A Review on the Challenges of E-Learning on Higher Education in Indonesia

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Abstract. Many higher education institutions in Indonesia have implemented e-learning in the lecturing process with the aim of improving the quality of the learning process. Although there are many benefits derived from the implementation of e-learning, the implementation has not been running smoothly. This paper aims to present a literature review on the challenges that faced in implementing and providing e-Learning at universities in Indonesia from various perspectives. The literature review method was used to identify and analyze the literature on the challenges of e-Learning in Indonesia. Through this literature review, it can be concluded that there are various challenges from the instructor, learner, educational dimension, and technological dimension. That four aspects have been revealed which have weakened the success of e-learning implementation on higher education in Indonesia. Analysis of the challenges in the implementation of e-learning can be an effort to explore and determine effective strategies in implementing e-learning in Indonesian universities.

Keywords: E-Learning · Higher Education · Online Learning

1 Introduction

The 21st century has brought significant changes to learning and learning activities. This is influenced by the rapid development of information technology. In the digital era and network technology as it is today, learning resources that can be used are very diverse and broad. Anyone who is in the network can obtain and utilize the information and knowledge contained in the network or the web.

The rapid development of technology has given rise to various new forms and modes of learning, one of which is e-learning. E-learning has various forms of learning activities or programs such as online learning, massive open online courses (MOOC), flipped classrooms, and blended learning. The presence of these new forms and modes of learning is based on the need for flexible learning. Digital teaching and learning tools are used in e-learning. It makes use of technological tools to let students study anytime and anywhere they want. It involves training, delivery of knowledge and encourages students to interact with each other, exchanges ideas, and valuing diverse point of views. It makes communication easier and strengthens the relationships that keep learning going [1].

E-learning has the potential to improve learning opportunities for students who are autonomous and self-directed. The student learns independently and simultaneously and asynchronously at any time [2]. Thus, e-learning encourage constructivist and active approaches student-focused learning, not on lecturers [3]. According to many students in e-learning platforms, online learning helps ensure that e-learning can be easily managed, and the learner can easily access the teachers and learning materials [4, 5]. The administrative tasks, prepare and recording lectures were significantly reduced by e-learning. Lectures, as well as students, observe that online learning methods encouraged pursuing lessons from anywhere and in difficult cult circumstances that prevent them from attending universities.

E-learning encompasses web-based education, digital learning, interactive learning, computer-assisted instruction, and internet-based learning [6, 7]. To create educational materials, instruct students, and oversee courses in an organization, technology-based e-learning necessitates the use of the internet and other essential tools. When time, location, and health concerns are taken into account, e-learning is adaptable. By making it possible to access a large amount of data, it improves collaboration, strengthens relationships that support learning, and makes knowledge and skills more useful. Even though e-learning can improve education quality, some people argue that making e-learning materials available only improves learning outcomes for certain kinds of collective evaluation. However, e-learning might lead to a lot of use of some websites. In addition, it is unable to support domains requiring practical studies.

E-learning has become increasingly popular in higher education in Indonesia. Nowadays, educational institutions must rely heavily on the e-learning system to support their students' learning. However, in order to adopt e-learning, a large strategy and resources (such as Internet connection, electricity, etc.) from all stakeholders (governments, industries, private sectors, and communities) are required for optimal application. In addition, Pramana and Astuti demonstrated that the DKI Jakarta, Yogyakarta, Riau Islands, East Kalimantan, and Bali clusters have high ICT access and education quality [8]. Based on the study, it is also known that before implementing e-learning, more provinces in Indonesia need to improve education facilities and quality.

In addition, a review the challenges of e-learning technology adoption in higher education in Indonesia needs to be performed to obtain the best strategy for the implementation. This study aims to highlight the challenges of implementing e-learning in Indonesian universities. This analysis of the e-Learning challenges forms the basis for the ongoing research that seeks to explore and establish possible strategies to address some of these challenges.

2   Method

This study employs literature review as its method. The literature review is used to collect the data. Using a few criteria, this study was limited in its collection and selection of relevant literature reviews. First, the research articles are available at Google scholar and Eric document. Second, the keyword used to find the relevant research are about challenges of implementing e-learning on higher education in Indonesia. And then, the article should be published at least 5 years ago. Only open access article that were used

Table 1. Relevant Article

Article Code	Year	Title
1	2021	Purwadi, Saputra, W. N. E., Wahyudi, A., Supriyanto, A., Muyana, S., Rohmadheny, P. S., Ariyanto, R. D., & Kurniawan, S. J. [15]
2	2021	Santosa, H., Widyastuti, D. A., Basuki, A., Kasman, R. & Buchori, S.[12]
3	2021	Tauhidah, Dian; Jayanti, Ummi Nur Afinni Dwi; Rahmasiwi, Amining; Pamungkas, Rahmania; Saifulloh, Ahmad [13]
4	2021	Mulyani, Fidyati, Suryani, Murnia Suri, Halimatussakdiah [16]
5	2020	Widyanti, A., Hasudungan, S & Park, J.[20]
6	2020	Afnibar, Fajhriani, D. & Putra, A. [21]
7	2020	Yeni Ermawati [22]
8	2019	A. Rahmat., K.B.Seminar., & Arif Imam Suroso [23]
9	2018	Guspatni [9]
10	2018	Totok Harjanto, Dimas Septian Eko dan Wahyu Sumunar [24]

as literature. By follow the criteria in finding the relevant research, there are ten articles were selected. The data analysis is done by reviewing the previous relevant research finding.

3   Result and Discussion

The research papers that met the eligibility criteria is listed in Table 1. The results of the literature review were organized in terms of (a) learner dimension, (b) instructor dimension, (c) educational dimension, and (d) technological dimension as shown in Table 2.

The implementation of e-learning has both opportunities and challenges. The fulfilment of learning outcomes can be fully supported by e-learning because the content and media available in the system are in line with the educational curriculum. System flexibility is an opportunity for the implementation of e-learning in the future. The shift in the portion of the use of desktop devices to lecturers and students allows the development of e-learning opportunities that more friendly to be accessed and presented in the mobile version. The development of e-learning that is compatible with a variety of devices, whether desktop, mobile, as well as platforms or operating systems allows flexibility and convenience for all lecturers and students.

Furthermore, various challenges in implementing e-learning in universities in Indonesia are unavoidable. Some of the challenges that can be identified are as follows.

3.1   Learner Dimension

According to Widyanti et al. (2020), there is a significant difference in mental workload between e-learning and traditional learning [9]. It could be because the lecture has a limit

Table 2. Classification of challenges in e-learning environment

Categories	Challenges in e-learning Environment	Article Reference
Learner Dimension	High level of mental workload	2, 5, 6
	Students' reluctance to use e-learning system	3, 9
	Students' focus distraction to academic matters	5
Instructor Dimension	Low lecturer engagement and lack of essential guidance	1, 2, 3, 6
	Inability of some instructors to work with system	3
Educational Dimension	Failure to anticipate appropriate in-service courses to familiarize lectures with teaching methods and process of using e-learning	3
	Lack of interaction between lecture and students and students with students	1, 2, 3, 6
Technological Dimension	Low internet speed, even no access of internet and insufficient hardware and software for support e-learning	1, 3, 4, 8, 10
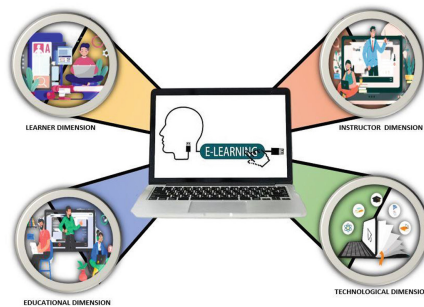
Fig. 1. Dimension in E-learning Challenges

part of the e-learning process. An instructor's job during study time is to emphasize the most important aspects of the material learning and limit the scope of the material learning presented to students [10]. So, students are encouraged to learn everything in the course by these conditions. This could be why e-learning results in a higher mental workload level (Fig. 1).

The second challenge is many student perceived e-learning as a difficult system in a course work. E-Learning can be frustrating if it cannot be accessed by students. Low internet connection, lack of interaction, and low self-assurance to understanding learning materials were the reason why students reluctant to use e-learning system [9]. Thus, learning can be disastrous for students because of the difficulty of adjusting technology [10].

The other challenge for students who using e-learning is maintaining learning focus. Bylieva et al. stated that e-learning environments can easily distract the students by its various appeals [11]. So lectures need to design various learning activities which can increase students' involvement in e-learning process.

3.2   Instructor Dimension

Low lecturer engagement and lack of essential guidance. Lecturer has a role to give emphasis to the important points of the learning material. In e-learning environment it's difficult to carry out that role because of the limit direct interaction between lectures and students. Lecturer can facilitate the students easily in face-to-face learning, but in e-learning situations tend to lack of essential guidance for students [12].

Inability to work with e-learning system is a challenge that faced by lecture too. Lecture's understanding of various e-learning platform can influence its usage in learning process. E-learning platform introduction and habituation is needed to improve the online learning better [13].

3.3   Educational Dimension

Using e-learning in a course work can reduce the interaction between lecture and students. Interaction students with lecture and the other students is the essential aspects in learning process. Shu and Gu stated that interaction in classical learning was more in-depth than in online learning [14]. In face-to-face class, students can do direct communication to lecture or the other students which can affect students' academic performance. So, there are social factors that missing in e-learning context. Thus, more worked-out examples and learning materials such as video tutorials in solving problems is needed.

Furthermore, the problem that often arises in e-learning environment that is lecture mistakenness in implementing the learning design. Lectures provide online assignment, not online learning activities [15]. This challenge in line with the challenge about maintaining students focus in e-learning.

3.4   Technological Dimension

Hardware, software, the Internet, and e-learning system infrastructures are all included in the technological dimension. E-learning must be supported in terms of hardware and software, and new technologies and infrastructures related to them must be utilized for it to be successful. The Internet, which is essentially the foundation of e-learning, is another factor that has significantly altered education and learning. Similar to this, a number of researchers have pointed to problems with e-learning as a result of the cost of Internet access, bandwidth limitations, and slow Internet speed, as well as the absence of appropriate hardware and software facilities. Because e-learning is based on computer communication platforms, each component's strength or weakness has an impact on effectiveness. Users are reluctant to try Web-based learning due to its limited bandwidth and slow Internet speed.

Mulyani found that there are differences in e-learning used in every university in Indonesia. Universities in western Indonesia tend to be more flexible in the use of e-learning. This is supported because universities in western Indonesia are helped by having a fairly stable internet connection compared to Central and Eastern Indonesia, which have less stable internet connections so that they are hampered in accessing e-learning [16].

Based on the problems in the four aspects above, there are four things that can be recommended to support e-learning implementation in Indonesian higher education. *First,* employment technical experts in the field e-learning education to train lecture and learner. Problems of teachers who have difficulty interacting with learners can be caused by the low a lack of understanding of the use of e-learning systems. Instructors sometimes resist to use e-learning because their current status may be endangered. However, they should be familiarized with the advantages and necessity of e-learning through courses to help reducing this resistance. Additionally, a lecturer's proficiency is one of the features of creative teaching from a learner's perspective. Employment technical experts in the field e-learning education to train lecture and learners in using e-learning can be a way to improve the mastery in using e-learning. The more compatible instructors and learners are with e-learning, the more likely they are to have a positive attitude toward it and be engaged in it, and thus succeed and improve their e-learning experience.

Second, establishment of an e-learning culture. The more widespread use of e-learning in the world of education, it is important to promote it first in the academic environment and followed by the general public. By increasing awareness about the features, goals and benefits of e-learning, community members can develop more positive attitudes towards e-learning, supporting users who will become more passionate and active in this environment [17]. Currently, there is an inherent view of e-learning so that people in general do not see virtual education as an important process. There is an assumption that online learning is only to achieve the ultimate goal and not through a process like face-to-face learning. If the purpose of e-learning is well defined, it will certainly reduce resistance to e-learning both from the side of students and instructors.

Third, lecturer must be able to provide a suitable learning design for e-learning. However, an instructor should be able to convey content material effects. An instructor's online presence is likewise vital too. Without it, learning will be difficult because of the lack of thorough evaluation and overview by the lecturer. Furthermore, it can cause the failure to initiate learners participation when discussing lesson matter. Misinterpretation leads to learner's confusion and less of motivation [18]. So, to avoid these problems, instructors can carry out a quality needs analysis, design, development, and delivery of e-learning content. Designing learning activities that can actively engaging learners so they can experience more effective learning by interacting with the environment, content, lecturer, and other students.

Fourth, provision of the infrastructure needed to implement e-learning effectively. The implementation of e-learning needs to be strengthened with adequate hardware and hardware support, as well as technology and infrastructure [19]. Another important factor that forms the basis of e-learning is the internet network. From the results of the review, it can be seen that there are still many e-learning users who have not been supported by qualified technology. There should be the necessary software and hardware infrastructure in place. Learning activities also take place in the learning management

system (LMS). An LMS should use a system that includes all activities and provides a good user interface (UI).

4   Conclusion

Many universities in Indonesia which implementing e-learning faces numerous challenges and problems. Some of the challenges can be categorized into four aspects, they are learner dimension, instructor dimension, educational dimension, and technological dimension. To improve e-learning implementation in Indonesian higher education, this study suggest: (a) employment technical experts in the field e-learning education to train lecture and learners; (b) establishment of an e-learning culture; (c) lecturer must be able to provide a suitable learning design for e-learning; and (d) provision of the infrastructure needed to implement e-learning effectively.

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