

The Role of Digital Technology in Sustaining Online Learning during the Pandemic Covid19

Muhammad Nang Al Kodri
(kodri.ubr@gmail.com)

Universitas Baturaja

In the midst of the Covid19 pandemic, a rule emerged, especially in Indonesia, where Indonesians are required to maintain a minimum distance from one another to one so that Indonesians are forced to stay at home and do all activities from home such as working from home, and learning from home. With the existence of rules for activities from home such as working from home, studying from home, these activities require the role of technology to carry out these activities. The role of technology digital during the Covid19 periods was very large, for example, like learning from home; this learning was carried out via DARING or in a network by utilizing an application or web which is commonly known as e-learning. E-learning is a distance learning process by combining the principles in the learning process with technology. Digital technology plays an important role in overcoming the problems of the learning process carried out online. Even though it is not as effective as possible with face to face learning in the presence of sophisticated technology, nowadays it is quite helpful in the online-based learning process. However, the role of technology is very sophisticated does not run better without the creativity of a teacher in learning.

INTRODUCTION

The development of technology in modern times is very fast, when this technology provides many benefits in advancing in various aspects. This development is not only in a matter of years, months or days, but hours, even minutes or seconds, especially those related to information and communication technology supported by electronic technology. The use of technology by humans to help complete work is a necessity in life. This technological development must also be followed by developments in Human Resources. Humans as technology users must be able to take advantage of existing technology, as well as subsequent technological developments. Human adaptation with the new technology that has developed is obligatory to do through education. This is done so that the next generation is not left behind in terms of new technology. That way, technology and education are able to develop together with the new generation as successors to the old generation.

In the midst of the Covid19 pandemic, a rule emerged, especially in Indonesia, where Indonesians are required to maintain a distance from one another at least one and a half meters so that Indonesians are forced to stay at home and do all activities from home such as working from home, learning from home and worship from home. With the existence of rules for activities from

home such as working from home, learning from home, worship from home and all activities carried out from home, these activities require the role of technology to carry out these activities. The role of technology during the Covid19 period was very large, for example, like learning from home, this learning was carried out via DARING or online by utilizing an application or web which is commonly known as e-learning There are several definitions of e-learning as follows: "E-learning is learning that is structured with the aim of using an electronic system or computer so that it is able to support a learning process" (Michael, 2013: 27). "E-learning is a distance learning process by combining the principles in the learning process with technology" (Chandrawati,2010). "E-learning is a learning system that is used as a means of a teaching and learning process carried out without having to meet face to face directly between educators and students" (Ardiansyah, 2004). E-learning is a distance learning process based on electronics using computer network media. Apart from using e-learning as a learning tool for lecturers, teaching students and students use WhatshApp, Telegram, video conferencing facilities such as Zoom, and google classroom.

Information Communication Technology (ICT) has become an important factor in distance learning during the Covid-19 pandemic. Competence and literacy in using computers and surfing in cyberspace are the basic skills needed in the implementation of distance learning. Furthermore, Shopova (2013) states that ICT competencies and levels affect the effectiveness and efficiency of the teaching and learning process. Meanwhile, ICT is more specific to the use of digital media, Calrk (2009) states that ICT is influenced by the generation and age of technology users, it is easier for the young generation to manage technology than the older generation. In the context of the implementation of distance learning that is taking place, the difference in generation and age between teachers and learners can be a barrier to the smooth implementation of distance learning. Therefore, the improvement and standardization of teachers and learners in the mastery of information and communication technology should be pursued by all parties involved.

With regard to standardization, the International Technology Education Association (ITEA) has released technology literacy standards which cover various competencies and abilities of learners from 2 to 12 years of age. This standard relates to the ICT competencies that learners must demonstrate in the use of information and communication technology to support the learning process. In another part, the International Society for Technology in Education (ISTE) also released 7 aspects related to technology mastery standards that learners must master in facing the digital world. The competency standards and ICT capabilities of the ITEA and ISTE are closely related to the use of technology to support the learning process. If it is related to the context of implementing distance learning during the Covid-19 pandemic, the ICT literacy standards developed by ITEA and ISTE can be a reference for teachers and learners in utilizing technology for the smooth implementation of distance learning. Based on this, this article will explain the importance of the existence of a technology system and ICT literacy in distance learning during the Covid-19 pandemic.

Distance Learning during the Covid-19 Pandemic

According to Distance learning is a learning system that does not take place in one room and there is no face-to-face interaction between teachers and learners (Munir, 2009). In line with this, Buselic (2012) emphasizes that the focus of distance learning lies in technology-assisted learning methods with the aim of sending learning materials to students who do not meet physically like learning in traditional classrooms. Based on this, distance learning is carried out without direct physical interaction between teacher and learner, interaction is carried out in a virtual system with the help of technology that allows interaction and transfer of knowledge from teacher to learner.

In the context of the Covid-19 pandemic, remote education was carried out as an effort to prevent the spread of the Covid-19 virus. The protocol for preventing the spread of the Covid-19 virus states that the public is asked to avoid crowds or gathering of people. In the context of learning at school or campus, gathering people and direct interaction between the academic community (teachers, students, lecturers, students, and other academicians) in a school or college environment can be a means that has great potential for the spread of the Covid virus. -19. Therefore, distance learning is an important effort in order to suppress the spread of the virus widely, especially among teachers and learners. Meanwhile, Huang et.al (2020) stated that during the Covid-19 pandemic, the learning process was carried out using the "Flexible Learning" system. This system has several characteristics, namely 1) learning dimensions that can be carried out anywhere and anytime, 2) learners can learn whatever they want, 3) learning resources can come from direct teachers or various sources available on various media such as the web, 4) teachers have ample opportunities in determining the implementation of learning (tutoring, independent study, seminars, debates, and online discussions), and 5) the implementation of the assessment can use a system that provides more flexibility for students in reporting every activity carried out during the pandemic Covid-19.

Digital Technology in the Implementation of Distance Learning

Information and communication technology is an important part that can help the distance education process (Gupta, 2014), information and communication technology is also a medium for information transfer and learning interactions in the implementation of distance learning (Iwu, 2013). Furthermore, information and communication technology can help teachers to continue to control learning, evaluate learning, pedagogical aspects, and eliminate learning problems that are stuck with distance. Based on this, information and communication technology has an important role in the continuity of distance learning. Meanwhile, with regard to the application of technology in distance learning, there are 5 important criteria for the application of information and communication technology to support learning during the Covid-19 pandemic (Huang, 2020). The first criterion, the application of Digital ICT must provide easy access to learning resources to learning resources. Distance learning requires the independence and initiative of learners in accessing various learning resources. To make it easier for learners to access various sources of information for learning purposes, these learning resources must meet the following conditions: 1)

The content must facilitate the learners' interest in completing their learning, 2) The content must match the cognitive level of the learners, 3) The content structure is simple and clear, 4) The content is well designed in accordance with visual conditions, and 5) Navigation to the learning resources, the layout must be clear so that it makes it easier for learners to use and access these learning resources. Referring to this, the learning resources available during the Covid-19 pandemic must be easily accessible and accessible to learners. Thus, learners can take the initiative to learn many things from the available sources.

The second criterion, the application of information and communication technology must present the same virtual learning conditions with traditional learning environments (face-to-face classes). The technology system used in distance learning is expected to present a learning atmosphere that is not much different from face-to-face classes which are implemented in traditional classrooms. To fulfill this atmosphere, there are several things that must be considered, namely 1) Teachers must build a learning environment that is full of enthusiasm and trust by encouraging learners to be actively involved so that the virtual classroom atmosphere can be felt by all who are involved in learning, 2) teachers must provide timely feedback and according to what learners need, and 3) Allows learners to be emotionally involved in virtual learning so that a learning environment that demands performance and competitive among learners. This second criterion is a challenge for teachers to continue to create a comfortable, active and enthusiastic learning environment in distance classes. Moreover, the conditions of the Covid-19 pandemic that lasted for a long time could make teachers and students feel bored with the existing situation and conditions.

The third criterion, the application of information and communication technology must present an effective learning system by utilizing and using a learning management system (LMS). To bring effective learning with an LMS, it must pay attention to 1) The structure of the LMS and the teaching process must be in line, 2) LMS provides automatic services that facilitate the learning process carried out by teachers and learners, 3) LMS has a system that protects various data related to the learning process, both teacher data and learner data, and 4) LMS must be well designed so as to provide ease of use, both for teachers and learning. In the context of these criteria, Online learning during the Covid-19 pandemic should use an LMS that accommodates various learning processes such as assessment, attendance, material giving, assignments and others. The existence of this LMS will allow all these processes to be controlled properly by teachers and learners. One of the many LMSs used in distance learning during the Covid-19 pandemic, including the Google Classroom.

The fourth criterion, the application of information and communication technology must facilitate all users without being limited to the experience of using the technology. It is hoped that the technology system used during distance learning is not limited to users who are experienced in its use, but can be used by anyone who has an interest in using the technology. To present these conditions, it is necessary to pay attention to the following: 1) The components and labels used in technology for learning are universal so that they can be known and understood by all users, both

teachers and learners, and 2) The existence of a simple guidebook, clear and concise. In the context of the online learning of the Covid-19 pandemic, these criteria need to be considered when determining the technology system to be used in online learning. This is because the implementation of online learning during the Covid-19 pandemic was an emergency, so there was no careful planning and preparation. Therefore, the technology system used was not limited to experienced users, but could be used by all groups and ages.

The fifth criterion, the application of information and communication technology must be able to facilitate interaction between instructors and learners, especially when learners experience difficulties and want to ask the instructor. To encourage learners to dare to ask questions when experiencing difficulties, there are several things that need to be considered, namely 1) There is the right encouragement from teachers and other parties, 2) A comfortable atmosphere is created when teachers and learners interact during learning, and 3) There is an appropriate and effective feedback to struggling learners. In the implementation of online learning during the Covid-19 pandemic, teachers must provide services that provide feedback quickly and precisely to learners.

The five criteria for the application of information and communication technology in distance learning illustrate that the use and application of technology systems needs to be well designed and pay attention to various aspects. Aspects that need to be considered are related to the technology itself and its users, in this case teachers, learners, administrators and other users such as parents. Users must have the ability to access, use, and manage any technology systems used in distance learning. If the user does not have these abilities, then no matter how sophisticated the existing technology system is, it will not be able to support the continuity of distance learning. Therefore, information and communication technology literacy is an important part for users in carrying out distance learning.

The Role of Digital Technology in Distance Learning

Information and communication technology plays an important role in the world of education. Even Ezzaaine (2007) and Keskin et .al (2015) Santoso and Lestari (2019) stated that information and communication technology literacy is the key and foundation of the education sector at this time. that students who have high technology literacy can experience many benefits, one of which is the ease of obtaining various learning sources so that they can increase their competence in learning. Meanwhile, students who have low technological literacy will experience problems in learning, especially distance learning (Wibowo, 2020). If it is related to the implementation of online learning during the Covid-19 pandemic, learners who have good ability to use and master technology will make it easier for them to follow every learning process, even with an online classroom system. However, for learners who do not master technology, their involvement in the learning process will experience obstacles.

In the context of the effectiveness of distance learning, knowledge of technological devices and basic skills in operating technology is the most basic technological literacy that encourages the creation of a more effective distance learning environment. Basic technology literacy regarding

how to use technology systems needs to be trained and improved so that distance learning can be more effective. In line with that, Loughin (2011) states that technological literacy is expected to be able to develop effective learning skills by utilizing a digital environment that is rich in learning resources. When teachers and students have good basic ICT literacy, such as knowing the technology system and mapu operating it, the distance learning process can take place effectively. However, teachers and learners must be aware that technical problems are often an obstacle that makes learning not run effectively as planned. At a further level, ICT has a role in the process of interaction and communication during the learning process. Teachers and learners who have ICT literacy will present interactions during learning even though they are in different places and are separated by distance. Digital technology and ICT literacy have become media and ways for teachers and learners to collaborate and communicate online. Interaction, communication, and collaboration during distance learning during the Covid-19 pandemic can be done in various ways, including communication via email, using chat features on various social media, and via video conference platforms.

ICT also has a role in facilitating information access and information management that supports distance learning during the Covid-19 pandemic. Technology literacy will assist students in accessing information sharing from available sources. In the ISTE Standard For Student, it is stated that the ability to search for effective information by choosing the right keywords becomes technological literacy that must be mastered by students. Thus, technological literacy will make students search for information quickly and precisely because they know the location and keywords that match the information needed for learning purposes. In addition to making it easier to find information, technological literacy will also help in managing information, starting from finding, managing, evaluating and utilizing the information obtained. Technological literacy related to the management and evaluation of available information is very important because not all information has the right accuracy and is related to learning (Maphosa, 2019). During the Covid-19 pandemic, hoax information was found that was widespread in various media, ICT literacy in terms of information management was a very important ability for teachers and learners to have.

The role of information and communication technology literacy is also not only to help increase knowledge and skills about the use of technology systems in distance learning. More than that technology also develops social and ethical aspects in the use of technology. The ISTE Standard for Student explains that information and communication technology literacy directs students to engage in a positive, safe and ethical manner when using technology, including when interacting online. In the context of implementing online learning during the Covid-19 pandemic, technology users who have ICT pay attention to ethics, awareness and responsibility regarding all activities they do, both in interaction, communication and in creating content related to learning.

CONCLUSIONS

The Covid-19 pandemic has had a significant impact on various sectors, including learning. In order to prevent the spread of Covid-19, the learning process is carried out using a distance learning system. In the implementation of distance learning during the Covid-19 pandemic, technology with all its systems is the key to implementing learning that is able to bridge interaction, communication and collaboration between teachers and learners who are stuck in distance. However, the existence of technology will not be utilized if it is not accompanied by technology literate instructors and learners. Technological includes all knowledge and skills in utilizing technology, starting from recognizing the device, operating it, processing and communicating information. Technology digital has an important role in the implementation of distance learning during the Covid-19 pandemic, including facilitating the implementation of online learning, making the implementation of distance learning more effective, making it easier to find and process information, facilitating communication and collaboration of teachers and learners, and directing technology users to more positive and uphold social ethics when using technology in distance learning. The use of information and communication technology during distance learning during the Covid-19 pandemic will lead to increased technological literacy which results in new habits in the learning process in the future.

REFERENCES

- Munir. (2009). *Pembelajaran Jarak Jauh Berbasis Teknologi Informasi dan Komunikasi*. Bandung: Alfabeta.
- Maphosa, C., dan Bhebhe, S. (2019). European Journal of Education Studies digital literacy: a must for open distance and e-learning (odel) students. *European Journal of Education Studies*. 5(10): 186–199.
- Shopova, T. (2014). Digital Literacy of Students and Its Improvement at the University. *Journal of Efficiency and Responsibility in Education and Science*. 2014; 7(2): 26-32.
- Clark, L, S. (2009). Digital Media and The Generation Gap. *Information, Communication & Society*. 12(3): 388-407.
- Ramdhani, A., Ramdhani, M, A., dan Amin, A, S. (2014) Writing a Literature Review Research Paper: A step-by-step approach. *International Journal of Basic and Applied Science*. 3(1): 47-56.
- Buselic, M. Distance Learning-Concept and Contributions.(2012). *Prehodno Priopcenje*.
- Tavukcu, T., Arap, I., dan Ozcan, D. (2011). General overview on distance education concept. *Procedia Social and Behavioral Science*.; 15: 3999-4004.
- Huang, R. H., Liu, D. J., Tlili, A., Yang, J. F., & Wang, H. H. (2020). Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining undisrupted learning in COVID-19 Outbreak. Smart Learning Institute of Beijing Normal University: UNESCO. 1–54.

- Cheawjindakarn, B., Suwannatthachote, P., dan Theeraroungchaisri. (2012) A. Critical Success Factors for Online Distance Learning In Higher Education: A Review of the Literature. *Creative Education*. 3(supplement): 61-66.
- Santoso, A., dan Lestari, S. (2019). The Roles of Technology Literacy and Technology Integration to Improve Students' Teaching Competencies. *KnE Social Sciences*, 3(11): 243-256.
- Education, I. S. for T. in. (2016). ISTE standards teachers. *International Society for Technology in Education*. [online]. Tersedia: <http://www.iste.org/standards/ISTE-standards/standards-for-teachers.pdf>.
- Ezzaaine, Z. (2007). Information Technology Literacy: Implication in Teaching and Learning. *Educational Technology & Society*. 10(3): 175-191.
- Keskin, N, O., Ozata, F, Z., dan Banar, K. (2015). Examining Digital Literacy Competences and Learning Habits of Open and Distance Learners. *Contemporary Educational Technology*. 6(1): 74-90.