

Evaluation Of The Readiness Of Vocational High School Teachers In Implementing E-Learning Learning During The Pandemic Period

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Abstracts

This study aims to assess the level of teacher readiness in implementing E-Learning. This study evaluates eLearning on system usage, user satisfaction, system quality, information quality, and service quality. This study uses a quantitative descriptive method to describe teacher readiness in implementing eLearning. Data was collected by distributing the E-Learning Implementation questionnaire with the Human Organization Technology and Net Benefit (HOT-Fit) model to one hundred and one Vocational High School teacher respondents. Data analysis techniques in this study used descriptive statistical methods. The results showed that the level of teacher readiness on the indicators for using the E-learning system in SMKs was very ready with the system; indicators of user satisfaction are very satisfied with the teacher's service in facilitating learning. While the level of implementation of system quality indicators used in learning is very feasible, indicators of information quality in Vocational High Schools are. Also, students feel very good about giving information. The story of readiness in implementing teacher service quality during learning is very satisfying. Of the five indicators considered to measure teachers' readiness level in Vocational High Schools, information quality gets the best rating because the government supports all. Overall, teachers are very prepared to implement E-Learning. Based on the standard index of teacher readiness, it is at an optimal level. These results conclude the readiness level of Vocational High School teachers. Very ready to implement E-Learning by fulfilling all wishes on indicators of system use, user satisfaction, system quality, information quality, and service quality.

Keywords: Level of Readiness, E-learning, Teachers, and Vocational High School.

INTRODUCTION

Vocational High School (SMK) is a secondary education that prepares students mainly to work in specific fields. State Vocational Schools in DKI Jakarta have accreditations including 61 State Vocational Schools accredited A and 1 State Vocational School accredited B and 1 State Vocational School that has not has authorized. Vocational Schools prepare students to meet the target after graduation, namely Work, Continuing Education, and Entrepreneurship, this is the responsibility of various aspects including curriculum, educators, and educational institutions. According to Charles Prosser in 16 Vocational Education Principles, one of which is vocational education will be efficient in proportion as the environment in which he must subsequently work. One of the principles states that professional training will be useful if the climate has trained a replica of the context in which it will work. Vocational High School graduates have also prepared to have employability skills as the ability of someone to adjust to a job actively.

Vocational High School have several fields of expertise, one of which is information and communication technology. In this field, advancing computerized technology is all that is done in the regions using computers and the internet(Yusoff et al., 2018). Based on observational interviews with several companies in the area of information and communication technology, information has obtained that the company utilizes an email-based information system and uses website-based e-learning for research and development purposes. The ability to use information systems can be called work skills. These skills need to be prepared for SMK graduates to be able to have the expertise to run information systems that use computers and the internet. Efforts to gain experience and work skills need to be supported by using learning models that utilize computers and internet networks(Salam et al., 2020). This learning model is known as e-learning.

E-learning has a regulation in Indonesia, namely the Minister of Education and Culture Regulation of the Republic of Indonesia Number 119 the Year 2014 concerning the Implementation of Distance Education in Basic and Secondary Education, which defines distance education is an education in which students have separated from educators. Their learning uses various learning resources through the application of principles of educational or learning technology. The e-learning learning model, according to(Al-malah & Hamed, 2020), is essentially a form of conventional learning that is poured into a digital format and has presented through Information Technology. From the theory and regulation, therefore, e-learning is learning that is carried out separately from educators and students in digital format by utilizing technology(Arkorful & Abaidoo, 2014; Prey, 2011; Sortrakul & Denphaisarn, 2009). A learning model or program has standards as a measure of success and compatibility(Fuinel et al., 2016; Jarudin et al., 2020; Lim & Han, 2020).

Standards in e-learning are one of the instructional design standards for distance learning from the Association for Educational Communications

and Technology (AECT)(Branch, 2015; Seel & Richey, 2012; Spector et al., 2009). There are several criteria in the e-learning standard, including goals, assumptions, sequences, activities, resources, applications, assessments, reflections, and independent learning. Before the implementation phase of e-learning requires measuring readiness in implementing the e-learning instruction model or commonly called e-learning readiness(Alfiras et al., 2021; Pérez et al., 2017).

E-learning readiness, according to (Fariani, 2013), illustrates how ready an organization is in several aspects to implement e-learning. E-learning readiness as a stage of evaluating not only the preparation of teachers and students but the availability of the organization or institution itself(A et al., 2022; Soub, 2022; Sutiah, 2020; Yilmaz, 2017). The results of the measurement of the e-learning readiness level in SMK DKI Jakarta Province, with the (Aydin & Tasci, 2005)index model in DKI Jakarta SMK getting an index value of 3.42 from vulnerable values 1 to 5. This index shows that e-learning readiness at DKI Jakarta Vocational School Jakarta is ready but needs a little improvement to implement e-learning. Indicators included in the category are not prepared but need remodeling to implement e-learning, are indicators of motivation, initiative, content, and interaction. The e-learning implementation must have done after the e-learning readiness has received a category that is ready for e-learning implementation with an e-learning readiness index 4.2 to 5.

The results of this study are reinforced by other studies (Smith et al., 2020), which show that there are obstacles to the implementation of e-learning. Obstacles encountered are the absence of licenses and copyrights for e-learning learning that has implemented. Barriers from the teacher's side are the lack of motivation for teachers in developing e-learning learning; teachers who do not understand about class management in e-learning. Barriers to e-learning from the management and facilities side are limited-time management of e-learning instruction, limited facilities in terms of education, and training to improve e-learning abilities and support for implementing e-learning instruction. Barriers from the school are the lack of commitment from schools and teachers regarding the development of e-learning instruction, and the funds needed to implement e-learning are still limited. The organization has a significant influence on influencing users and system benefits. They were associated with e-learning according to the results of (Erlirianto et al., 2015) research on organizational environments that show a significant influence on users of information systems.

The organization, according (Osibanjo & Adeniji, 2016) is a formal, structured, and coordinated union system of groups of people who work together in achieving specific goals. In this study, the organization in question is a school. Evaluation of organizational components, according to(Yusof et al., 2006), assesses the system from aspects of organizational structure and regulatory environment. The organizational structure

consists of culture, hierarchy, system planning, strategy, and management. The leadership and support of the highest management and staff support are an integral part of measuring success, while the organizational environment consists of sources of funding, competition, and communication.

The initial step in improving the inhibiting factor is by evaluating the implementation of e-learning. There are several evaluation models, including CIPP (Context, Input, Process, Product), Goal Oriented Evaluation, and HOT (Human, Organization, Technology) -Fit. The CIPP evaluation model has used in research related to program evaluation and policy in education. The goal-Oriented Evaluation evaluation model is used to measure student achievement and progress. The HOT-Fit model evaluates the system from three aspects, including people who judge the system from the user's side, organizations that value a system from organizational management and management support, and technology that assesses the system quality and e-learning features.

Based on the characteristics of e-learning and the results of preliminary research on e-learning readiness at SMK Negeri DKI Jakarta, it is necessary to evaluate e-learning related to lack of motivation, lack of initiative, unattractive content/material, lack of facilities, lack of organizational / school commitment and lack of interaction. The HOT-Fit evaluation model is a model that has all the components contained in the e-learning evaluation needs. The HOT-Fit evaluation model is a comprehensive model for assessing the implementation of e-learning in human, organizational, and technological aspects. The HOT-Fit evaluation model aims to measure the level of suitability of e-learning implementation in DKI Jakarta State Vocational Schools. Therefore, researchers need to evaluate e-learning using the HOT-Fit evaluation model in SMK Negeri DKI Jakarta.

RESEARCH METHODS

Respondent

Evaluation of the teacher's level of readiness in implementing e-learning at SMK Negeri DKI Jakarta with the HOT-Fit model is carried out by testing the validity and reliability of the instrument. The test was conducted to determine the results of the questionnaire test distributed in the study. The questionnaire distribution experiment was given to 101 respondents, then processed using the SPSS Statistics 21 for the windows program.

Data Collection Techniques

In this study, we used data in the DKI Jakarta area to investigate and analyze empirically the readiness level of vocational school teachers in implementing e-learning. The survey was designed in such a way as to

capture the factors for assessing teacher readiness. This evaluation uses the HOT-Fit Model. The HOT-Fit model evaluates the system from three aspects, namely humans who evaluate the system from the user's point of view, organizations who assess the system from organizational management and management support, and technology who evaluates the quality of e-learning systems and features. Indicators of e-learning readiness, namely system use, user satisfaction, system quality, information quality, and service quality can be seen in table 1,

Table 1. Evaluation Instrument for the Level of Readiness of Vocational Teachers in the Implementation of E-Learning with the HOT-Fit model

Aspect	Indicator
System use	1. User e-learning
	2. E-learning training
	3. Knowledge of using e-learning
	4. User response to e-learning
User satisfaction	1. Perception of usefulness
	2. Display of e-learning applications
System Quality	1. Ease of use
	2. Flexibility
	3. System reliability
	4. Access speed
	5. System security
Information Quality	1. Availability/completeness of information
	2. Ease of understanding
	3. Presentation of information
	4. Relevance of needs
	5. Information accuracy
Service Quality	1. Service response

Analysis Techniques

The data analysis technique uses the SPSS version 21 application to calculate the validation and correlation between variables.

RESULTS AND DISCUSSION

Validity was analyzed by looking at the corrected item-total correlation value in the Item-Total Statistics table 2 greater than 0.2. The results of the measured calculations obtained using the SPSS Version 21 program. There are 8 statement items used in the research questionnaire in the system use variable. These items consist of X11, X12, X13, X14, X15, X16, X17, and X18. After being tested for validity using the CFA (Confirmatory Factor Analysis)

method, it shows the value that can be seen from the Corrected item-total Correlation. The results of the measured calculations obtained using the SPSS Version 21 program are in the table 2:

Table 2. Table of System Use Validity Test Results

Statement Items	Corrected Item-Total Correlation
X ₁ 1	0.422
X ₁ 2	0.317
X ₁ 3	0.583
X ₁ 4	0.332
X ₁ 5	0.520
X ₁ 6	0.582
X ₁ 7	0.164
X ₁ 8	0.000

Source: Primary Data, 2022

A valid statement must have a value above 0.2. The table 2 shows that the X₁7 and X₁8 indicators have Measure of Sampling Adequacy (MSA) values below 0.2. Thus, questions number 7 and 8 of the system use variables were excluded from the analysis because they were declared invalid. Testing on the user satisfaction variable, there are 4 statement items used in the research questionnaire. These items consist of X₂1, X₂2, X₂3, and X₂4. After being tested for validity using the CFA method, it shows the value that can be seen from the Corrected item-total Correlation. The results of the measured calculations obtained using the SPSS Version 21 in the table 3.

Table 3. Table of User Satisfaction Validity Test Results

Statement Items	Corrected Item-Total Correlation
X ₂ 1	0.228
X ₂ 2	0.470
X ₂ 3	0.523
X ₂ 4	0.622

Source: Primary Data, 2022

Based on the data in table 3, it can be seen that there is no indication that it has an Measure of Sampling Adequacy (MSA) value below 0.2. Thus, all indicators of the User Satisfaction variable are declared valid. Analysis results on the system quality variable, there are 10 statement items used in the research questionnaire. The items consist of X₃1, X₃2, X₃3, X₃4, X₃5, X₃6, X₃7, X₃8, X₃9, and X₃10. After being tested for validity with the CFA method, it shows the value that

can be seen from the Corrected item-total Correlation. The results of the measured calculations obtained using the SPSS Version 21 program are in the f table 4.

Table 4. Table of System Quality Validity Test Results

Statement Items	Corrected Item-Total Correlation
X ₃ 1	0.196
X ₃ 2	0.255
X ₃ 3	0.218
X ₃ 4	0.100
X ₃ 5	0.140
X ₃ 6	0.171
X ₃ 7	0.347
X ₃ 8	0.471
X ₃ 9	0.271
X ₃ 10	0.271

Source: Primary Data, 2022

The data in the table 4 that the indicators X₃1, X₃4, X₃5, and X₃6 have MSA values below 0.2. A valid statement must have a value above 0.2. Thus, the indicators, namely questions number 1, 4, 5, and 6 of the System Quality variables, were excluded from the analysis because they were declared invalid.

The validity test results on the information quality variable, there are 10 statement items used in the research questionnaire. These items consist of X₄1, X₄2, X₄3, X₄4, X₄5, X₄6, X₄7, X₄8, X₄9, and X₄10. After being tested for validity with the CFA method, it shows the value that can be seen from the Corrected item-total Correlation. The results of the measured calculations obtained using the SPSS Version 21 program are in the table 5.

Table 5. Table of Information Quality Validity Test Results

Statement Items	Corrected Item-Total Correlation
X ₄ 1	0.218
X ₄ 2	0.196
X ₄ 3	0.140
X ₄ 4	0.313
X ₄ 5	0.255
X ₄ 6	0.100
X ₄ 7	0.196
X ₄ 8	0.255
X ₄ 9	0.196

X ₄₁₀	0.255
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Source: Primary Data, 2022

A valid statement must have a value above 0.2. The data in table 5 shows that the indicators X₄₂, X₄₃, X₄₆, X₄₇ and X₄₉ have MSA values below 0.2. Thus, questions number 2, 3, 3, 7, and 9 of the System Quality variable were excluded from the analysis because they were declared invalid. Test the validity of the service quality variable (X₅), and there are 3 statement items used in the research questionnaire. These items consist of X₅₁, X₅₂, and X₅₃. After being tested for validity with the CFA method, it shows a value that can be seen from the Corrected item-total Correlation. The results of the measured calculations obtained using the SPSS Version 21 program are in the table 6.

Table 6. Table of Service Quality Validity Test Results

Statement Items	Corrected Item-Total Correlation
X ₄₁	0.685
X ₄₂	0.672
X ₄₃	0.434

Source: Primary Data, 2022

The data in table 6, no indication that it has an MSA value below 0.2. Thus, all indicators of the Service Quality variable are declared valid. The reliability test was carried out using the Cronbach Alpha statistical test. The data can be reliable if the Cronbach Alpha value is more significant than 0.6. The table 7 data is the result of calculating the reliability of all variables in the study using Cronbach Alpha.

Table 7. Reliability Test Results on All Research Variables

Variable	Cronbach Alpha	Information
System Use	0.662	Reliable
User Satisfaction	0.650	Reliable
System Quality	0.757	Reliable
Information Quality	0.826	Reliable
Service Quality	0.753	Reliable

Source: Primary Data, 2022

The reliability test results can be explained based on the value of Cronbach's Alpha. Evaluation of the system used by teachers in the E-Learning application resulted in a matter of 0.662. Based on the importance of Cronbach's Alpha, the value of 0.662 is more significant than 0.60 so that the system use aspect is declared reliable. In this variable, each statement item and answer are consistent. User Satisfaction carried out by

the teacher in the application of E-Learning resulted in a score of 0.650. Based on the value of Cronbach's Alpha, the value of 0.650 is more significant than 0.60, so the user satisfaction aspect is declared reliable. In this variable, each statement item and answer are consistent.

System quality testing on the application of E-Learning by teachers produces a value of 0.757. Based on the Cronbach's Alpha value, the value of 0.757 is more significant than 0.60, so the results of the indicators are declared reliable. In this variable, each statement item and answer are consistent. Testing the information quality on the application of E-Learning by the teacher resulted in a score of 0.826. Based on the Cronbach's Alpha value, the value of 0.826 is more significant than 0.60, so the indicator is declared reliable. In this variable, each statement item and answer are consistent. Testing service quality on the application of E-Learning by teachers produces a value of 0.753. This result is more significant than 0.60, so the indicator is declared reliable. In this variable, each statement item and answer are consistent.

Based on the analysis that has been carried out, it can be concluded that all of the questions have met the requirements by having a Cronbach's Alpha value greater than 0.60. This analysis indicates that the system use, user satisfaction, system quality, information quality, and service quality variables are declared reliable so that the variables that are declared trustworthy have consistency between the statements and answers given by the respondents.

Readiness Level Analysis based on Average Answers

Of the one hundred and one questionnaires distributed, the researcher was able to recollect the one hundred one questionnaires distributed, and it was stated that there were no damaged questionnaires. The data in a questionnaire obtained from respondents of as many as 101 teachers were then analyzed use the Aydin & Tasci index to measure the level of e-learning readiness (2005). This research questionnaire has 35 questions with alternative answers "Yes" with a score of 1 and "No" with a score of 0. The purpose of using the questionnaire in this study is to determine the level of readiness of SMK teachers in the application of E-Learning. The measurement of the level of teacher readiness in the application of E-Learning in Vocational Schools is based on five aspects, namely system use, user satisfaction, system quality, information quality, and service quality. The number of questions is 35 items which are shown in Table 8.

Table 8. ELR Calculation

Aspect	Indicator	Total	Average	Score Average
System use	P1	97	0.96	0.841
	P2	73	0.72	
	P3	78	0.77	
	P4	51	0.5	

	P5	90	0.89	
	P6	95	0.94	
	P7	96	0.95	
	P8	101	1	
User satisfaction	P9	100	0.99	0.812
	P10	63	0.62	
	P11	87	0.86	
	P12	79	0.78	
System Quality	P13	97	0.96	0.915
	P14	94	0.93	
	P15	96	0.95	
	P16	100	0.99	
	P17	99	0.98	
	P18	98	0.97	
	P19	87	0.86	
	P20	68	0.67	
	P21	93	0.92	
	P22	93	0.92	
Information Quality	P23	96	0.95	0.948
	P24	97	0.96	
	P25	99	0.98	
	P26	90	0.89	
	P27	94	0.93	
	P28	100	0.99	
	P29	97	0.96	
	P30	94	0.93	
	P31	97	0.96	
	P32	94	0.93	
Service Quality	P33	94	0.93	0.943
	P34	97	0.96	
	P35	95	0.94	

Source: Primary Data, 2022

Of the five aspects of the ELR calculation for measuring teacher readiness in SMK, the information quality aspect received the highest score with a score of 0.948.

Readiness Level Analysis based on Descriptive Statistical Method

Answer this research question; it is done by calculating the average weight of each answer to the question item on each variable. Then the results of the average of each variable are grouped based on each aspect. Then the total average is calculated to be compared with the level of teacher readiness in implementing E-Learning. By using the Aydin & Tasci index, can see in table 9, it is obtained that the average value which is in the index 4.2 – 5 is Ready, stating that the readiness is good to implement e-learning

Table 9. KM Readiness Scale (in %)

Not ready	Preparation	Ready	Got it	Optimal
Index 1 – 2.59 is on Not Ready, requires a lot of preparation for implementing e-learning	Index 2.6 – 3.39 is on Not Ready, just need some preparation aspect only	Index 3.4 – 4.19 is on Ready, need improvement for apply it	Index 4.2 – 5 is on Ready, it states good readiness to implement e-learning	
(0%-20%)	(21%-40%)	(41%-60%)	(61%-80%)	(81%-100%)

CONCLUSION

The measurement of the level of teacher readiness in the application of E-Learning in Vocational Schools uses descriptive statistical methods. The results achieved show the average of all aspects of teacher readiness and then compared with the level of teacher readiness. Overall, the average value of all variables in this study was 89.18%. It is known from the total average of the variables and then converted into percentages. Therefore, based on the teacher's level of readiness, the value is at the optimal level because it is in the range of 81% to 100%. These results conclude that all indicators in each research variable are very supportive of the implementation of E-Learning.

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