DIGITAL COMMUNICATION AND LEARNING TECHNOLOGY ADOPTION DURING COVID-19 PANDEMIC

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Abstract

Article Info	The Covid-19 pandemic has changed the communication and learning processes by utilizing digital communication. The challenge of adopting digital communication is inevitable when supporting learning shifts from offline to online systems. However, it is necessary to consider the effectiveness factor in order to facilitate adoption. The Technology Acceptance Model (TAM) is a theoretical framework that describes how a technology can be accepted, adopted, and used by society. Two factors influence people's acceptance of technology: perceived ease of use and perceived of usefulness. In the context of learning using digital communication technology, Google Classroom is a learning technology that is considered easy because there are tutorials available that can guide users and make it easy to access. Its advantage is that it facilitates interaction and learning experiences such as the ability to upload various materials and provide direct feedback. In short, the application of the Technology Acceptance Model (TAM) theory to the adoption of digital communication technology in courageous learning during the Covid-19 pandemic can provide understanding and knowledge about aspects that contribute to the adoption and use of technology during times of crisis.
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1. INTRODUCTION

The Covid-19 pandemic has caused the majority of governments around the world to adopt policies of social distancing and staying at home to stop the spread of the virus. Globally, lockdown periods have had a strong and broad impact on all aspects of human life. There have been significant changes in how people interact and communicate with one another, behave, worship, work, and study. The toughest challenge that occurs during this period is the reduced opportunity for individuals to socialize with others. This is very difficult because, in essence, humans are social beings who always want to connect with other people (Maulida & Prawira W, 2020a). In relation to these problems, digital communication is very important during a pandemic. As stated by Nguyen et al. (2020), the pandemic has made digital communication technology widely used by the public.

Digital communication cannot be separated from digital applications that enable communication and collaboration as key to surviving a crisis. Digital communication requires a sophisticated digital infrastructure because the intelligent use of digital applications and solutions can help support community activities (Achmad et al., 2023). Mancini et al., (2021)mentions that digital communication should be easy, clear and easily accessible. Digital communication must be able to overcome cultural and language barriers, differences in media literacy competencies, and access to facilities and infrastructure.

Covid-19 pandemic in the education sector has forced the migration of learning activities from offline to online environments (Sukendro et al., 2020). The goal is that learning activities can still be performed properly without any harmful threats. Mishra et al., (2020) argued that online learning provides a psychological sense of security to students during the COVID-19 period. A sense of security is one of the aspects that must be fulfilled for children's rights so that their welfare in education can be fulfilled (Maulida & Prawira, 2020b).

This transition makes the teaching and learning processes dependent on digital communication. Furthermore, the transition that occurs cannot be separated from challenges for both educators and students because of the lack of experience they have and the limited time to adapt (Selvaraj et al., 2021). As explained by Marlina et al. (2021a), online learning experiences obstacles in the form of not all instructors have knowledge of distance learning systems. Second, there was limited time available to adapt to the online learning system. Third, there was no guidance or assistance from educational institutions regarding online learning. Fourth, the instructor does not know the effectiveness and efficiency of the learning platform. Therefore, trials and errors are required. Fourth, there was a lack of motivation due to rapid changes and psychological burden in times of crisis.

Fifth, facilities and infrastructure are still inadequate, such as limited computer equipment and internet access. As mentioned in Hussein et al. (2021) that internet is a crucial component for online learning with technology adoption. An effective learning cannot be realized with unstable internet services. There should be fast and reliable connection for both educator and student. Sixth, there was a lack of technological and digital literacy. Based on those explanation, this article provides an overview of the learning and adoption of digital communication technology during the Covid-19 pandemic.

2. METHOD
Covid-19 and Online Learning

During the Covid-19 pandemic, schools were closed, and education was shifted to online learning (Hidayat et al., 2020; Daniela et al., 2021; Council of Europe, 2021). Online learning is considered as the most suitable and safe teaching and learning process during Covid-19 crises. It shifts physical space and method of learning, where the member of teaching and learning activity are not in the similar places (Hussein et al., 2021). The goal is to maintain the quality of learning without endangering children's health (Anugrahana, 2020; Hasanah and Sibilana, 2020; Dong et al., 2020). The Covid-19 pandemic that came suddenly made everyone involved in the education sector adapt to the new situation.

In such a situation, every individual inevitably must accept the use of digital communication technology that can support the continuity of learning process. Remote learning leads to challenges such as unequal access to digital technology, pedagogical adaptations, and a comfortable environment to support effective learning (Nugraheni & Maulida, 2021). Online learning is not only about technology that transfers learning directly to virtual spaces, but also about developing students' abilities to learn independently, and the learning process becomes more diverse and effective (Mishra et al., 2020).

Digital communication technology should be accessible and able to help reduce the burden on students. The aim is to ensure that students have no difficult learning experiences that caused to failure. As stated by Aristovnik et al. (2021) that online learning has a negative impact on student learning, such as being difficult to focus and does not help provide an understanding of the substance and assignments obtained.

Referring to this, reachable, familiar and ease of use digital learning communication technology is needed to support these conditions. Landrum (2020) emphasized that educational technology infrastructure must facilitate online learning process, which can increase students' abilities, satisfaction, and benefits. To support online learning, various patterns and learning education systems have been implemented, such as using Google Classrooms, zoom cloud meetings, Spotify applications, podcasts, and Moodle e-learning.

Google Classroom is part of the Google Apps for Education (GAFE) as a platform for educators and students to carry out online learning and collaboration (Marlina et al., 2021b). This application can be downloaded for free and is usually used in educational institutions. The Google Classroom is *a* learning platform Management System (LMS) that provides space for interaction, discussion, and learning activities such as assignments or quizzes. Google Classrooms help facilitate online learning, especially during the Covid-19 pandemic.

Studies regarding the effectiveness of Google Classroom have been conducted by several researchers. The results of the study (A'Yun et al., 2021; Susilo & Rohman, 2021a) show that Google Classroom is effective, interesting, and of high quality in the teaching and learning process between teachers and students. It improves students' abilities and skills. The similar result was also reported that

Google Classroom is attractive for virtual learning and provides convenience in managing learning (Lazim et al., 2021; Okmawati et al., 2020; Susilo & Rohman, 2021b). Susanto et al. (2021) explain that individual behavior in technology adoption can be predicted through perceptions and beliefs.

3.   RESULT AND DISCUSSION
Technology Adoption in Online Learning
 One of the discussions regarding technology acceptance can be explained by the Technology Acceptance Model (TAM) theory initiated by Davis (1989). TAM theory explains that there are factors that determine an individual's willingness to accept a technology so that technology can be accepted and adopted. Two factors affect people's acceptance of technology: ease of use (perceived ease of use) and benefits derived from use (perceived usefulness) (Davis et al., 1989).

 Technological complexity often creates barriers to acceptance of a technology. Individual perceptions can determine whether someone will use the technology. The perceived ease of use encouraged person to adopt or use technology. The perception of usefulness also encourages individuals to use technology because of the belief that it assist to achieve their goals. As the results of research findings put forward by (Pal & Vanijja, 2020) that ease of use (perceived ease of use) and the benefits derived from use (perceived of usefulness) affect attitudes and adoption of a system

 In the context of online learning using Google Classroom, it is well known to its users that Google Classroom can be easily accepted because of its easy operation. On the other hand, the majority of Google Classroom users are familiar with the Internet and have good technological literacy. Such a situation makes it easy for users to get used to new technologies. Therefore, there is a sense of comfort in using Google Classroom during online learning. This digital technology is preferred and compared to similar technologies.

 The picture of perceptions and beliefs held by Google Classroom users in the Technology Acceptance Model (TAM) is called perceived ease of use or easy use as one of the main factors in the acceptance of a technology. Technology that is perceived as easy to use will appeal to society. Perceived ease of use drives someone to apply technology. In this context, Google Classroom is considered to have an easy operating system and requires little effort to understand how it works. Meanwhile, Azhar & Iqbal (2018) identified instructors' recognition as a critical factor in the effective use of technology in the classroom. Instructor have higher load during the uses of technology in online learning. They are demand to have more preparation and effort in creating material for online learning (Hussein et al., 2021).

 Instructors evaluates whether the learning technology is easy to be used for online learning. It is crucial to decide because it relates to the performance achieved. Decision can be made when individual has already experienced. Experience contributes to the perception that leads to the action taken. If person sees the technology has ability to support theor work but they perceived less usefulness, the opportunity of person adopt the technology is smaller.

 As suggested by Padmavathi (2016) educators and students needs technological preparation to integrate technology in teaching learning process. Their readiness have significant effect on the intention to adopt the technology offered. Therefore, during the adaption process of technology the users should recognize that the technology is easy to use as needed and helpful in supporting teaching and learning process (Shaharanee et al., 2016).

 During a pandemic, it is estimated that both educators and students will benefit from using Google Classroom. Educators who believe Google Classroom can support their work and improve their performance during the pressure of pandemic will choose to implement it. It is expected that online learning run smoothly and easily. This is particularly true when technology is considered more practical and makes work easier. Therefore, the process of accepting the technology that supports online learning is easier and faster.

 Google Classroom provides benefits for educational institutions that have no e-learning systems to conduct online teaching and learning process. An e-learning system is an information system that integrates various kinds of learning materials in the form of audio, video, text, online discussions, chat,

quizzes, and assignments (Ching-Ter et al., 2017). Google Classrooms have similar features that individuals can take advantage of it as e-learning.

For example, with Google Classroom, an educator can upload various materials in the form of photos, videos, quizzes, provide feedback, interact with the whole class, determine deadlines without having to give reminders to students, and can even duplicate classes together with their contents if it have more than one class. For students, there is a notification when a new assignment or material upload, a reminder when the deadline is assigned, and there are features that interact well with everyone in the classroom.

In line with the explanation of Nuraini Kusumadewi et al. (2021) and Utami (2021), the benefits felt by users from a technology will have a strong influence on accepting and using a technology, which in this context refers to Google Classroom as a medium of communication in online learning. This is because individuals believe that technology that provides benefits will help their work become more effective and efficient.

Thus, it can be emphasized that someone who perceives a technology is easy to use does not mean that the technology will be adopted, other than considering the benefits of using technology. If an individual already experiences the benefits, there is a great opportunity to adopt the technology.

4.   CONCLUSION

The Covid-19 pandemic has accelerated the adoption of digital communication technology in the educational sector to ensure safe and effective learning. The technology adoption process is described in the theoretical framework of the Technology Acceptance Model (TAM) explaining how Google Classroom can be adopted by educational institutions as a form of learning technology. The adoption process was carried out to create virtual learning that can facilitate limitations during the Covid-19 pandemic. The perceived ease and benefits of using Google Classroom allow this technology to be adopted in online learning during the pandemic. Thus, exploration of the opportunities and challenges of the existence of technology that supports education needs to be carried out on an ongoing basis so that it can support easy, fun, effective, and efficient learning and increase the capabilities of the parties involved.

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