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THE ONLINE LEARNING PROCESS IN UNIVERSITIES IN THE MIDST OF THE COVID-19 OUTBREAK: BENEFITS, READINESS AND SOLUTIONS

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Abstract. Since August 2020, schools and colleges have implemented the learning process at home, although the implementation varies according to geographic and socioeconomic diversity across the country. About teaching and learning activities in universities, disadvantaged students are likely to be the most affected. The purpose of the presentation of this paper is to explain the benefits of online learning during the COVID-19 pandemic, lessons from the learning process in universities, barriers to online lectures, the readiness of facilities for online learning, and solutions to problems faced during online lectures during the COVID-19 pandemic. The data collection technique in this paper is source tracing from several library sources including scientific articles, news from the mass media, and books. The results of the study show that there is a massive increase in digital literacy amid the COVID-19 pandemic, lecturers must use other learning media that are in the context of online learning. Lecturers must be able to use various Learning Management Systems that can properly convey material to students, as well as design assessment methods that can measure student learning outcomes in an online learning environment. However, the stuttering of online learning at the university level is still visible in several regions in Indonesia.

Keywords: online learning, higher education, challenges, obstacle

1. INTRODUCTION

Since March 2020, students, parents, lecturers, and teachers in Indonesia have had to face school closures that impacted 62.5 million students, from pre-primary to higher education levels. Since August 7, 2020, schools and colleges have implemented the learning process at home, although the implementation varies according to geographic and socioeconomic diversity across the country. The Indonesian Ministry of Education and Culture provides training and support in various forms for lecturers and teachers who utilize online learning platforms.

The Indonesian Ministry of Education and Culture has adapted its e-learning application, which was originally designed to support classroom learning, to enable online learning. The platform allows lecturers and teachers to upload learning materials and assignments while students can submit their learning outcomes, and these features are currently being developed further.

> The Indonesian Ministry of Education and Culture has partnered with educational technology companies to provide free access to online learning platforms and with telecommunications operators to provide free internet quotas that can be used by lecturers, teachers and students (Gupta and Khairina, 2020).

Although the government has taken many steps on time to support learning from home, COVID-19 remains a major challenge for education. Assuming that most schools remain closed until the end of July, on average, children will lose about a third of what they should learn in one year.

Learning relates to their capacity to be able to produce something in the future because, through learning, they gain the skills they need to be productive. Therefore, this would be accompanied by a lifetime income loss equivalent to $151 billion of 68 million students. If schools remain closed for a long time without additional measures to support learning, the losses are even greater (Gupta and Khairina, 2020).

To teaching and learning activities in universities, disadvantaged students are likely to be the most affected. For example, students from poorer families are more likely to be left behind than their more affluent peers who have better access to online learning. Higher education policymakers need to anticipate this, especially since this habit is likely to become a tradition in the future even after the COVID-19 pandemic ends.

The purpose of the presentation of this paper is to explain the benefits of online learning during the COVID-19 pandemic, lessons from the learning process in universities, barriers to online lectures, the readiness of technology facilities for online learning, and solutions to problems faced during online lectures during the COVID-19 pandemic.

2. LITERATURE REVIEW

2.1. Higher Education

Education is a human effort to grow and develop all physical and spiritual innate potential according to the values contained in society and cultural values. Thus, it is necessary to understand that education is a process that will never stop in the sense that it is always dynamic following the ideal values of society and the growth of culture from time to time. Therefore education is always evolving into every phase of change adapting to what education produces.

Major changes such as revolutionary leaps cannot be separated from education which has made a major contribution to the continuation of science and technology in the past to this day. The practice of education cannot be separated from every part of its elements. Elements of education include the following;

First, the element of educational goals is to develop the potential of students to become human beings who believe in God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. Second, the curriculum element is a set of learning plans that include objectives, content, and lesson materials. The curriculum also formulates the method used to guide the implementation of learning activities to achieve certain goals.

Third, students are members of the community who seek to develop their potential through the learning process available at certain paths, levels, and types of education. Fourth, Educators are educational staff with qualifications as lecturers, counselors, tutors, instructors, facilitators, and other designations by the specifications of their participation in education. Fifth, the student must develop interaction and educational content. Examples are religious spirituality, self-control, and personality.

Based on this explanation, higher education is essentially an effort to develop human potential according to the order of the community and cultural values. This self-potential includes physical and spiritual potential developed according to educational goals supported by the curriculum, educators, interactive educational processes using subject matter.

2.2. Use of Technology in Education

Several terms describe technological developments such as; Internet of Things (IoT), Big Data, Augmented Reality, Cyber Security, Artificial Intelligence, Additive Manufacturing, Simulation, System Integration, and Cloud Computing. These terms offer a virtual reality-based on sophisticated information technology that has never been achieved before by human civilization (Karim, 2020).

Internet of Things (IoT) is conceptually an object with the ability to transfer data over a network. This transfer process no longer requires human interaction. Big Data describes a large volume of data. This volume of information can be compiled, processed, analyzed, and stored securely by users. Currently, big data has been widely used in the business sector because it can help determine the direction of the business. In the world of higher education, big data combine all data in higher education management operations, including research students data and alumni data that have been absorbed into the employment sector to facilitate higher education information services to the public.

Augmented Reality (AR) is the basis of technology that combines two-dimensional and or three-dimensional virtual objects into a three-dimensional environment and then projects these virtual objects in real-time. For example, when an announcer presents weather reports using television broadcast simulations.

Cybersecurity is a system that is an effort to protect information from cyberattacks. Cyberattack is all types of actions to disrupt the confidentiality, integrity, and availability of information. For example, the use of certain features to protect customer data from hacker attacks.

Artificial Intelligence is computer technology with human-like intelligence. This type of technology can be arranged by humans as desired. Its function is to study data continuously. The advantage lies in the more data received and analyzed better the technology will make predictions.

Additive manufacturing is a breakthrough in the manufacturing industry which is often known as using 3D printers. In today's digital era, digital design images are realized into objects with the same size and shape as the actual design or with a certain scale.
Simulation represents an operation process overtime used in many contexts. For instance, the process of the simulation consists of the use of performance optimization technology simulations, safety engineering simulations, test simulations, training and education, and video games.

Cloud Computing makes the internet a center for data and application management. Computer users are given the right to access various virtual servers so that the server is configured via the internet. For example, providing a virtual server that can be used by users to create online websites for internet users.

2.3. Online Learning

According to Herlina (2021), online learning uses the internet network with accessibility, connectivity, flexibility, and the ability to bring up various learning interactions. The use of the internet and multimedia technology can change knowledge is delivered and can be an alternative to learning carried out in traditional classrooms. Online learning is learning that can bring together students and lecturers to carry out learning interactions with the help of the internet.

At the implementation level, online learning requires mobile devices such as smartphones or Android phones, laptops, computers, tablets, and iPhones to access information anytime and anywhere. During the WFH period, universities needed to strengthen online learning. Online learning has become a demand in the world of education in the last few years.

The learning system implements through a personal computer (PC) or laptop connected to an internet network connection. Teachers can do learning together at the same time using groups on social media such as WhatsApp (WA), Google Classroom, Youtube, FB, Telegram, Instagram, zoom applications, or other media as learning media. Thus, lecturers can ensure that their students take lessons in real-time, even though in different places.

The use of mobile technology has a contribution to educational institutions, including the achievement of distance learning goals (Puspitorini, 2020). Various media are used to support the implementation of online learning. For example, virtual classes using Google Classroom, and instant messaging applications such as WhatsApp. Online learning via social media such as Facebook and Instagram.

Online learning connects students with learning resources (databases, experts/instructors, libraries) who are physically separated or even far apart but can communicate, interact or collaborate (directly/synchronously and indirectly/asynchronously). Online learning is a form of distance learning that utilizes telecommunications and information technology, such as the internet, CD-ROOM.

Online learning is effective for overcoming learning that allows lecturers and students to interact in virtual classes that are accessed anywhere and anytime. Online learning can make students learn independently and increase their motivation. The impact of the COVID-19 pandemic on learning includes: First, changing face-to-face learning to online learning; Second, increasing the use of technology in learning; (3) Increasing student learning independence (Firman, 2020).

The learning process carried out during the pandemic is done online, the form of learning is using an application. The applications used are the zoom application, google classroom, and WhatsApp group, the obstacles faced are the unstable internet network, the applications used and knowledge conveyed effectively, and the advice given is that the online learning process can be more effective in the future.

3. RESEARCH METHODS

This research uses descriptive qualitative research. According to Indrawati (2020), this research describes the facts, characteristics, activities, attitudes, views, and ongoing processes. The research data used is qualitative. This study presents facts and ideas in data that are not in the numbers or numbers and only in statements or sentences.

Data collection techniques used secondary data from literature reviews from newspapers, scientific articles, and books. Literature research is research conducted using written materials or literature including the results of prior research. This research is usually used for historical research, and the views or thoughts of a character (Suliyanto, 2018).

4. RESULTS AND DISCUSSION

Some of the benefits of this online lecture program are as follows; First, students can join lectures anywhere and anytime. Online lecture programs do not require students to come to campus to carry out learning activities. Communication devices and adequate internet connections and still prioritizing physical distancing rules during this COVID-19 pandemic.

This online lecture process can also be done at any time as long as there is an agreement between the student and the teacher. Even lecture materials can also be obtained by downloading them on the available campus website portals and can be studied repeatedly without disturbing the lecturers or lecturers so that the objectives of the teaching and learning process are achieved optimally.

For those students who are already studying outside the city and far from their parents, with this program, students will be greatly helped to continue studying without having to be far from their parents.

Thereby, for students, they can still feel the warmth of family even though they are studying because learning activities are carried out online, this is a rare moment that students cannot feel before the online lecture program is implemented.

Second, the work activities of the employees are not disturbed. For employees or employees who want to study but have limited time due to their busy work, by participating in online lecture programs or online lectures they can study while working. This online lecture program can also be the right solution for employees or employees who want to attend college without having to think about colliding college time with working hours. So there is no need to worry about difficulties in managing time when taking this activity because the online lecture schedule has flexible lecture times and can make it easier to manage time.

Online lectures can also accommodate employees or employees who do not have a job or for those who have their own business (entrepreneurs) but have the desire to continue their education to a higher level because by taking online lectures or online learning, they can improve their abilities while looking for work or managing their business (Puspitorini, 2020).

Third, cultivate an attitude of discipline and independence. Since the implementation of online lectures for all universities will have a positive impact on students because by implementing this system students will try hard to do every task given by the lecturer or teacher and be responsible for their own tasks to be completed properly. Thus, with online lectures or online lectures, students can develop a disciplined and independent attitude, and automatically students will have the ability to manage/manage time well.

According to Firman (2020), the COVID-19 pandemic seems to force the world of education to shift from a traditional learning system to a more modern learning system. The implementation of online learning requires lecturers and students to have the skills to use devices such as laptops and smartphones. They are also required to be skilled in selecting and using the information on the internet.

If lecturers have only relied on projectors and PowerPoint slides in teaching. During the COVID-19 pandemic, lecturers must use other learning media that are in the context of online learning. Lecturers must use various Learning Management Systems (LMS) properly. Lecturers deliver material to students as well as design assessment methods that can measure student learning outcomes in online learning environments.

Fourth, students can save on travel costs and time. However, some universities still require their students to come to campus to take a practicum or written exam. In addition, for students whose campuses are in other cities or outside the province.With online lectures / online lectures, they can participate in class directly from home with devices and internet connections. It can save all costs that usually have to be incurred when studying in another city or outside the province, be it for transportation costs, food costs, or daily living expenses.

For students who carry out online lectures or online lectures, they will enjoy the advantages of this one. Usually, during teaching and learning activities, the lecturer will provide learning materials in digital format stored on the campus website portal. So when students cannot attend online lectures directly or live to stream, students can still download the learning materials on the campus website portal which has been provided so that you can read them anytime and anywhere. This online lecture system, certainly makes it easier for all parties so that teaching and learning objectives are achieved optimally.

Fifth, get used to the life of the industrial 4.0 digital era. With the online lecture system, students will be familiar with life in the digital era of the industrial revolution 4.0 because along with the advancement of four-point zero technology, students will learn more about technology that is developing in the world. Through the existence of the digital era, the industrial revolution 4.0 will make the Indonesian people more accustomed to technological advances that are developing rapidly.

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Sixth, equal distribution of education for all Indonesian citizen. With the advancement of technology in the digital era of the industrial revolution 4.0, it affects equity to get higher education for all Indonesian people. Before being instructed to take online lectures, students must first come to campus to be able to attend lectures. Meanwhile, on average, universities are only available in big cities, so rural or remote people can't continue their desired higher education.

However, after the existence of life in today's digital era, technology development including online lecture programs, Indonesian people can choose the desired campus to achieve their goals and achieve equal distribution of education quality so that better human resources are formed throughout Indonesia (Indrawati, 2020).

Seventh, overcoming the problem of the shortage of teachers. The online lecture system can overcome the problem of the shortage of teaching staff, in this case, the lecturers. Because with lectures held online there is no longer a time and space limit. Universities that have had difficulty recruiting lecturers are now much easier because this online lecture technology allows one lecturer to teach more than one class at the same time.

Haryati and Sukarno (2021) indicated that in this era of the COVID-19 pandemic, what must be considered is that educators need to ensure that the learning process continues even though the learner is at home. Learning innovation is a solution that needs to be designed and implemented by educators by maximizing existing media such as online media.

Educators can innovate learning using e-learning methods, namely learning that utilizes information and communication technology. The learning system is implemented through a computer or laptop device that is connected to the internet. Educators can do joint learning at the same time using groups on social media such as WhatsApp (WA), telegram, zoom application, google classroom, Webex, youtube, website, or other social media as a learning tool so that it can ensure students learn at the same time even though in different places.

The lesson of the COVID-19 pandemic for higher education in Indonesia is that online learning is implemented. This online learning is a technological development that is a hallmark of 21st-century education which is a feature of the industrial revolution 4.0. Ghufron (in Haryati, 2019) explained that universities, lecturers, and students can survive in the era of the industrial revolution 4.0 if they implement the 4Cs, namely: First, critical thinking, we should be skeptical and critical. This ability can be improved through the habit of reading and discussing intensively; Second, creativity, which is being able to give birth or create innovations or develop existing ones, find something unique and out of the box.

Third, communication, communication is important to avoid misunderstandings. To communicate at a global level, it is also necessary to master foreign language skills; Fourth, collaboration, is the power that can build Indonesia. According to Ghufron, Indonesia's weakness is the lack of collaboration, weak groups, because it requires cooperation and understanding each other. For students, this ability can be developed when students participate in extracurricular organizations or activities (Haryati, 2019).

By using these online media, indirectly the ability to use and access technology is increasingly controlled by educators and learners. After educators can master various online learning media, critical thinking will be created about the methods and learning models that will be used, so that the methods and media used will be more varied.

For example, lecturers assign students to discuss, make learning videos and upload them on YouTube, make articles, take quizzes, to make presentations via WAG or zoom. So that with the application of this varied home learning model, makes students not feel bored in participating in online learning.

The use of technology in completing tasks for students can also lead to creativity among students in developing the knowledge they already have. With various learning methods from educators, they can create a creative learning product that can develop thinking through their analysis, without leaving the subject matter that has been delivered by the educator.

Karim (2020) stated that the implementation of online learning during the COVID-19 outbreaks, can indeed provide benefits for increasing awareness of mastering technology and communication, there are shortcomings in its implementation include: First, unpreparedness, there are still many educators and learners who cannot freely so accustomed to operating information and communication technology devices.

Second, economic limitations, not all learners can afford to buy, provide information and communication technology tools, thus making student participation less effective. Third, the pattern of habits, changing conventional learning methods to online learning makes it difficult to change one's habits in learning.

This makes some educators and learners have to make adjustments. Fourth, the availability of the network, due to regional differences that make the quality range of the internet network vary, causing interference in carrying out online learning or minimal family economic conditions, making students unable to buy internet packages for distance learning lectures, thereby reducing the intensity of lecturer and student meetings. This Cyber University is later expected to be a solution for the nation's children in remote areas to reach quality higher education.

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In line with the above opinion, Iswan and Herwina (2018) explained that universities are indeed required to anticipate the rapid development of technology in the era of the industrial revolution 4.0. Anticipatory steps taken include adjusting the curriculum to the growing business climate. All things are driven to be competitive following the pattern of information technology development. He further explained that the developments that occur also affect the human character and the world of work so that the skills needed are also rapidly changing.

This explanation shows the effect of the industrial revolution 4.0 not only in the form of new technological discoveries but also the shift in skills needed by humans. Thus, each individual must have the ability to adapt to existing changes. Universities must be able to prepare their students to absorb the changes that are taking place with a strong character and good work skills.

Graduates who are prepared are very oriented towards responding to the needs of the world of work in the industrial world as well as graduates with new pioneers of digital-based employment.

This idea can be a solution considering that education is not only aimed at equipping students with technology-based technical skills alone, but higher education must be able to make students become human beings who believe and have noble character. Thus, it is very necessary to integrate faith and moral-based science with technology-based skills.

Based on the explanation above, it can be concluded that higher education in the 4.0 era is a concept of transforming the higher education system towards a digitalization system that is supported by a sophisticated virtual technology system. Thus, Universities that are adaptive to this change carry out systematization of their curriculum to be more compatible with the current of industrial revolution 4.0.

In terms of higher education policies, the development of disciplines and study programs towards Cyber universities is also carried out with a distance learning lecture system. Lecturers are human resources that determine the transformation of Higher Education.

Thus, they are required to be responsive to change for professionals and to make research and development breakthroughs. Universities can be the basis for various other innovative technology-based breakthroughs. In terms of students, in this 4.0 era, students need to focus more on developing skills and creativity that must be supported by digital skills.

The paradigm used to dissect change must always be flexible and sensitive to change. The sociology of change shows symptoms of interaction with multilingual abilities, meaning that everyone must have sufficient language skills to interact and build networks. The emergence of this epidemic immediately stopped the euphoria of the industrial revolution 4.0 discourse in universities in many educational seminars and all the academic community seemed astonished and panicked about all the unpreparedness of the university facilities and infrastructure system that was not adequate amid the Covid-19 pandemic. The unpreparedness of the Higher Education system to face the current pandemic seems to have become an uncertainty in the management of Higher Education which offers an interesting view to be analyzed sociologically, including the following.

With online learning during the COVID-19 pandemic, it does not mean that there are no "victims". The death of students in South Sulawesi is only to find an internet network to fulfill the obligation to study online. One of the second-semester students at the Faculty of Teacher Training and Education, Muhammadiyah University of Makassar, had a motorcycle accident while looking for an internet network for online lectures. Likewise, one of the students of Hasanudin University Makassar. died after falling from a mosque minaret after trying to find an internet signal to do college assignments online.

The two tragic facts show that the Cyber University program to realize a distance learning lecture system or online lectures to reduce the intensity of lecturer and student meetings is still far from expectations. The two deaths of the best students should be a correction that future trials of the Cyber University system will be limited to urban areas with the support of a good telecommunications network.

Culture is one of the interesting aspects of observation amid a pandemic. Lecturers are encouraged to carry out lectures according to the applicable curriculum targets using various applications such as Zoom, Classroom, WhatsApp Groups, and other applications constrained by limited face-to-face time and taking into account the risk of costs for students in each area.

Many lecturers turn to the assignment method as a substitute for student attendance in online learning. This cultural aspect from the student's point of view is much more complex. The reality shows that many students complain about application fees used during online lectures. In terms of the completion of studies through the writing of scientific papers (thesis), it is also proposed to be abolished through petitions for the abolition of theses and free tuition fees during a pandemic.

This phenomenon shows the mentality of students who do not have good problem-solving maturity. If analyzed, this final project can be completed by turning to library research in each field of study which can enrich theoretical research treasures.

The main complaint, such as the lack of printed references, also shows that students do not yet have a good digital literacy culture. All types of references can be accessed and managed properly from the internet. Digital literacy to access various references is an alternative to supporting online learning. This is very useful for reinforcing information related to the subject of online lectures carried out in limited situations.

Students can read and have plenty of time to explore references during a pandemic. A much more serious problem is that the opportunity for a pandemic is only used as a holiday momentum without meaningful academic activities. Higher education institutional policies only take into account the prevention of COVID-19 through cessation of lecture activities directly and then switching to online lectures.

Almost all campuses do not have a COVID-19 cluster team to strictly determine online lecture protocols for students, including a ban on returning to their hometowns in the sense that the campus limits students from being in the city for network access as the main support for online lectures. The policy of the COVID-19 cluster team at each campus can also provide space for student institutions to play an active role in monitoring students virtually and providing education to the public digitally.

Another agenda can be observed as virtual academic dynamics, namely the emergence of educational conversation activities in a pandemic through webinars or online seminars. This seminar technique is carried out by involving speakers sharing seminar materials through websites and virtual face-to-face using internet-based applications that are classified as new media such as zoom and classroom. The participants were academics and students as well as the general public. Other virtual academic spaces are also growing through the initiative of student elements through live dialogue broadcasts using the Instagram application.

Although the situation is completely hampered by telecommunications networks in every region in Indonesia, the spirit of digital literacy seems to increase during the pandemic. This digital literacy takes various forms in the form of searching for educational information related to COVID-19 as well as the use of technology during online learning. Lecturers and students are required to be critical of various reports in the mass media and social media related to the prevention of COVID-19 so that they are not trapped in news hoaxes.

Digital literacy provides great benefits, one of which is filling the space of the academic community's routine during the pandemic. Digital literacy creates a social order with a creative-critical mindset and view. Thus, the public will not be consumed by provocative issues, victims of hoaxes, or victims of digital fraud so that the social and cultural life of the community can be safe and conducive. The dynamics of digital literacy during the pandemic show the involvement of the role of the academic community which can be an indicator of achievement in the fields of education and culture.

In the context of industrial revolution 4.0, higher education is expected to be the main instrument for advancing the nation's digital-based potential to encourage Indonesian human resources to meet technological competence qualifications in all academic fields. In line with that, new challenges arise when the COVID-19 outbreak becomes a trial as well as an instrument for testing big ideas on technology systems launched by higher education institutions such as the Cyber University mission and online learning models with distance learning.

All digital-based learning systems that are currently relied upon have many unexpected weaknesses. The fact that the tragedy of the death of students struggling to find network access in remote villages for online lectures shows the weakness of the telecommunication network system is not evenly distributed. The big concept of Cyber University which is expected to offer online learning with a distance learning system for students in remote areas is still far from reality.

Another weakness comes from the culture of lecturers and students. Many lecturers switch to the assignment method so that online learning which is expected to transmit knowledge according to the curriculum is not optimal. In addition, the culture of students (students) also does not have an independent learning mentality so that it is more impressive that they want an easy learning process.

Despite these weaknesses, higher education in a pandemic shows some positive dynamics such as the use of renewable digital technology. From this process, creating a virtual academic space for lecturers and students to actualize through webinars (online seminars) and discussions via Instagram. This shows a massive increase in digital literacy in the COVID-19 pandemic.

CONCLUSION

Some steps that Indonesia can take to reduce the impact of COVID-19 on learning and the resulting inequality are: First, develop more solutions to reach students who do not have internet. Provide and provide various forms of learning support approaches, whether without technology, low-tech, or high-tech.

Although educational TV programs and YouTube channels can potentially become major sources of teaching materials, more direct support is still needed, especially from the government. Governments should guide how to carry out teaching safely. Develop a structured curriculum and provide tutorial support for students with internet connection problems.

Second, improve internet connectivity and train lecturers to provide online learning more effectively and interactively. Most faculty and students are not ready to make the sudden move to online learning. Lecturers see their main challenges in internet network connectivity and monitoring student progress.

The Indonesian government is currently supporting learning and enhancing system resilience through investments in online teaching and learning capacity, data storage, and disaster-resistant infrastructure. For example, each sub-district has a school equipped with laptops/smartphones, internet, electricity, water, and sanitation facilities, as well as a library with printed teaching materials for independent study.

Third, support those who are left behind with different teaching methods. When campuses reopen, efforts should be made to identify student learning gaps, provide additional support to students whose learning is most negatively impacted, and differentiate teaching methods based on their level of learning.

Fourth, support disadvantaged students to return to campus. The Indonesian government is taking additional steps to ensure that those most vulnerable dropouts, such as students from underprivileged families and final year students who help lecturers deliver material in a more communicative language.

The stuttering of online learning is visible in front of us as a whole in several regions in Indonesia. Very important components of the online learning process need to be improved and improved. Stable internet network, and efficient, effective, and integrative online socialization to all education stakeholders. The government must provide a policy by opening free online application services in collaboration with internet and application providers to help the online learning process.

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