



## Innovation of Learning Media Technology During the Covid-19 Pandemic

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### ABSTRACT

The COVID-19 pandemic, which has affected Indonesia since March 2020, has had impacts on various sectors of life, including Education. Education can no longer be conducted in person, but rather through distance learning. In this regard, technology has become the way out to support the success of education during the COVID-19 pandemic. The use of technology for education has seen rapid growth and various innovations. However, in Indonesia itself, the use of technology in education still faces many obstacles, resulting in education not being effectively delivered. Therefore, this article formulates several issues: 1) What are the technological innovations in learning media since the COVID-19 pandemic? 2) How is the process of developing learning innovations carried out?. The research method used is literature study. The research results will be very beneficial for readers to understand Technology in Education during the COVID-19 pandemic, with the hope that it can be implemented for more effective educational processes or as a catalyst to bring about further innovations for the success of Education during the COVID-19 pandemic in efforts to educate the nation's children.

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## 1. INTRODUCTION

Since President of the Republic of Indonesia Joko Widodo announced the first case of the coronavirus in March 2020, Indonesia has been experiencing the COVID-19 pandemic, which has led to the suspension of all activities to prevent the spread of the virus. This has impacted all sectors of life, including Education. Face-to-face learning in schools can no longer be conducted. In response to this situation, the Ministry of Education and Culture of the Republic of Indonesia released policies regarding education during the COVID-19 pandemic. In Circular Letter Number 4 of 2020 regarding the Implementation of Education Policies during the Emergency Period of the Spread of Corona Virus Disease (COVID-19), the government instructed that learning processes be conducted from home. The Learning from Home activity is expected to support distance learning processes and facilitate the dissemination of material to students. This requires teachers to change their teaching strategies. As a result, the use of technology has increased significantly since Learning from Home. Innovation is a renewal aimed at solving problems. Since Learning from Home, various innovations have occurred in the field of Education to address several issues in the learning process. The use of technology for education presents its own challenges for students and teachers. Teachers need skills in managing learning using technology. Students also need to understand how to use technology for learning processes. In terms of facilities, adequate devices are needed for online learning to be carried out effectively. So far, online learning has been less effective due to various factors, including minimal use of technological innovations for education.

Therefore, this article will discuss the problem formulation: 1) What are the technological innovations in learning media? and 2) How to select technological innovations to be effective?. It is hoped that the results of the discussion in this article can assist educators and readers in searching for references regarding innovations that can be applied to the learning process and it is hoped that readers can generate and implement more innovations in the field of Education to ensure more effective online learning.

## 2. METHODS

This research utilizes the type of literature study research. In this literature study, research questions are formulated, namely what is technological innovation for education during the COVID-19 pandemic?.

The type of data used is secondary data collected through literature review. The data obtained is then collected, analyzed, and summarized, resulting in conclusions regarding technology innovations for education during the COVID-19 pandemic.

## 3. LITERATURE REVIEW

Technology innovation in learning media is a process of behavior change which covers cognitive, affective, psychomotor, through interaction with the environment (learning resources). Learning requires learning resources (Warneri et al., 2023). The goal of innovation is efficiency and effectiveness regarding the target number of students as much as possible with the education outcome as much as possible by using human resources, tools, and time as little as possible (Syaefudin, 2011). Learning resources essentially encompass everything (objects, data, facts, ideas, people, and so on) that can initiate the

learning process. Examples of learning resources include textbooks, modules, worksheets, realia, models, mock-ups, banks, museums, zoos, and markets (Andi Prastowo, 2019:28). Media is a learning resource. According to AECT (Association for Educational Communications and Technology), media is anything used by people to convey a message. Variants of media include electronic, graphic, simple, and realia. In selecting learning media, several criteria need to be considered: learner characteristics, objectives/competencies, material or content characteristics, availability of supporting facilities. One very popular innovation since the onset of the COVID-19 pandemic is the use of mobile applications. According to Irsan (2015), a mobile application is software that runs on mobile devices such as smartphones. Some of the innovations frequently used are:

1. Video Conference

Video conferencing has become popular in the field of education during the COVID-19 pandemic and has become a solution for organizing synchronous virtual or online learning. Video conference is a set of interactive telecommunications technologies that allow two or more parties at different locations to interact through simultaneous two-way audio and video transmission. Components supporting video conferencing include cameras, speakers, and microphones. Applications that can conduct video conferences include Zoom Meeting, Google Meet, Skype, WhatsApp, and Blue Jeans. However, in Indonesia, Zoom Meeting and Google Meet are the most commonly used applications for conducting remote learning processes. According to Angelina & Rahadi (2020), Zoom Meeting is an application that provides remote conferencing or meeting services with a screen-sharing concept.

2. WhatsApp

According to (Prajana, 2017; Indaryani & Suliworo, 2018; Hutami & Nugraheni, 2020), the social media platform WhatsApp is a communication medium that can be used on smartphones. With limitations in network connectivity, WhatsApp groups become an innovative solution because it is a social media platform used daily and is also device-friendly. For elementary school children who partly do not have their own phones, collaboration with the students' parents is needed. The group chat includes teachers along with parents to convey daily learning activities or tasks that students must complete, which are then submitted in the form of images or videos. This group chat is also used as a means of delivering learning resources in the form of images from books, videos, specific links, etc.

3. Video Tutorial

Video tutorials are videos presented to deliver learning materials on a phenomenon or procedure. With the many challenges during the pandemic where teachers and learners cannot directly interact intensively, explaining a procedure or phenomenon is sometimes difficult. Video tutorials can be a solution because students can also freely repeat and the animation in the video can help students understand visually. Video tutorials are also easy to use and device-friendly. In a study conducted by Hamdan Huseindkk (2020), the use of video tutorials to support online learning during the Corona Virus Pandemic received a good category response of 4,09.

The platform most commonly used in learning with video tutorials is YouTube. YouTube is one of the most popular video-sharing services on the internet. Therefore, it functions not only as a streaming and entertainment media but also as an educational media because there are many educational innovations displayed on YouTube.

#### 4. TV Program "Learning from Home"

Despite the popularity of online learning using many applications and other technological uses, innovation does not always run smoothly due to various obstacles. Starting from teachers or parents who are technologically challenged, internet access gaps, and limited learning media. Therefore, the Ministry of Education and Culture launched an innovation in an effort to support school from home, namely the Learning from Home program which aired on the Indonesian TV channel TVRI. Although the material is considered irrelevant and this program is ineffective as a learning media.

#### 5. Education Podcasts

Podcasts are audio media that have grown rapidly in recent years. Podcasts with educational themes and specific learning materials such as English can improve learning outcomes in English speaking abilities. This media has been growing since COVID-19 and utilizes several podcast provider platforms such as YouTube or Spotify.

#### 6. Quizizz

A gamified online-based application that can be accessed via a web browser. Through this application, educators can combine instructions, reviews, and evaluations.

#### 7. Instagram

Instagram is a social media platform used to share interesting photos or videos to be viewed by those who are part of Instagram. The Instagram mobile application not only functions as a social media or entertainment application but also as a mobile learning application that has been widely applied and has undergone learning innovations, making the Instagram mobile application one of the learning media used in supporting the learning process during the COVID-19 pandemic.

#### 8. Google Classroom

The Google Classroom application has been used in Western education methods as a support for learning activities and as a form of support for current technological advancements. Google Classroom is a special application used for online learning that can be used remotely, making it easier for educators to create, group, and assign tasks. In essence, Google Classroom is discussed as a learning application which has had many learning innovations applied and carried out, making Google Classroom one of the media used in supporting the learning process during the COVID-19 pandemic.

#### 9. Discord

Discord is an application for accessing chat similar to Skype that allows users to chat in real-time using text, voice, or video. The Discord application not only functions as a communication and entertainment mobile application but also functions as a mobile learning application that has undergone many learning innovations, making the Discord mobile application one of the learning media used in supporting the learning process during the pandemic.

#### 10. Google for Suite Education

A set of cloud-based tools for primary and secondary education institutions, non-profit higher education, and homeschooling.

## 4. RESULTS AND DISCUSSION

### 4.1. Development Process of Learning Innovations

The number of positive cases infected with the Covid-19 virus continues to increase. The Ministry of Education and Culture's policy that face-to-face learning and school reopening can be carried out in January 2021 cannot be implemented universally but by considering

the color zone of the region. Therefore, the Ministry of Education and Culture instructed that learning should still be prioritized online (remote learning). Therefore, more innovations are needed in the Education sector for more meaningful learning. The development of learning innovations is carried out in several stages of the process:

a) Creative Idea

Creative ideas are needed based on the problems that occur, then to make learning functional and more valuable.

b) Creative Design

The learning design must be tailored to the instructional design plan. Instructional Designers play an important role in developing media or innovations.

c) Creative Production

The designed concept is realized with creative production aspects.

d) Validation and Review

Innovations must go through validation and review stages such as model testing, try-outs, field tests, and model testing with users and experts.

e) Dissemination

After going through the validation process, review, and revisions if any, the innovation is disseminated usually through scientific publications, teaching in class, or seminars. In this process, a competent and useful innovation development team is required. Roughly, the team consists of content developers (teachers, academics, communication experts, language experts), Information Technology developers (programmers, modelers, animators, videographers, and testers), and media developers (education technologists).

There are several considerations to determine the usefulness of technology innovations in learning media. According to Holden (2005), the following factors need to be considered:

- a. Identifying gaps between knowledge and skills, both from the students' and educators' perspectives.
- b. Effectiveness of assessment and measurement. Whether using that media makes it easy to perform assessments or evaluations.
- c. Level of interaction. Whether it can increase interactivity.

## 5. CONCLUSION

This pandemic period presents challenges for the world of education, where academic communities are required to be adaptive and creative in creating a learning atmosphere that is suitable for the changing times. Technological Innovation in Learning Media is a process of behavior change that includes Cognitive, Affective, Psychomotor aspects through interaction with the environment (learning resources). Learning resources essentially encompass everything (objects, data, facts, ideas, people, and so on) that usually initiate the learning process. In conducting online learning, teachers, students, and parents have new experiences, especially for those who are less familiar with technology. The hope is that with the innovation of learning during the pandemic, it can be utilized as an opportunity to support the quality of education in the future and be able to compete globally.

Innovation will continue to grow and develop as time goes by and as technology advances rapidly. There are many other innovations that have not been discussed in this article, so a more up-to-date and extensive study is needed so that innovations can be identified and applied with the aim of advancing education in Indonesia, especially during the implementation of online learning during the Covid-19 pandemic.

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