

The Use of Technology in Teaching and Learning (Case Study in Two State Schools in Kupang, Indonesia during the COVID-19 Pandemic)

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ABSTRACT

This article is an exposition and analysis based on a case study of two public schools in Kupang city. Data were obtained through observations and questionnaires distributed to teachers who teach at the schools. The results show that learning continues even though the pandemic of COVID-19 forces learning to take place virtually. Teachers have no difficulty in delivering teaching materials to their students because of the availability of technology along with its various applications and features. In this situation, teachers find new challenges in managing learning. However, there are various obstacles that contribute to the effectiveness of learning. These obstacles come from students and technical infrastructure which is also a problem for teachers. The findings in this study were analyzed from five aspects, namely pedagogical, the mastery of technology, human resource readiness, economic, and social aspects. All these aspects are interrelated, therefore intervention from all stakeholders is needed to realize learning in an effective virtual classroom environment.

KEYWORDS

technology; teaching and learning; virtual classroom

INTRODUCTION

The entire education system around the world from elementary level to college has been collapsed by coronavirus disease 2019 (COVID-19). All aspects of the field of education are a mess because its academic activities are limited. This sudden change paralyzed various educational scenarios that had been planned. The teaching and learning process in formal educational institutions that are conducted face-to-face is forced to become virtual or online education, no matter who the students are or where the school is.

The impact experienced by the world of education is very much felt due to unpreparedness of resources, academic incompetence, and technical infrastructure. This is generally the case in low or middle-income countries. However, restrictions or limitations during the COVID -19 pandemic have forced everyone to learn, live, and survive the current crisis because this is just the beginning of the long run (Mishraa, et al, 2020). This COVID -19 crisis has shown us that no one can ignore or run away from digital transformation. This means that the availability of reliable communication tools, high-quality digital academic experiences, and encouraging technology-based learning to bridge the gaps originating from the education system before and after the COVID -19 disaster are also unavoidably necessary for continued learning.

So far, we can agree that the pandemic of COVID-19 has opened our eyes to see and prepare for more effective teaching and learning, not only if a pandemic like this happens again but information technology attacks are unavoidable in many ways. So the

responsibility of the world of education is not only to provide qualified learning facilities but also to prepare students or graduates to get used to the digital world.

In conditions like this, it must be recognized that technology plays an important and even controlling role. Clyde & Delohery (2005) have suggested that schools should be familiar with technology because it provides an easy and effective way to record, organize, and access all learning needs. Technology enables teachers to streamline tasks that would otherwise be cumbersome, provide more and better learning opportunities for students, and facilitate the exchange of information for the academic community as a whole.

However, Poe & Stassen warns that online learning will be very effective only if it is delivered by experienced teachers and masters of the subject matter. This is related to the preservation of educational values that exist in traditional (face-to-face) learning and is maintained in online learning. So, the emphasis of the virtual classroom is on the teacher because the experience and mastery of the material by the teacher will support interest in teaching in a network-based environment (web). Dawley (2007:3) goes deeper by saying that successful online teaching is a teaching process that prioritizes the achievement of learning objectives by facilitating engagement to empower students as life-long learners.

The convenience provided by technology cannot be enjoyed in learning because there are two main problems commonly faced by learners related to the virtual learning environment, namely technical issues and related virtual learning and communication styles (Ko & Rosen, 2010:288-9). By overcoming these two things, Poe & Stassen suggests two parallel processes that occur in the online or virtual classroom, namely more active learners and the involvement of both students and teachers in the use of technology in learning so as to make them more familiar with technology and its use.

Research regarding the impact of the pandemic on the world of education shows varying results, especially on technology readiness both by teachers (Sutarto, et al, 2021; Nakhriyah & Muzakky, 2021), students (Srihartini & Lestari, 2021; Yunus, et al. 2021; Nihayati & Indriani, 2021), parental support (Safitri, 2021) or technological infrastructure readiness (Hakim, 2020; Hermanto, & Srimulyani, 2021). These studies, of course, do not represent the facts and opinions of all of Indonesia, but at least show a tendency for the world of education to be prepared or unprepared as a result of the transformation of learning habits. Therefore, other studies on different educational objects and institutions in each region in Indonesia need to be carried out because the background of resources and infrastructure is different.

It is very important to conduct studies on this topic in order to get a comprehensive picture of the readiness of education in Indonesia to face the challenges of global digitalization. More comprehensive studies in each region will provide information for the government to make policies, while educational institutions and all those involved can learn from each other to achieve the desired learning goals.

This article is a result of a case study in two state schools in Kupang, Indonesia, during the COVID-19 pandemic. It is not meant to fill in the gaps, both in terms of methods, theories, or topics of discussion from previous studies, but as an additional reference and source of information regarding the readiness of all aspects of online learning. The focus of research on teachers is based on the consideration that the effectiveness of online learning is largely determined by the teacher, both teaching experience and mastery of the material. The results of this analysis will contribute to all stakeholders in the world of education.

RESEARCH METHODS

This study uses a qualitative approach to reveal the phenomenon of the use of information technology as a learning aid. The data was obtained through a survey of four teachers,

consisting of two high school teachers (SMA/SMK) and two junior high school teachers (SMP) in Kupang, Indonesia. There are sixteen items of questions asked to explore information about readiness as a teacher, use of technology, learning strategies, and views and attitudes towards learning and students. The answers obtained are considered as data and included as research findings. The findings are analyzed and combined with the literature study to produce a conclusion and the findings of this study.

RESULTS AND DISCUSSION

Data were obtained through a survey method regarding readiness as a teacher, use of technology, learning strategies, and views and attitudes towards learning and students. The data collected shows that teachers have implemented online learning in learning activities from home as a way to prevent the spread of the COVID-19 pandemic. Online teaching and learning is a new model for teachers because so far it has been done directly or face to face.

Media of information and technology used by teachers during online teaching and learning are WhatsApp, Screen Recorder, Live Worksheet, PowerPoint, Google Classroom and Google Meet. Among them, WhatsApp Groups and Google Classroom are the two media or applications that are most often used in the online process. According to the teachers, the use of the media greatly facilitates students and teachers in the learning process. Teachers also added that using power points, screen recorders, live worksheets and Google Apps are very helpful in preparing the material so that it is easy for students to understand. The way to do this is to prepare the material into a power point then record it into a screen recorder and then change it into a youtube video and after that uploaded it to Google Classroom. The exercises are made in Ms word and then typed in google form before uploading them to google classroom.

The explanation above clearly shows that there is very careful planning in implementing the use of media as a strategy in online teaching and learning. The material that has been uploaded to Google Classroom can be accessed and downloaded at any time by students. To avoid boredom and keep students' enthusiasm in reading or following the material, the material is equipped with videos or pictures.

Communication with students is built and maintained through the use of communication media, namely WhatsApp groups. This application is useful for teachers to send text messages to students before the teaching and learning process. Students can also ask questions or inform obstacles or difficulties. Control toward the teaching and learning process is carried out by teachers so that students remain active in the online class process. The strategy used is to communicate everything with students before, during, and after the learning process. Regular meetings with students are held once a week or a month through Google Meet application to discuss material.

Teaching and learning is still carried out as usual by giving quizzes, assignments, or exercises after learning so as to help students understand the material presented by the teacher through learning videos. With quizzes and exercises after learning, students become more active in learning.

Evaluation of teaching and learning is also carried out as in face-to-face activity. What is interesting in this finding regarding evaluation is that evaluation is not only limited to learning materials but the teaching and learning process to be a reflection material for teachers to find appropriate and effective teaching strategies.

Regarding the advantages of online teaching and learning, the teacher said that 1) students can experience the learning process as if in a normal learning process when provided explanatory videos from home; 2) students have access to materials and exercise whenever

they can and want; and 3) students have the ability and access to valuable information or related materials, ideas, and exercises provided from google.

The statement above explains that the use of media as a teacher strategy helps students in the online learning process, where the media used makes it easier for students to communicate and in the learning process through WhatsApp groups, then the teacher provides material or assignments through Google Classroom in the form of text, video, or links. So students can easily access it.

Nevertheless, online learning that takes place cannot be separated from various obstacles experienced by teachers and students. The obstacles faced during the online learning process are:

1. Some students don't have android or laptops.
2. Students have problems with mobile data (internet quota).
3. Some students feel more comfortable learning face-to-face than through online learning.
4. Students experience boredom during the teaching and learning process.
5. Students tend to do the exercise before or without seeing the explanation in the video.
6. The tasks or exercises given are not done by the students themselves but by other people.

The obstacles experienced by the students above are also the teacher's obstacles because they feel that learning is not going well. Therefore, there are alternative solutions proposed by the teachers, namely: 1). Actively motivate students; 2). Mobile phone loan program from school to students; 3). Keep trying to make the online learning process interesting, fun, simple, efficient, and convenient for them.

The involvement of parents during the online teaching and learning process is one of the teacher's strategies to achieve learning goals. The approach with parents who can afford to lend cellphones to other students who are unable to have their own is one way. Approaches to parents are also carried out to control students in learning or completing assignments or exercises from school.

The presentation of the finding data clearly shows that there are roles from various aspects that contribute to the effectiveness of virtual classrooms. Based on this explanation, the findings can be observed from the pedagogical aspect, the use of technology, the aspect of resource readiness, the economic aspect, and the social aspect.

Pedagogical Aspects

The existence of technology should not replace the role of teachers or the functions of the school. The research data proves the importance of the teacher's role to continue guiding and directing students in learning. The data also shows how big the teacher's role is in motivating and encouraging students' interest in learning. Parents who were expected to guide their children to study at home did not carry their role well due to various busy work and others. On the other hand, children listen more to their teachers' instructions instead of to their parents. Another thing to be considered is that education is not only concerned with cognitive aspects but also psychomotor and affective aspects. These three domains must go simultaneously to achieve the goals of Indonesian education.

The COVID-19 pandemic is only an early warning towards a cultural transformation from conventional learning to digital. So, it's time to look back at the curriculum and learning design to be adapted to the demands of the times. All aspects required in education must be met even though the learning environment changes from a conventional classroom to a virtual classroom.

Technological Aspects

The presence of technology of all kinds has facilitated and allowed learning to take place even though conditions traditionally did not allow it. Research data shows the number of various media or applications that can be used for smooth learning. The use of technology in the virtual classroom really helps students learn more broadly and more varied. Students can learn from anyone, at any time, and anywhere without being limited by distance, space and time.

Whatever the choice of tool or application used, the existence of technology must be understood as an effort to increase the efficiency and effectiveness of the process in the educational environment. Technology was born and developed to solve problems faced in the world of education.

Another problem related to this technological aspect as described in the findings is the absence of an internet connection. Not all areas or regions can be reached by telephone or internet signals. This is a separate problem in the continuity of the teaching and learning process in a virtual classroom. Therefore, the intervention of government or industry, especially telephone service providers is urgently needed.

Resource Aspect

The COVID-19 pandemic has opened the eyes of every educational person about the readiness of human resources in the face of changing times. Research data shows that teachers have the ability to design and use available technology so that learning continues. More research is needed to see the level of readiness of human resources, both teachers and students as well as all people involved in educational institutions.

The readiness of these resources is not only for teachers but also for students. Observations made showed that not all teachers and students have the ability to operate technology with all its features. Therefore, it is time for technology to become one of the compulsory subjects in schools.

Economic Aspects

The economic aspect becomes the attention and important core to discuss related to this virtual classroom. Research data shows that students' inability to have or purchase technological equipment such as laptops and cell phones, and even the inability to buy internet quota are matters related to the economic aspect. The economic ability of each student in one class is very different between schools or between regions or provinces in Indonesia.

One of the strategies carried out by the school as described in the data above is the ability of educational institutions (schools) to provide technological equipment that can be lent to students. This program will help much, especially for those with this economic problem. Of course, this will also be difficult for certain schools that only depend on school operational assistance funds. Therefore, the intervention of external parties such as the industrial institution, companies, or parents of students who can afford it will be very helpful.

Whatever the strategy, it is important to think that the COVID 19 condition has made all education stakeholders realize that ownership of a cellphone or laptop is a basic need in learning. These technological devices have shifted the existence of books and stationery, even more important than school uniforms or shoes.

Social Aspect

No matter how convenient and good the technology is in communication and interaction, face-to-face contact is still fundamental for humans. Face-to-face interactions and

communication create emotional bonds between people and are of a much higher quality than the virtual communications and interactions inherent in most lines of technology.

Communicating and interacting without seeing each other or meeting each other is indeed very practical and effective, but it must be realized that humans are born as a society and must communicate and interact directly with the people around them to create a healthy and balanced social life that there is no social life that is selfish and individualistic.

Virtual classrooms can be designed in such a way as to be interactive, effective, and fun so that learning objectives are achieved. In such conditions, students will enjoy learning but are socially crippled because of the lack of togetherness with the theme. This principle must not be lost because it is replaced by technology. Learning technology should not create learners who tend to be individual. Therefore technology should only be considered as a tool in learning that should not shift the function and nature of the school as a whole.

Social integration between individual learners is created in schools. The inculcation of the values of the nation's diversity can be imprinted well on all students, through school regulations, activities, the school culture itself, or when they play together.

CONCLUSION

The existence of the COVID-19 pandemic has opened our eyes to the importance of mastering and using technology in teaching and learning. The availability of technology with its various features has helped the sustainability of the learning process in schools. Therefore, it is time for technology to become one of the mandatory lessons or a prerequisite subject in schools in order to prepare every graduate to go to a higher level of education or enter the world of work today which is all in digital mode.

This is of course not the responsibility of educational institutions alone but of all stakeholders. It is time for the school curriculum to be redesigned so that classroom learning designs can be adapted to the virtual classroom learning environment.

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