic and problem solving at a certain level of expertise required in everyday life. Syabaruddin and Imamudin (2022) explained that the meaning of literacy has been expanded by several experts from just reading literacy, to visual literacy and computer literacy. Based on the expansion of the meaning of literacy from several experts, literacy is already related to the term digital. The context of reading and writing skills now lies in the use of digital technology.

Digital literacy can be defined as a person's skills when operating digital technology which is used as a communication tool to establish relationships with other people, and is used as a tool to access, manage, analyze information and gain new knowledge (Nurfauziyanti, Damanhuri, and Bahrudin 2022). Digital literacy is defined by the Ministry of Education and Culture (Kusumawati, Wachidah, and & Cindi 2021) as the knowledge and skills necessary to use digital media, communication tools or networks to search, evaluate evaluate, use, create information and use that information in a healthy, wise, intelligent, careful, accurate and obedient way laws to promote communication and interaction in everyday life. Digital culture therefore requires the ability to use different multimedia sources more effectively. Hague & Payton (Kusumawati, Wachidah, and & Cindi 2021) Digital literacy is the ability of a person to find and select information, think critically, be creative, collaborate with others, communicate effectively, and be aware of electronic security and the changing sociocultural landscape is defined as a person's ability to apply functional skills on digital devices. In an educational context, good digital literacy also serves to develop knowledge on a particular topic by promoting curiosity and creativity. So digital literacy can be concluded as a skill in using digital technology in various ways to establish effective and efficient communication and make good use of it." The benefits of using digital technology include establishing communication. Apart from that, digital technology can also be used as access to search, obtain and create information and must be used as well as possible.

Based on the results of a survey in Indonesia conducted by the Directorate of Elementary Schools, it was stated that 73.9 percent of the population utilizes digital technology in their daily lives. This proves that the Indonesian population has taken advantage of developing technology.

The spread of information technology that is increasingly accessible to users does not all contain positive things, but there are also negative things. For example news information that is hoax, radicalism, fraud, and others. With this in mind, we as technology users need to be wise in understanding, filtering, and selecting information, one of which is by increasing digital literacy.

One sector that plays a role in developing digital literacy is the education sector. Especially at the end of 2019, the world was shocked by the spread of the coronavirus, known as the Covid-19 virus, weakening various sectors, including the education sector. Education must continue even though it is limited. The learning process that is usually carried out face-to-face has switched to distance learning and utilizes online learning applications so that teaching and learning activities can run smoothly.

At first, distance learning was quite difficult to do. Indeed, they are not familiar with conducting virtual learning activities and using support applications. This forces stakeholders in the world of education to think about finding learning innovations through the use of internet networks through gadgets or computers so that the term cyber pedagogy strategy is born.

The word pedagogy comes from the words paidos (boy) and agogos (leader). Initially, pedagogy meant an act of leading boys, while today, especially in the context of education, pedagogy is defined as The Art And Science of Teaching Children or the science and art of teaching children. The emphasis of pedagogy is on the word leading/teaching. So if it is related to the teaching process in cyber education, the term becomes Cyber Pedagogy or Cybergogy. Literally the meaning of Cyber Pedagogy is the science and art of teaching children on cyber learning or virtual learning or online learning. In general and simply, Cyber Pedagogy is learning that is based on and uses internet media or takes place virtually.

In the cyber pedagogy space, student learning activities can be identified through involvement in participating in virtual spaces, either through the Learning Management System (LMS) provided or the social media interaction and communication facilities used in learning (Yunita and Jamaludin 2022).

Based on the background of the problem above, the problem raised is how digital literacy can be used in learning in the era of digitalization through cyber pedagogy. The research objective is to describe digital literacy in learning in the era of digitalization through cyber pedagogy.

B. Discussion

The research method used is literature review with a qualitative descriptive approach. Literature review is a research method that is carried out by collecting material, information, and some research supporting data sourced from scientific books, journals, and even documents that contain the required information (Ningsih, Widodo, and Asrin 2021). Qualitative descriptive is a research approach that seeks to describe a phenomenon with language and words using scientific methods (Moleong dalam Yunita and Jamaludin, 2022).

The format of the data source are some book and articles related to critical reviews of studies of digital literacy in learning in the digitalization era through Cyber Pedagogy. Data collection techniques through documentation techniques through surveys of library materials and literature studies by studying materials related to the research object. The data analysis

technique uses qualitative analysis by analyzing the data and then concluding it with an inductive mindset. Data collection through tracing the data that has been selected, is then analyzed to answer the problem and finally conclusions are drawn.

1. Digital Literacy

The basic skills that must be possessed in the 21st century era, namely creativity, critical thinking, communication, and collaboration (Bialik & Fadel in Zahroh and Sholeh, 2022). Apart from these four skills, individuals also need to master basic literacy skills. The key to success in developed countries in improving the quality of human resources is reading (Yukaristia, 2019). Education has taught humans to understand various forms of knowledge with literacy. The Ministry of Education and Culture mentioned six types of literacy consisting of reading literacy, writing literacy, scientific literacy, numeracy literacy, financial literacy, digital literacy, and cultural and civic literacy. Of the six literacy movements, digital literacy is the literacy that is in line with the demands for changes in the education sector during the Covid-19 pandemic.

Another definition of literacy is recognizing cultural and historical ways of providing meaning. Digital literacy does not change previous forms of literacy but can connect and develop various skills that can be used as the basis of previous forms of literacy.

Digital literacy is an individual's attitude, awareness and ability to utilize digital facilities and equipment to access, identify, manage, evaluate and synthesize digital resources appropriately (Koltay, 2011). Digital literacy design is defined as a connection between the competencies and skills needed to utilize technology and the internet effectively (Martin, 2005).

Digital culture is considered as part of one way to knowledge. Digital literacy refers to the increasing role of social science research in literacy as well as the concepts of visual literacy, computational literacy, and information literacy. Although digital literacy initially focused on digital and computer skills, the rise of the internet and the use of social media has caused a shift from the focus of digital literacy to mobile devices.

Know you how to use technology? Who is the author of the term "digital literacy"? The phrase "digital literacy" was first used by American information technology observer Paul Gilster in his 1997 book, Digital Literacy, and went on to become the accepted term. Digital literacy, as defined by Paul Gilster in his book Digital Literacy (1997), is the capacity to

comprehend and apply knowledge obtained from a wide range of sources and accessed through computer hardware (Fitriani et al. 2022).

Borden developed the concept of digital literacy based on computer and information literacy. More broadly than Glitser, Borden said digital literacy includes the following aspects, he said (Naufal 2021) are knowledge gathering, specifically the ability to construct information from a variety of reliable sources; the ability to provide information, which includes critical thinking skills aimed at being able to understand information obtained via the internet; the ability to read and understand information material presented dynamically and continuously; awareness of the importance of traditional media and its relationship with network media (Internet); recognize access to a network of people who can be used as a source of recommendations and assistance; and able to filter various incoming information so that the information obtained can be accounted for, and has easy access to communication and openness.

Digital literacy isn't just about knowing how to use digital devices like computers, smartphones, and other electronic gadgets; it's also about understanding how to use those things. When interacting with digital media, high-level thought processes take place to enable them to find new ideas and critically assess what they discover.

In line with Paul's opinion, Bawden (Dinata 2021) contends that computer literacy and information literacy are the main components of digital literacy. Digital literacy is thus linked to the technical abilities of gathering, comprehending, and sharing information.

Riel (Shavab 2020) the ability to effectively and accurately use digital information technology and the information obtained from them in a number of situations, such as academic, professional, or daily life, is defined as digital literacy. In other words, being digitally literate means being familiar with both the technologies of today and the methods for retrieving, utilizing, and analyzing the information offered by digital media. Digital literacy refers to initiatives to integrate the capacity to locate, assess, use, share, and create content online (Ady Prasetyo, Aqila Nisfa Maulida, 2022). Yuniarto and Yudha, (2021) digital literacy is defined as the capacity to produce and communicate meaning from patterns and forms, to collaborate and communicate effectively, and to comprehend when and how to use digital technology.

Anggraeni, Fauziyah and Fahyuni, (2019) digital literacy is the ability to discover, evaluate, use, share, and create content using information technology and internet. According to Harjono (Ahman et al., 2019), digital literacy is a confluence of knowledge of information

and communication technologies, critical analysis, teamwork, and social awareness. The skills listed in Eshet Alkalai and Chajut's framework include photovisual literacy, reproduction literacy, branch literacy, and information literacy. As a result, digital literacy can be defined as the capacity to combine technology and knowledge while spreading information.

2. Digital Literacy in Learning in the Era Digitalization through Cyber Pedagogy

Martin dan Grudziecki (Shavab 2020) mentions there are three stages to developing digital literacy, that is digital competence, digital usage, and digital transformation. The following is an image to explain these three stages:
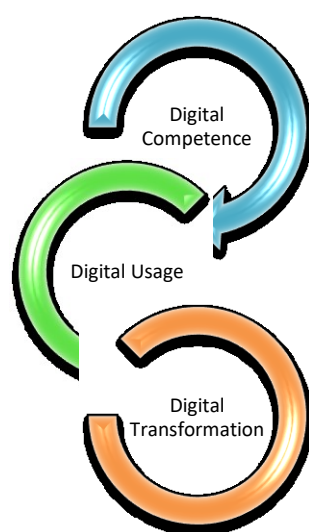
Picture 1. Stages of Digital Literacy

Digital competence, is knowledge and abilities ranging from simple visual identification and manual device use to more complex strategies. The time period that comprises attitudes, critical, evaluative, and conceptual aspects of digital usage. The utilization of digital technologies from the implementation process is included in this stage. For instance, looking for, gathering, and processing data to provide solutions to problems already present. And the third digital transformation relates to the development of digital usage to foster its users' creativity and innovation.

The process of digital literacy according to Martin and Grudziecki (Shavab 2020) consists of thirteen components, that is:

1. Clearly stating the issue that needs to be resolved

2. Identification refers to locating digital resources or completing a task successfully.

3. Access is the process of finding and acquiring the necessary digital materials.

4. Evaluation involves determining the relevance, objectivity, and dependability of digital resources.

5. To interpret is to comprehend the meaning that a digital resource conveys

6. Organization is the process of arranging digital resources so that they may be used to solve problems or complete tasks effectively.

7. Integration is the process of combining digital resources into sets that are pertinent to the task or problem

8. Analysis is the process of utilizing concepts and models to investigate digital resources, or effective completion of the task

9. Aynthesis is the act of recombining digital resources in new ways to enable problem-solving

10. Creation is the act of creating new knowledge objects, informational units, media products, or other digital outputs that will help with task completion.

11. Communication is interacting with pertinent others while completing the task or problem;

12. Dissemination is presenting the solutions or results to pertinent others; and

13. Reflection is evaluating the effectiveness of the problem-solving and considering one's own growth as a digitally literate individual.

Beetham, Littlejohn dan McGill (Anggrasari 2020) information literacy, digital scholarship, learning skills, ict literacy, career and identity management, communication and cooperation, and media literacy are listed as the seven components of digital literacy. Information literacy is the capacity to locate, comprehend, assess, manage, and share information. Digital scholarship entails taking part actively in academic pursuits, such as conducting original research. Learning skills entails becoming proficient with all technologies that offer the necessary elements for both formal and casual teaching and learning activities. Information and communication technology literacy, often known as ICT literacy, focuses on how to embrace, adapt, and use digital technologies, as well as their applications and services. Information on identity management for careers and online. Participation in online communities for learning and research also counts as communication and collaboration.

Critical reading abilities and inventive academic and professional communication in a variety of media are included in media literacy.

Furthermore, to implement digital literacy through a cyber pedagogy strategy, there are several digital platforms that can be used. A digital platform is a set of software that forms a particular system (Wibawa 2021). The software can be opened via PC or Android system. If you use a PC, the digital platform can be downloaded first because it is an application. This type of platform is most widely used and preferred by users because of its practicality, namely that it can be accessed via their respective smartphones.

Online learning is supported through a number of the digital platforms made available by the Ministry of Education and Culture of the Republic of Indonesia. Between them, Google Clasroom, Edmodo, Rumah Belajar, Ruang Guru, Sekolahmu, Kelas Pintar, Zenius, Google Suite for Education, Microsoft Office 365 for Education, Whatsapp Group, Google Classroom , and Zoom (Assidiqi and Sumarni 2020).

Several studies related to the implementation of digital literacy through cyber pedagogy strategies include, Shavab (2020), Sulastri, Maula and Uswatun, (2021), Prayetno et al., (2022), and Yuliana (2022).

Shavab (2020) using the Edmodo online platform to teach history. Students can access learning resources, assignments, and all other forms of support, and teachers can bundle learning using Edmodo's features and other digital literacy-based techniques. Teachers' usage of Edmodo gives students practice in selecting and analyzing the data required for in-class historical learning activities. Digital competence, digital use, and digital transformation are the steps that make up digital literacy. In general, this article will discuss Edmodo learning media, digital literacy, and learning history through Edmodo learning media that is based on digital literacy.

Sulastri, Maula and Uswatun, (2021) in his investigation of the use of digital platforms for online learning in the event of an epidemic in elementary schools. This study demonstrates the popularity of whatsapp and cloud meeting platforms among other frequently used digital platforms. The WhatsApp platform was chosen because of how user-friendly it is for transmitting text messages, voice messages, voice calls, various images, videos, documents, etc. The decision to use cloud meetings is intended to make it simpler for teachers to communicate with pupils.

Prayetno et al., (2022) use Layang Teacher Platform in the cyber pedagogy room. One of the digital learning platforms in cyber pedagogy that can be utilized to help the learning

process is the Layang Teacher Platform. This platform has a number of easily accessible menus that can be utilized for distant learning. Teachers submit prepared materials, assignments, etc. onto the Layang Teacher Platform. Thus, distance learning can be conducted in an efficient and successful manner..

Yuliana, (2022) explained that the use of google meet is an alternative in online learning. The choice of Google Meet is because the features or menus contained in Google Meet are easy to apply in online learning. One of the advantages is the availability of a record feature to record the learning activities carried out. This is useful for playing back material if there are students who forget. Thus the use of Google Meet can be used as an alternative to online learning.

The results of the analysis above show that there are three stages to developing digital literacy, namely digital competence, digital usage, and digital transformation. The first is digital competency, covering the level of knowledge, skills ranging from visual recognition and manual skills in using devices to more advanced approaches. The second, namely critical, evaluative and conceptual, includes attitudes related to the use of digital tools used during the implementation process. The third is related to the use of digital technology developed to support user innovation and creativity. Furthermore, digital literacy elements include: information literacy, digital scholarship, learning skills, ICT literacy, career and identity management, communication and collaboration, and media literacy. So that digital literacy can run properly, technology-based media is needed as support cyber pedagogy are Google Clasroom, Rumah Belajar, Ruang Guru, Sekolahmu, Kelas Pintar, Zenius, Google Suite for Education, Microsoft Office 365 for Education, Whatsapp Group (WAG), Google Classroom (GC), Edmodo, dan Zoom.

Based on the description above, research on digital literacy in learning in the era of digitalization through cyber pedagogy is very important to carry out. Therefore, researchers hope that future research will further examine learning by utilizing cyber pedagogy in learning.

C. Conclusion

The Covid-19 pandemic has not only had a negative impact on the world but has also had a positive impact, one of which is in the education sector. Policy makers seek to overcome this problem by innovating through the use of collaborative technological advances in the world of learning. Learning is no longer limited by space and time, but can be done virtually anywhere and anytime by utilizing technological advances.

Literacy was originally defined as a person's ability to process and understand information when carrying out the process of reading and writing. As literacy develops, it is not only limited to reading and writing literacy but expands to visual literacy and computer literacy. Based on the expansion of the meaning of literacy from several experts, literacy is already related to the term digital. The context of reading and writing skills now lies in the use of digital technology so it is called literacy. Digital literacy is more widely associate with technical access skills, assemble, understand and disseminate information.

In the era of digitalization, policy makers can collaborate on technological advances by presenting virtual learning or in the world of education known as cyber pedagogy. There are various digital platforms developed, among others Sekolahmu, Kelas Pintar, Zenius, Google Suite for Education, Google Clasroom, Edmodo, Rumah Belajar, Ruang Guru, Microsoft Office 365 for Education, and Whatsapp Group (WAG).

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