



Designing The Utilization of E-learning in Primary School Post COVID-19 Pandemic

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Abstrak

Seiring berjalannya waktu, Pandemi COVID-19 sudah mulai mereda. Dalam dunia pendidikan sudah mulai memberlakukan pembelajaran tatap muka secara langsung. Hal ini menjadikan bahwa pembelajaran berbasis *e-learning* ditinggalkan. Cara belajar dan proses pembelajaran telah berubah. Kondisi ini membawa pembelajaran ke era *e-learning* tetap menjadi fasilitas. Mengkombinasikan teknologi informasi dan komunikasi yang tepat merupakan salah satu isu penting dalam merancang *e-learning* yang baik. Penelitian ini merupakan penelitian deskriptif kualitatif. Teknik pengumpulan data dengan observasi dan metode kajian kepustakaan (*library research*) dengan prosedur pelaksanaan pengumpulan sumber-sumber data yang membahas tentang penjelasan, manfaat, dan keunggulan pembelajaran menggunakan *e-learning*. Hasil penelitian merupakan rancangan pembelajaran menggunakan *e-learning* mengacu pada konsep *e-learning*, pada empat kuadran seting belajar menurut Noord, dua kontinum strategi pembelajaran menurut Smaldino dkk., dan empat standar proses pembelajaran menurut Chaeruman, dengan lima tahapan yaitu; 1) Menentukan Kompetensi Pembelajaran; 2) Seting Pembelajaran; 3) Standar Proses Pembelajaran; 4) Strategi Pembelajaran; 5) Penggunaan LMS dalam Pembelajaran.

Abstract

Gradually, the COVID-19 pandemic starts to dissipate. The field of education has started to reimplement face-to-face education. This caused e-learning based lessons to be abandoned. The way the students study and the learning process have changed. This condition brought the continuation of education to the e-learning era as a facility. Combining information and communication technology appropriately is an important issue in designing a good e-learning. This research is a descriptive qualitative research. The employed data collection techniques are library research methods with procedures for collecting data sources that discuss the explanation, benefits, and advantages of education using e-learning. The findings is the learning plan utilizing e-learning which refers to the concept of e-learning on the four learning setting quadrants by Noord, two continuums of learning strategy by Smaldino et al., and four standards of learning process by Chaeruman, with five processes which are; 1) Determining Learning Competencies; 2) Learning Setting; 3) Standards of learning process; 4) Learning strategy; 5) The Usage of LMS in learning.

INTRODUCTION

The World Health Organization in 2020 released an announcement stating that the Coronavirus Disease 2019 (COVID-19) is a pandemic that has plagued the entire world (Sari &

Yuhendri, 2021.) Coronavirus Disease 2019 (COVID-19) pandemic greatly affects all fields, including the field of education (Anggrasari, 2020).

This condition inevitably made a change in the education system starting from primary school level to high school and university level which was previously carried out conventionally to digitally (Firmansyah, 2021). In order for the education in Indonesia to continue, the government stated that face-to-face education is changed to long distance learning, e.g. e-learning based education (Fadillah, 2021).

E-learning based education is learning activity between teacher and student both formally and informally carried out using information technology or electronic gadget, e.g. computer, handphone, internet, and etc. (Azrina & Latifah, 2020). The usage of the internet facilitated integrated long distance learning with online based learning (Khasawneh et al, 2016).

Previous findings stated that the usage of e-learning can increase the student's learning spirit and motivation which makes it effective to be implemented (Aris et al., 2019). Research finding from (Putri, 2019) stated that the usage of e-learning as an education media in the millennial era is intended to build and preserve the student's interest in learning. The other findings also stated that the usage of e-learning greatly helps students to study in any place and any time (Anitha Kumari et al., 2020).

Gradually, the COVID-19 pandemic starts to dissipate. The field of education also has started to reimplement face-to-face learning (Anggrasari, 2020). This caused e-learning based lessons to be abandoned. It is advisable that schools or even universities to not repeat the past practice, but to utilize this moment to adopt an e-learning system by utilizing Learning Management System (LMS). Perhaps there are already many schools that already understand how to implement e-learning during the learning and teaching process. However, is the implementation effective and efficient? What is the teacher's strategy in implementing e-learning by utilizing various applications to support the implementation process of education and building communication with the students and parents (Fadillah, 2021).

E-learning is essential to be implemented in school to support the teaching and learning process (Pradnyana, 2015). E-learning is essential to improve the student's absorption capability on taught material, to improve the student's active participation, to improve independent learning ability, to improve self learning, and to improve the learning material quality (Husnussaadah, 2021). Hopefully the effort can stimulate the growth of new innovation from teacher and student in accordance with each field.

Basically, both fully online and face-to-face learning each has its own strength and shortcoming. The shortcoming of online learning can be solved by the strength of face-to-face learning. The opposite is also true. The shortcoming of face-to-face learning can be solved by the strength of online learning. Therefore, the implementation of e-learning is more appropriate, especially in primary school, considering that face-to-face learning is still an obligation (Chaeruman, 2013).

However, e-learning is not able to be well implemented if the school is not utilizing enough Learning Management System (LMS). At the minimum, LMS accommodates and supports the learning and teaching process in school, e.g. able to carry out video conferences in one click, online and quick material and assignment sharing, online or blended class discussion, online quiz and exam.

Developing an LMS system will not only help in managing long distance learning options, but also support the education on campus. Numerous pieces of evidence have shown the benefits of adopting LMS in higher education both in terms of cost and time (Adzharuddin & Ling, 2013; Walker et al., 2016). LMS has proven its efficiency by helping universities to operate consistently and to ensure that students feel accepted during quarantine (Van Wingerden, 2021). The previous

finding showed that Learning Management System (LMS) as a learning medium in development in the highly practical category as learning media for vocational school (Septia, 2019).

The adaptation of LMS in primary school is an even more critical issue. Primary school education capable of providing e-learning infrastructure is the gateway in chasing the Global North dominated by the education economy. Investing in online education, where LMS became the main element, is a means to solve the accessibility issue (PhamDo et al., 2022). However, the portrayal of the LMS adaptation is not that optimistic.

In relation to the presented background above, we believe that it is important to research on how the learning plan using E-learning in primary school is for the teacher to formulate to prepare lessons utilizing the Learning Management System (LMS) post COVID-19.

LITERATURE REVIEW

Definition and Concept of E-Learning

E-learning started in the 1970s (Waller and Wilson, 2001). E-learning is a generic term which refers to the utilization of electronic technology in learning. Such terms are virtual learning, online learning, virtual class, e-training, and etc (Supriyanta, 2020). Stockley in (Chaeruman, 2013) explained that e-learning is a means to deliver a learning program or training using electronic means. The term e-learning is more appropriate to be referred to as an effort to make a transformation of the learning process in the school or university to the digital form bridged by internet technology (Munir, 2009).

E-learning has the characteristics of (Clark & Mayer 2008): 1) Has content that is relevant to learning objectives; 2) Utilizing instructional method, e.g. giving example and training to improve learning; 3) Enable elements of media, e.g. words and pictures to deliver learning material; 4) Make direct learning to centralize in the teacher (synchronous e-learning) or designed for independent learning (asynchronous e-learning); 5) Build understanding and skill related to the learning objectives both personal and improving the performance of group learning.

Definition and Component of Learning Management System (LMS)

According to Amiroh (2012) Learning Management System (LMS), better known as Virtual Learning Environment (VLE) is a software application which is used by teachers, both from university/college and school as an internet based online learning media (e-learning). Learning Management System (LMS) is an application or software which is used to manage online learning including numerous aspects, which are material, placement, management, and assessment (Mahnegar, 2012). Riad and El-Ghareeb (2008) in (Septia, 2019) stated that the Learning Management System (LMS) is a comprehensively integrated software suite with various features to publish and manage courses. LMS will automatically handle the features of course catalog, course publishing, assessment and quiz.

In the application process of e-learning, it requires LMS (Learning Management System) which functions to organize the management of learning applications in an e-learning model. LMS, also often known as CMS (Course Management System). Generally CMS is built to be web based, which will run in a web server and can be accessed by its participants through web browser (web client). The server usually is placed in university or other institutions which can be accessed anywhere by its participants by utilizing internet connection. Jason Cole (2005) in his book, Darmawan (2014), stated that generally the functions which must exist in LMS/CMS are:

- ☐ *Uploading and sharing materials.* Generally, LMS provides a service to help the process of content publication. Most teacher upload their lecture syllabus, learning material notes, assessment and student's articles whenever and wherever;

- ❑ *Forums and chats.* Online forum and chatting provides two-way communication between the teacher and the student both synchronically (chat) and synchronically (forum, email). This facility enables students to write response and to discuss with their peers;
- ❑ *Quizzes and surveys.* Online quizzes and surveys can be utilized to grade the students instantly. It is an excellent tool to use to obtain response (feedback) directly from the student according to their ability and their absorption capability. This process can also be utilized to construct a compilation of questions which all of the questions can be generated randomly to appear in a quiz;
- ❑ *Gathering and reviewing assignments.* This grading process and scoring to the student can also be performed online with the help of LMS/CMS;
- ❑ *Recording grades.* Another function of LMS/CMD is to automatically record a student's grade according to the configuration and settings set by the teacher from the beginning of the lecture.

Learning Setting

The following is the four quadrants of learning setting (Chaeruman, 2013) which is adapted from Noord in Staley (2007) as portrayed in the following diagram, as follow:

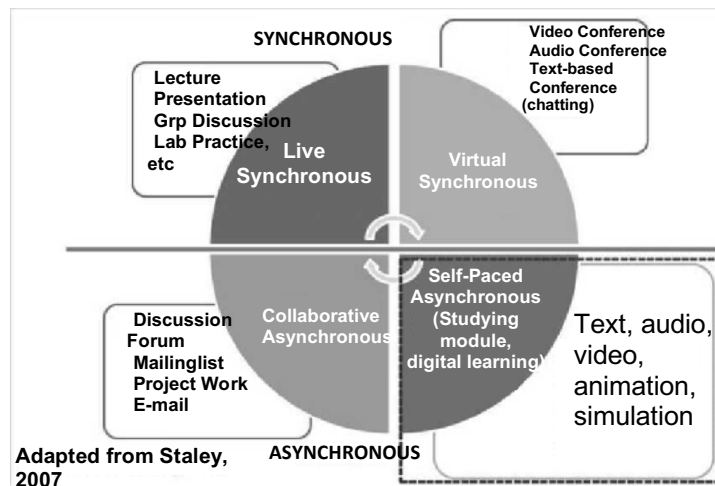


Figure 1. Four Quadrants of Learning Setting

Live synchronous; a condition where learning occurs at the same time and place. The dimension of space and time occurs at the same time. The example of a learning method that occurs in this context is lecture, group discussion, laboratory practice, field trip, and etc. In e-learning, it doesn't utilize this setting (except for blended learning programs), but setting in the next quadrant which is virtual synchronous.

Virtual synchronous; a condition where learning occurs at the same time (real time) at a place different to each other. In this context, learning occurs in the same time dimension, but different space dimension. The example of a learning method which occurs in this context is presentation, discussion, demonstration, tutorial, etc which utilized technology and communication tools like teletalk: video-conference, audio-conference, or perhaps chatting (text-based conference).

Self-paced Asynchronous; a condition where learning occurs independently, anywhere and anytime depending on each of the student's condition and speed of learning. In this context, learning occurs without being bound to time and space. It is more open and flexible through independent learning. For independent learning to occur, students are facilitated with digital

learning material or learning objects in different media formats whether it's based on text, audio, video, animation, simulation, games or a combination of all of them (hypermedia).

Collaborative Asynchronous; where learning occurs anywhere and anytime through the collaboration of two or more people. The example of a learning method which occurs in this context is discussion method, tutorial, and question-and-answer through online discussion forum, problem solving method, and collaborative learning through online mastery (online assignment).

The Standard of Learning Process

The preparation of learning material using e-learning should consider the e-learning Standard of Learning Process according to (Chaeruman, 2013) which is adapted from Horton in four phase:

- 1) Learning phase, which can be achieved through presentation and demonstration strategy which can be learned independently. In self-paced asynchronous, it is by learning digital learning material in the form of different types and media formats. This makes it possible to be learned anytime and anywhere;
- 2) Deepening phase, which can be achieved through demonstration, drill & practice and tutorial strategy both in the setting of learning, live synchronous (demonstration and live practice), or self-paced asynchronous (learning tutorial video or online drill & practice);
- 3) Applying phase, which can be achieved through problem solving and collaborative learning strategy which occur, in the setting of live synchronous learning or collaborative synchronous (through assignment);
- 4) Measuring phase, which can be achieved through learning result evaluation strategy which can occur in the setting of learning, live synchronous (performance assessment or pencil on paper test in the class) and occur in the setting of self-paced asynchronous learning (completing online test);

The relationship of the four learning phase with the strategy and learning quadrants according to (Chaeruman, 2013) can be seen in the following figure:

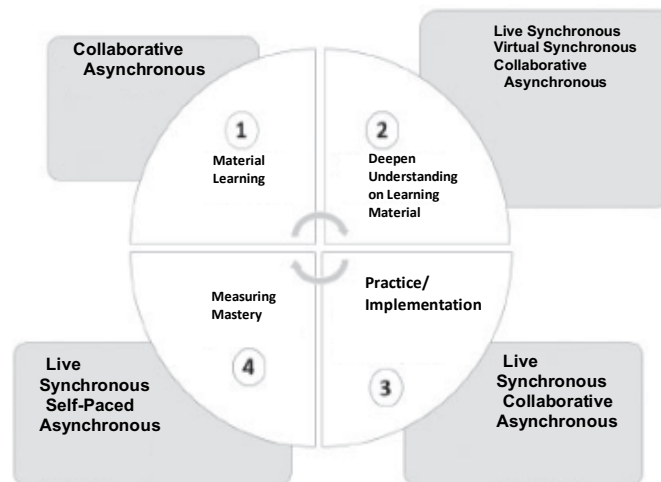


Figure 2. Standard of Learning Process

Learning Strategy

In this research, we referred to the classification of learning strategy by Smaldino et al. (Chaeruman, 2013) which divides them into two categories, which are learning strategy centered

at the student and learning strategy centered at the teacher (Smaldino, et al., 2008). The learning strategy and its implementation is portrayed in the following table:

Table 1. Strategy Learning

Strategy Centered at the teacher	Strategy Centered at the Student
Presentation	Discussion
Demonstration	Games and Simulation
Drill & Practice	Problem Solving
Tutorial	Cooperative Learning

Table 2. Learning Strategy in its implementation

Learning Strategy	Implemented when
Presentation	Student needs explanation in general;
Demonstration	Student needs observation process first before trying or implementing;
Drill & Practice	Student needs interview, to repeat, mimic, and practice;
Tutorial	Student needs special guidance in particular subject;
Discussion	Student needs to think critical, deepen concept or principle;
Games and Simulation	Student needs to review, implement and practice or apply the knowledge into a real situation;
Problem Solving	Student needs to practice implementing concept and principle to solve problem;
Cooperative Learning	Student needs to practice implementing concept and principle to solve problem;

METHODS

This research utilized qualitative descriptive research. Moleong (2010) stated that qualitative research is a research performed by collecting data on a natural setting and also naturally, which is performed by a naturally interested person or researcher. naturally interested. Descriptive research is performed by describing things which are natural concerning an unknown variable by data collection and then compiling a conclusion analysis systematically and accurately.

Afifuddin (2012) stated that literature review is an important tool as contact review in that literature is greatly useful and helpful in giving context and meaning in a writing and through this literature review, researcher can also states clearly so that reader can understand how the subject to be is indeed a problem which has to be researched, both in terms of the subject to be researched dan environmental aspect and in terms of the relation of the research to other relevant research.

Subsequently, researchers analyze obtained data from various related sources about the definition, benefit, and advantage of e-learning in primary school, so that researchers can draw conclusions of the problem studied.

RESULTS AND DISCUSSION

Therefore, in planning learning using e-learning utilizing Learning Management System (LMS), we suggest to consider the learning setting quadrants with reference to the selection of learning standards which is suitable to meet a particular competency wished to be achieved.

There is an example of a learning plan using an e-learning plan on mathematics in primary school. The following example was taken by us from mathematics which fundamentally already has the possibility of using LMS. Another extreme example that we have taken is from PE class which has an unknown possibility of having the possibility of implementing lessons using e-learning by utilizing LMS.

The probability of its implementation can happen in the context of live synchronous, virtual synchronous, collaborative asynchronous or self-paced asynchronous with all tools and information and communication technologies which are relevant. The final consideration is the situation and the condition both in terms of the student or the learning institution.



Figure 4. The Process of Learning Plan Using E-Learning

As an example, to reach the competencies in PE class, “Peserta didik mampu menjelaskan data yang berkaitan dengan diri peserta didik atau lingkungan sekitar serta cara pengumpulannya”, then several probabilities were obtained as in the following table 3 and of the many probabilities, considering the different situation and condition, we chose learning using e-learning which by utilizing Learning Management System (LMS) in the table 4.

Table 3. Method and Media to reach learning objectives in Mathematic

Objectives/Competencies	Learning Strategy			
	Live Synchronous	Virtual Synchronous	Self-Paced Asynchronous	Collaborative Asynchronous
Student is able to explain data related to the student or the surrounding environment and the method of collection;	Problem solving in the class in groups by analyzing data related to the surrounding environment and the method of collection;	Discussing case of data related to the student or the surrounding environment and the method of collection through video conference;	Studying examples of data related to the students or the surrounding environment and the method of collection in the form of text (pdf);	Completing individual assignment related to data with student or the surrounding environment and the method of collection to reach the set objective of the learning;

Table 4. E-learning combined with LMS on Mathematic

Objectives/Competencies	Strategy	Learning Setting	LMS usage
Student is able to explain data related to the student or the surrounding environment and the method of collection;	☑ Presentation;	☑ Live Synchronous: Case study in the class	☑ Uploading and sharing materials ☑ Quizzes and surveys ☑ Gathering and reviewing assignments
	☑ Demonstration		
	☑ Problem Solving;	☑ Virtual Synchronous: -	
		☑ Self-Paced Asynchronous: Deepening understanding of learning material	
	☑ Collaborative Asynchronous: Independent assignment		

As an example, to reach the competencies in PE class, “Peserta didik mampu memahami kombinasi gerak dasar jalan, lari, lompat, dan lempar melalui permainan/olahraga yang dimodifikasi dan atau olahraga tradisional”, then several probabilities were obtained as in the following table 5 and of the many probabilities, considering the different situation and condition,

we chose learning using e-learning which by utilizing Learning Management System (LMS) in the table 6.

Table 5. Method and Media to reach the learning objective of PE class

Objectives/Competencies	Learning Setting			
	Live Synchronous	Virtual Synchronous	Self-Paced Asynchronous	Collaborative Asynchronous
Student is able to understand the combination of basic movements of walking, running, jumping and throwing through modified games/sports and/or traditional sports;	Problem solving in the field by practicing the combination of basic movements of walking, running, and throwing through modified games/sports and/or traditional sports;	Presenting a theory about the combination of basic movements of walking, running, and throwing through modified games/sports and/or traditional games through video conference;	Independent practice of the combination of basic movements of walking, running, jumping, and throwing through modified games/sports and/or traditional sports in the form of video, animation, and simulation;	Completing individual assignment related to the theory of the combination of basic movements of walking, running, jumping, and throwing through modified games/sports dan/or traditional sports to meet the set learning objectives;

Table 6. The Combination of E-Learning with LMS in PE Class

Objectives/Competencies	Strategy	Learning Setting	LMS Usage
Student is able to understand the combination of basic movements of walking, running, jumping and throwing through modified games/sports and/or traditional sports;	☑ Demonstration	☑ Live Synchronous: Field practice	☑ <i>Uploading and sharing materials</i> ☑ <i>Assignments in theory</i>
	☑ Drill & Practice	☑ Virtual Synchronous: Learning material implementation	
	☑ Games & Simulation	☑ Self-Paced Asynchronous: -	
		☑ Collaborative Asynchronous: Theoretical assignment	

CONCLUSION

This research describes a lesson plan using e-learning by utilizing Learning Management System (LMS) for the possibility of learning implementation post COVID-19 pandemic. E-learning, basically, is to facilitate the occurrence of an optimal learning experience by utilizing the appropriate information and communication technology accurately to reach the learning objectives wished to be achieved. The said learning plan is separated into five phases, which are, (1) Determining Learning Competencies; determining learning competencies by observing the formula of learning objectives or competencies wished to be achieved. (2) Learning Setting; All aspects in the usage of e-learning can be facilitated by utilizing Information and Communication Technology appropriately in four learning setting quadrants, which are, a) live synchronous; b) virtual synchronous; c) self-paced asynchronous and d) asynchronous collaborative. (3) Standard of Learning Process; In the context of e-learning, learning experience can be optimized by utilizing four learning standard quadrants, which are, a) learning; b) deepening; c) applying; and d) measuring. (4) Learning Strategy; Experiencing learning is a process in learning. The said

learning experience can be endeavored through two continuum of learning strategy which are, learning strategy centered at the student (learner centered) and the learning strategy centered at the teacher (teacher-centered).

Determining the usage of Learning Management System (LMS). The first, second, third, and fourth point can be used as references for the usage of LMS.

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