Innovation of Vocational Technology Education

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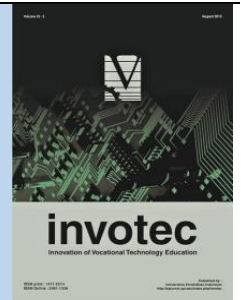
E-Learning Methods Impact in Vocational Education

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A B S T R A C T

The development of science and technology, especially in the field of information and technology, has helped and supported progress in all fields, including education. Learning processes that utilize technology and information in providing vocational education or E-learning is an important part. E-learning provides flexible space and time benefits for educators and students. This research is a literature review to understand e-learning systems in learning, especially vocational learning, which has various challenges and aims to deal with specific and technical abilities in each specific vocational field. The literature search strategy uses the search for articles published in national and international scientific journals. The results of research on e-learning indicate that the e-learning method is beneficial for every student and is very effective because e-learning provides space, time and cost benefits for students and educators. In addition, various supporting tools in the assessment of affective, cognitive and psychomotor aspects are available. Even the soft skills needed by vocational education students can be facilitated through e-learning. Optimizing e-learning will have a good impact on vocational education in preparing graduates who are ready to work.

1.   Introduction

The role of logic, especially in today's digital era, is at its peak as it does not only occur in Indonesia, but in the global context. Since the digital era has gone global, the role of education learning has become the lifestyle and needs of the world community. During the Covid-19 pandemic, the transition from real life to cyberspace really happened very rapidly. As this era is named the era of disruption, everyone will no longer be familiar with the name everythings is mobile. Along with the development of Science and Technology, especially in the field of Information and Technology (IT), nowadays it has penetrated into the world of education, especially in the learning process. With IT, all forms of difficulties or problems can be made easier and overcome to solve them. The learning process that utilizes IT is e-learning which can facilitate an effective teaching and learning process

in this case the learning process can occur without the teacher but students learn on their own (Cox, 2013). In the last few decades, e-learning has indeed become a method of learning and teaching that is so important at all levels of education units to higher education, vocational training and including in primary and secondary schools (Gros & García-Peñalvo, 2016). For e-learning itself, there are three process bases, namely mobile learning, social learning, and game-based learning (de Witt, 2012). That way, learning with the e-learning method refers to independent work or learning related to problems (Wang, 2018). This is what makes students try to find data and information needed independently (learning by doing). And then this research was conducted by adjusting the state of education during the pandemic which was completely online and had an impact on its implementation.

E-learning is defined as an instructional process that involves the use of electronic equipment in creating, fostering, conveying, assessing and facilitating a teaching and learning process where students are at the center and carried out interactively anytime and anywhere (Setiawan, Nurlaela, & Yundra, 2019; Setiawan et al., 2020). E-learning is a distance learning method that uses computer technology or has now shifted to learning using the internet. E-learning has made various formal and non-formal educational institutions, ranging from basic education to tertiary institutions. The benefit of e-learning is that it eliminates the need to travel to educational facilities, and allows the time, place, and spend of learning to be determined by the learner (Huchthausen & Droste, 2014).

E-learning has become a very popular choice in the world of 21st century education. E-learning is able to meet a variety of learning needs tailored to every level of education as e-learning makes it easy for a teacher to give lessons to students without being bound by space and time anymore. Students can receive course material anywhere and anytime at home, at school, and at work. Students can take advantage of the discussion forum to discuss remotely through the use of collaborative learning tools available on e-learning. From the learning itself provides effective learning activities for students as a training classroom and the power of learning can be felt after implementing it for about six to eight weeks of its implementation (Beinicke & Bipp, 2018).

This makes the implementation of vocational education must be able to adapt to the conditions and developments of the times. In the implementation of vocational education, e-learning has become an important part. Vocational Education focuses on achieving skills and knowledge necessary for the real world of industry. Over the years several things have been discussed regarding new technologies in teaching and how teachers can embrace them. The use of information and communication technology to encourage job skills is recommended. Even so, it turns out that there are still many companies—as a consequence of educated people in building the economy—who claim that their employees in small and medium enterprises do not have sufficient experience in using electronic media and have difficulty learning independently (Anneken, 2016).

To provide preparation for better educational activities by minimizing the risks provided by using e-learning, then the concept of blended learning can be used (Fleming, Becker, & Newton, 2017). Besides that, there are still teachers who are reluctant to accept and even learn to know

science as a new technology for learning to take place in the classroom (Callan, Johnston, & Poulsen, 2015). Therefore, the discussion of e-learning today and in the future is very relevant. E-learning provides flexible space and time benefits for educators and student. To provide preparation for better educational activities by minimizing the risks provided by using e-learning, then the concept of blended learning can be used (Sitzmann, 2015). Another obstacle lies in the level of teaching competence and the strong cultural tendency that affects it. Based on the existing constraints from the development of e-learning in the provision of vocational education, this research has the following objectives: knowing the effect of e-learning on the implementation of vocational education, know the pros and cons of enhancing traditional learning activities.

To improve students' ability to find their own learning styles as well as to distance teachers from conventional teaching methods using ICT. It can also be said that fewer students enroll in Vocational Education from year to year. So the research, design and development of the e-learning environment should indirectly contribute to good school publicity and increase the number of students enrolling in schools.

2. Methods

This study is based on Literature Review method, which is a research method that summarizes the results of primary research to present more comprehensive and balanced. The assessment is carried out with a focus on specific questions and the explicit scientific methods it uses to identify, select, assess, and summarize findings from other studies. There are 30 main articles that are used as references in the preparation of this journal. Starting from understanding, the beginning of its appearance, to the impact of its application.

Researchers of this study took a lot of data from a journal entitled The Use of e-Learning in Vocational Education and Training (VET): Systematization of Existing Theoretical Approaches (Belaya, 2018). The reason for choosing to collect more data taken from the journal is because the journal's discussion is very in-depth about the impact of e-learning implemented on the implementation of vocational education. In addition, the journal is also very relevant by discussing the possibilities that will occur in the implementation of vocational education in the future by applying e-learning methods that are growing due to technological advances. With the following research steps:

- Conduct a needs assessment to conduct a schematic review.
- Have a team to share research assignments, define research questions.
- Define eligibility criteria.
- Clearly define the source of the information.
- Select the appropriate literature, collect data, select data items.
- Summarize and synthesize.

In this study, the researchers used scientific publication with some keywords suitable in this study to find answer for this research question about e-learning method implementation in vocational education. It is known that vocational education has unique approach in the learning process to fulfill industrial needed in some demand qualification in each industrial sectors.

3. Results and Discussion

For now, based on the current situation and conditions, the implementation of education with the application of the e-learning method during the COVID-19 pandemic is popular. In another part of the world, namely in Jordan, there is a perceptive crisis of vocational education teachers of the implementation (Shdaifat, Shdaifat, & Khateeb, 2020). By proposing an e-learning method in delivering vocational education and training to students, it is necessary to develop this method to meet user requirements in three main areas, namely: devices, users themselves, and social technology (Azmi, Fadzilah Mat Noor, & Mohamed, 2017). This learning concept also increases learning motivation and success for the trainees. E-learning allows students to develop their creativity and offers innovative learning scenarios and didactic or media-based concepts that result in a transformation of a learning culture. The perceived advantage of e-learning is that it can overcome losses in an organizational context (Kimiloglu, Ozturan, & Kutlu, 2017). E-learning as a supporting tool in the learning process is growing because the application of these tools will greatly help both lecturers and students to be more interactive in delivering material and evaluating learning outcomes. Students are likely to have high self-discipline, such as time management and trying to concentrate. Pedagogical knowledge can independently control the learning process. In summary, E-learning has some approaches between individual, social, activity, goals, tools, place, time, etc. The main criteria in e-learning can used as bellow (See in Figure 1):
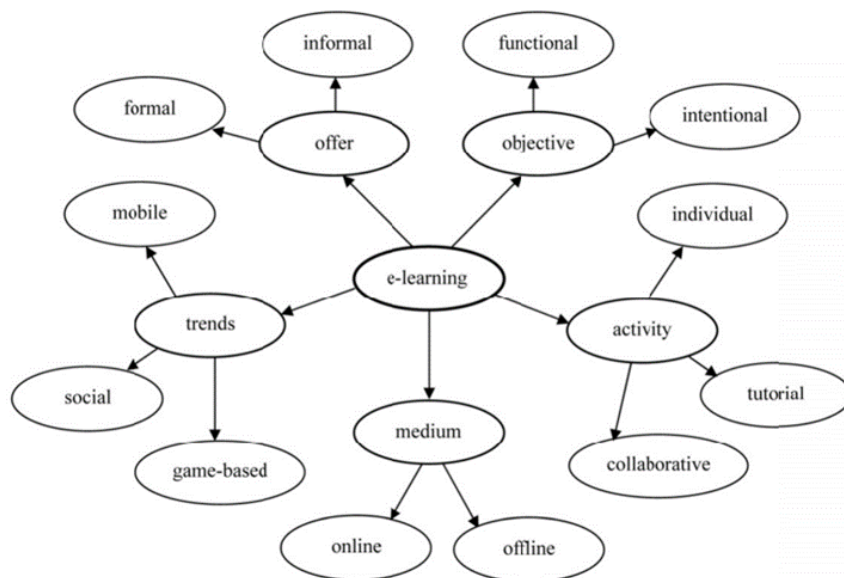

Figure 1. Classification of e-learning based on different criteria
Source: Belaya (2018)

Even so, it does not rule out that the negative impact of the application of E-Learning on the provision of vocational education will still occur. For students and educators, disruption during teaching and learning activities can occur more frequently than learning that is done directly in the classroom. There is also a risk that excessive use of computers and gadgets can lead to addiction and may lead to mental illness. Learning in a virtual classroom is different from studying in groups face-to-face because communication cannot be done privately. This causes students to be unable to develop their social skills and cannot get sufficient benefits from the dynamics of group activities. Even worse, it can make it difficult for students to acquire instability competencies which are very important competencies in vocational education that students must have.

These things are what make the mixed learning model or better known as blended learning more effectively applied, in which the e-learning model is only a complement to conventional learning activities. Blended learning is a learning approach that is integrated with face-to-face and experiential online learning (Van Niekerk & Webb, 2016). This learning model can overcome various limitations associated with online learning and face-to-face teaching. At the level of vocational education, which is said to require a lot of learning time to deliver material that is very effective in supporting the learning process. There is also the Moodle platform which serves a purpose. The platform exists in order to improve students' abilities to be able to find their respective learning styles and keep teachers away from conventional ways of teaching using ICT. This platform is the basis for e-learning research, design and development so that it indirectly contributes to a favorable view of the school. Through interviews, this view increases the number of students enrolled in the school.

In Technical and Vocational Education Training (TVET) that has more demand not only in affective and cognitive but also in psychomotor. In last research showed that that students know e-learning as a distance learning system in dealing with the current pandemic corona virus, 51% expressed agreement related to e-learning preparation, 38% stated neutral in e-learning planning and 68% stated neutral in evaluating the implementation of e-learning. Student assessment and good perception about e-learning play a big role in the implementation of learning with e-learning. E-learning has a positive impact and has become an alternative learning process for lecturers and students. Good preparation is needed in implementing e-learning so that e-learning activities can be carried out effectively. Interaction can be developed and limited conditions through face-to-face meetings can be answered through e-learning activities (Ana et al., 2020). Instructional design can be seen as a way to systematically create instruction to meet learning goals (Bofill, 2016). Three of the many eLearning theories that impact practice (behaviorism, cognitivism, constructivism) are used on a regular basis by professionals and all of them are concerned with how learners can learn. Lack of, E-learning in vocational education also can measure soft skills (Mustofa et al., 2020) that one of important skills to vocational education students have to face and fulfill industrial needed.

The standard of education has been more closely correlated with child learning than with the institutional dimensions of schools in both western and developed countries (Chavan, Yoshikawa, & Bahadur, 2013). The instructional model is a set of instructions or methods on which instructors'

teaching approaches are based. Efficient models of instruction are based on theories of learning (Khuana, Khuana, & Santiboon, 2017). Theories of learning explain the ways in which scholars agree that individuals learn new ideas and concepts. Instructional models prescribe how components of instructional strategy combinations should be integrated to produce an instructional course. These advantages include: (1) students can learn independently whenever and wherever they are without waiting for face-to-face learning in class; (2) fun and interesting learning for students through various features, display material, and videos; (3) students can practice as many questions as possible to deepen competence in the realm of knowledge; (4) students' lack of understanding can be directly addressed through the discussion feature between teacher and student and fellow students; and (5) the teacher can monitor the progress of student learning through student statistical features (Putra, et al., 2019).

4. Conclusion

E-learning method is a learning method that utilizes technological developments for the implementation of teaching and learning activities. In this case, the implementation of vocational education has made e-learning an important part of the teaching and learning process. There are also positive and negative impacts. The positive impact of the application of the e-learning method in vocational education is that it provides space, time and cost benefits for students and educators. While in terms of its negative impact, the e-learning method can cause technical problems that are different from the implementation of traditional learning to cause mental disorders because many use electronic devices such as gadgets. Based on the results of the interviews with students in the articles we studied, it can be stated that they believe that using the Moodle platform they will be able to improve their learning skills and knowledge. They also said they were more motivated and interested. They hope that over time more teachers will start using the platform. In implementing this platform, each student can find their own learning method and their own learning style. Especially, in vocational education can help to learning process more effective and useful for vocational education students in the middle of industrial 4.0 era and it will be a primary tool in the future.

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