

## VIRTUAL LEARNING ENVIRONMENT AS A LEARNING SOLUTION IN THE ERA COVID-19 PANDEMIC

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### Abstract

*Since the Covid-19 pandemic hit the world, various changes have occurred in the field of education. The most basic change is virtual learning. This research is a type of literature research. The purpose of research is to find the foundation to acquire and build the theory, frame of mind, and determine research hypotheses. This study is a qualitative descriptive study with the goal of describing, explaining, analyzing, and designing a virtual mathematical learning environment. Starting from definition, design, examples, and advantages as solutions in learning during the Covid-19 pandemic. The data used come from textbooks, journals, scientific articles, literature reviews containing the concepts studied. Data collection was carried out through study literature, interviews and questionnaires. Data analysis techniques are carried out by making notes, quotes, or information arranged systematically. The results of this study indicate that the need for the design and development of a virtual learning environment.*

### INTRODUCTION

The presence of many types of learning technologies such as multimedia learning, technology enhanced learning (TEL), computer-based instruction (CBI), computer-based training (CBT), computer-assisted instruction (CAI), internet-based training (IBT) and web-based training (WBT), allowing changes in techniques and methods in the classroom. When the 4.0 education revolution is established, this shift becomes absolute, and the current conditions of the Covid-19 pandemic are gradually "pushing" the 4.0 education revolution to materialize in Indonesia more swiftly.

The government has established a number of policies in response to the Covid-19 pandemic, including policies in the school sector. The government has developed legislation and several schemes, one of which is learning from home during the covid-19 epidemic, through the Minister of Education and Culture. This policy undoubtedly has a significant impact on the transformation of face-to-face teaching and learning in schools to teaching and learning at home. As a result, numerous educational institutions created different advances, particularly in the field of learning technology, in order to appropriately aid the teaching and learning process.

As previously said, government policy has shifted the system of learning activities from outside to inside the network. Some schools employ existing online education platforms, while others create their own. It is apparent that the present form of education has shifted from offline to online, which is, of course, highly reliant on internet connections. As a result of this occurrence, the notion of designing learning in the form of virtual learning arose, with the goal of achieving an effective and efficient teaching and learning process. The term "virtual learning environment" was coined as a result.

A virtual learning environment (VLE) in educational technology is a web-based platform for the digital aspects of courses of study, usually within educational institutions. They present resources, activities, and interactions within a course structure and provide for the different stages of assessment. VLE also usually report on participation; and have some level of integration with other institutional systems [1][2].

The use of VLE can provide motivation and encouragement for students, especially those who feel insecure about participating in class discussions and those who feel weak and left behind compared to other classmates. Students will get the same opportunity to express their ideas or critical thinking using VLE, and those who do not get the opportunity to contribute to class will feel appreciated by being given the opportunity virtually. In addition to providing equal opportunities for students to express their opinions, students are also given access to more intense interactions and complete discussions even though they do not participate at the same time [3].

At both the school and college levels, the Virtual Learning Environment (VLE) is a prominent application system concept in the usage of virtual learning that is integrated with classroom learning. The virtual

learning environment (VLE) has become a hot topic in education, where learning is no longer limited to lectures [4][5]. A Learning Management System is another term for a VLE.

By using VLE, students can acquire study materials themselves or ask for help with computer-facilities like computer-assisted learning or interactive web pages, synchronous and asynchronous teacher and tutor-assisted learning or learning with help from other learning resources like students and experts, e-mails, etc. Evaluation is carried out remotely through a computer and is open to students when they are ready to take the assessment.

## METHOD

The type of research used is a literature study. The literature study method is a series of activities related to the methods of collecting library data, reading and taking notes, and managing research materials [6]. This study is a qualitative descriptive study. The reason the researcher chose a qualitative descriptive research design was because the researcher wanted to describe the situation to be observed in the field more specifically, transparently, and in depth. Data collection was carried out through study literature, interviews and questionnaires.

Data analysis is the act of systematically searching and compiling data received through various data gathering techniques such as interviews, surveys, observation, and documentation such as video / audio recordings by organizing data, determining which ones are significant and examined, and drawing conclusions in a clear and understandable manner. Data collection, data reduction, data presentation, and generating conclusions and verification are the four stages of the data analysis process employed in qualitative analysis.

## RESULT AND DISCUSSION

### 3.1 The Pandemic Covid-19

The world must acknowledge that the Covid-19 pandemic is both a health and an educational crisis. In this period, mankind are compelled to coexist with Covid-19. The Covid-19 pandemic provides an overview of the future continuity of education in technology aid. This pandemic situation is a challenge for each person's creativity in developing a world of education using technology.

The pandemic challenge is not only the transfer of knowledge, but how to ensure that learning is properly conveyed, to develop creativity in use of technology. This challenge is also an opportunity to help students and students become experts for the 21st century by using technology. Self-direct or independent learning as an outcome of education is the most important skill in the 21st century.

The government's request that teachers prioritize student learning experiences over meeting curriculum goals can be viewed as a sort of crisis management rather than a response to the new normal period. If schools are to reopen, a policy based on an in-depth epidemiological analysis must also be created. For Indonesian families, virtual learning will undoubtedly be a safe option.

### 3.2 Learning Enviroment

Due to IT and communication technology, the learning environment has changed dramatically in the past 50 years [7]. A student's learning environment which refers to a variety of physical settings, contexts and culture. Examples include classrooms, workplaces, labs, museums, natural sites, transport facilities and homes. Most learning environments are deliberately organized or adapted for learning by adding materials, assignments, tests, feedback and support to certain learning objectives [8]. However, there are various types of education technology, such as multimedia learning, enhanced technology learning, computer-based training and computer-based training and training, internet-based training, online learning, virtual education and changing learning methods [9].

The learning environment is a space or state in which students are learning, using learning resources, gathering and processing information, and engaging with other students. 1) Classroom-based learning environments, 2) computer-based learning environments (computer microworlds), and 3) open-system learning environments based on internet (virtual) networks are the three types of learning environments [10].

In psychology the learning environment (learning environment) is highly complex, so efficient design and organization are needed to make the learning pleasant. According to [11], it is therefore essential to organize the learning environment, so that students can effectively build new knowledge and skills.

### 3.3 Virtual Learning Environment

The names VLE and LMS, according to [12], are strongly tied to their usage, specifically the use of training for personnel in firms or organizations, as well as education. While its use in an educational setting focuses more on the acquisition of knowledge and the application of critical thinking, LMS is developed for accreditation needs, specific professional certifications related to training on work process processes, and others.

The concept of virtual learning has its own advantages because it was established based on the notion of formal learning in general and applied to a 3-D virtual object system in order to transform the e-learning notion, which appears to be monotonous and connected with limits. Because, in the concept of virtual learning, teachers and students must work together to complete learning tasks, even if they are taking place in a virtual setting.

This Virtual Learning Environment (VLE) is an internet-based learning environment platform where the teaching team, academic administrators, stakeholders and students can interact and be involved in this VLE. Team Teaching can be done comfortably, because all teachers know what other teachers have done before, what discussions are about, things that are important are related to the material emphasized by other teachers and so on. This VLE resembles a real class or school, where students can freely navigate to get learning materials that have passed or are being actively discussed, can collaborate, can interact with other students, can take exams, can submit assignments and consult with teachers, and see their own real-time performance rate [13].

[14] claims that by allowing students to interact with the many learning resources available via the Internet, students' skills in lifelong learning will improve, and students will master responsible and professional communication skills through online conversation. According to study conducted by [15], students who are silent in class typically feel comfortable offering their opinions in online forums.

Virtual Learning Environment (VLE) is part of E-Learning, which is a type of learning environment in which educators and students collaborate and study online. Because all class information, learning resources, and assignments that must be completed, as well as the evaluation system, are all contained in the web, this virtual learning environment necessitates a particular website that may connect students with instructors and between fellow students.

In cyberspace, a virtual learning environment (VLE) is a computerized learning system, sometimes known as a virtual classroom or school. This service is provided by schools to aid teaching staff in the delivery of materials, the administration of tests, and the generation of score reports, as well as to familiarize students with the use of the Computer Based Test (CBT) system in teaching and learning activities [13].

The success of the virtual learning environment is determined by three factors: 1) the teacher has received suitable training in the use of a learning management system (LMS) or educational technology, 2) students have received proper study skills training, and 3) the school administrator has supplied a technology-based curricular structure and design.

Prior to the Covid-19 outbreak, schools primarily used technology as a substitute, to keep students from being bored with the lecture style. Schools, on the other hand, have had to make great jumps in adapting to distant learning. The teacher instructs, and the students follow him home to study. Unfortunately, necessary preparation and infrastructure, such as a reliable internet connection, a laptop as a learning aid, teachers who have completed their training term, and pupils who have been educated to learn independently, were not provided.

The development of the VLE is adapted to the school's specific functions and demands. The VLE system must have the following features: 1) it can be used offline, 2) it can be accessed from each computer lab, 3) it can conduct CBT simultaneously, 4) it can recapitulate exam scores independently, 5) it has its own error handling and storage mechanism, and 6) it can be managed by a single administrator [13].

VLE are supposed to support many 21st century skills, including: 1) Cultural and global awareness: Students have access to a wide network of people and information; 2) Self-direction: Students are able to work at their own pace; 3) Information and communication technology literacy: Students use technology to obtain and present information; 4) Problem solving skills: Students are required to demonstrate their knowledge and skills in order to be assessed, and they often participate in group thinking and discussion; 5) Time management: Students are required to meet deadlines [16].

In order to replace face to face learning, the concept of virtual learning was developed. In addition to improving the effectiveness and efficiency of training, the combination of face-to-face learning with the concept of virtual learning will increase the quality of learning. In order to support face to face learning,

virtual education was developed. Virtual learning can be used as the only distance learning process or combined with live learning.

### 3.4 Teacher's role in the VLE

[17] have identified 8 roles as VLE teachers: student teacher facilitators, mentors and advisors, researchers, student mastery facilitators of teaching materials, technology experts, learning designers and managers. In virtual learning students have extensive access to information through the global web (www). Wherever they want to, and whenever they like, students can find anything they want. This demonstrates that students have unlimited learning resources.

The teacher works with students who learn online. Because the teacher doesn't participate too much in developing the learning materials, the teacher uses time to interact with individual students. Students are required to learn independently when applying virtual learning.

In order to assist students in virtual education, teachers or tutors must master the skills of ICT to administer and facilitate virtual learning as well as master's subject matter and technical skills. The four major online tutoring roles suggested by [18] were: 1) Pedagogical/intellectual, teachers should be allowed to encourage students to participate actively in discussions on concepts, principles and skills that need to be mastered, teachers to open discussions, focus students on the material and subjects discussed, intervene to encourage interesting and productive discussion and support and to focus their discussions; 2) Social, requires teachers to develop an environment of friendly and amusing learning so they are confident that the message of learning can be mastered; 3) Managers/Organizers, require teachers to be able to set learning objectives, develop educational activities, plan learning activities and tasks, and clarify procedural regulations and decision-making standards; 4) Technical roles, teachers, ICT systems and online learning software should know, be comfortable and master.

### 3.5 VLE Design

The system proposed consists of three parts: a terminal for teachers, a terminal for students and a server. Teachers and students can use a visual app called singularity to access learning. As a terminally server access, the application functions as a Moodle-connected simulator, so that learning is not performed via direct access contents on the web server to the learning management system, but rather simulated. The teacher manages and supervises learning activities, such as the management of learning contents, the management of tasks/contents tests and the monitoring of each student's activities.

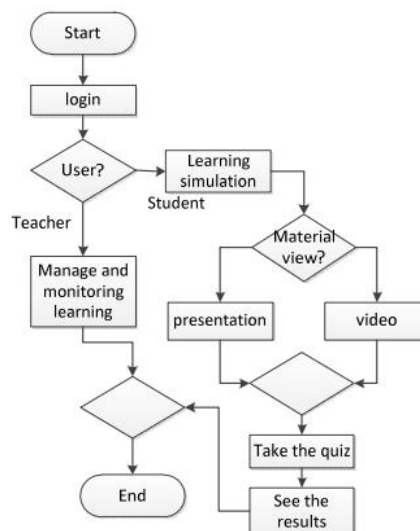


Figure 1. Learning Activity on VLE

## CONCLUSION

The influence of learning with a VLE is the emergence of learning awareness, the promotion of discipline and transparency, and the promotion of safe internet use to enhance the learning experience. Students can develop themselves independently by following the development of internet technology.

For teachers, discipline will manifest itself in the form of material preparation that is aligned with the lesson's target competency, as well as discipline in evaluating student work and performance, resulting in a knowledge of fair and objective scoring. By avoiding the usage of paper, the assessment process can be carried out in a more organized and environmentally responsible manner. The teacher also benefits from not having to sift through all of the student papers that have been handed in. Teachers and students' relationships can be strengthened through interaction in both the learning and assessment processes.

VLE is not without its flaws and challenges. Some participants believed that insecure internet network infrastructure remained a problem, particularly when utilized outside of town. Furthermore, many students still lack competence and confidence in utilizing the internet, reducing the usefulness of using the VLE. Teachers believe that using the VLE takes too much time, especially when participating in virtual discussion activities. Teachers must devote a significant amount of time to mastering and preparing for this type of online learning, and not all teachers have the same talents and dedication to handling online classes.

It will take time for the teacher to direct students to utilize scholarly and polite language in online discussion activities. Teachers can be misled by pupils who appear to be virtually nice when it comes to internet ethics. Although there are a number of negative consequences associated with the usage of VLE, the researcher believes that these issues can be resolved by giving enough supervision and training.

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