

Diffusion of Innovations Zoom Application for Kindergarten Online Learning Communication

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ABSTRACT

Currently, COVID-19 is an ongoing pandemic that happened in many countries, including in Indonesia. Related to this pandemic, The Ministry of Education and Culture of Indonesia is issuing a policy which is to study from home. To fulfill this policy, students and teachers are required to mastering the use of technology in online learning. The purpose of this study is to understand the diffusion process of the application of long-distance discussion in kindergarten students. The research method used a case study with a qualitative descriptive approach. The results showed that the application of remote or online discussion, like Zoom, is needed in the context of online learning during COVID-19 pandemic. The distribution uses a communication channel in the form of a WhatsApp group that is spread by class teachers. In the adoption process, innovation decisions are the authority on the part of the school. At the implementation stage, not all students follow the full schedule of the long-distance discussions provided. Apart from the child's side, the role of parents in implementing the use of the application is very decisive. Various factors constrain the parents to find it challenging to accompany their children to follow the discussion schedule. To solve the problem, the school has adjusted the discussion schedule several times and likewise made innovation in other forms of learning such as YouTube videos and interpersonal communication through WhatsApp to students and their parents.

Keywords: innovation, communication, online learning, kindergarten

1. INTRODUCTION

During the COVID-19 pandemic currently occurring in Indonesia, the government has decided to issue a policy requiring the people to stay at home and do their activities from home. These activities, indeed, include working, studying, and worshipping. Joko Widodo, as the President of Indonesia, emphasized that this policy was necessary to reduce the spread of COVID-19 virus in Indonesia [1]. Following up the *#dirumahsaja* policy, the Minister of Education and Culture Republic of Indonesia, Nadiem Anwar Makarim, has issued the Circular Letter Number 4 of 2020 concerning the Implementation of Education in an Emergency of Corona Virus Disease (COVID-19) in Indonesia. In this Circular Letter, the Minister emphasized that the learning process can be done online or remotely, which also can provide a meaningful learning experience for students [2].

In this pandemic situation, the online learning system can be used as one of the solutions in order to make sure the learning process still proceeding. This online learning system can be appointed to all levels of schools, from kindergarten schools to colleges [3]. Before the Covid 19 pandemic spreading in Indonesia, the online learning system often called e-learning has been used in Indonesia. Digital platforms such as Ruangguru and Zenius are one of the platforms often used in the online learning process. These platforms are required a subscriptions member, so the user needs to pay in order to join the online learning in these platforms. In this pandemic situation, many people try

to use a free platform that can be used for the online learning process in Indonesia. Teleconference applications such as Zoom, Skype, and Google Meet (Hangouts) are applications popular in Indonesia, amid this pandemic. They also become one of the alternative solutions that can be chosen as the communication media in the online learning process [4].

As mentioned in [3], teleconference applications such as Zoom, Google Meet, WhatsApp Group, and Telegram can be used as the alternative platforms in the e-learning process. This is because those platforms have fulfilled the six main principals in e-learning determined by Ministry of Education and Culture of Republic Indonesia as follows: learning is open, learning is social, learning is personal, learning is augmented, learning is multipresented, and learning is mobile. These applications also include the ones providing remote or long-distance communication.

In education or learning process, as mentioned in previous studies [5], [6] some roles need to fill by teachers, parents, and students itself. Parental supervision is one of the essential things in the learning process, especially in the early childhood learning process. Teachers, parents, and students play an essential role in order to build positive communication [7], and these roles are also needed in the process of online learning systems. Regarding the diffusion of innovation technology, Rogers [8] mentioned that there are some groups of adopter: a group of innovators, early adopters, early majorities, late majorities, and laggards.

The purpose of current study is to describe the diffusion

process of the long-distance or remote discussion used in the online learning process. To be specified, this study took a case in kindergarten school. Moreover, this study also aims to describe the adopter's group involved in the online learning process through the application.

2. LITERATURE REVIEW

Innovations emerge from the expert are then distributed as a package to one of the social system members who may accept or reject it. Innovators are the one who carried out the innovations. They also influence others to adopt innovations. Adopter can get the information, related to the innovations, from mass media, interpersonal communication activity, or both [9]. Rogers [8] explained that the process of introducing innovation, either it is an idea or an item, is determined by three things: antecedent, process, and persuasion. There are five steps of the adoption process: awareness, persuasion, decision making, implementation, and confirmation. Having passed all the five steps of the adoption process, adopters will evaluate the innovation they have adopted [8].

The diffusion refers to the dissemination of new information, a new idea, or a new process. The adoption refers to the reaction of adopters towards the innovation, especially the positive reaction. Regarding the reaction towards the innovation, adopters can only make one reaction or decision at one time, either acceptance or rejection. Based on how quick or sensitive a person does respond to an innovation, adopters can be categorized into five groups: innovator, beginner or early adopters, early majority, late majority, and laggards.

Several studies related to diffusion and innovation, particularly closely related to the use of technology. One of them is related to the use of technology in the e-learning process [10], [11]. E-learning is a concept in the education sector utilizing information and communication technology, especially in the teaching and learning process. The use of technology in the learning process was initially applied only to an optional supplement, either complementary or substitution. Theoretically, e-learning can facilitate interaction between teachers and students [10].

Nowadays, there are many applications that can be used as an online learning platform. Schools do not have to provide or build a new system for the online learning process. They can use a teleconference application. As mentioned in [3], teleconference applications such as Zoom, Google Meet, WhatsApp Group, and Telegram can be used as the alternative platforms in the e-learning process. These applications have many features that can support the process of online learning.

3. METHODS

This study used a qualitative approach with descriptive research methods, not prioritizing either the population or the sampling size. The emphasis was more on the quality of data itself. Mulyana [12] said that descriptive research methods, such as unstructured interviews, in-depth interviews, participatory observation, document analysis, case studies, and critical historical studies, the interpretation is emphasized more than objective observation. In addition, the authors also included the research instrument going directly to the field.

The data collection used was purposive sampling. Data were collected through interviews and observation on one of Kindergartens at the Duren Sawit sub-district, on

East Jakarta, Indonesia. Teachers, students, and parents were chosen as the sample of this study. This study was conducted from March to June 2020.

All the data collected from interviews, observations, and other secondary data were processed by reducing and grouping the data with the indicators determined in the research concept. This study used the Milles and Huberman [13] data analysis technique, with four stages of qualitative data analysis: data collection, data reduction, data presentation, and concluding.

4. RESULTS AND DISCUSSIONS

After conducting observations and interviews with several informants consisting of parents, students, and teachers, the results obtained as follows:

4.1. Zoom Application as the Innovation of Remote Discussion Application

Innovation can be defined as 'something new', or 'doing things in a new way'. Innovation, according to Roger [8], is an idea, practice, or object that is perceived as new by an individual or another unit of adoption. In line with the technological developments, discussions limited by distance, now, can be facilitated by online or remote discussion application with the video conference feature. There are several remote discussion applications such as Whatsapp, Skype, BlueJeans, Cisco Webex, Google Meet and Zoom. These applications are competing, but since the COVID-19 pandemic in Indonesia, the most popular one is Zoom [14].

Zoom application, found by Eric Yuan, is an online discussion application with a video conference feature based on cloud computing. This app makes the discussion process easier virtually, with anyone even in a large number of participants. Zoom application, as one of the long-distance communication media, provides the video conference feature combining the online meeting feature and other communication features such as chat room and share screen feature. While the online discussion or meeting is progressing, it can be recorded and will be converted when the session has ended. Zoom application is provided in mobile and computer application so that users can use the app in various devices.

In the learning process, an innovation, such as remote discussion application, is needed when learning process cannot be done with offline or face-to-face meeting. This application will facilitate teachers and students to hold online learning so the learning process can be done as usual. Presentation sharing, content sharing, and two-ways communication in this application can help teachers and students to interact communicatively.

Zoom application also has some other advantages: the possibility to include a large number of participants up to 100 participants, online chat while the class is online through the chat room feature, and scheduled meetings. Zoom application is also popular because the user can download it for free, no need to sign up a new account, and also it easy to use. Despite many advantages, it still have a limitations related to the duration of using for a free user limited to only 40 minutes of use.

4.2. Communication Channel in Zoom Implementation

Communication channel becomes an essential factor that determined the success of the diffusion of the innovation process. It is because the messages of innovation can be disseminated to the public, which is adopter’s target, through the communication channel. Moreover, as said by Pribadi in Priono [15], a communication channel not only serves as the media to deliver messages but also functions to motivate and educate something to the targeted public. Rogers (1996) mentioned that to make an idea acceptable, various communication channels are needed, which is subjective and usable to the agent of change while trying to persuade people to adopt an innovation.

Mass media, social media, and interpersonal channel are the communication channels participating in the use of Zoom application in kindergarten school. Mass media, either printed or electronic media, contributes to informing the advantages of Zoom application use. Then, social media also contributes to spreading information that many people already get using Zoom application. This kind of information also spreads through Whatsapp groups. Meanwhile, the approach taken by the teacher to parents in order to convince them to use Zoom application is the interpersonal channel.

4.3. The Process of Diffusion of Innovation

Since the issuance of Circular Letter Number 4 of 2020 regarding the Implementation of Education in an Emergency of COVID-19 in Indonesia, which issued by Ministry of Education and Culture Republic of Indonesia, a policy to learn and study from home also issued. Along with the pandemic of COVID-19 in Indonesia, many schools have stopped the offline or face-to-face learning process. The implementation of online learning requires readiness, both schools and students. It also requires a qualified and easily accessible technology.

The school also steps in by continuing to innovate in organizing an online learning process. Teachers and all the school’s team are trying to organize interesting online learning that can be done creatively and interactively. One of the ways that were taken by the school is by using Zoom application to organize the online learning in this kind of pandemic situation.

4.4. The Social System in Kindergarten School

The principal is required to continue the innovation in order to ensure the online learning activities carried out by teachers and students. Therefore, the principal developed an alternative learning process using Zoom application. In this kindergarten’s social system, there is a group of innovation adopters. In this situation, the principal can be said as the innovator in the adoption process.

Furthermore, in relation to the adopter groups, teachers, also belonging to this group, are the early adopters. It is because they are the first ones to implement Zoom application in the online learning process, so that teaching and learning activities can run as usual, even though students are learning virtually from home. Then, the early majority adopters are kindergarten students who have ‘working-parent’ who have used to Zoom application in their daily works. In this early majority group, students feel more helped, because they are accompanied by their parents who have understood the technology beforehand. The next

adopter group is the late majority consisting of kindergarten students with ‘housewives’ mothers. They often do not participate in an online learning session, in Zoom application, because their mothers are hampered by many household chores. The last adopter group is the laggards, consisting of the school custodians. These persons are the last ones to adopt innovation. They seem to adopt a new thing reluctantly, and more likely adopt something traditional. It can happen because they think they play no essential role in the online learning process.

4.5. The Adoption Process of Zoom Application

The adoption process is the steps of how a person or social group takes place from the beginning when they get the information to the implementation of an innovation. As mentioned by Rogers [8], the adoption process did not stop right after the innovation has been accepted or rejected. There is one more stage, confirmation, happening after the innovation has been implemented.

In this study, we see that COVID-19 pandemic is the thing triggering the initial adoption. Regarding the *Pembatasan Sosial Berskala Besar* (PSBB or Large-Scale Restriction) policy issued to prevent the spread of COVID-19 virus in Indonesia, people were asked to stay at home. During the pandemic, most parents were assumed to stay at home with their kids. Thus, they are expected to accompany their kids when online learning is held. This situation makes the school, at least, aims at the parents to adopt Zoom application. The attitude toward the changes, occurring due to this pandemic, makes both parents and students accept the adoption decision. However, there are still a few parents not accepting this adoption openly. Rogers affirmed that in the decision step, it needs support from peer group and also the agents of change and the opinion leader’s role. In such situation, the principal is the opinion leader and teachers are the agents of change. The use of Zoom application during online learning session can be seen in Figure 1.



Figure 1 The online learning process through Zoom Application

Besides zoom application, teachers also use video call feature on WhatsApp to deliver the lessons in online learning session. This is because online learning session has to be done interactively with two-ways communication.

The interaction between teachers and students is attempted to maximize online learning outcomes. Because sometimes students still need an additional explanation about one or more certain materials.

Some changes were felt right after the adoption of the innovation. In the beginning, when learning from home was implemented to the students on March 2020, the process of online learning through Zoom application was highly demanded by the students. Many students were joining the online learning session. There is much information on the internet, regarding the tutorial of using Zoom application. In fact, most of the parents have had online meetings via Zoom application.

Along with the process of online learning so far, there are still few students who cannot attend the session, entirely. Most of these students have difficulty in managing their time and being disciplined in learning from home. In addition to student's sides, the role of parents is very decisive in implementing the Zoom application on their child online learning process.

Using Zoom application for online learning is not easy, particularly to kindergarten school. This is because students cannot operate the application by themselves. They still need to be accompanied by their parents in attending online learning session. So, we can say that parent's contribution to online learning session is essential for kindergarten students. In this study, from the result of observation, it can be seen that mothers accompanied the students more than fathers do. The parent's activities during the online learning session are communicating with teachers, assisting their kids, helping their kids to understand the lesson, and providing learning support tools. At this stage, the assistance of parents in online learning is fully needed.

There are many obstacles in the adoption process in the online learning process via Zoom application. Firstly, from the parent's side, the obstacle is related to the time management between online learning schedules and their works, both household works (for midwives) and office works (for working moms). Parents, particularly mothers aforementioned having more contributions than fathers do, still have many works to do. For working moms, even though they also have to stay at home during this COVID-19 pandemic, they still have to works from home. They also have to attend online meeting sometimes held at the same time with their kid online learning session. One of the informants said that the schedules often coincided between their online office meeting and the school online learning session. In such situation, parents are more likely concerned with their work matters than their child online learning session. For the non-working moms or the midwife moms, one of the informants said that her kid could not follow the online learning session via Zoom application entirely because he/she needs to take care of the other kids. The informant also said that the tools, such as laptop, tablet, or mobile phone that can be used for the online learning session, are also inadequate. Not to mention, the use of internet quotas for accessing the Zoom application for the online learning session is considered burdensome to some parents. In order to adapt to the condition, the school has adjusted the schedules several times. Moreover, the school also makes other innovation using other feedback's voice from the pc or mobile phone's speaker making the online learning session uncomfortable. Students also cannot catch the lessons delivered via Zoom application fully, because they feel the lessons are unclear. Moreover, one of student informants in this study admitted that he/she has no confidence in talking in front of camera so that he/she sometimes did not attend the online learning session via Zoom application.

Another problem also occurring is that students felt they find difficulty in consulting with teachers when they need deeper explanation and understanding. To solve this matter, interpersonal communications through WhatsApp is conducted. In addition, teachers also contact parents regularly to monitor the student's progress.

5. CONCLUSION

The COVID-19 pandemic triggers the process of diffusion of innovation occurring in the use of remote discussion application, such as Zoom application, in the online learning process for the kindergarten students. Teaching and learning methods have changed. There is no longer face-to-face meeting between teachers and student in the learning process. The learning process is now using online media accessible everywhere. It indeed allows teachers and students to have online learning sessions from home. In this study, the application used in the online learning process is Zoom application.

The findings of study indicate that the use of Zoom application in the online learning process, particularly for kindergarten school, is not as subtle as expected. All the students have not accepted innovation entirely. Even, there are some students avoiding or skipping online learning sessions. Some students feel unconfident to have an online learning session, and some others feel bored in the middle of online learning session. Not to mention, other noises from the application or tools itself, such as the feedback's noises or technical issues while using the application can cause make the students focus on the lessons difficultly. Furthermore, the parent's role in the process of Zoom application innovation adoption in online learning is essential to kindergarten students. When the parents, particularly mothers, are busy with their works, both household and office works, it often makes the students unable to attend the online learning sessions.

The school's role, e.g. the principal's role as an innovator, is needed. The school or principal needs to make rules so that the online learning session can be done as well as possible, and the Zoom application's use can be done effectively. Then on the early adopter sides, creativity becomes communication channels, such as Youtube, in the online learning process.

The second obstacle comes from student's perspective. The students sometimes feel bored in the middle of the online learning session. There also some noises needed from the teacher to deliver the lessons attractively to the students. The online learning process through Zoom application should be made uniquely and correctly, and there is a guidance to follow by teachers, students, and parents. In that case, it can surely make the adoption process of Zoom application easier. Also, the use of Zoom application in online learning sessions can be done efficiently. Last but not least, the parents' commitment to assist their children in an online learning session will also help the online learning process.

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