

The Implementation of Online Learning at The Faculty of Engineering, State University of Makassar in Response To Covid-19

Syahrul¹, Muliyadi², Shabrina Syntha Dewi³

Universitas Negeri Makassar, Indonesia

e-Mail: syahrul@unm.ac.id

Abstract. This study aims to analyze online learning activities during the Covid-19 pandemic at the Faculty of Engineering, State University of Makassar, including the supporting and inhibiting factors. This study uses a descriptive method with a qualitative approach. The population of this study were students who were attending online lectures during the Covid-19 pandemic at the Faculty of Engineering, UNM, with a sample of 400 students. Data collection was carried out online using a questionnaire via Google Form and interviews. The data were analyzed and interpreted in a descriptive qualitative manner by referring to the formulation of the problem set. The results showed the following; The quality of online learning activities at the Faculty of Engineering UNM during Covid-19 situation was effective. However, some lecturers and students felt the activities were less ideal compared to conventional face-to-face learning; The level of students' understanding of course material was quite good, with varying student learning outcomes. The evaluation of learning outcomes conducted by lecturers is quite varied, including giving independent assignments, structured assignments, formative and summative tests; During the Covid-19 response period at the Faculty of Engineering UNM, institutional support from both the Ministry of Education and the university was quite adequate in the form of providing free internet quotas. The obstacles faced by students and lecturers in online learning include the availability of internet quota, the network is sometimes unstable / bad connection because internet access is not the same in every place. Another obstacle is the schedule of lectures which sometimes collide with one another.

Keywords: *Evaluation, Implementation, Online Learning, Covid-19*

INDONESIAN JOURNAL OF EDUCATIONAL STUDIES (IJES)

E-ISSN: 2621-6736

P-ISSN: 2621-6744

Submitted : 2nd October 2021

Revised : 10th January 2022

Accepted : 1st March 2022



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INTRODUCTION

The Coronavirus Disease (Covid-19) pandemic which started in Wuhan, China at the end of 2019 spread rapidly to almost all parts of the world (Tian, et al., 2020). In order to minimize the spread of this virus, people from various countries are urged to keep their distance (social distancing) and stay at home. Several regions in Indonesia have even implemented a social containment policy in the form of Large-Scale Social Restrictions (PSBB). Through this policy, the government limits activities that people can do outside the home, as well as asks them to work from home, aka Work from Home (WFH), worship from home, and learn from home.

This policy automatically affects various sectors, including the education sector. The Minister of Education of the Republic of Indonesia issued Circular Number 4 of 2020 concerning instructions for the learning process to be carried out at home to respond to the spread of Covid-19. In the end, educational institutions have to stop face-to-face learning for a while (Praherdhiono, 2020). All teaching and learning activities are carried out remotely from each home (Viner, 2020). The Faculty of Engineering, Makassar State University (UNM) began implementing an online learning policy since March 17, 2019 based on Makassar State University Chancellor Circular No.773 / UN36 / TU / 2020. Online learning itself is a modern learning method which utilize technological sophistication to allow the learning process to be carried out remotely. (Zhang, et al., 2004).

The use of technology in the learning process is not new in this modern era. Technological developments provide changes to the implementation of learning. In the last decade, the development and implementation of e-learning has been so rapid, especially at the university level due to the various benefits it offers, such as easy access to course materials, easy online interaction that is not too limited by space and time. Although growing rapidly in the digital era, online education applications have so far used mostly as a complement to conventional or face-to-face learning systems.

Several digital platforms can be used for online learning activities (Bensalem, 2018). Technological features can encourage effective and efficient, explorative, and more developed learning experiences. The supporting facilities on the online platform in the form of Learning Management System (LMS), supervisory programs, modular and multimedia access can help to improve student competency as long as it is carried out with the right learning strategy. Conversely, improper use of technology in the learning process can have a negative impact on the quality of education (Obi, et al., 2019). For this reason, understanding the effectiveness of the use of digital technology in learning is important for educators (Putrawangsa & Hasanah, 2018).

The Faculty of Engineering UNM itself utilizes a number of online platforms to support teaching and learning activities during the Covid-19 response period, including LMS UNM, Kelase, Spada, and others. However, based on initial observations, both lecturers and students still feel a number of obstacles in its implementation, one of which is due to the limited features on the three platforms that do not allow face-to-face meetings between teachers and students. Referring to these obstacles, it is necessary to conduct a more in-depth evaluation of the

effectiveness of online learning imposed by UNM during the Covid-19 pandemic. Evaluation of the learning effectiveness itself is important to ensure learning objectives can be achieved (Rohmawati, 2015).

Until now, online learning practices carried out by a number of universities are still facing various challenges. Lack of administrative support, funding, quality of learning, and limited facilities are some of the obstacles. In terms of Human Resources (HR) readiness, the campus still rarely facilitates online learning training, especially related to the development of appropriate teaching materials for e-learning or increasing proficiency in the use of technology facilities. Likewise, limitations in technical matters, such as poor skills in using hardware and software and slow internet connection problems. The quality of student-teacher interactions also affects the effectiveness of online learning.

The use of information and communication technology in the learning process has influenced the expectations of students (Wegmann & McCauley, 2008). This also affects the complexity of the teaching staff's role in online learning. Coppola, Hiltz, and Rotter (2002) identified three basic roles of the teacher, namely cognitive, affective, and managerial roles. The cognitive role connects the mental learning process, information sources, and thinking. Affective roles affect the relationship between students, teachers, and the learning atmosphere. Managerial roles related to classroom management and learning subjects. For the success of online learning, teachers must be able to transform these various roles through digital platforms. In online learning interactions that include interactions between learners, learning content, and technology, teachers need to pay attention to those three basic roles.

Various studies suggest that students feel online discussions are more balanced and democratic than traditional classroom discussions (Harasim, 1990). However, online communication is also not always interactive because it is influenced by the frequency, time interval, and type of message being discussed (Eastmond, 1995). For interactions between students to be effective during online learning, an experimental learning model, exchange of ideas, collaborative thinking, facilitated group interactions and supported by the teacher is needed. Of course, online discussions are qualitatively different from face-to-face discussions. In particular, the role of the instructor will change from a discussion leader to a discussion facilitator, and students in general have a greater responsibility in the discussion process (Anderson, et al., 2001). Those factors discussed above have an important influence on online interactions during the learning process.

This scientific study identified the level of success of the Faculty of Engineering UNM in implementing full online learning during the learning at home period due to the spread of Covid-19. This study aims to see the extent to which technological sophistication can be used to achieve predetermined learning objectives. It is hoped that this research can add insight into the challenges and strategies for implementing online learning in order to be effective, therefore it can be an input in efforts to improve the quality of education in Indonesia during this digital era. The results of this study can also provide suggestions and criticism to improve the implementation of online learning at Faculty of Engineering UNM. Improving the quality of online learning at the tertiary level is a must considering the demands of the times.

Based on the description above, the researchers want to examine the implementation of online learning at the Faculty of Engineering, Makassar State University during the Covid-19 pandemic. The focus of this research is to analyze the quality of online learning activities carried out by the Faculty of Engineering UNM during the Covid-19 response period; the level of understanding of the material by students during online learning carried out by the Faculty of Engineering UNM; the form of learning outcomes evaluation conducted by lecturers in online learning during the Covid-19 response period; and the supporting and hindering factors in online learning during the Covid-19 response period at the Faculty of Engineering, UNM.

RESEARCH METHODS

This research on "Evaluation of Online Learning During Covid-19 Response Period at the Faculty of Engineering, Makassar State University" uses a descriptive method with a qualitative approach. These methods and approaches are considered the most appropriate to be able to reveal, understand, and explain the online learning activities undertaken, including the various challenges faced. The descriptive method itself aims to describe and analyze existing events without special treatment for the objects under study.

The population of this study were students who were attending online lectures during the Covid-19 pandemic at the Faculty of Engineering, UNM. In addition, the research sample is active students at the Faculty of Engineering, UNM who are determined using the Combined sampling method, there were 250 students in total from different study programs participated as the sample. In this study, data collection was carried out online using a questionnaire via Google Form and semi-structured interviews. Data were analyzed and interpreted descriptively qualitative. Data analysis was carried out by referring to the formulation of the problem defined in this study.

RESULTS AND DISCUSSION

The Quality of Online Learning at the Faculty of Engineering UNM

The Covid-19 pandemic leads to fundamental policy changes in education sector in Indonesia, both in schools and universities. The learning process that has been carried out face-to-face has now turned into a distance learning system or online. Given the condition of the corona pandemic in Indonesia has not shown a decrease in the number of positive patients, the lecturing activities until the end of the even semester of the 2019/2020 academic year at Makassar State University is entirely conducted online. Likewise, at the Faculty of Engineering, Makassar State University. Widayati (2020) argues that this online learning activity is an alternative since face-to-face learning cannot be carried out as the conditions faced by the country today.

To achieve good practice in Online Learning, there are several main design principles that must be obeyed (Bilfaqih and Qmaruddin: 2015), namely: first, identification of learning outcomes for students or learners, covering aspects of knowledge, skills and attitudes; second, ensuring that the assessment strategy is aligned with learning outcomes; Third, develop learning activities and assignments in

a progressive manner so that students can target the knowledge, skills and attitudes that will be developed during the learning process.

Based on the results of data analysis related to the online learning process that took place at the Faculty of Engineering, UNM, it was revealed that the online learning process was quite effective. This was stated by the majority of students (88%), while the rest stated that they were less effective (12%). This is supported by Nadziroh (2017) who argues that online learning is effective in improving the quality of learning, because the learning process is not limited by the time and place. However, the communication was not smooth, causing the material to be difficult to understand, especially for the practicum course. This information can be presented in the following table.

Table 1. The effectiveness of online learning at the Faculty of Engineering UNM

Indication	Frequency	Percentage
Effective	25	6.25
Moderately Effective	327	81.75
Less Effective	48	12.00
Ineffective	0	0.00
Total	400	100.00

Based on these facts, it can be seen that the implementation of online learning is classified as effective. This means that the learning process in the online learning system program has been running well and student activities are also classified as good. Online learning also demands student independence in accessing information (Baker, 2003). Students are aware of and understand well the objectives of online learning systems that require independent learning abilities. Through the process of independent learning, guided learning, and the use of various learning resources as a whole in the learning system, it is hoped that students can carry out an optimum learning process with satisfactory results (Yuliana & Winata, 2009). The implementation of effective online learning as stated above can be seen from the series of learning processes prepared by both lecturers and students. In the online lecturing, a teacher must also prepare materials so that the messages can be understood by students properly. Learning materials must be well prepared so that online lectures can run smoothly. Teaching and learning strategies must also be implemented to allow feedback from lecturers to students or from students to lecturers. In the online lecture process, students respond well to the learning strategies applied by the lecturers. According to the data obtained from this study, it was revealed that the strategy used by the lecturers was good. For the sake of smooth lectures, lecturers generally submit a lecture contract at the beginning of the meeting. This was revealed by 76.1% of students, and 24.9% of students stated that the lecturer did not submit a lecture contract at the beginning of the lecture.

Like the face-to-face learning in class, online learning also requires student preparation to take lectures such as preparing materials, papers, reading books, notebooks and others. In addition, the preparations that students have to do before studying online as expressed by several students who were successfully interviewed

(20 June 2020) are quotas or data packages. If there is no internet package, lectures cannot be done in addition to facilities such as personal computers (PCs), laptops or mobile phones. Regarding the facilities used by students in taking online lectures (learning) at the Faculty of Engineering UNM, it was revealed that the most frequently used equipment by students was a mobile phone (52.5%) and a laptop (47%) because generally students already have both equipment. While the rest (0.5%) students use PCs. The use of these tools can be used interchangeably by students.

Table 2. Facilities used by students in participating in online learning

Device Type	Frequency	Percentage
Laptop	188	47.00
Hand phone	210	52.50
Computer		
Desktop	2	0.50
Total	400	100.00

The most important factor related to online learning is that lecturers are required to be able to design light and effective online learning, by utilizing the right online tools or media and compatible with the material being taught. Although online learning will provide wider opportunities to explore the material to be taught, lecturers must be able to select and limit the extent of the material's scope and the appropriate application of the learning materials and methods used.

There are many applications that are selected to help the online learning. Based on the policy of the UNM Chancellor, that in online lectures, lecturers should use the platform provided by the university. This is intended so that students are not too burdened by providing internet quotas. According to the students surveyed in this study, the applications most used by lecturers in online lectures at the Faculty of Engineering, respectively, are Google Classroom, Zoom meeting, WhatsApp, Kelase, Google meet, and Edmondo as presented in the following table.

Table 3. Applications used by lecturers in online learning.

Type of Application	Frequency	Percentage
Google Classroom	228	57.1
Zoom Meeting	71	17.8
WhatsApp	59	14.7
Kelase	25	6.3
Google meet	9	2.1
Edmondo	8	2.0
Total	400	100.00

The research data as shown in the table above shows that in the implementation of online learning most of the lecturers (57.1%) used the Google classroom application. For the delivery of material that requires a more detailed and difficult explanation, some lecturers (17.8%) use the Zoom Meeting application. In

addition, there are also lecturers who choose the WhatsApp application for learning media (14.7%), and the rest (10.4%) use Kelase and other applications. The response of students who choose the WhatsApp application is because by using WhatsApp even though the internet network is bad (unstable), lectures can still be carried out, in addition to using data packages it is also more efficient. In line with this, the results of the observations made by Abdulla (2017) reveal that the use of social media has a positive contribution to the learning process. The messenger application that is often used for learning activities in this modern era is WhatsApp (Obi, 2019). Short message applications such as WhatsApp are increasingly being used because of their benefits that make it easier to send messages faster to individuals and groups, low costs, and a maintained level of confidentiality. Smit (2012) in his research is optimistic that WhatsApp can improve the quality of learning, especially in facilitating interaction between students themselves to exchange material and discuss. Every lecturer uses at least two applications, namely Google Classroom and WhatsApp because they are considered the most practical and have minimal quota compared to other applications. Bilfaqih and Qomaruddin (2015) suggest that online learning should be designed and organized by lecturers who have the ability and personal interest in learning topics so that they can attract students to study and discussion. Thus, the success of lecturers in conducting online learning lies in the ability of lecturers to innovate in designing, and concocting materials, learning methods, and what applications are suitable for learning materials. Creativity is the key to the success of a lecturer to be able to motivate students to stay enthusiastic in learning online and not become a psychological burden.

For the successful implementation of online learning, the discipline factor is very important, such as the discipline of carrying out the agreed lecture schedule. In order to optimize the effectiveness of online learning, discipline is absolutely needed, both in terms of lecturers and students. This is because the essence of online learning is independence (Wedemeyer in Rajab, 2020). From this study it was revealed that as many as 20.2% of students stated that lecturers were very disciplined in carrying out the agreed lecture schedules, as many as 65.5% of students stated that lecturers were quite disciplined in following lecture schedules and there were 13.6% of students who stated that lecturers were less disciplined, and 7% of students stated that lecturers were not disciplined in complying with the lecture schedule that had been laid out. This fact can occur due to the possibility of adjusting the lecture time by the lecturer or at the request of the student. Students who have high discipline and self-confidence will be able to effectively participate in online learning, but building a disciplined attitude in the midst of an emergency Coronavirus disease as it is today is not easy.

Table 4. Discipline levels in the implementation of online learning

Discipline Level	Frequency	Percentage
Very Discipline	81	20.2
Discipline	262	65.5
Lack of Discipline	54	13.6
Undiscipline	3	0.7

Total	400	100.00
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Based on the description above, it can be concluded that online learning at the Faculty of Engineering, Makassar State University has been running effectively and smoothly. This is marked by the readiness of lecturers and students in carrying out online learning. As with face-to-face learning, the lecturer also makes a learning implementation plan, where at the beginning of the meeting students are given a lecture contract. To increase student motivation and understanding of learning materials, lecturers always use interesting learning media based on the material being taught.

Students' Level of Understanding of Online Learning Materials

The right learning strategy with attractive learning methods and media applied by lecturers and the right choice of online learning applications will foster learning motivation for students, so that students can master and understand well the learning material being studied. When asked to students to what extent the material presented through online lectures could be understood by students, it was revealed that as many as 15% of students stated that they really understood and mastered the course material provided, while 64% stated that they understood the course material, and 21% of students said they did not understand the learning material and none of the respondents stated that they did not understand the lecture material at all. This is indicated by the varying student learning outcomes, ranging from unsatisfactory, moderate to good. Research data can be presented in the following table.

Table 5. The level of understanding of learning materials by students during online learning

Level of Understanding	Frequency	Percentage
Very Understand	60	15
Understand	296	74
Less Understand	44	11
Cannot Understand	0	0
Total	400	100.00

The above fact indicates that online lectures are still quite effective during the Covid 19 pandemic, but it takes creativity from lecturers to develop better online lectures. Students feel that the level of understanding of the material is relatively better in the face-to-face lecture in the classroom. In face-to-face learning, students can meet directly with educators. Students can interact with their lecturers and friends so that students will directly get feedback from the learning results. In line with the findings of this study, Anhusadar (2020) states that through online lectures, the level of student understanding of course material is quite good, although there are still students who find it difficult to understand course material. Online learning is considered effective if it is applied during the Covid-19 pandemic, but a more varied model is needed to keep it interesting if used in the long term (Rosali: 2020).

Methods of Learning Outcomes Evaluation Performed by Lecturers during Online Learning

The evaluation of learning process or the assessment of learning outcomes are like two sides of a coin that cannot be separated, where a good learning process must be followed by the implementation of a good evaluation of learning outcomes. Therefore, after online learning activities are carried out, evaluation activities of online learning programs must be carried out.

As in face-to-face learning, to assess student learning outcomes in online learning requires an appropriate measuring tool based on the characteristics of online learning. From this research, it is revealed that the evaluation of learning outcomes conducted by lecturers in online learning varies widely. According to respondents, various types of invoices used in online learning include: quizzes, daily tests, individual assignments, group assignments, midterm exams, final semester exams, and work reports.

With the various assessment techniques applied by the lecturer, students are satisfied with the learning outcome scores issued by the lecturers. Students assume that these results are objective and reflect the students' ability and mastery of the material being studied. Thus, the process of assessing learning outcomes carried out by lecturers has met the requirements of a good assessment method, that the assessment carried out can actually measure the learning outcomes that have been determined.

Supporting Factors and Constraints during Online Learning at the Faculty of Engineering, UNM

To ensure the smoothness and success of online learning at Makassar State University (especially the Faculty of Engineering), the rector has strengthened the online learning platform, and negotiated with internet service providers to provide free educational pages and internet packages for students and lecturers. Besides helping in cash, the university also provides free quota for students and lecturers, along with strengthening the ease and smoothness of internet access. These facilities were accepted by almost all active lecturers and students at UNM (89.5%) and there were 11.5% students who stated that they did not receive internet data package assistance. The university also provides support for underprivileged students through exemptions and deductions for single student tuition fees. This is a supporting factor for the smooth implementation of online learning at the Faculty of Engineering, Makassar State University. In addition, another supporting factor is that in general students and lecturers already have the tools needed for online learning such as laptops and cell phones.

Online learning cannot be separated from the internet network. The poor internet connection in the area where students live is a problem that often occurs for students, therefore online learning is less optimal. Through the research questionnaire, it was revealed that as many as 54.4% of students had problems attending online lectures because the internet network was unstable so that internet access was not smooth, 7.1% of students stated that it was unstable. 34.9% of students

stated that the network was stable, and 5.5% stated that it was very stable. The distribution of research data can be seen in the following table.

Table 6. Internet network connection during online learning

Internet Connection	Frequency	Percentage
Very stable	14	3.5
Stable	140	34.9
Less Stable	218	54.4
Unstable	28	7.1
Total	400	100.00

The data above reminds that internet network connection is one of the biggest obstacles faced by students, especially for students whose homes are far from the reach of internet access, such as in rural or remote areas. In addition, data packages that must always be available are also an obstacle in online learning. It was also revealed that students prefer face-to-face lectures compared to online lectures because the interaction between lecturers and students can be done in the classroom so that the acceptance of course material is better and does not require applications. Another obstacle is that lecturers and students are not always ready to operate the online learning system quickly, including preparing digital lecture materials.

CONCLUSION

Based on the results of research and discussion, it can be concluded as follows; The quality of online learning activities carried out at the Faculty of Engineering UNM during the Covid-19 response period ran effectively and smoothly, but some lecturers and students considered the online learning as less than ideal compared to conventional face-to-face learning; Students have an adequate level of understanding and mastery of course material, which is indicated by student learning outcomes that vary, ranging from unsatisfactory, moderate to good. Students have a good level of satisfaction and appreciation for the online learning process, even though they think it is not similar to the face to face learning; The evaluation of learning outcomes carried out by lecturers is quite varied, including giving independent assignments, structured assignments, as well as formative and summative examinations; During the Covid-19 response period at the Faculty of Engineering UNM, institutional support, both from the Ministry of Education and the university, was quite adequate in the form of providing free internet quotas. If identified, the obstacles faced by students and lecturers in online learning include internet quota that must always be available, Internet networks sometimes unstable / bad due to different internet access in every place, and class schedules that sometimes collide.

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