Review of Ontology, Epistemology, and Axiology in Research Articles on Implementing Digital Literacy in Students' Online Learning Activities

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Abstrak

Literasi digital merupakan salah satu keterampilan yang perlu dikuasai oleh berbagai kalangan di bidang Pendidikan, mulai dari pendidikan dasar hingga pendidikan tinggi. Penelitian ini mempunyai tujuan untuk mengkaji penelitian yang berjudul Analisa Penerapan Literasi Digital dalam Aktivitas Pembelajaran Daring Mahasiswa. Penelitian ini akan meninjau berdasarkan landasan ontologi, epistemologi, dan aksiologi. Metode yang diterapkan pada penelitian ini bersifat analisis konten yang objeknya berupa penerapan literasi digital dalam aktivitas pembelajaran daring mahasiswa. Hasil penelitian ini menemukan bahwa penelitian tersebut masih belum memenuhi landasan ontologi sepenuhnya. Selanjutnya untuk landasan epistemologi sudah cukup terpenuhi dan hanya terdapat sedikit kekurangan yang bisa disesuaikan. Terakhir, untuk landasan aksiologi sudah dapat dikatakan terpenuhi karena mengandung beberapa nilai-nilai yang bisa diambil sebagai manfaat dari penelitian tersebut. Implikasi dari penelitian ini menunjukkan bahwa pemerintah perlu menyiapkan infrastruktur dan sarana bagi peningkatan literasi digital di Indonesia.
Kata Kunci: Literasi digital, Aksiologi, Epistemologi, Ontologi.

Abstract

Digital literacy is a competency that should be mastered by various education sectors, from primary education to higher education. This study aims to examine research entitled Analysis of the Application of Digital Literacy in Student Online Learning Activities. This study was reviewed based on ontology, epistemology, and axiology. The method of this study was content analysis, the object of which is the application of digital literacy in student online learning activities. This study found that the research still needs to fulfill the ontology principle. Furthermore, the epistemological principle is sufficiently fulfilled, and only a few deficiencies can be adjusted. Finally, the axiological principle is fulfilled because it contains several values that can be derived from this research. This study's implications are that the government should provide infrastructure and tools to increase digital literacy in Indonesia.
Keywords: Digital literacy, Axiology, Epistemology, Ontology.

INTRODUCTION

Literally, literacy refers to a person's ability to write and read, but this definition needs to adequately represent current conditions in the technological era. The term literacy keeps changing, which originally only indicated an individual's ability to read and write. The redefinition of literacy continues to develop; Axford (2009) explained that literacy is a person's ability to understand the contents and interpret the meaning of a complex reading. Both of these abilities are needed to get the information and knowledge in a text. Meanwhile, Wandasari (2017) stated that information literacy is an individual's ability to search for and understand information while critically evaluating the information. It is also the ability to manage information into useful knowledge in one's personal and social life.

Along with information technology development, the term literacy has entered an era known as digital literacy. Digital literacy terminology was described by Paul Gilster in 1997 in his book Digital Literacy. Gilster explained that digital literacy is an individual's proficiency in comprehending and using information from various digital sources (Bawden, 2001). Referring to Cahyadi (2018) examined information literacy mastery at the Loka Litbangkes Pangandaran based on seven pillars of information literacy for research. The findings showed that some researchers need to improve their information literacy skills. It shows a gap between information literacy theory and its application.

In its development, digital literacy is undergoing a redefinition process, namely communication activities and thought processes related to digital media (Jones & Hafner, 2021). The presence of digital literacy is not only because of the many exposures to digital media but also because of the importance of information for the democratic process and cultural and civic participation. Moreover, the proliferation of popular culture (pop culture) among young people in using digital media (Koltay, 2011). It means that literacy activities are inseparable from education and research. Researchers who have literacy skills will have information richness. Literacy capability impacts the researchers' expertise to comprehend an issue to be studied.

Particularly the millennial generation, which is known as digital natives, a generation that has been close to the digital device in their activities, whether playing, socializing, or learning by utilizing internet media. The digital natives can not filter the various content and balance it to obtain information for their self-development (Restianty, 2018). Otherwise, the presence of digital media provides opportunities for developing the capability to increase literacy without printed text. Digital media could assist the learning process by studying anywhere, like home. It aims to prepare a generation that has digital competence (Sutisna, 2020). Likewise, in various current studies, it cannot be separated from its role in the digital era. An example is various journal articles that already use OJS and are published in digital form, and printed books have become ebooks that are used as references in research.

Digital literacy is an important capability that needs to be mastered to breast the industrial revolution 4.0 and basic skill in the 21st century (Siti, 2018). Thus, the digital literacy issue needs to be learned in more depth. Therefore, this article aims to analyze research on the application of digital literacy in student online learning activities by Yuni Fitriani et al. (2022), which is reviewed by ontology, epistemology, and axiology principle.

Several previous studies have reviewed ontology, epistemology, and axiology. One of them, Utami (2020) analyzed the literacy movement among junior high school students. Nursalim (2013) reviewed psychological research. Meanwhile, Hardanti (2020) examined the views of the essentialist philosophy on education. Unlike previous research, this study analyzes the theme of digital literacy in online learning activities carried out by students. Study regarding this topic are rare because digital literacy and online learning are new. Even online learning has started to become popular since the Covid-19 pandemic outbreak.

Based on the aforemention information, this study examines an article entitled Analysis of the Application of Digital Literacy in Student Online Learning Activities, which is reviewed based on ontology, epistemology, and axiology. According to the author's assessment, no similar articles discuss digital literacy problems in learning activities from these three perspectives.

METHOD

This article performed inferential content analysis to carrying out the process of interpreting data according to the context. Literature study is a technique for collecting data from books, research articles, magazines, and references to other scientific works, with the object of analysis being a research article on the application of digital literacy in student online learning activities. This study only analyzed one paper on digital literacy. We chose the literature because it had the latest publication year when this research was conducted.

Data analysis utilized interpretation techniques that were descriptive and qualitative. There are three stages in the data collection process: starting with editing to double-check the data obtained. The next stage is organizing, which aims to manage the data obtained. The last stage, finding, is carried out so that the results of data management can be analyzed to the stage of drawing conclusions. The process began with reading and continued by comprehending the research finding on applying digital literacy in student online learning activities. Then comb through the sections in the research article related to ontology, epistemology, and axiology. Finally, the analysis results are presented descriptively so that adequate information is obtained.

Data validity was conducted using semantic validity or content validity. Semantic validity is often used in the process of measuring the level of sensitivity of a technique to symbolic meanings based on a particular context. Semantic validity in this study was conducted by observing data in word units and descriptions of research findings. Meanwhile, reliability was conducted with interrater reliability, namely the process of observing, which is carried out repeatedly in order to obtain consistent data.

RESULT AND DISCUSSION

In the view of science philosophy, there are several theories about truth, namely ontology, epistemology, and axiology. Ontology refers to assumptions about objects and social reality that a researcher (Hidayat, 2002). In addition, ontology is also a branch of philosophy that examines the existence of something and its systematic relationship according to cause and effect (Hardanti, 2020). Ontology is an important phenomenon concerning research because of the fundamental question that emphasizes reality or refers to the objective of a study (Burrell & Morgan, 1979). So, it can be concluded that ontology is discovering the research object and the problems to be studied.

Furthermore, epistemology has a role in answering questions about something. Knowledge is the output of human reconnaissance of objects, so epistemology seeks the essence of knowledge (Jalaluddin & Idi, 2007). So, epistemology is the grounds of knowledge or the foundation of science. In epistemology, one can distinguish what is "right" and what is "wrong" (Burrell & Morgan, 1979). Therefore, epistemology relates to researchers and those being studied to gain knowledge about the research object. Thus, epistemology is attached to the research method and the theoretical perspective (Hidayat, 2002). Meanwhile, axiology is a field that analyzes the value of research. Therefore, axiology captures the uses and benefits of knowledge and its meaning in human life (Nursalim, 2013). Axiology also deals with a researcher's ethics and moral choices toward research (Hidayat, 2002). Based on the statement, axiology is a process to find out or evaluate research from the point of view of its usefulness.

This research will discuss the results of the Analysis of the Application of Digital Literacy in Student Online Learning Activities. The ontology foundation will examine the nature of digital literacy, and then epistemology will examine the scientific procedures that have been implemented. Finally, the axiology side will examine the usefulness or meaningfulness and values contained in digital literacy in students' online learning activities.

Ontological Foundation

The ontological foundation of research on the application of digital literacy is related to the essence of digital literacy. This study has described the essence of digital literacy in the results and discussion sections. Nevertheless, the essence of digital literacy in the discussion was limited to understanding, communicating, and conveying ideas in digital media. In this case, students were emphasized to study material from ebooks and e-modules that the course administrator provided as a means of learning without using other media, such as animation and video. In addition, students were not directed to create digital content, such as presentations. However, the implementation of digital literacy has implemented the concept of communication to convey ideas in the digital space.

Based on the information provided, there are eight essential elements for developing digital literacy Belshaw (2011), but only some elements were implemented: cognitive, communicative, and self-confidence. While the other five elements: cultural, constructive, creative, critical, and responsible, have yet to be described by researchers.

Meanwhile, Umar et al. (2019) described that the essence of digital literacy is a soft skill that individuals should possess in utilizing digital technology, not only as an information and communication media. Instead, it is also a learning media, a tool for business or economic activity, a means of socio-cultural exchange, and politics. Furthermore, a person's digital literacy competence will develop the capability to innovate and be creative in facing future challenges.

In-depth analysis, the application of the essence of digital literacy in the study of Fitriani et al. has yet to discuss the capability of innovation or creativity. It is due to the utilization of digital literacy limited to communicating, in this case, distance learning through communication activities and using ebooks or e-modules. In essence, digital literacy also requires innovation and creativity, which could be done by creating digital content such as animation, games, or shared learning video content.

Furthermore, research articles about analysis on the application of digital literacy in student online learning activities should contain the essence of the digital literacy movement by outlining the importance of protecting individual data and privacy, including online security. It is also important to use social media such as Facebook or WhatsApp in the communication process outside of face-to-face meetings as scheduled, both for consulting activities and to provide additional knowledge or information in the online learning process. Based on the explanation, research analysis of the application of digital literacy in student online learning activities has not yet fulfilled the elements or ontological foundation in detail due to other elements that have not been implemented.

Epistemological Foundation

The epistemological foundation of applying digital literacy research is associated with the scientific procedures researchers apply in answering research problems. The systematic steps to reveal the findings and data obtained could reveal the epistemological foundation. In the article, there are two research objectives: (1) to explain and describe existing phenomena, and (2) to find out how is digital literacy implemented, especially in online learning.

The research title is the application of digital literacy in student online learning activities. The first objective could not be included because it can be considered a phenomenon. Supposing, it is included, the study only describes current events. Moreover, the research method must still be submitted based on the abstract. The abstract only explains the background, objectives, and the finding. Meanwhile, in the method section, it was stated that the method is descriptive qualitative. A description of the method basically can be added to the abstract.

According to the identification results, this research is classified as a case study because the sample used is only students in the UBSI Information Systems department, and it is not appropriate to be generalized for other universities. Likewise, the literature review needed to be connected to theory in the results and discussion section. The results are only used to explain substance or theory. There is only one theory in the discussion section, and it is limited to independent learning skills by citing the theory of Robert et al. Indeed, the sources of citing in the discussion come from secondary sources, and it would be better to cite primary sources directly.

Referring to Creswell (2019) argued that qualitative research is an activity that investigates an issue related to a particular case. In order to investigate the issue, information was collected from individuals through interviews. Therefore, the research would be better if the interview results were added to support or strengthen the results of observations.

The theoretical basis used is adequate using the theory from Douglas A.J. Belshaw, Steve Wheeler, and Nasrullah et al. However, the data analysis technique needs to be emphasized. Is the data only looking for an average or just an addition? While in the results section, there is a division based on categories so that the research method could be described the steps for data analysis in more detail, including the software for processing the data.

In conveying the results and discussion, what should be described first is the finding in the location, followed by the discussion. However, the finding and the discussion have been carried out sequentially, which is there have been structured discussions starting from eagerness to learn, technological literacy, interpersonal communication, collaboration with fellow students and lecturers, and self-learning skills. All of the items are appropriate both in the abstract section and introduction, as well as in the results and discussion.

Based on the discussion of epistemology above, the analytical research on applying digital literacy in online student learning activities has fulfilled several rules of scientific procedure. Unfortunately, there are some improvements and additions, such as linking theory with the discussion section. Moreover, data analysis techniques need to be explained in detail. In addition, researchers should pay attention to some typos, such as the word "mahasiswa" becoming "mahaasiswa" (with two letters a) and also "mahassiwa" (there are two letters s). It means that the writing of this article still needs to be considered the typo that occurs.

Axiological Foundation

Two previous foundations begin with ontology, which is what the researcher wants to know. Then, epistemology is the basis for revealing how humans get truth or knowledge. After obtaining knowledge, what are the benefits derived from the knowledge, referred to as axiology? Therefore, axiology is a philosophy that examines the value or benefits of knowledge. The axiological foundation contained in a study is related to values in the form of ethics, aesthetics, and morals (Abadi, 2016). Furthermore, the research's values are not limited to the three values. Retrieved from research analysis on the application of digital literacy in student online learning activities, the values in the article could be outlined into the following:

• The value of discipline is reflected in online learning activities that should be held on time because online learning is limited and would be continued with other courses. Even more, most students were enthusiastic about online learning.

- The value of digital literacy, students utilize various digital products directly in the lecture process, including searching for information on the internet for learning materials.
- Social value was shown in students' interpersonal communication skills using the digital device.
- The collaboration between fellow students and lecturers shows the cooperation value.
- The value of independence was seen from the finding of the research, which show that students generally have the ability and skills to study independently.

Besides the abovementioned values, digital literacy can improve individuals' ability to enter the industrial revolution 4.0 era. There are five main domains of skills in the 21st century: digital literacy, effective communication, intensive thinking, high productivity, and no less importance on spiritual and moral values (Osman et al., 2013). The study's findings showed that 21st-century skills could already fulfill the five proposed domains, including the spiritual and moral values contained in disciplinary and social values. The results of this study are also in line with Utami (2020), that stated the importance of literacy for educators, one of which can be done through activities or promoting the love of reading.

When the implementation of digital literacy is managed and directed properly, the digital literacy movement launched by the government can trigger and accelerate the uptake of Skills 4.0 in Indonesia. It is inevitable that the technology utilized in all sectors has become a requirement, even for universities and research. The higher a person's digital literacy skills, the greater opportunity to master knowledge and develop or upgrade their skills to compete on a global stage.

To support the importance of digital literacy, the Indonesian government launched a national digital literacy program in 2021. The objective of this program is to accelerate the digital transformation process, especially for the development of digital Human Resources (Kominfo, 2021). Since the Covid-19 pandemic, digital literacy has become important and is needed in the current era. Digital literacy has the same role as reading, writing, and arithmetic. Therefore, everyone must use technology responsibly and avoid negative content that can undermine the digital ecosystem (Sutisna, 2020).

The common mistake is to presume digital literacy activities are the responsibility of teachers or lecturers who teach the Indonesian language (Utami, 2020) and information and communication technology instructors. Digital literacy combines three elements: government, academic, and business (Mediaindonesia.com, 2022). So far, technology usage in education has only focused on administrative activities. However, when the Covid-19 pandemic occurred, technology utilization in education became mandatory. Many problems began to emerge; one of them was the long-distance education system which required the ability of all parties to be able to master technology. Many teachers have difficulty implementing learning systems that utilize information technology (Saifulloh & Irfan, 2021). Thus, digital literacy is a need for all levels of society, from households as the smallest organization to the government as the party that makes regulations.

CONCLUSION

Based on the explanation and discussion, it can be concluded that the research on the application of digital literacy in online learning activities for students has not been able to comply with the ontology aspects in detail because the essence of digital literacy was described as dimensions or elements that could be added. The epistemological foundation met the epistemological aspect because some of the scientific procedures applied were adequate, even though a few deficiencies can be supplemented. Finally, from the axiological foundation, it could be concluded that it had sufficient information. Some values could be taken as benefits from this research, such as disciplinary, digital literacy, social, cooperation, and independence values.

The implications of this study show that digital literacy is important in today's technological era. Therefore, digital literacy needs to be applied in education to improve the digital skills of students, teachers, lecturers, and even education staff. It means that digital literacy needs to be understood from an early age. Thus, the government needs to prepare digital infrastructure to increase digital literacy in Indonesia. However, this study has limitations because it only examines students' cases of digital literacy and online learning. Therefore, future researchers can conduct research on students' cases at the school level. Likewise, digital literacy can be researched at a lower level because it applies to all levels of education, including early childhood education.

REFERENCES

Abadi, T. W. (2016). Aksiologi: Antara Etika, Moral, Dan Estetika. *Kanal: Jurnal Ilmu Komunikasi*, *4*(2), 187–204. Https://Doi.Org/10.21070/Kanal.V4i2.1452

Axford, N. (2009). Child Well-Being Through Different Lenses: Why Concept Matters. *Child And Family Social Work*, *14*(3), 372–383. Https://Doi.Org/10.1111/J.1365-2206.2009.00611.X

Bawden, D. (2001). Information And Digital Literacies: A Review Of Concepts. *Journal Of Documentation*, *57*(2), 218–259. Https://Doi.Org/10.1108/Eum0000000007083

Belshaw, D. A. J. (2011). *What Is Digital Literacy? A Pragmatic Investigation* [Durham University]. Https://Dougbelshaw.Com/Doug-Belshaw-Edd-Thesis-Final.Pdf

Burrell, G., & Morgan, G. (1979). *Sociological Paradigms And Organisational Analysis: Elements Of The Sociology Of Corporate Life* (1st Ed.). Routledge. Https://Doi.Org/10.4324/9781315242804

Cahyadi, D. A. (2018). Kemampuan Literasi Informasi Peneliti Dalam Penulisan Karya Ilmiah Di Loka Litbangkes Pangandaran. *Jurnal Kajian Informasi Dan Perpustakaan*, *6*(2), 139–150. Https://Doi.Org/10.24198/Jkip.V6i2.17774

Creswell, J. W. (2019). *Research Design : Pendekatan Metode Kualitatif, Kuantitatif, Dan Campuran* (4th Ed.). Pustaka Pelajar.

Fitriani, Y., Pakpahan, R., Junadi, B., & Widyastuti, H. (2022). Analisa Penerapan Literasi Digital Dalam Aktivitas Pembelajaran Daring Mahasiswa. *Jilsamar: Journal Of Information System, Applied, Management, Accounting And Research.*, *6*(2), 439–448. Https://Doi.Org/10.52362/Jisamar.V6i2.784

Hardanti, B. W. (2020). Landasan Ontologis, Aksiologis, Epitesmologis Aliran Filsafat Esensialisme Dan Pandangannya Terhadap Pendidikan. *Reforma: Jurnal Pendidikan Dan Pembelajaran*, *9*(2), 87–95. Https://Doi.Org/10.30736/Rf.V9i2.320

Hidayat, D. (2002). Metodologi Penelitian Dalam Sebuah "Multi-Paradigm Science." *Mediator: Jurnal Komunikasi*, *3*(2), 197–220.

Jalaluddin, & Idi, A. (2007). *Filsafat Pendidikan Manusia, Filsafat Dan Pendidikan*. Ar-Ruzz Media.

Jones, R. H., & Hafner, C. A. (2021). *Understanding Digital Literacies A Practical Introduction* (2nd Ed.). Routledge. Https://Doi.Org/10.4324/9781003177647

Koltay, T. (2011). The Media And The Literacies: Media Literacy, Information Literacy, Digital Literacy. *Media, Culture And Society*, *33*(2), 211–221. Https://Doi.Org/10.1177/0163443710393382

Kominfo. (2021). *Luncurkan Program Literasi Digital Nasional, Presiden: Dorong Masyarakat Makin Cakap Digital*. Menkominfo. Https://Www.Kominfo.Go.Id/Content/Detail/34599/Luncurkan-Program-Literasi-Digital-Nasional-Presiden-Dorong-Masyarakat-Makin-Cakap-Digital/0/Berita

Mediaindonesia.Com. (2022). *Program Literasi Digital Yang Dicanangkan Jokowi Dinilai Tingkatkan Kompetensi Pemuda*. Mediaindonesia.Com. Https://Mediaindonesia.Com/Humaniora/515244/Program-

Literasi-Digital-Yang-Dicanangkan-Jokowi-Dinilai-Tingkatkan-Kompetensi-Pemuda

Nursalim, M. (2013). Landasan Ontologis, Epistemologis, Dan Aksiologis Dalam Penelitian Psikologi. *Kalam*, *7*(2), 387–406. Https://Doi.Org/10.24042/Klm.V7i2.455

Osman, K., Hiong, L. C., & Vebrianto, R. (2013). 21st Century Biology: An Interdisciplinary Approach Of Biology, Technology, Engineering And Mathematics Education. *Procedia - Social And Behavioral Sciences*, *102*(Ifee 2012), 188–194. Https://Doi.Org/10.1016/J.Sbspro.2013.10.732

Restianty, A. (2018). Literasi Digital, Sebuah Tantangan Baru Dalam Literasi Media. *Gunahumas, Jurnal Kehumasan*, *1*(1), 72–87. Https://Doi.Org/10.17509/Ghm.V1i1.28380

Saifulloh, A. I., & Irfan, S. (2021). Implementasi Gerakan Literasi Digital Di Era Berkelimpahan Informasi Bagi Pendidikan Tinggi. *Matapena: Jurnal Keilmuan Bahasa, Sastra, Dan Pengajarannya*, *4*(2), 182–192. Http://Ejurnal.Unim.Ac.Id/Index.Php/Matapena/Article/View/1287

Siti, Z. (2018). Mengenal 4c Learning And Innovation Skills Untuk Menghadapi Era Revolusi Industri 4.0. *2nd Science Education National Conference*, *Oktober*, 1–18.

Sutisna, I. P. G. (2020). Gerakan Literasi Digital Pada Masa Pandemi Covid-19. *Stilistika: Jurnal Pendidikan Bahasa Dan Seni*, *8*(2), 268–283. Https://Doi.Org/10.5281/Zenodo.3884420

Umar, U., Hendra, H., & Jayanti, M. I. (2019). Tingkat Literasi Digital Mahasiswa Keguruan Dalam Menghadapi Era Revolusi Industri 4.0. *Tajdid: Jurnal Pemikiran Keislaman Dan Kemanusiaan*, *3*(2), 188–202. Https://Doi.Org/10.52266/Tadjid.V3i2.295

Utami, D. A. P. (2020). Tinjauan Ontologi, Epistemologi, Dan Aksiologi Kebijakan Gerakan Literasi Sekolah (Gls) Di Smp Negeri 9 Yogyakarta. *Jurnal Filsafat Indonesia*, *3*(2), 63–71.

Wandasari, Y. (2017). Implementasi Gerakan Literasi Sekolah (Gls) Sebagai Pembentuk Pendidikan Berkarakter. *Jmksp (Jurnal Manajemen, Kepemimpinan, Dan Supervisi Pendidikan)*, *2*(2), 325–343. Https://Doi.Org/10.31851/Jmksp.V2i2.1480