ONLINE LEARNING MODELS IN THE ERA AND POST-PANDEMIC COVID-19

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Abstract. Pandemic COVID-19 has shifted education from face-to-face teaching to online-based distance learning. Educators must prepare strategic steps in responding to this transition to achieve learning objectives. To implement an online learning system, learning strategies and models that meet online learning demands must be made. For this reason, this study aims to analyze the online learning model in the era and post-pandemic COVID-19. Literature research methods are used in this study. Data sources were obtained by collecting relevant literature such as books, journals or scientific articles related to the topic: (i) Pandemic COVID-19; (ii) learning model; and (iii) online learning—analysis technique using content analysis. The results showed four appropriate learning models used in the online learning process: ICT-based learning models, problem-based learning models, blended learning models, and module-based learning models. The four learning models can support a distance learning system, increase student independence, improve digitalization skills and discipline, and increase student collaboration.

Keywords**:** COVID-19; Learning Model; Online Learning

I. INTRODUCTION

Pandemic COVID-19 has launched a digital revolution in higher education, thus bringing many important changes quickly (Stteelkowski and Wang, 2020). Digital tools emerge as a universal solution for education in carrying out learning in the COVID-19 era. Changes and rapid disorders caused by the spread of Pandemic Covid 19 that have never happened before continue to change learning and teaching activities from face-to-face to distance learning (Gemage et al., 2020). The quick steps of the government and other education organizers by adopting digital technology for learning strategies have led to significant challenges for students and academic communities (Pellyer et al., 2021).

Pandemic COVID-19 has influenced the current concepts, methodology, and learning strategies. Educators and students must accept changes in the traditional learning process into a new model. Teachers and students must be accustomed to new learning patterns, namely online learning. Online learning encourages teachers to think about and provide learning strategies and steps with student-centered learning styles. Creativity and effort are needed more than the teacher and students in constructing learning patterns so that they can run as they should, even by reducing contact between them.

Various digital applications such as Zoom Meeting, E-Learning, Google Meets, Webex Meeting, and Create Learning Groups on WhatsApp Groups are used to support the learning process. However, utilizing new technology is not enough to get good results in online learning. A new learning model is needed to follow the needs of teachers and students in online learning so that students can be actively involved and online learning can be carried out successfully (Peimani & Kamalipur, 2021).

Several learning models, including those based on information and communication technologies, problem-based learning, blended learning, and module-based learning have been applied to complement the online learning process. Several studies have demonstrated the great suitability of ICT learning models and blended learning for usage in online learning to enhance distant learning because a single online class will connect teacher and students (Shehzadi et

al., 2021; Al Rawashdeh et al., 2021; Singh et al., 2021). Nevertheless, because teachers cannot directly monitor students, this approach calls for students to have effective time management and competent technology usage abilities. In a similar vein, problem-based learning models and module-based learning are successful in motivating students to hone their problem-solving, cooperation, and critical thinking abilities (Jumadi et al., 2021; Yuan et al., 2020; Thamrin et al., 2022). Students can study freely from the provided modules and complete the activities on their own. This learning strategy will be challenging for pupils with limited talents and little enthusiasm for reading, nevertheless.

How well suited are the four learning models for online learning, according to the explanation given? The major goal of this research is to analyze the four models that were applied for online learning during COVID-19.

II. METHODS

The research method used is a literature review. A literature review includes theoretical research on some references that cannot be separated from scientific literature (Sugiono, 2012). Data collection is done by reading relevant materials such as books, journals, and scientific work on the following topics: (1) Pandemic COVID-19; (2) learning model; and (3) online learning. The instrument uses a checklist to classify research materials based on the focus of research, writing scheme, and research note format. The content analysis approach is used in the analysis. Examination of literature is carried out with simplicity and ease to avoid disinformation.

III. RESULTS AND DISCUSSION

Online Learning System

Over the past two decades, the potential and problems of online education have been actively studied and debated worldwide (Dumford et al., 2018). Given the rapid evolution of Information and Communication Technology (ICT), academic discourse and teaching education practices have changed significantly. Speed and strength of rapid communication technology and capacity building to connect space and time as a method of teaching and has been recognized can be a solutions to the online learning process (Garrison, 2011). Educators today need to pay attention to new ways to transfer knowledge to enable a learning environment that is more interesting, interactive, and, in reality, more effective (Mensan & Anagün, 2022). Okoye et al's research results. (2021) shows as many as 69.9% of students like Asynchronous learning techniques in online learning, according they can learn at their own speed, anywhere, anytime. Furthermore, 53.6% of those who learn in the synchronous format say that online learning motivates them because it allows them to keep following their lessons.

Online learning has been identified as an effective approach to improving the quality of learning (Beraya, 2018), allowing students to learn with their own speed, and giving them various possibilities to expand their knowledge.

However, if students and teachers cannot use technology or do not have connections and social involvement in online learning, this form of teaching will hurt student learning outcomes (Stewart & Bower, 2019). Teachers and students must be prepared carefully to carry out learning with confidence. Some studies have found that online learning is one of the best methods for applying knowledge in an emergency. COVID-19 (for example., Atsani, 2020; Magdalena et al., 2021). However, many internal and external aspects must be considered when applying online learning. Self-motivation, self-discipline, time management skills, responsibility, independence, and digital ability are all internal characteristics that teachers and students must consider.

This is because with online learning, students do not go to school to learn face to face but follow learning through internet technology. Strong self-motivation is needed because students learning motivation will decrease if they don't meet with friends. Furthermore, participation in online learning requires independence and time management skills. When students are at home, they often spend time resting, playing games, and socializing with family. Students unable to manage time and learn independently will inevitably fail to excel in the online learning process. To follow the online learning process, these two criteria are needed. The ability of digital technology is also a significant impact (Nguyen & Kieuthi, 2020). If students and teachers are not skilled in the use of digital technology, the online learning process will surely fail because digital technology media is the main media in the learning process in online learning.

In addition to internal considerations, external variables affect the implementation of online learning. Parent assistance, fast internet access with a good network, and learning facilities such as smartphones or laptops are just a few examples (Agormedah et al., 2020). If these criteria are met, online learning can be applied successfully. Based on the theoretical framework, it has been determined that online learning is the most optimal choice to carry out the learning process during the COVID-19 Pandemic period. However, the government, schools, teachers, and students must all be prepared for its implementation so that the learning process can run smoothly and successfully.

Literature on learning and online teaching in higher education has interested researchers in the Pandemic COVID-19 era. Dumford and Miller (2018) argue that students registered in online learning are often less involved in collaborative learning. In addition, the main challenge for online education is developing the quality of interpersonal skills, communication skills, maintaining the level of student activity, and using effective online technology (Griffin et al., 2018). Various learning scenarios and pedagogical models are carried out to overcome various weaknesses and limitations of online learning (Drone & Anderson, 2022).

In designing and preparing the best strategies for online teaching, teachers need to understand the best way to support innovative and collaborative learning and teaching activities, how to utilize effective technology, and what forms of technology can be used online for the learning process—

assessment Process (Whitford, 2018). Utilizing new technology is not enough; The new model must use tools and services to involve students at a deeper level (Peimani & Kamalipur, 2021). It also matches the results of other studies that integrating technology alone into the education system without being exposed to the appropriate learning process will negatively impact learning outcomes.

Designing an online learning model to support the learning process during the Pandemic COVID-19.

In designing and applying the online learning model, educators must pay attention to several aspects, including building an online learning environment that emphasizes learning's cognitive, emotional, motivational, and social aspects. Learning theory that emphasizes the activeness of students in the learning process, such as the theory of self - determination (Ryan & Deci, 2017), cognitive theory of multimedia learning (Mayer, 2005), and theory of emotional harmony values (Pekrun et al., 2007), and cognitive learning theory Social (Bandura, 1997) must be included in designing online learning models and strategies. The teacher needs to design online learning that will increase student participation in the learning process. Learning activities should be triggered by social problems close to students, so it is easy for students to accept and follow the learning process. Learning activities must enter various active teaching and learning methods. The teacher also needs to pay attention to the reciprocal aspect of students when they operate information technology in following the learning process. The teacher needs to pay attention to how students access the material and are involved in activities designed to develop their understanding before the class, and then use learning time to discuss and be involved in-depth with problems, ideas, and questions that arise (Farmer & West, 2019). The virtual learning environment requires understanding student profiles and uses cognitive, emotional, behaviour, and motivation information to negotiate meaning and solve problems collaboratively and constructively (Haugen et al., 2017).

According to ESH and Ghosh (2021), there are several important aspects of effective online education. First, recognize what students bring to online classes (background, needs, and interests) and what they take as relevant and meaningful results are important. Second, including collaborative discussions and small group assignments to create a "equal field of play" for disadvantaged students. Third, students must understand which behaviours help them learn and proactively apply the strategy. Awareness and knowledge of a person's learning process involve increasing metacognition - a key practice for students' independent learning. Fourth, by monitoring their own time and speed, students can control their learning and spend more time on unknown or difficult content. Fifth, direct feedback given in various ways in online settings is a very useful aspect of online learning. It is easier for students to contact the instructor or colleague via email/learning platform/chat. In addition, online tests and quizzes can be built with automatic assessment capabilities that provide feedback on time

(Dumulescu et al., 2021). Using multimodal materials can be used to increase involvement, autonomy, and self-regulation.

Analysis of the Learning Model during Pandemic COVID-19

The learning model used should support the online learning system and shape students' attitudes and skills in accordance with online learning demands such as disciplinary attitudes, independent, time management, digitalization skills, and collaboration skills. The COVID-19 situation that causes changes in learning patterns from face-to-face to online learning causes the learning model used by the teacher must also be adjusted to the conditions and situations that are happening. For this reason, there are several recommendations for the right learning model used in online learning to support a distance learning system and improve student digitalization skills. First, the Learning Model is based on Information and Communication Technology. In line with the criteria of students must keep distance (physical distraction) and apply learning at home, learning and communication technology (ICT) is one of the most acceptable choices (learning at home). ICT -based learning has many advantages, such as the ease of use and evaluation of education, interactive, more broad content, which can be done at a distance (Binyamin et al., 2019). In addition, the ICT -based learning model can also increase collaboration between students and educators, direct access to as learning resources, and improve digitalization skills (Talebian et al., 2014).

Schools and campuses must consider several factors in order to carry out ICT -based learning, including (i) the availability of ICT infrastructure, (ii) a system that supports the school or institution concerned, (iii) the ability of teachers to use ICTs; (iv) development of relevant content, and (v) ICT financing. Developing the ability to use ICT is very important for teachers and students if they pay attention to the points described above. This estimation is projected to increase in the post-COVID-19 pandemic, especially with school rules that must be changed to new normal standards.

Second, Problem Based Learning (Problem Based Learning) is a type of learning that focuses on problem-solving. The learning model teaches students how to solve problems scientifically by giving them instructions and procedures to be followed. PBL begins with a presentation of cases or topics for students to be debated. This learning model mainly helps students develop problem-solving skills; However, it can also be applied to conditions and contexts where students are present. Students can use the PBL learning model to explore, examine, and solve problems related to the stages of scientific activities (Hadi & Junaidi, 2018). The PBL learning model raises challenges that require advanced thinking skills to complete it. Thus, the PBL approach can help students produce new information and encourage critical thinking through various problem-solving techniques. Students can actively build thinking skills in problem-solving situations through problem-based learning based on constructivism (Kuvac & Koc, 2019). Learning will be more interesting and entertaining when

students are asked to examine problems because they will be more involved in the learning process, which will impact academic achievement and student learning success (Saputro et al., 2020). Problem-based learning has at least four characteristics, including student participation in planning the problem-solving process, investigation and investigation in obtaining the information needed, presenting findings, and analyzing. These four characteristics have a big impact on problem-solving. This technique has an advantage in encouraging students to obtain ideas, connect with difficulties, and solve problems systematically.

Third the Learning Model of Blended Learning. Blended learning combines face-to-face and online learning that utilizes technology (Dakhi et al., 2020). Blended learning combines various learning technology, including real-time software, online web-based learning programs, and other applications to support the learning environment and knowledge management systems (Lin et al., 2020). There are four learning concepts with the blended learning model, namely; (i) using a combination of web-based technology modes such as direct virtual classrooms, collaborative learning, video streaming, audio, and text; (ii) using a mixture of educational techniques, such as cognitivism, constructivism, and behaviorism, to achieve optimal learning with or without the use of technology; (iii) integrate all types of learning technology, including video cassettes, CD-ROM, web-based training, and film, with face-to-face instructions led by teachers; (iv) combining or combining actual learning technology to provide harmonious learning and work impacts (Abdullah, 2018).

Face-to-face meetings and 25 per cent for online learning, and pattern 25/75, which allocates 25 per cent of available time for face-to-face meetings and 75 per cent for online learning. Pattern 50/50, which allocates 50 per cent of available time for face-to-face meetings and 50 per cent for online learning, is commonly used, and 75/25 patterns, which allocate 75 per cent of available time for face-to-face. At present, the pattern is determined by the required competency analysis, the purpose of the topic, the characteristics, the learner's nature and skills, and the resources that can be accessed.

Blended learning is a very effective and efficient way to develop students' abilities. Student interest in learning increases when they are faced with various learning environments. Blended learning is more effective individually or in groups, and at the same time or differently (Serrano et al., 2019).

Fourth, module-based learning models. Module-based learning is a decent alternative in the context and post-epidemic COVID-19. The module is an educational material made by the teacher that functions as a student learning guide. Doing modules can be in the form of books but can also be in the form of electronic files such as PDFs or web pages. The lecture syllabus is included in the module, and teaching materials are delivered following the learning schedule for one semester. One of the typical module features includes questions that encourage students to think critically, analytically, and solve problems. The

constructivist method, where students must be able to develop creativity and new forms, is one of the strategies for implementing the learning module. Implementing module learning is a significant opportunity to be carried out if the above understanding is considered (Hidayati, 2020). Benefits and advantages of module-based learning include the ability of students to learn independently because of all instructions for implementing modules and detailed recommendations (Sungkono, 2012). In this situation, the teacher's task is to provide a complete and comprehensive module while students learn modules by module. To ensure that this module-based learning goes well, the teacher acts as a facilitator who provides an opportunity for students to ask questions.

IV. CONCLUSION

Educators must plan strategic strategies and initiatives in order to meet learning objectives and improve results. Pandemic COVID-19 has shifted education from face-to-face teaching to online-based distance learning. The results revealed that four different learning models are applied in online learning. These models can help a distance learning system and improve digitalization, discipline, and student collaboration skills. Researchers are expected to explore the right learning model for use in future online learning. This is to support changes in education in dealing with increasing technological and information advances. It is planned that future studies will focus on methods, techniques, and media that can improve the distance learning process.

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