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An Investigation of E-Learning Readiness in Vocational High School During the Post Pandemic Covid-19: Case from North Sulawesi

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ABSTRACT

The COVID-19 pandemic has changed the learning model in vocational high schools in Indonesia, which is usually face-to-face and has been turned into online learning. This learning uses e-learning with several models such as synchronous learning and asynchronous learning drastically without proper preparation. This creates problems in achieving learning outcomes because of many inhibiting factors. This research aims to investigate the readiness of e-learning implemented in vocational high schools during the post COVID-19 pandemic. The method used is the Aydin & Tasci ELR model for measuring the level of e-learning readiness. The results of this research investigation found that the e-learning readiness score was 4.15, which means that vocational high schools in Indonesia are ready to implement e-learning but still need a slight improvement in several factors. These factors are human resources, organization, technology, and infrastructure. This research concludes that vocational high schools in Indonesia are ready to implement e-learning as a supporter of learning in schools.

Keywords: education, e-learning readiness, north Sulawesi, post COVID-19 pandemic, vocational high school

INTRODUCTION

E-learning has become a necessity in the educational aspect, especially during the COVID-19 pandemic. At that time, face-to-face contact cannot be carried out to avoid the spread of the Covid-19

virus in schools(Tang et al., 2021). Face-to-face options in learning are carried out through e-learning which is adjusted to the conditions of each school. This condition is in the form of readiness to implement e-learning, including the readiness of teachers, students, learning materials, and available information technology infrastructure(Baber, 2021). e-learning is a learning option that is considered to have an impact on the effectiveness and flexibility of learning in terms of the ease of interaction between teachers and students, place, time, and ease of interaction among students(Baber, 2021). This condition is expected to have an impact on both teachers and students in vocational high schools. The condition of the school in implementing the e-learning system must pay attention to the level of readiness first to ensure the implementation of e-learning can be successful. Readiness to implement e-learning can be referred to as E-learning Readiness (ELR), requiring the readiness of both organizational culture and information technology infrastructure. Vocational high schools in Indonesia are trying to implement e-learning successfully, but have not found the best way to implement it. It takes effort to make it happen.

Vocational high schools in Indonesia face problems in implementing e-learning due to several limitations. One of the problems faced is that the available e-learning has not been able to organize practicum activities on several subjects that produce practical material. Another problem that arises is the condition of Indonesia, which has many islands, with various conditions of human resources and information technology infrastructure, which makes it difficult to implement e-learning properly. Schools find it difficult to determine the learning model in e-learning because of the various conditions and the low readiness to adopt information technology. Schools also have difficulty identifying whether the school is ready or not adequate in conducting learning using e-learning.

In the context of vocational high schools in Indonesia, e-learning has gradually been implemented. The participation of teachers and students is still carried out in the context of the Covid-19 pandemic. There are still further steps needed to achieve the successful full adoption of e-learning. This learning adoption needs adjustments, including utilizing social media such as Facebook in learning(Zarzour et al., 2020). Schools need to adapt the use of e-learning according to their learning environment(Megahed & Mohammed, 2020). Various approaches are needed to be able to adopt e-learning properly(Sidhu & Gage, 2021). However, in the adoption of e-learning, there are still shortcomings, such as there are still many teachers and students who have difficulty in using and implementing e-learning. The school management has provided supporting infrastructure for the smooth implementation of e-learning, such as providing a computer laboratory with the availability of various personal computers and laptops to be used by both teachers and students. In addition, the availability of internet access with sufficient speed, although not evenly distributed in each class. Availability of human resources, such as information technology technicians in charge of assisting the entire process of implementing the e-learning. However, this does not guarantee the successful implementation of e-learning in vocational high schools. School management does not yet know what factors are the shortcomings in the implementation of e-learning and has not been able to measure the level of readiness to implement e-learning so that management has difficulty in determining the right policy in implementing e-learning.

It is very important to know the level of readiness of e-learning to find out how the readiness of vocational high schools in implementing e-learning is. It is necessary to conduct a study whose results can be used as a basis for consideration for school management in implementing e-learning. The purpose of this study was to analyze and measure the level of readiness for e-learning implementation in vocational high schools. The results of this research can be used to improve the factors that are found to be lacking and need to be increased gradually so as to achieve optimal results

LITERATURE REVIEW

Many research on e-learning readiness has been carried out, especially during the COVID-19 pandemic. The implementation of e-learning in Indonesia, especially in vocational high schools, has the right momentum in its use. The success of e-learning implementation depends on the readiness of school management, teachers, and students to adopt e-learning technology during a pandemic(Tang et al., 2021). It is important to measure e-learning readiness to determine the level of readiness in implementing e-learning. E-learning Readiness measurement can use a measurement model using the readiness index(Aydin & Tasci, 2005). The selection of the E-learning Readiness component as the basis for the formation of the model becomes a benchmark in measuring E-learning Readiness. The E-learning Readiness model is not limited to preparation before its implementation but can be done for organizations that have implemented e-learning. Thus, the results of this evaluation can be used as a basis for making improvements in the next developmental period. E-learning readiness is the mental or physical readiness of an organization to take or carry out actions and experiences in the application of e-learning. E-learning readiness is also the ability of a student to use e-learning and multimedia systems to improve the quality of learning. E-learning readiness requires teacher readiness in using e-learning systems, the readiness of teaching materials and learning methods as well as student readiness in using e-learning(Kariyev et al., 2015). This requires an attitude in use because students and teachers can only meet virtually(Yağcı et al., 2015). Readiness to implement e-learning is not easy, especially during the COVID-19 pandemic(Çınar et al., 2021). It is very important to pay attention to the context and characteristics of educational institutions so that e-learning can be implemented properly(Scherer et al., 2021). Good readiness in implementing e-learning will increase student satisfaction(Yilmaz, 2017), teachers and school management, due to careful anticipation of various obstacles that will occur. E-learning can be interpreted as learning based on electronics and also internet assistance in the learning process so as to provide opportunities to carry out the teaching process anytime and anywhere. e-learning is also a distance learning process by combining principles in the learning process with technology. In the implementation process, e-learning can be done on a web-based basis, virtual classes, computers, or digital classes. By implementing e-learning, students can learn independently and make learning more flexible. Through e-learning students have the opportunity to digest teaching materials that have been specifically designed by the teacher, this is very useful so that students are trained to learn independently and do not depend on teaching descriptions from the teacher.

Measuring the level of readiness for e-learning implementation needs to take into account the context. It is important to identify any obstacles in the application of this method. Barriers in

implementing e-learning such as personal barriers, namely time management and attitudes towards e-learning. There are also learning style barriers, including learning preferences. Other barriers Situational barriers, including problems with duration of learning and interruptions in learning Organizational barriers, including problems with organizational culture, lack of time to study, interpersonal barriers, problems with registration, limited availability of online courses, and lack of awareness to involve employees in decision making. In addition, several other obstacles need to be considered such as Technological barriers, including the quality of the Learning Management System (LMS), lack of training, connectivity problems, navigation problems, limited technical support, inability to transfer data, or data loss. Problems, Barriers to e-learning content, including student expectations of lessons, the relevance of lessons, content that is not specific to participants, the quality of content/content is not good and the assessment system is not good. Other barriers that need attention are instructional barriers, including problems with limited student involvement, lack of progress reports and feedback, limited reference materials, access and navigation problems, limited use of multimedia devices, inconsistent instruction, information overload, and lack of instructor presence. and poor coordination.

The E-Learning Readiness model is based on factors such as Government, industry, Education. Factors Business readiness, learning culture, information, change management, organizational ability to conduct training that supports E-Learning. While e-learning Readiness factors are used in educational institutions such as students' preparedness, Teachers Preparedness, IT infrastructure, Management Support, School Culture, and Preference to Meet face to face. There are also factors; Policy, Technology, finances, Human resource, and Infrastructure to measure E-Learning Readiness. The e-learning readiness model adopted in evaluating e-learning in developing countries is the e-learning readiness model created by Aydin & Tasci. The model fits the context of Indonesia as a developing country and has factors that are able to measure the level of e-learning readiness, namely human factors, technological factors, self-development factors, and innovation factors.(Aydin & Tasci, 2005)..

METHODS

The approach method used in this research is a quantitative approach using descriptive research methods. Descriptive research is research conducted to determine the value of independent variables, either one or more (independent) variables without making comparisons or connecting with other variables. This descriptive study used in this study is intended to obtain an overview related to vocational high school readiness in the implementation of e-learning. In this study, the model used is the E-learning Readiness Aydin and Tasci model to measure the level of readiness to implement e-learning. This model contains factors to measure the level of readiness of e-learning such as human resources, organization, technology, e-learning materials, finance, and infrastructure factors. This model can be applied before the implementation of E-learning and after the implementation of E-learning. If it is applied after the implementation of E-learning, it will produce results in the form of an evaluation for the continuation of the process of implementing E-learning. If the score of e-E-

learning Readiness (ELR) is known, then it will evaluate what factors are still weak that need to be corrected and improved or factors that are ready for e-learning implementation. This measurement model can be seen in figure 1.

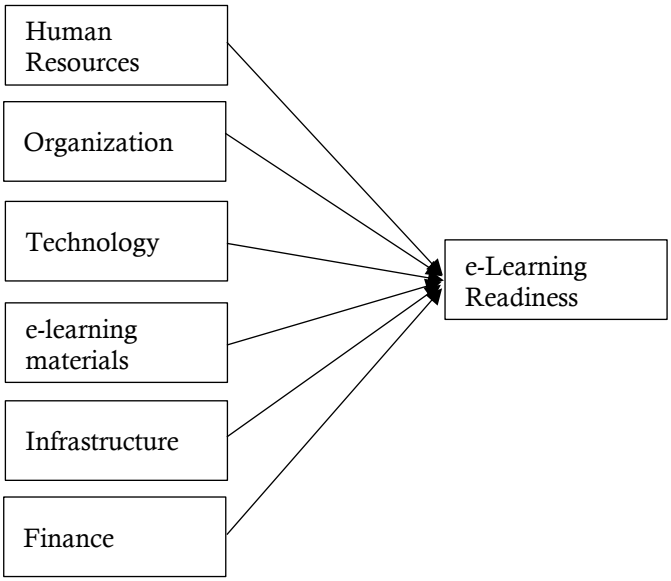

Figure 1. Research model e-learning readiness

The participants in this study were participants from a vocational high school in the province of North Sulawesi, Indonesia. Participants came from students as many as 681 participants and 50 participants from teachers and school management. Several criteria were used to get participants such as:

a. Teachers who carry out the teaching process online using e-learning
b. Students who use e-learning in the online learning process
c. Teachers and students apply e-learning in the teaching-learning process
d. School management that uses e-learning in the learning process

The research variable is the level of readiness to implement e-learning/E-learning Readiness seen from several factors, namely (1) human resource factors, (2) organizational factors, (3) technology factors, (4) e-learning material factors, (5) financial factors, and (6) infrastructure factors. The level of readiness in this study is the level or condition achieved by vocational high schools in the application of e-learning. This variable consists of several indicators used in research, such as People, Self-development, Competence (skills, E-Learning Training, User Attitudes, and other indicators. See table 1.

Table 1. Variables and Indicators of e-learning readiness

No	Variable	Indicators
1.	Human Resources	People
		Self-development
		Competence/skill
		Training *e-learning*
		User attitude
2.	Organization	Organizational culture
		Leadership
		Organizational policy
3.	Technology	Technology
		Innovation
4.	e-Learning Materials	*Content*
5.	Infrastructure	Network
		Hardware and *software*
6.	Finance	*Budget*
		Organization's financial policy

The data of this research are the results of questionnaires distributed online through an online platform, namely, google forms. The results of the questionnaire from the participants were then analyzed using descriptive statistical methods. To determine the e-learning Readiness index using the Aydin & Tasci version index. This study has a questionnaire with 37 questions for teachers and school management participants while the student questionnaire has 36 questions. Choice of answers using a Likert scale, with alternative answers "Strongly Disagree" with a score of 1, "Disagree" with a score of 2, "Neutral" with a score of 3, "Agree" with a score of 4, and "Strongly Agree" with a score of 5.

The questionnaire contains questions that contain six factors, namely, human resources, organization, technology, e-learning materials, finance, and infrastructure. Furthermore, after the data was collected, data analysis was carried out using descriptive statistical methods to find the average of the answers to the questionnaire for each research variable. Then determine the E-learning Readiness index using the Aydin & Tasci ELR version index. The scores used in the assessment sheet are 1, 2, 3, 4, and 5 for each question, after the assessment sheet has been filled in by the respondent a total score will be obtained which is then calculated as the average final score.

The average score of each question, namely the average score of the questions for the same factor and the average score of all questions will be assessed using the Aydin & Tasci ELR model assessment index. The measurement of E-Learning Readiness uses an assessment index from the Aydin & Tasci model, the assessment index is in the form of four categories of readiness, namely;

1. Not ready and need a lot of improvement to implement e-learning.

2. Not ready but needs a little improvement in some aspects just to get to the ready level.
3. Ready, but need a little improvement to implement e-learning
4. Ready, and at a good level of readiness to implement e-learning.

The assessment index is Aydin & Tasci's version of the ELR model. See figure 2.

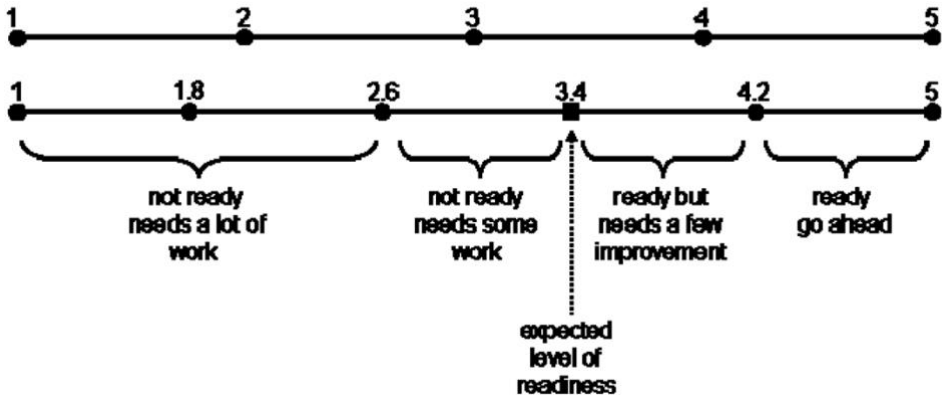

Figure 2. Index e-learning readiness model(Aydin & Tasci, 2005)

The average score of 3.41 is the minimum score for the level of readiness to implement e-learning, so a score with an average value below 3.41 is considered not ready for the application of e-learning. in the range of values and categories can be seen in table 2.

Table 2. Range of values and categories of e-learning readiness

Value Range	Readiness Category
$1 \leq x \leq 2,6$	Not ready, needs a lot of improvement
$2,6 < x \leq 3,4$	Not ready, needs some work
$3,4 < x \leq 4,2$	Ready, but needs a few improvement
$4,2 < x \leq 5$	Ready, go ahead-can be continued

RESULTS AND DISCUSSION

E-learning Readiness Implementation on School Management and Teachers

The results of the research found that the participants were school management and teachers. The results of the E-learning Readiness assessment score found that school management and teachers achieved, ELR scores $\bar{x}$= 4,26 > 4,21. See table 3. There is also a score on each ELR factor which also has a value $\bar{x}$>3.41. This finding means that school management and vocational high school teachers in Indonesia are ready, Ready, go ahead-can be continued. However, there are still 2 ELR factors that need a little improvement, namely the e-learning material factor has an ELR score $\bar{x}$= 4,00 and organizational factors have a score ELR $\bar{x}$= 4,17. This means that both of these factors, even though they are ready, still need improvement and improvement to make it better. Thus, teachers are expected to improve the quality and quantity of material, while school management needs to improve school organization, including the implementation of various e-learning activities according to standard operational procedures. However, the average ELR score results for school management and vocational high school teachers is stated that they are ready to implement e-learning and the implementation of e-learning can be continued.

Table 3. E-Learning Readiness score results on school management and teacher participants

ELR Factors	ELR Score $(\bar{x})$	Readiness Category
Human Resources	4.36	Ready, go ahead-can be continued
Organization	4.17	Ready, but needs a few improvement
Technology	4.41	Ready, go ahead-can be continued
e-Learning Materials	4.00	Ready, but needs a few improvement
Infrastructure	4.26	Ready, go ahead-can be continued
Finance	4.34	Ready, go ahead-can be continued
ELR Average Score	**4.26**	**Ready, go ahead-can be continued**

E-learning Readiness implementation on Students

Research results in measuring the level of e-learning readiness in students show that the average ELR score $\bar{x}$= 4,05 > 3,41. While the score for each ELR factor in vocational high school students is at 3,41 < $\bar{x}$≤ 4.2. This shows that vocational high school students are ready to implement e-learning, but require a slight increase in each of the ELR factors. Several factors that require more attention and need to be improved are financial factors which have a lower score of $\bar{x}$= 3,89. Then the organizational factor with the ELR score $\bar{x}$= 3,99, and the e-learning material factor has an ELR score $\bar{x}$= 4.03. The human resource factor also gets an ELR score $\bar{x}$= 4,08, and technology factors that have an ELR score $\bar{x}$= 4,11. See table 4.

Table 4. ELR Factors Score Results on Students

ELR Factors	ELR Score $(\bar{x})$	Readiness Category
Human Resources	4.08	Ready, but needs a few improvement

Human Resources	3.99	Ready, but needs a few improvement
Organization	4.11	Ready, but needs a few improvement
Technology	4.03	Ready, but needs a few improvement
e-Learning Materials	4.27	Ready, go ahead-can be continued
Infrastructure	3.82	Ready, go ahead-can be continued
ELR Average Score	**4.05**	Ready, but needs a few improvement

This shows that there needs to be a fulfilment effort in financing so that students can meet the financing needed to access e-learning. The cost in question is the cost of internet and devices such as personal computers, laptops or smartphones. School management has implemented a policy of providing internet quotas for students, which also applies nationally through the Ministry of Education. However, the quota subsidy provided still does not meet the needs so that students have to pay independently for internet costs arising from the implementation of e-learning. Another factor that needs to be improved is the organization, this includes school policies in managing class scheduling in the implementation of learning which is often not on time or delayed due to other agendas organized by school management involving teachers and students. The material factor made by the teacher is sometimes due to the limited ability of the teacher in mastering learning applications and the lack of information technology literacy so that the material presented by the teacher is not understood by students and some other difficulties such as being less compatible with some platforms used. The resource quality factor for both teachers and students needs to be continuously improved to match the expected competencies and be able to adapt to the development of information technology. Efforts are needed to improve digital literacy for both teachers and students. Information technology factors have quite an influence on the success of e-learning adoption. The condition of Indonesia, which has many islands, has created information technology gaps in several islands such as the lack of information technology infrastructure and conditions of different internet access speeds, causing difficulties when accessing e-learning applications.

E-learning Readiness implementation on School Management, Teachers and Students

We try to calculate the mean score between school management, teachers, and students in this section. The results of this research that the level of readiness for the implementation of e-learning according to the results of the average ELR score obtained from school management, teachers and students is the result of the average ELR score obtained from school management and teachers included in the ready category, and the implementation of e-learning can be continued. Although there are two ELR factors that still need a little improvement, it can be concluded that vocational high schools are ready, and the implementation of e-learning can be continued. The results of the average ELR scores obtained from students indicate that vocational high school students are ready to implement e-learning but require a slight increase in most ELR factors. The results of calculating the average ELR score of each participant from school management, teachers, and students obtained an e-learning readiness score as shown in table 5.

Table 5. ELR final score results on School management, teachers, and students

Participant	ELR Score $(\overline{x})$	Readiness Category
School Management, and Teachers	4.26	Ready, go ahead-can be continued
Students	4.05	Ready, but needs a few improvement
ELR Average Score	**4.15**	**Ready, but needs a few improvement**

The results of the overall ELR score for vocational high schools have an ELR score $\bar{x} = 4{,}15$ which means ELR score $3{,}41 < \bar{x} \leq 4.21$. This shows that vocational high schools are ready to implement e-learning, but still need a little improvement in some e-learning readiness factors. This result is expected that vocational high schools pay more attention to the ELR factor which has a smaller value. Improvements must also be made to the already good ELR factor, this is to increase the ELR score. Increasing the ELR score on each ELR assessment factor is needed to be able to improve the quality of the overall use of e-learning and its implementation in the learning process. The results of the calculation of each factor can be seen in table 6.

Table 6. Final score of ELR factors

ELR Factors	ELR Score $(\overline{x})$	Readiness Category
Human Resources	4.22	Ready, go ahead-can be continued
Organization	4.08	Ready, but needs a few improvement
Technology	4.26	Ready, go ahead-can be continued
e-Learning Materials	4.02	Ready, but needs a few improvement
Infrastructure	4.27	Ready, go ahead-can be continued
Finance	4.08	Ready, but needs a few improvement
ELR Average Score	**4.15**	**Ready, but needs a few improvement**

The final score of the E-learning Readiness vocational high school will be categorized according to the assessment of the E-learning Readiness model that is the reference(Aydin & Tasci, 2005). Based on the categorization of this ELR model, it is known what factors are still weak and need improvement so that the implementation of e-learning in the future can be carried out optimally. See figure 3.

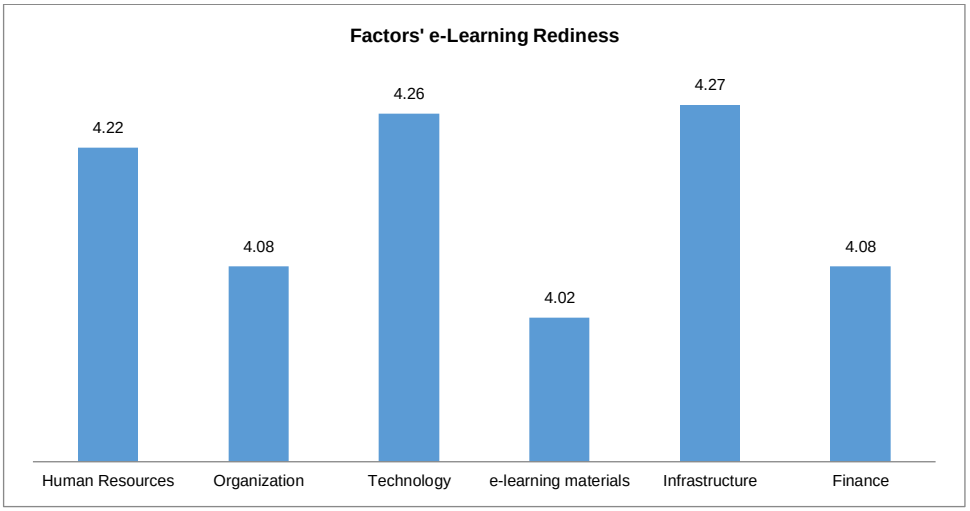

Figure 3. Diagram of Vocational High School ELR Factor Average Score

The results of calculating the average score of e-learning readiness as a whole, it appears that several factors such as organizational factors which have a score of 4.08, e-learning material factor with a score of 4.02, and finance factors with a score of 4.08 still require improvement. There may be an increase in the future. In detail, these factors can be calculated based on more detailed indicators that can fully describe the results of the investigation of this study. The results of the investigation of the final score on each indicator of E-learning Readiness vocational high school are presented in Table 7.

Table 7. Vocational high school ELR indicator final score results

Indicators	ELR Score $(\bar{x})$	Readiness Category
People	4.12	Ready, but needs a few improvement
Self-development	4.27	Ready, go ahead-can be continued
Competence/skill	4.34	Ready, go ahead-can be continued
Training *e-learning*	4.13	Ready, but needs a few improvement
User attitude	4.25	Ready, go ahead-can be continued
Organizational culture	4.26	Ready, go ahead-can be continued
Leadership	4.07	Ready, but needs a few improvement
Organizational policy	3.91	Ready, but needs a few improvement
Technology	4.39	Ready, go ahead-can be continued
innovation	4.13	Ready, but needs a few improvement
Content	4.02	Ready, but needs a few improvement
network	4.19	Ready, but needs a few improvement
Hardware and *software*	4.34	Ready, go ahead-can be continued
Budget	4.29	Ready, go ahead-can be continued

Organization's financial policy	3.87	Ready, but needs a few improvement

The results of the investigation of this study show that several indicators have good scores, such as Self-development, Competence/skills, User attitude, Organizational culture, Technology, Hardware and software, and Budget. See figure 4. But the results of this investigation also show that several indicators need improvement and improvement.

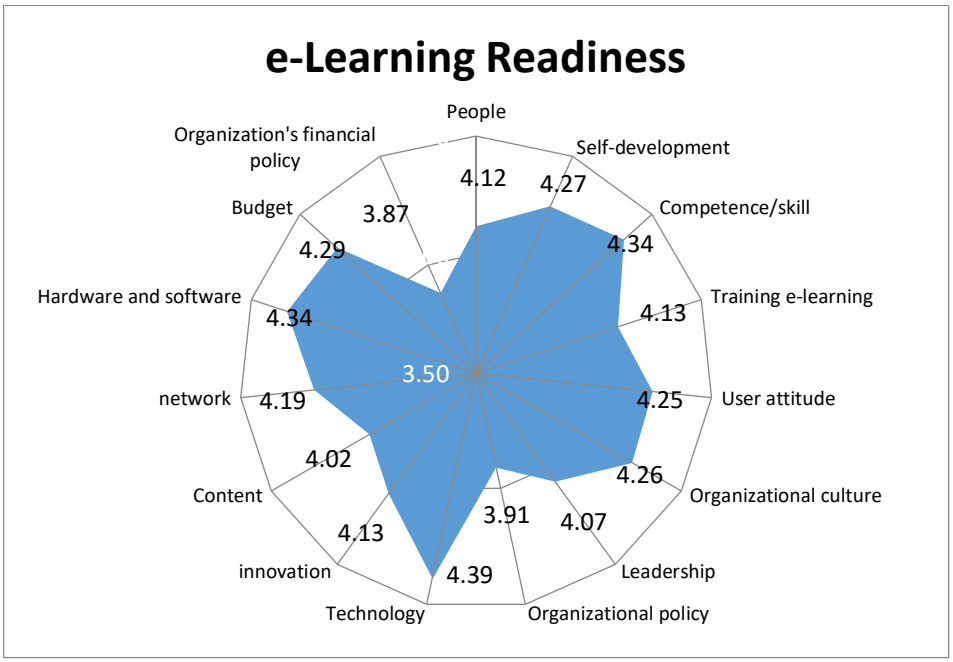

Figure 4. E-learning readiness indicator score

The results of the investigation of this study show several things that became the findings of this research. In general, vocational high school e-learning readiness has shown the level of readiness to implement e-learning with a ready index of human resources, technology, and infrastructure factors. Meanwhile, the organizational factors, e-learning materials, and finance still need a little improvement. Technological factors have a role in providing good learning facilities. This study is in line with previous studies which showed that the readiness of facilities is important to improve the quality of learning(Hazell et al., 2020). Readiness in implementing a learning technology is a determinant in the successful adoption of a technology (Rohayani et al., 2015). This has an important role in policy formulation, planning, and mitigation of risks that will arise in the future. The factor of teachers and students in mastering information technology has an important role in learning during the covid-19 pandemic. Obstacles in direct face-to-face which are closed to minimize the spread and prevention of the covid-19 virus(Rafique et al., 2021), has forced vocational high schools to adopt information technology instantly without careful preparation and planning. Readiness and mastery of various tools

in learning is an important factor in the success of learning activities(Afolabi, 2015). The continuous training process is a key factor in creating quality human resources. This can be related to various training that teachers participate in both in groups and independently. Independent training can take advantage of e-tutors that are run using an electronic system through distance learning(Liu et al., 2015). The learning environment can be an external factor related to learning(Dudley et al., 2020). This is important for vocational high schools to pay attention to so that the learning process can be successful. Mature readiness, it can be predicted that the implementation of e-learning technology can be successful and get maximum results. Therefore, schools must measure the level of readiness before implementing an e-learning technology(Coopasami et al., 2017).

The results of the investigation of this study recommend for improvement and improvement in organizational factors. The results of the investigation show that organizational factors have an ELR score is $\bar{x} = 4{,}08 > 3{,}41$ or $4.08 < 4{,}21$, this means that of organizational factors, vocational high schools are ready to implement e-learning but still need a few improvements. School management needs to improve organizational activities, including communication between departments for better coordination. The management of online learning through the e-learning system must be continuously regulated to adapt to the conditions of the COVID-19 pandemic(Mishra et al., 2020). School management must continue to conduct studies, approaches and formulate appropriate policies in order to improve several factors that were found to still have low scores and need improvement(Vitiello & Greenfield, 2017). This policy is important to increase the level of e-learning readiness so that it can achieve the best results. Several policies to improve organizational factors need to do several things, such as school management can increase socialization regarding the vision and benefits of using e-learning in the learning process so that the use of e-learning can be easily understood by students and teachers. In addition, school management can also provide direction regarding strategies for implementing e-learning, namely as a tool in the teaching and learning process.

The results of this research investigation also found that the e-learning material factor requires improvement. The score on the e-learning material factor is $\bar{x} = 4.02 > 3{,}41$ or $4.02 < 4{,}21$ means that the e-learning material factor in vocational high schools is ready, but requires a little improvement. Improvements that can be made for e-learning material factors are; can be more creative in creating and providing materials for the implementation of e-learning(Subbulakshmi & Ponshanmugakumar, 2021). Providing materials/modules in digital/multimedia forms that are easily accessible, so that the teaching-learning process can run optimally(Zwart et al., 2020). Teachers are a key factor in efforts to increase readiness with e-learning material factors, with adequate competence and thorough preparation, teachers can create quality e-learning materials that can be understood by students easily. Teacher readiness is an important factor to be improved(Hung, 2016). Teachers need to make improvements to improve the quality of learning content(Saravanan et al., 2021). This is important to increase students' enthusiasm for learning and motivate students to continue studying the learning material.

Factors that need to be improved on the results of this investigation are financial factors. The results of the calculation of the ELR score of financial factors have an ELR score is $\bar{x} = 4{,}08 > 3{,}41$ or $4{,}08 < 4{,}21$. This shows that the financial factors in vocational high schools are ready but still need few

improvements. Things that can be done to improve financial factors can be in the form of increased funding planning for the implementation of e-learning in board meetings. This funding plan can show that the source of funds from the school is sufficient or must be increased in order to meet the financing of e-learning implementation. Planning for funding needs for e-learning requires careful budget planning so that the implementation of e-learning can run well and maximally(Hong et al., 2021). Vocational high schools are expected to provide financial support and make details of funds to implement e-learning. Budget implementation can be done on the development of e-learning applications or allocation of funds managers or administrators who handle e-learning so that the implementation of e-learning can run well and maximally.

CONCLUSION

This investigative study concludes that the level of readiness for implementing e-learning in vocational high schools has reached the category of being ready to implement e-learning, but still needs a slight increase in several factors. Factors that still need a few improvements such as organizational factors, e-learning materials, and finance. This investigation also concludes that the identification of the readiness of ELR factors in vocational high schools shows that the readiness level of the Human Resources factor indicates that they are ready and the implementation of e-learning can be continued. In addition, the level of readiness factor in organizational factors shows that organizational factors in vocational high schools are ready to implement e-learning but need a little improvement. The level of readiness on the technology factor is ready in the application of e-learning and the application can be continued. On the infrastructure factor, this investigative study concludes that the factor is declared ready for the implementation of e-learning and the implementation can be continued. Then the level of readiness for financial factors in vocational high schools shows that financial factors are included in the ready category in the implementation of e-learning but still need a few improvements. And the last factor investigated in this study concluded that the level of readiness in the e-learning material factor was included in the ready category in the application of e-learning, but still needed a little improvement. The results of this investigation are expected to help vocational high schools to make plans and improvements in order to achieve success in the implementation of e-learning.

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