

# Vocational School Teachers' Perceptions of E-Learning during COVID-19

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**Abstract:** The purpose of this study is to obtain data from vocational school teachers about their perceptions of e-learning learning activities in facing the COVID-19 pandemic. Respondents are vocational teachers who conduct learning activities using e-learning. This survey uses a questionnaire that consists of teacher knowledge of e-learning, the preparation, the application, and evaluation of learning using e-learning. This research is descriptive with a survey method. Researchers distributed questionnaires to vocational high school teachers in West Java using Google Form from September to October 2020. There are 15 vocational schools with a total of 82 teachers. After that, the researchers analyzed the collected data. The results show that vocational school teachers perceive e-learning learning as a learning medium using the internet network. Furthermore, for the perception of vocational school teachers in preparing for e-learning learning, 60% state that they do not encounter problems, 71% of teachers mention it is easy to implement. However, as for the perception of vocational teachers in the e-learning evaluation is 73% state that e-learning still consists of learning content that is difficult for students to understand. The findings show the necessity of vocational teachers to have sufficient preparation when implementing e-learning to achieve the learning objectives.

**Keywords:** Vocational teachers, E-learning, Perception

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## 1. Introduction

With the emergence of COVID-19 in early 2020 in Indonesia, nearly all community activities have changed including in the world of education (Sangswang, 2020). One of the fundamental changes is in the way teachers teach. Teachers usually teach traditionally without using digital technology and internet access. However, currently, all teaching activities with internet access are accompanied by digital technology. In this condition, teachers must adapt to digital technology, regardless of their low abilities in using digital technology (Anggraeni et al., 2020).

Rapid adaptation to these switching teaching methods also requires teachers' readiness in using technology and many female teachers are still unconfidently using it. The research results show that the gender variable affects the level of literacy. Digital male teacher candidates and the variable of digital literacy levels majoring in computer education and teaching-learning technology are found to be high. Besides, the digital literacy level of prospective teachers who have an internet connection or a computer that can continue to be used is still high. Besides, the study found that prospective teachers' income levels do not affect their

digital literacy levels. So, the use of learning models using e-learning also greatly affects the ability of teachers in the application of learning using e-learning (Widiaty, Riza, Abdullah, and Mubaroq, 2020).

Using e-learning for teachers takes time to get used to utilizing it because e-learning is a technology that should make learning and teaching easier and more time-efficient. However, teachers still find it difficult to make good use of this technology. So, many of the teachers cannot implement e-learning properly. Therefore, teachers must have digital literacy skills, including readiness to learn e-learning so the 21st century needed skills through a digital literacy framework can be achieved (Saripudin, Sumarto, Juanda, Abdullah, and Ana, 2018).

Furthermore, teachers feel that during the COVID-19 pandemic, internet access facilities are still limited. Most teachers access the internet using cellphones at school because there is no internet facility at home (Saripudin, Sumarto, Juanda, Abdullah, and Ana, 2018). The government policy encourages teachers to continue teaching so internet constraints also affect teachers in providing educational services to students (Ana, 2020). Besides, teachers' internet access is also influenced by the location of the teacher's residence. Teachers live in rural areas and urban areas, therefore, this condition affects teachers' internet signal. Teachers' digital literacy levels are analyzed in terms of sustainable Internet connection. Teachers who have stable Internet connections have higher digital literacy levels.

Another challenge is the devices that teachers should have in e-learning such as computers (Saripudin, Sumarto, Junala, Abdullah, and Ana, 2020) and materials that must be prepared. There are still many teachers who do not have computers. Besides, schools also do not have computer facilities that they can use teaching. The aforementioned problems will impact on the quality of learning.

Also, in e-learning, the teacher must prepare teaching materials that are accessible to students. The ability of teachers to prepare e-learning requires a lot of time and skills, starting from accessing the internet, entering material in e-learning, and managing e-learning. Despite the current conditions, the conducted e-learning must be continued, this should not be stopped. This change has occurred due to the COVID-19 pandemic, and teachers address the change differently. Being based on the aforementioned, this study intends to explore the vocational teachers' perceptions of e-learning.

## **2. Theoretical Framework**

### **2.1. 21<sup>st</sup> Century Vocational Teacher Professional Competencies**

The quality of the learning process also depends on teachers who have supportive professional competencies. Teacher professional competency is needed in the learning process to produce a pleasant classroom atmosphere. This can motivate students in learning and improve student achievement because professional teachers are not only teaching but can implement learning strategies and present creative and interesting learning materials that are not only oriented towards learning completeness but on the development process of the potential of students which includes cognitive, affective, and psychomotor aspects.

Professional teachers with the challenges of the 21st century in the future must also have the skills needed by workers in the 21st century which is the use of digital technology to support learning. In the Regulation of the Indonesian Minister of National Education No. 16 the year 2007 concerning teacher qualification and competency standards, it is stated that the professional competence of teachers includes mastering the material, structure, concepts and scientific mindset that supports the subject that is taught, mastering competency standards and the basic competencies of the subject or field of development being managed, developing creative learning materials, developing professionalism sustainably by taking reflective action, and making use of information and communication technology to communicate and develop yourself.

Thus, in improving vocational teachers' professional competence, analysis of the teachers' needs is needed to develop their potential professionally to improve the quality of teaching in schools. A teacher as an educator is in charge of organizing learning, providing assistance to students, increasing student competencies, and providing an understanding of the material studied in the academic field. Therefore, teachers' competencies can be interpreted as the maturity of knowledge, skills, and behavior in the form of intelligent action and full responsibility in conducting duties as an educator, including that the teacher has matured personal character, general knowledge, field knowledge, and professional-pedagogical knowledge in teaching.

### **2.2. Teachers' Perceptions of e-learning**

The rapidly growing advancement of digital technology has a very significant influence on the world of education today. On the other hand, the change in the educational paradigm from teacher-centered learning to student-centered learning has brought a profound change to the currently developed learning methods. Learning that used to be more of a lecture and one way from students to teachers has become more dynamic. Teachers as subject instructors have

changed their function as facilitators in learning (Saripudin, Rohendi, and Abdullah, 2020).

The e-learning system, which is a learning aid, is one of the most effective media for conveying knowledge. Thus, school support directly affects teachers' use of digital media. ICT is a globally recognized tool that needs to be fully incorporated into all fields of education, especially vocational education, given that the complexity of this technology continues to evolve and one of which affects the growth of human resources (HR), industry and people in both the public and private sectors, therefore, needs to be applied in practice. Teacher components are trained to use ICT technologies to promote ICT literacy in vocational schools.

E-learning cannot be separated from the definition of e-learning itself. E-Learning is defined as web-based distance learning using computer technology or usually using the internet. E-Learning is a form of a distant learning concept. The form of e-learning itself is quite broad, a portal that contains scientific information which can be said to be an e-learning site. So, e-learning or the internet enables learning to combine teaching methods and technology as a means of learning.

There are three functions of electronic learning (e-learning) in the classroom (classroom instruction), namely as a supplement which is optional, complementary, or substitution. The alternative learning model that student would choose is not an issue in the assessment. E-learning facilitates interaction between students and subject matter/material. Thus, in e-learning, there is a dynamic interaction between students and teachers. Students can share information or opinions about various matters relating to lessons.

Various types of e-learning have emerged, such as the Learning Management System (LMS) because of the importance of e-learning in the 21st-century learning conditions. This LMS is a website-based integrated learning management system. In its development, it requires resources that know about the operation of this e-learning system. There are many kinds of LMS used so far, starting from Moodle, Claroline, ATutor, and eFront.

Digital learning applies a learning system that does not take place in one place, so there is no face-to-face interaction between the teacher and the learner. The interaction between teacher and learner can be done, either in synchronous or asynchronous interactions that can be done include direct interaction or online meetings, real audio or real video, and chatrooms. Meanwhile, asynchronous interaction can be conducted by mailing lists, discussion groups, newsgroups, and bulletin boards. There is an interaction between teacher

and learner that can replace direct face-to-face interaction, although not entirely. This interaction is very possible to do by using various kinds of learning media so it is easily accessible for learners in getting learning materials or other information, such as computer media technology with the internet.

Furthermore, there is an increase in learning outcomes after treatment with Edmodo-based e-learning media and improved learning outcomes. In line with the research above, distance learning requires learning media. Learning media can be used as a learning aid that can be accessed anytime, anywhere in the network (online), one of which can use the Edmodo application as a tool. Edmodo application is a learning aid that can be used by teachers and students. Edmodo application is a microblogging platform created to be developed and designed specifically for teachers and students, so they can communicate and collaborate on various content in the form of video, images, links, text, and audio.

There is a difference in students' learning achievement among students who have high learning independence when students learn using the blended learning model and the conventional learning model. Thus, students with high independence who take blended learning using Schoology tend to learn better and will always compete to show the best results. Students use e-learning with the Google Classroom application in their research using the Importance Performance Analysis (IPA) method to determine the level of importance and the Customer Satisfaction Index (CSI) method to know the level of user satisfaction. The results of the research based on the scientific method have a score of 98.53% conformity level and from the Cartesian diagram of 10 attributes. Two attributes require improvement, namely fast attributes in distributing documents/materials and sharing learning materials. Meanwhile, the CSI results based on the attributes used to determine the level of satisfaction of educators using google classroom resulted in 74.75% in the "satisfied" category. Based on the results of these categories, it shows that the use of e-learning by utilizing the Google Classroom application supports teaching and learning activities in schools.

Likewise, teachers' views on the use of ICT show that teachers have a positive of its use in learning (Yannuar et al 2018). The conclusion that resulted from this study is the use of ICT to help teachers become more effective in teaching in the classroom and can improve student learning.

### 2.3. Content of e-learning

Besides, the content of e-learning must look at the characteristics of students. Preparing the digital content formulas and digital learning need to pay closer attention to

the characteristics of learners, environment, and culture (Munir, 2017). Digital content will be useful if it acts as part of a learning system. Learning becomes better because digital content can display a variety of interesting media. User skills in using digital content are one of the characteristics in determining the success of learning. The software provided for learning needs with digital content such as multimedia, e-learning, and teleconferencing is made as user friendly.

Likewise, the content in e-learning is different from books, which are only in the form of text and images. The content in e-learning which is widely developed in this digital era is in the form of learning media such as text, graphics, audio, video, and animation as a learning resource. To integrate text, graphics, audio, and video learning media, it is necessary to design in such a way that learning is more interesting from the material sources that have been prepared through the Learning Management System (LMS). In addition, there are methods used to build e-learning content, namely the prototype method and application software used for creating interactive content including Microsoft PowerPoint which contains text, video, flash animation, narration, and the Wondershare Quiz Creator application software for creating interactive questions. To measure the result of the e-learning content, tests are conducted using a questionnaire and several sample questions in the form of interactive media applications. The test results will show how much interest and understanding of the e-learning content that has been designed.

### 3. Methods

This research method uses a quantitative approach. Respondents in this study are teachers in 15 vocational schools in West Java (<https://dapo.dikdasmen.kemdikbud.go.id/>) who conduct learning through e-learning. The purpose of this study is to obtain data from vocational teachers about their perceptions of e-learning activities during the COVID-19 pandemic situation, by agreeing/disagreeing, being satisfied/dissatisfied towards the attitudes, opinions, behaviors, or characteristics of this research. This research was conducted from September 2020 to October 2020.

The research instrument used in this study is a questionnaire. The first stage is compiling the questionnaire instrument that would be used for data collection. The information includes knowledge of e-learning, preparation for e-learning, application, and evaluation of learning using e-learning.

The questionnaire then develops using a survey method with a Likert scale. The Likert scale survey has the following options; Strongly Agree (SA), Agree (A), Disagree (DA),

and Strongly Disagree (SD). So, researchers can easily find out whether a respondent answers earnestly or carelessly, the questionnaire should be based on positive statements and negative statements. For positive statements, the answer scores are as follows: SA = 4; A = 3; DA = 2, and SD = 1 and as for negative statements the scores are the opposite.

Furthermore, the stage of verifying the validity of this instrument is taken by asking an expert in the field of vocational and learning at the Universitas Pendidikan Indonesia to validate the questionnaire. The trial is conducted with 31 vocational school teachers, who are not included in this study. The reliability of the instrument uses Cronbach's alpha coefficient with a level of reliability of 0.923.

Researchers distribute questionnaires randomly to 15 vocational schools in West Java using Google Form. The Google Form collects 82 respondents who fill out the questionnaire. After that, the researchers use Microsoft Excel to analyze the data obtained from the questionnaire and present it in the form of tables and diagrams to determine the tendency of teacher perceptions about e-learning learning during the COVID-19 pandemic (Mulyanti, Purnama, and Pawinanto, 2020).

### 4. Results and Discussion

The survey is collected from 82 vocational teachers from 15 vocational schools in West Java. Figure 1 shows the teacher data by gender.

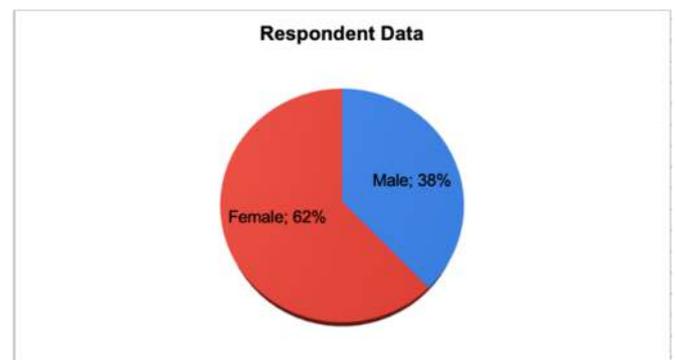


Figure 1. Distribution of Vocational School Teachers by Gender

Figure 1 above shows the respondents in this study are 62% female teachers and 38% male teachers.

Figure 2 illustrates the age distribution of the 82 teachers surveyed. Most of the respondents are teachers aged 17-31

years (24%), and over 52 years (6%). The data obtained through a questionnaire, are presented based on the instruments developed in this study as follows.

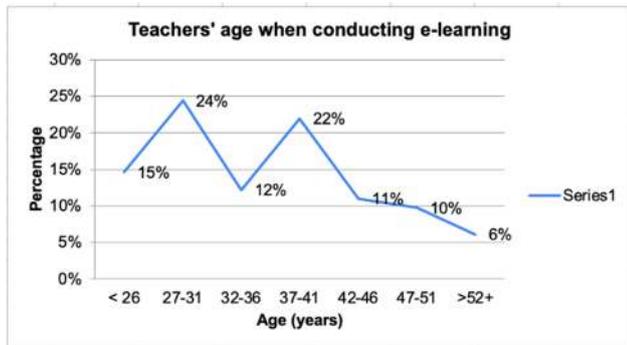


Figure 2. Distribution teachers by age (years)

#### 4.1. Opinion of Vocational School Teachers on e-Learning

Based on questionnaire data from 82 respondents on the perceptions of information about e-learning is shown in Figure 3 as follows.

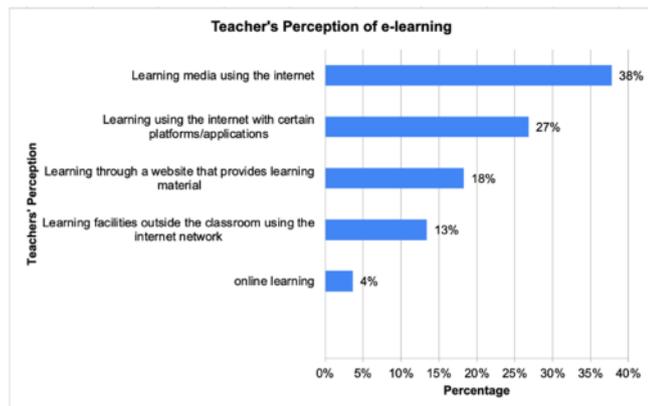


Figure 3. Vocational school teachers' perceptions of e-learning learning

Figure 3 displays that 38% of vocational teachers state that e-learning is a learning medium using the internet while 27% of vocational school teachers state that e-learning is learning using the internet with digital technology. Furthermore, 18% of teachers state that e-learning is a website that provides learning materials and 13% of vocational school teachers state that e-learning is a learning tool using the internet outside of the classroom, and the remaining 4% state that e-learning is online learning applications.

Based on the perception of vocational teachers in Figure 3, it can be concluded that vocational teachers define e-

learning as learning that is conducted via the internet network, both in the access to learning materials, collection of assignments, and discussions. This opinion is following the definition of e-learning, namely in e-learning between learning providers (teachers) and students who are separated by the virtual world. However, e-learning is inseparable from the application/software used by the teacher and the types of e-learning platform used when the research is taken vary as seen in Figure 4.

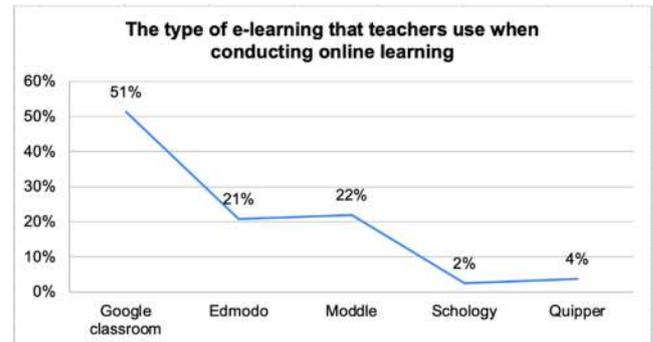


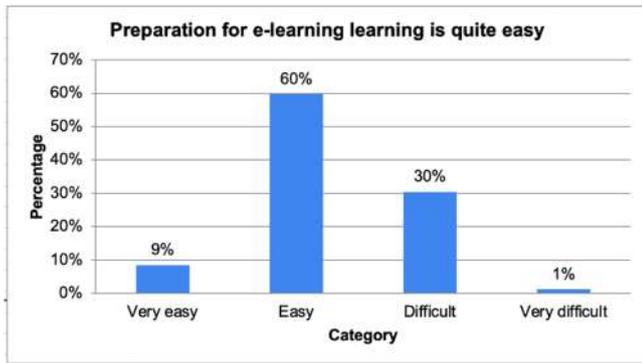
Figure 4. The E-Learning Platform used by vocational teachers (n = 82)

Figure 4 describes that teachers use applications in e-learning learning. 51% use Google Classroom application, 22% use Moodle, 21% use Edmodo and 4% use Quipper, and 2% use Schoology.

Based on the results of the findings above, the majority of teachers use the Google Classroom platform. The use of the Google Classroom platform is more effective than Schoology in learning. This research shows that teachers can use Google Classroom and Schoology as a learning innovation. However, it needs preparation supportive facilities and infrastructure so it can be implemented effectively. The use of Google Classroom and Schoology is expected to be used as further references. Besides, teachers who use the Google Classroom platform with the Customer Satisfaction Index (CSI) method produce 74.75% in the "satisfied" category.

#### 4.2. Findings of Vocational School Teacher E-Learning Preparation Results

The results on the aspect of e-learning learning preparation are shown in Figure 5.

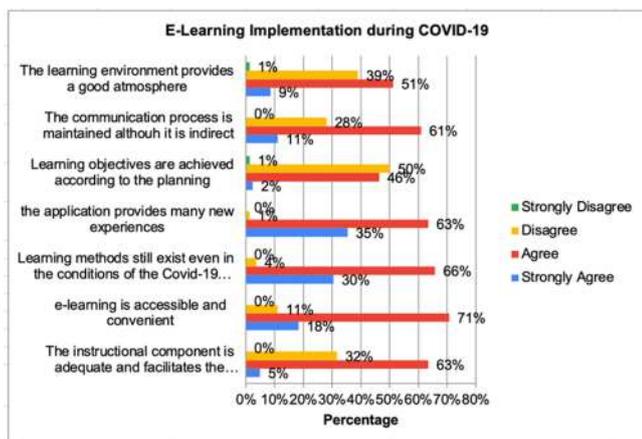


**Figure 5** Vocational School Teachers' Perceptions About E-Learning Preparation

Figure 5 shows the results in teachers' preparation using e-learning. It is found that 60% of teachers think that the preparation is easy to implement and only 1% states that it is difficult. The Learning Management System is a technological development that can be used as a new learning method in facing 4.0 Industrial Revolution, which is devoted to managing learning media and learning activities that take place in the network.

**4.3. Findings of the Results of the Application of Vocational School Teacher E-Learning**

The findings of the teachers' perceptions about the application of e-learning can be seen in Figure 6.



**Figure 6.** Perceptions of vocational school teachers in the application of e-Learning

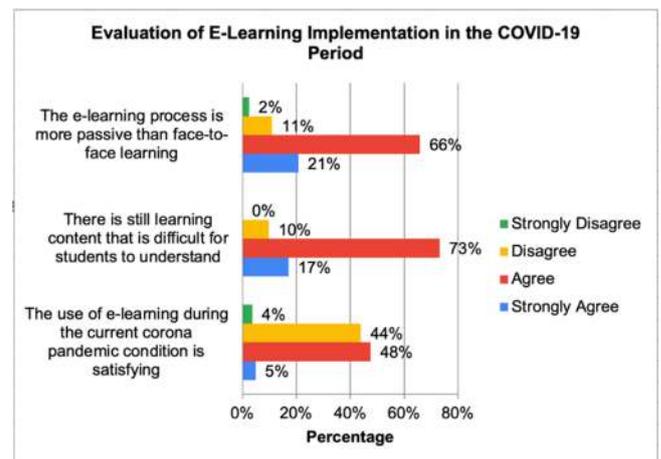
Figure 6 presents the findings of the teachers' perceptions in the application of e-learning. 71% of teachers agree that e-learning is accessible and convenient because it

is not limited by time and place, while 35% strongly agree that the application provides many new experiences. However, 50% of vocational school teachers disagree that learning objectives achieved according to the plan when using e-learning.

Similar research results mention that the implementation of e-learning is quite effective in increasing participants' understanding of the training subject. The quality and continued use of e-learning need improvement so it can effectively complement classical learning (blended learning). Mapping of efforts to optimize e-learning has also been identified, starting from improving the e-learning system/application, facilitating learning, implementation time, and the need to adapt conventional learning elements. This is following the data analysis in Figure 6 which shows the need for e-learning in the digital era learning. The availability of technology use interactively with discussion and guidance can be a tool for developing higher-order thinking skills. This is very much following the form of learning using e-learning. In e-learning, teachers have many opportunities for students to explore information conveyed by the teacher (Saripudin, Sumarto, Juanda, Abdullah, and Ana, 2018).

**4.4. The Results of the Evaluation of Vocational School Teacher E-Learning Learning**

The results of teachers on the evaluation aspects of e-learning can be seen in Figure 7.



**Figure 7.** Vocational school teachers' perceptions of e-Learning evaluation

Figure 7 displays the findings of vocational school teachers' perceptions regarding the evaluation of e-learning. 73% agree that e-learning still consists of learning content that is difficult for students to understand. Furthermore, 21% strongly agree that the e-learning process is more passive

than face-to-face learning. However, 44% disagree that the use of e-learning during the current COVID-19 pandemic is satisfactory.

The findings above indicate that in the era of Industrial Revolution 4.0, everyone is required to have the ability to use Information and Technology (IT) properly. E-learning has advantages and disadvantages in its implementation. The advantage is that the learning process can be done anytime and anywhere, not limited by space or time. Meanwhile, the weakness in e-learning is that it is very dependent on the internet, both teachers and students must have a sophisticated internet network. When the internet network is poor, e-learning will be difficult to access. Learning using e-learning requires students' discipline because this can hinder the learning process, and especially social interaction will be difficult if the learning process is poorly planned. Based on this reason, technological literacy skills can assist teachers in using mental technology including in learning processes such as e-learning. E-learning provides benefits for teachers and students.

## 5. Conclusion

With the COVID-19 pandemic conditions, vocational teachers need to continuously improve their learning through e-learning. This condition is a separate challenge for vocational teachers, who have conducted face-to-face learning up to the present. Based on the results of research on vocational teachers' perceptions about e-learning during the COVID-19 pandemic, it is found that 38% of vocational school teachers state that e-learning is a learning medium using the internet. The results of the analysis show that vocational school teachers perceive e-learning learning as a learning medium using the internet network. Furthermore, as for the perception of vocational teachers in the e-learning preparation, 60% state that there are no obstacles, 71% of the teachers state that it is easy to implement. However, it is found that 73% state that e-learning still include learning content that is difficult for students to understand. So, from the findings above, it is necessary to have good preparation from vocational teachers in implementing e-learning, so the learning objectives can be achieved properly.

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