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Study of the implementation of online learning models in vocational schools

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Abstract. The development of education and technology can have a big influence on the quality of students and teachers in the development of the world. Models and media can increase effectiveness and creativity in the learning process. Especially, when discussing the learning process at Vocational High School (VHS) which requires a balance between practice and theory, interaction, and guidance needed by students. Increasing the value of student learning results and quality by utilizing online learning models in vocational high schools can be used as a reference for the successful implementation. The purpose of this study is to determine the application of online learning that is practiced from several perspectives, both in terms of students, teachers, or the media used. This research applied a literature review study by gathering information relevant to the topic and object of research. The analytical technique was carried out by describing the findings from various sources to answer the topic under study. The results showed the implementation of online learning models from the point of view of effectiveness, quality, ease of media, implementation and development, and effects of online learning. Thus, it can be concluded that online learning had a positive effect on the development of student learning.

1. Introduction

The development of education increasingly leads to the use of technology, in line with technological developments and internet network that has entered almost all regions in Indonesia. In various fields, it is not new to use technology to meet needs or assist in completing work. The development of education and technology that go hand in hand can have a big impact on the quality of students and teachers in facing world developments. The existence models and emerging media can increase effectiveness and creativity in the learning process.

Technological developments in education can be used to provide distance learning systems, such as e-learning models. According to Tigowati, the use of e-learning will facilitate the distribution of subject matter, assignments, and exams. E-learning can also be accessed anywhere and anytime using electronic media and an internet connection, making it easier for teachers and students in the teaching and learning process [1]. It is also line with Parikesit's opinion that e-learning helps the delivery of conventional teaching and learning processes to cyberspace or the internet. In the e-learning application, we can find features of virtual classrooms, video/live streaming, virtual whiteboards, virtual quizzes/exams, discussion threads, online questionnaires, online TV and various other supporting features [2].

However, technology-based learning is essentially a process of interaction between teachers, students and learning resources [3]. The existence of online learning in helping the process of interaction and



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communication between teachers and students is highly needed because most student behavior is currently dominated by the influence of technological advances [4]. Moreover, when discussing the learning process in vocational schools that requires a balance between practice and theory, students need interaction and guidance from the teacher in order to understand the material while achieving practicum targets. Increasing the value of learning outcomes and the quality of students by utilizing online learning models in vocational education can be used as a reference in its application. The success of this learning can also be seen from the results of the evaluation of the ongoing learning process. According to Widoyoko, the main benefit of the learning evaluation program is to convey program results and provide information to decision makers so that existing programs can be better and increase participation [5].

The application of online learning / e-learning has been widely practiced and has shown some satisfactory learning outcomes. This application can be seen from several points of view, in terms of students, teachers, or the media used. Online learning is almost used as a form of utilizing information technology. However, there are still some educators who are still hesitant about implementing online learning, either lack of understanding or lack of clear information. The purpose of this research is to see from various points of view towards the implementation of online learning. The findings obtained were expected to illustrate the implementation of online learning in various vocational high schools. For this reason, a study of the evaluation of the implementation of the online learning model in Vocational High Schools (VHS) was conducted in the form of collecting information relevant to the topic being studied in order to describe data and information in easy-to-understand sentences as an effort to get answers to the problems discussed.

2. Theoretical review

According to Musfiqon [6], learning is a process of fixing behavior to experience and training. So it may be interpreted that the aim of learning activities is a change in behavior regarding knowledge, skills, attitudes, and even covering all personal aspects. So it can be concluded that learning is a lively process, the method of reacting to any or all situations round the individual [6].

According to Darmawan, it's appropriate for existing educational institutions to immediately introduce and begin the utilization of knowledge and Communication Technology (ICT) as a more up-to-date learning base [7] considering that the employment of ICT is one in every of the important factors that allow the speed of the transformation of data to students, this nation's generation, at large. Haughey's opinion about e-learning is that there are three possibilities within the application of an internet-based learning system, namely: an internet course, the use of the net for educational purposes where students and educators are completely separate and there's no need for face-to-face; web enhanced course, the use of the net to support the advance of the standard of learning conducted in school; and web centric course, the use of the web that mixes distance learning and face-to-face learning [8].

According to Musfiqon, there are three main principles which can be used as a reference for teachers in choosing learning media, namely the principle of effectiveness and efficiency, the principle of relevance, and therefore the principle of productivity [6]. Additionally, another opinion by Arsyad (2013) states that media in broad terms can be referred to humans, materials, or events that build conditions that enable students to learn the knowledge, skills, or attitudes [9]. Hamdani states that learning media may help students improve understanding, present the data in a good and reliable manner, facilitate data interpretation, and condense information [10].

Divayana & Sugihani state that analysis is an activity to gather, understand, and report the results of study or a couple of particular program object in order that the results are often used for consideration in making a choice whether the program is sustained or stopped [11]. Student's satisfaction is employed mutually of the key elements for measuring online courses, while perceived learning is taken into account as an indicator of learning. Self-efficacy had the very best impact on perceived learning while learner-content interaction had the very best impact on student satisfaction. With the evolution of technology, it seems that students are now more willing to use and interact with technology to speak with others [12]. To get good evaluation results, evaluation activities must start from the subsequent general principles: evaluation mustn't be dispensed incidentally because education itself may be a

continuous process, in evaluating an object, it'll take all objects as evaluation materials, be fair and objective, and cooperate with all stakeholders, such as: parents of scholars, fellow teachers, principals, and students themselves [13].

3. Research Methods

This research was based on literature research as an activity of collecting information relevant to the subject used because the object of research [14]. Data collection techniques were applied by conducting studies on twenty-five national and international journals about online learning models or commonly referred to as e-learning (2015-2020). The information analysis technique used aimed to explain the information and data in easy-to-understand sentences as a trial to urge answers to the issues studied [15], associated with several evaluation studies of the implementation of online learning models in Vocational High Schools (VHS).

4. Result and Discussion

Online learning models aren't new within the world of education for several schools in cities. However, this is often still rarely found within the scope of regional schools. Internet networks and therefore the availability of facilities become obstacles to the applying of this learning, including an unfavorable environment. On the opposite hand, the employment of online learning models also helps the effectiveness of the educational process and teaches development and familiarizes students with the employment of technology. From the research results reviewed, each of them will describe the net learning process that takes place from various perspectives together with their analysis. The analysis is additionally to work out the evaluation of the implementation of online learning.

4.1. The Effectiveness of Online Learning Media

E-learning learning model was proved to be effective in improving student learning outcomes in Engineering Mechanics subjects. The views of teachers and students on the E-learning Learning Model developed were very effective in improving student learning outcomes [16]. Interest in learning and e-learning as learning media together made a significant contribution, interest in learning contributes to learning outcomes and e-learning as a learning medium contributes to learning outcomes [17]. Edmodo-based e-learning learning process was found to be more interesting and interactive for students and made classroom learning less boring. In addition, Edmodo-based e-learning has the advantage of not requiring formal classes in its application [18]. The cognitive learning outcomes of the Schoology-based e-learning method were found to be better than Edmodo, because Schoology is easily accessible. Students have a target value, understand more about the lesson and are more active during lessons which have an impact on cognitive learning outcomes. Student's motivation with Schoology-based e-learning was found to be better than classes with Edmodo-based e-learning because Schoology in Digital Simulation lessons makes learning more enthusiastic, happier and easier to learn anywhere so that they are more motivated to learn [1].

Similar to research by Şenyuva & Kaya, discusses web-based courses positively influenced nursing students' self-study readiness. In line with these results, web-based education was able to increase students' independent learning and readiness [19]. Vocational Learning and Blended Learning has integrated constructivism theory and evaluation theory into development content and learning materials to produce materials that meet the requirements of vocational students. This affected on how educators, students and their parents were involved in the participatory learning and teaching process. As a result, these changes mapped the direction of future learning in vocational colleges [20].

4.2. The Ease of Online Learning Media

A study of the significance of the factors that influence the use of e-learning with the Unified Theory of Acceptance and Use of Technology (UTAUT) model approach was used to explain and predict the factors that have a significant effect. The study shows that the Effort Expectancy and Facilitating Condition factors have a significant effect on Behavior Intention and Use Behavior. Thus, e-learning

media that student access is very easy to understand along with the support of the availability of facilities that contribute to the progress of student learning [21]. The e-learning system has good quality in terms of increasing system use, influencing the level of user satisfaction (information quality), showing the level of user satisfaction and there are benefits obtained by the user (use getting the benefits of the e-learning system (user satisfaction), and affecting the level of use and the level of user satisfaction of the e-learning system (net benefit) [22].

E-learning media practicality test results data from the teacher's responses to practitioner 1 and practitioner 2, explaining that the quality of learning and learning, techniques, content and objectives were considered as very good category, with an average of 88.66%. Meanwhile, in terms of student responses, it shows the similarity of the data results on the quality of content and objectives, techniques, learning and instructional which considered in the very good category, with an average of 88.66%. The results of the media effectiveness test data showed that there is an increase in learning outcomes by 35.49% [23].

The analysis carried out to measure the level of student acceptance of the e-learning system using the technology acceptance model (TAM) and a scale to determine the level of user satisfaction revealed that the acceptance of the e-learning system for perceived ease of use falls into the category of "satisfied" with a percentage. 80% and the perceived usefulness is in the "satisfied" category with a percentage of 80% [24]. Student satisfaction levels will be higher if students find that online course material helps them understand class content, stimulates their interest in the course, helps relate their personal experiences to new knowledge, and is easy to find and access. In an online learning environment, compared to a traditional learning environment, instructors can provide a variety of instructional materials through technology for students to interact with content; this includes reading interactive texts, watching videos, interacting with computer-based multimedia, using study guides, and completing assignments and projects assigned by the course instructor [25].

4.3. The Implementation of Online Learning

The main challenges for vocational education students are time management and also the environment. The involvement and support of peers and trainers appeared to be important for trainees and trainers and therefore the future system should investigate how scaffolding are often applied. This is the potential to scale back withdrawal, increase engagement, and motivation for trainees [26]. Communication between students and teachers features a basic effect on forming student perceptions and on online learning approaches. Another important finding is that course planning, assessment and curriculum played a fundamental role in concentrating students on coursework and success in online learning [27].

Teaching subjects in Vocational High Schools (VHS) required a particular strategy. The results are described as follows. First, interest and intranet/internet access because the main things needed within the main aspects of learning development are closely associated with the utilization of instructional e-learning. Second, a way to use equipment properly is that the main measure in evaluating performance shows that learning objectives should be spelled get in performance appraisals. Third, interactive learning is supported by the benefit with which students can access the net without limitation of space and time. Fourth, evaluation of instructional performance to stay learning and directing learning designs per learning objectives [28].

Construction testing shows that the e-learning media supported by expert judgment and the response from users resulted on a good construct reliability. Content testing shows that students who used Google YouTube class-based E-learning Learning Media have much greater learning outcomes than students who used the net to access websites without control [29]. Edmodo-based makerspace provides the advantage of distributing teaching materials, providing questions, providing topics for discussion in forums and might help teachers to facilitate students with different learning styles. Edmodo-based makerspace has proven effective in improving vocational student project management in an uncontrolled technology era. This is can be shown by the results of the final ability test which shows that the experimental class using Edmodo-based Makerspace is superior [30].

In addition to the above, the successfulness of the net testing evaluation program using the Android-based Moodle LMS were faced by several problems, namely: lack of a connector to assist charger Android phones and not lack of security access that blocks other websites and internet connections. The impact of the web exam program felt by schools is that teachers and students can save their time in implementing exams. The implementation of the Android-based online exam program might be said to be almost successful, but there's a desire for improvement in supporting facilities for the web exam program [31]. In a number of these studies, it absolutely was also found that the implementation of online learning wasn't optimal. E-learning programs do provide flexible teaching methods, but some have shown that e-learning alone did not transcend face-to-face simulations. E-learning and traditional teaching methods employed in conjunction with one another will create a superior learning style [32]. In contrast to this, Lou et al. stated that there is no significant effectiveness found when exploring the results of implementing a mixed teaching approach. Additionally, students within the mixed teaching group showed significant learning satisfaction than students within the traditional teaching group. Finally, a major difference was found in learning attitudes between the two groups of scholars [33].

Another alternative was shown in research that raised an idea adapted from the Wong and Law Emotional Intelligence Scale (WLEIS) and therefore the Online Learning Readiness Scale (OLRS) to check students' emotional intelligence as a determinant of their readiness for online learning. The results include: respondents showed relatively higher readiness for independent learning and motivation for online learning. Meanwhile, student preparation is lower in computer / internet efficiency, student comfort (in the net context), and online communication efficiency. Through multivariate analysis, it can be concluded that emotional intelligence bring a significant effect on students' readiness for online learning [34].

4.4. *The Development of Online Learning*

E-learning technology is capable of making truly innovative authentic learning tasks oriented towards compliance with K3 principles. The aim of education towards K3 with the assistance of e-learning is to supply students needing knowledge and knowledge, to develop habits for occupational safety [35]. In other fields, the utilization of blended learning for vocational-oriented pedagogy offers a model for integrating technology into learning and that we must remember that ideal acquisition always responds to needs in terms of pedagogical goals and methodological suitability. Blended learning fulfills non-pedagogical needs and is that the best method of learning where self-autonomy is important. English or German learners need a special way of learning an overseas language to figure through blended learning. This is often the longer term of foreign learning in today's digital, electronic, computer-based and internet world [36].

A. B. N. R. Putra et al. developed LMS technology using the Makerspace approach in unique experiments supported MCUs to test the product validation and the effectiveness of MOOCs products. The test results of every indicator have a percentage of: 85% (material novelty), 73.30% (material relevance), 82.70% (political), 75% (material validity), 82% (target suitability), 87.14% (product accuracy), 75% (functionality), and 81.5% (ease of access). This development has proven to be effective in increasing the professional competence of vocational students [37].

Wang et al. investigated the usability factors that predict future intentions to use cloud e-learning applications. During this study, five usability factors used are Computer Self Efficiency (CSE), Enjoyment (E), Perceived simple Use (PEU), Perceived Usefulness (PU), and User Perception (UP). The results obtained from this study shows that self-efficiency and computer enjoyment as intrinsic motivation significantly predicted continuity intentions, while perceived easy use, perceived usefulness and user perception weren't significant. These results implied that computer independence and delight significantly affect students' willingness to continue using cloud e-learning applications in their studies [38].

5. Conclusion

The application of online learning models is able to contribute in increasing interest, motivation, and influencing emotional intelligence on learning readiness, usage levels and user satisfaction levels. Self-efficiency and computer use satisfaction as intrinsic motivation significantly predicted continuity intentions. This convenience makes students more enthusiastic, happy and easy to study anywhere so that they are more motivated to learn. In addition, it also shows significant attitudes and learning satisfaction when compared to students who did not follow the online learning model. E-learning media can be maximally utilized along with the support for the availability, convenience and usefulness of facilities that contribute to student learning progress. Its beneficial application can support an interactive learning atmosphere between teachers and students. The application of the online learning model has proven effective both in terms of improving learning outcomes and from the point of view of teachers and students compared to classes that did not use e-learning. A positive attitude towards the internet also supports the success of learning activities. The examples of popular Learning Management System (LMS) based e-learning media are Edmodo and Schoology. Schoology is better than Edmodo because Schoology is easier to access, understand the lesson, has target values, and more active during lessons.

The communication between students and teachers has a basic effect in shaping student perceptions and on online learning approaches. Course planning, assessment and curriculum play a fundamental role in student concentration and success in online learning. For students, they need to pay more attention to aspects of time management and the environment, the importance of the involvement of friends, family and teachers in the learning process. The independence and ease of online learning affect the willingness of students to continue using e-learning media in the learning process.

Although this study discussed the implementation of online learning in vocational high schools, there are several obstacles that need attention. The ease of learning online will be hampered if it is constrained by internet network access and facilities provided by the school. The facilities provided are one of the main factors in the operation of the online learning model. The hope is that the school can pay attention to the supporting facilities needed. In further achievement, e-learning media can be developed and adapted into media that can improve competence and evaluate student performance that leads students to achieve learning goals. E-learning media can also be collaborated with other learning methods to create attractive learning styles, so that students can understand the subject matter presented.

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