



## Challenges of E-Learning Development and Implementation in Remote Indonesia: Educational Development Analysis



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### Abstract

The main issue is the challenges of developing and implementing E-Learning in remote areas through analysis of education development during pandemic disturbances in many countries. We believe that if the challenges can be understood, how and why it will be easy to find solutions and become informed to policymakers. To understand the solution, we have collected data related to the above variables by electronic search in many scientific journals that examine the problems and challenges of implementing education during the COVID-19 disruption. Furthermore, the analysis effort involves a thoughtful data review, evaluation, and coding system so that we find understanding and draw conclusions with the consideration of answering the questions of this study with valid and reliable accuracy. This study relies on secondary data released between 2010 and 2021. We report the results in a descriptive qualitative design. So, the results include e-learning infrastructure and human educational resources, and students who are still having problems using technology and equipment. Learning Management System makes teachers and students confused in choosing which one is suitable for learning activities. Therefore, these results will bring benefits to the literature and other academic studies.

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## 1 Introduction

Along with the recent development of technology and science, technology is no longer a very foreign thing for all business activities and human life, especially learning problems these days (Polly et al., 2020). Approximately 30 years ago, the world saw how the rapid development of communication and information tools requires humans to be active and proactive in following technological developments. Because technology is believed to provide innovation and various opportunities that make it easier for humans to carry out their duties and obligations Churchill et al. (2013), thus, it is no longer seen as something foreign but must be learned because it is related to the world of work and teaching education from elementary school to university. Especially in the practice of integrated education with technology that is the demand of the times, experts say that there has been a shift between the demands of the younger generation of the millennial generation, who are currently still students difficulties when they have to be taught by the previous generation who are not technology literate (Noesgaard & Ørngreen, 2015).

When the condition of today's young people who are millennials are educated by the older generation who lack the competencies that are following the demands of the learning conditions of young people, challenges and difficulties are faced by the generation of educators who are not born and skilled in technology to meet the wishes of students (Szymkowiak et al., 2021; Nugraha et al., 2021). This cannot be faulted, considering that when technology came along, today's educators were still between the ages of 40, 50, and 60. They are the older generation who did not grow up and learn and use technology as their children. So that the gap between the demands of the state of the millennial generation and the services provided by the older generation is so large, this is where the dividing line occurs so that solutions are needed in the form of studies that identify the problems and challenges faced by the millennial generation (Rony, 2019). The older generation and the demands desired by the younger generation to be fulfilled in a learning vehicle that is not boring. As learning, of course, he has a unique method that is currently needed for everything internet-based, not because the internet is not new but is an innovation developed by experts to be used in all first activities in learning so that learning can accelerate (Kilian et al., 2012).

By being able to identify the demands of millennial students and the services that hereditary teachers can provide, they are referred to as the technology immigrant generation, so that in the future, through the findings of this study, they will add more items to the treasures of knowledge and new insights to find solutions for improvement (Hashim, 2018). Especially the challenges faced in carrying out educational and teaching tasks currently required in the context of internet-based learning in all respects. Before this research goes further, it is better if we want to understand or provide an understanding to the audience what is meant by what we mean in this study, e-learning is an abbreviation which means electronic so that with additional learning, it becomes all-electronic learning, meaning learning technology-based applications Oh & Reeves (2014), which has now become a trend in all walks of life and across work and learning.

According to Noesgaard & Ørngreen (2015), e-learning delivers information about concept learning content and the like, which also means the communication methods needed to provide technology-assisted education and training such as the internet that requires supporting facilities and infrastructure (Kumar Basak et al., 2018). Such as laboratories and ethics that distinguish between learning and teaching with e-learning systems with face-to-face learning or conventional classroom learning systems, including the notion of electronic learning. Indeed, many terms are used to describe technology-assisted learning because virtual learning is internet-based learning in a network (Aldowah et al., 2015). Thus, it can be concluded that the e-learning based learning method is or is also called distal, and this is a learning solution that utilizes technology such as mobile phones, laptop computers that allow students with students, teachers with students, and teachers with other teachers to interact using this technological device to improve effective, dynamic, productive, and efficient learning (Oliveira et al., 2021).

One thing that is very beneficial with e-learning applications is the extraordinary flexibility that makes learning methods the choice or concern of many students today, which are very advanced tools that are not only used in developed countries in learning contexts that have already been introduced but have been introduced. In areas in the context of education that are, say, still conventional or in undeveloped countries (Allen, 2016). In order for this technology-based learning to be implemented successfully, many conditions and obstacles may occur, as evidenced by various previous studies, so this time we will re-identify what challenges teachers face when they are there dealing with e-learning (Dhawan, 2020).

## 2 Materials and Methods

This study aims to identify and discuss the main obstacles and difficulties in implementing E-Learning in remote areas; this can be seen from the study of education development during the disruption of the pandemic in many countries. If problems are identified, how and why they occurred, it will be easier to develop solutions and inform policymakers of the results. To understand what it is and how to overcome it, we conducted an internet search on various scientific publications that discussed the difficulties and obstacles in providing education during the COVID-19 disruption (Putra et al., 2020). Furthermore, the analysis process included careful data assessment, assessment, and coding methods. So that we can gain knowledge and draw conclusions while answering research questions with valid and reliable accuracy, this research is based on secondary data published between 2010 and 2021. This study follows a literature review model for studies of pandemic disorders in education and adaptation difficulties with technology (Ali, 2020).

## 3 Results and Discussions

### *Work process organization and time management*

The COVID-19 outbreak has forced millions of students and teachers to teach well (Dhawan, 2020; Aslan et al., 2020; Suroso et al., 2021; Manullang et al., 2021). As a result of the government's policy of closing all educational institutions, from private elementary schools to private high schools to Islamic boarding schools, all of them were forced to close and switch to distance technology-based learning to save people from disease outbreaks, but learning is carried out with distance classes (Alsmadi et al., 2021). García-Morales et al. (2021), demonstrate how progressive educational organizations are undergoing revolutionary changes due to the need to digitize schools and prepare for steps in a short time with scholastics that require innate mechanical abilities for internet teaching. The college framework should take the present issue seriously, which should offer excellent teaching in progressive change, complex mechanical advances, and fast change. To that end, this article highlights some of the obstacles and challenges that universities are encountering and the creative assets and methods they are using in the present circumstances to change further education in the face of the COVID-19 upheaval. Conversations and endings include fantastic experiences that may be directly used in teaching digitalization (Peimani & Kamalipour, 2021).

### *Gadgets are in a limited and crashing system*

Technology is intended to overcome problems such as disturbances caused by dams. However, from asking these problems, the policy decision to close schools and open online classes have unwittingly created new problems for many parties, especially education managers for students (Peters et al., 2020). Likewise, for parents and society in general, this has become a challenge, a somber feeling since the pandemic was disturbed. First-hand concerns by encouraging education and also covering first-time management issues in humans and other people. Al-Humairi & Kamal (2021), the latest episode of the COVID-19 pandemic represents a grave danger to many individuals who are protected and prosperous as a whole. As the climate continues to be open from lockdown and turns out to be highly questionable, there must be many so-called "other standards," it is a good idea to take a look at what the general public has faced, reevaluate our core beliefs, and guide the path of planning and making an economic world. This article summarizes the latest steps that have been taken recently to control the spread of COVID-19 through a surveillance framework that is installed and in good discussion with the foundation structure. This article also discusses scalable exploratory tests, which drive defined, manageable development goals (SDGs). The steps carried out and their related factors to control, challenges, and new perspectives are also likely (Romiszowski, 2016).

### *Connectivity*

Connectivity is an incredible innovation, then a framework that is often broken and disrupted. The difficulty of the lack of hardware and the lack of equipment is apparent where not all families or students have enough PCs or vehicles in remote areas to help electronic learning because the reality on the ground, especially in an agrarian country, not all families have innovative devices that can enforce broad study. This is an issue that cannot be easily handled, especially if it requires high costs with complexities that require experts to act quickly (Joshi et al., 2020). Almaiah et al. (2020),

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examine the fundamental challenges and factors influencing using the E-learning framework during the COVID-19 pandemic. During the COVID-19 epidemic, some institutions are struggling to understand and use online and e-learning technologies. For example, the e-learning platform Blackboard offers attractive options that will be useful during the Coronavirus epidemic (Elumalai et al., 2021). On the other hand, using a suitable e-learning framework depends on understanding the same pooling elements as the major problems confronting e-learning systems today. There is no comprehension of the primary difficulties and components that comprise the practical usage of the e-learning system during the COVID-19 epidemic (Shettleworth, 1972; Benhamou & Granvilliers, 2006).

Consequently, a noticeable gap in the data on the underlying problems and variables utilizing e-learning during this epidemic has been identified. The audit will next investigate the fundamental difficulties confronting the momentum e-learning system and the regulatory elements that facilitate the deployment of e-learning structures during the COVID-19 pandemic. This review employs a collecting method that employs practical evaluations through programming (Sangster et al., 2020). The program was conducted by 30 students and 31 re-taking system specialists from six Jordanian and Saudi Arabian schools. This audit disclosure offers valuable guidance for process makers, designers, and researchers, engaging them in understanding the critical components of effectively utilizing e-learning structures throughout the COVID-19 pandemic (Falzon et al., 2016).

### *Knowledge of computers*

There are times when this computer system is also complex for many ordinary people because of its very continuous use; there will be problems that can hinder the quality of learning (Pfleeger & Pfleeger, 2012). When technology is used continuously, it will be damaged so that it is hampered and internet connectivity problems (Zhu, 2021). In fact, for example, in Indonesia, which lives far apart in remote areas, it is feared that millions of children cannot access the lessons given online because there are students who come from remote areas, there is no communication infrastructure such as the internet, this is a very formidable challenge. So far, people only know the face-to-face learning process (Anthony & Keating, 2013). Because online learning is still relatively rare in Indonesia, shifting from a face-to-face learning system to an online one requires many parties to adapt to digital technology quickly. The application of digital technology that must be understood starts from physical hardware and develops into software or applications. Many, from teachers to students, may not fully understand how to use certain aspects of the software, resulting in poor learning outcomes (Falloon, 2020).

According to Adedoyin & Soykan (2020), the coronavirus pandemic and web-based learning: challenges and gaps. The World Health Organization has designated COVID-19 a pandemic that poses a current threat to mankind. This epidemic has effectively restricted the closure of certain exercises across the globe, including instructional exercises, resulting in the large emergency relocation of colleges with the internet serving as the instructive stage (Leithwood et al., 2010). Emergency reaction relocation techniques for colleges, staff, and students, difficulties and openings are discussed, and it is clear that internet acceptance is not the same as crisis distance education; web-based learning will be more feasible while educational exercises will be more cross giving difficulties experienced during this pandemic very much investigated and turned into a promising state (Talevi et al., 2020).

### *Adapting deaf online courses*

According to Balharov et al. (2020), another challenge is that because this outbreak is urgent and suddenly followed by sudden policies, there is something called digital literacy stuttering, meaning that not all students and parents can support students to use technology tools for their learning needs, with other words internet or technological literacy. Must be prepared, especially if areas do not allow students to be connected to technology as long as they study during school hours. This is unsolved land. In other words, it takes students, teachers, and the learning community to have a computer or digital literacy skills so that this literacy can run optimally (Brill, 2014). Alqudah et al. (2021), said it was challenging to deal with portable amplifier clients during the COVID-19 pandemic. The daily gadget uses long before the lockdown was applied substantially more critical than during ( $Z = 2.01$ ,  $p 0.05$ ), which may be credited to the pandemic-induced problems experienced by auditory innovation clients. These challenges include the absence of hearing aid batteries, limited access to maintenance administration or programming, suspension of language training meetings, and barriers to work and teaching (Udgata & Suryadevara, 2021).

### *Data security*

Many students are pleased to be constrained by hearing so that not all of them can hear the lesson because many roles are delivered in audio form. Another problem is data management; once children or beginners are presented in online classes, sometimes they will be vulnerable to various difficulties in using this digital tool related to personal data, many things must be professional. However, because they are very new, they do not know something called operational achievement data and others shared in cyberspace or the electronic world. [Simamora \(2020\)](#), used an essay analysis of students in performing arts education to evaluate the difficulties of online learning during the COVID-19 pandemic. The COVID-19 outbreak has changed the way students learn in higher education. Face-to-face teaching and learning sessions have been converted into virtual interactions through many online learning applications. This research aims to look at student writings in the form of opinions or responses to the challenges of online learning during the pandemic ([Harandi, 2015](#); [Tirziu & Vrabie, 2015](#)).

### *Security*

Security concerns arise when children who do not understand exercises often become victims of criminal markings when they are frequently online in Serang, and they are uncertain how sensitive the information is to do and what to do. Things that have already occurred have occurred, and nothing can be safeguarded in comparison to communicating. The coronavirus illness 2019 (COVID-19), caused by the SARS-CoV-2 virus, has become a significant public health issue across the globe. Guilt and pain associated with sexual encounters may worsen people's underlying mental and sexual issues. Although abstinence from sexual activity is the best method to prevent transmission, it is not always feasible. Risk reduction counseling, intercourse with limited partners, and digital sex are all alternatives to explore. [Rao et al. \(2010\)](#), sexuality, sexual well-being, and intimacy amid the COVID-19 pandemic: An advocate's perspective ([Maskin & Sjöström, 2002](#); [Kraus et al., 1998](#)).

### *Isolation*

One more issue for isolation as the instance, happens because online-based realizing, how understudies and understudies cannot interface well, so there is what is called everybody's confinement, generally understudies, instructors meet in class, in a bustling school, there will be an excellent connection. However, just web-based figuring out how to do their learning self-seclusion happens as per the public authority's contamination program, particularly socialization and free segregation ([Irani et al., 2014](#)).

### *Interaction is inadequate*

Sincerely it happens that the name is far separated, there is a reduction in the collaboration among understudies and understudies, educators with instructors, instructors, and understudies ([Aytaç, 2021](#)). Therefore, this is run of the mill they disengage, so cooperation is among understudies and understudies and others; for example, great learning happens because communicating with one another is probably not going to happen because of local innovation, etc. Although this does not generally happen, the web-based education and learning measure typically makes the learning system non-intelligent. Numerous understudies are confused by a subject yet think that it is hard to move toward the teacher. This is frequently made by educators who singly present data and do not permit understudies to bring up issues. Moreover, educators do not direct video gatherings on specific occasions and offer understudies printed materials and video clarifications on second thought ([Laurencin & Walker, 2020](#); [Vecchio et al., 2020](#)). This makes it harder for students to grasp and scrutinize the teacher about straight points. As an outcome, the educating and learning measure for understudies becomes ineffective. The purpose of this research is to find out what instructors and students think of the COVID-19 pandemic's remote education applications. The study's population consists of 16 instructors and 20 pupils. The data were examined using a content analysis method and classified into themes, sub-themes, and codes. It was shown that students and instructors had positive and negative attitudes about remote education activities ([Hebebcı et al., 2020](#)). An examination of students' and instructors' perspectives on distant education practices during the coronavirus (COVID-19) epidemic ([Linder & Marshall, 2003](#); [Mason, 2009](#)).

### *Students with low interest*

Impact of the Coronavirus pandemic on schooling (Onyema et al., 2020). The Coronavirus Disease (COVID-19) pandemic is generating major worry among the world's educational institutions. Efforts to contain the disease resulted in the closure of schools in over 100 nations across the world (Onyema et al., 2020). More than one billion students graduated from high school, with many relying on technology to complete their education online. The study emphasizes the need of every educational foundation, instructor, and student to embrace innovation and work on their digital abilities. Understudies are challenging to control when using distance learning and online methods. Even the Ministry of Education and Culture admits that many understudies fly kites during class. "We do not ignore children during school hours, but they fly kites. At the Ministry of Education and Culture, Teachers work as Associate Expert Policy Analysts. Nobody could be charged under these circumstances. Especially when it comes to blaming the teacher". Oversight is something that instructors would instead not undertake. This is because all of the children have scattered to their various places. Indeed, the teacher is in a difficult position (Chica et al., 2017; Minggu et al., 2019).

### *Cost for internet issue*

Notwithstanding a sluggish web organization, especially for those in rustic locales or outside of Java, the following trouble and obstacle to web-based learning are the expense of web standards, which is restrictively exorbitant for most individuals (Bergdahl & Nouri, 2021). Besides, these expensive web memberships are regularly limited to a specific limit, which is deficient for understudies' prerequisites to have video gatherings with their teachers. The amount required for video conferencing is enormous. In the meantime, the typical cost of web bundles from Indonesian suppliers is exceptionally high, especially when contrasted with the local area's average pay. Moreover, the web plan may just be utilized for one gadget, not by the entire family.

## **4 Conclusion**

In this final section, we will present conclusions about the study's results, which aims to identify and discuss the main obstacles and difficulties in implementing E-Learning in remote areas; this can be seen from the study of educational developments during the disruption of the pandemic in many countries. If problems are identified, how and why they occurred, it will be easier to develop solutions and inform policymakers of the results. We summarize the results; among others, several obstacles and challenges are faced in implementing online learning in line with impromptu policies. For example, the low human resources of teachers and the readiness of students to continue learning online were severe problems. Other issues, such as internet connectivity, still need to be addressed, the boredom of students when they study in self-isolation, the complexity of the issue of online legal learning where the limitations of learning devices, both schools and families whose economic status is still low, and a series of other questions are still being felt in the country and other countries. Thus, the results of this study are helpful for the parties and the authors themselves.

### *Conflict of interest statement*

The authors declared that they have no competing interests.

### *Statement of authorship*

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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