User Satisfaction Analysis of E-Learning Using End User Computing Satisfaction in Covid 19

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Abstract

Scele is a distance learning media used online by students of Poltekkes Kemenkes Riau during the Covid-19 pandemic. All lecture activities such as teaching and learning, quizzes, assignments, and other lecture activities are carried out through SCELE. In its operation, there were a number of problems felt by students that attracted the interest of researcher to conduct research on student satisfaction with SCELE. This research was conducted at Poltekkes Kemenkes Riau with the aim of identifying user satisfaction with the system. This study uses quantitative methods and uses the EUCS model. The population in this study amounted to 887 students. After calculating using the Slovin technique with a margin of error of 10%, the sample is 90 people and the sampling technique is accidental sampling. Process data analysis using PLS-SEM with SmartPLS 3.0. The results obtained are ease of use (EOU) and content (CON) affect user satisfaction while accuracy, format, and timeliness have no effect on user satisfaction.

Keywords
End User Computing Satisfaction, PLS-SEM, Scele.

1. Introduction
The application of information technology is believed to be able to improve the quality of education and can help the student learning process (Sopiandi 2017; Hamzah, et al., 2021; Hamzah, et al., 2019). An example of the role of information and communication technology in the field of education is the application of e-learning methods that allow lecturers and students can carry out lesson online or remotely (Kamal et al. 2020; Hamzah, et al., 2021). E-learning is

a technology built to enable teachers and students interact or carry out the remote teaching and learning process (Pakpahan and Fitriani, 2020; Hamzah, et al., 2022).

During the Covid-19 pandemic, the teaching and learning process is carried out online. Universities including Poltekkes Kemenkes Riau is required to create an e-learning system as a solution so the students and teachers can do the lectures. The e-learning system of Poltekkes Kemenkes Riau continues to develop and improve in order to achieve user satisfaction and quality with existing services. The quality of the system will affect the user satisfaction level. The better quality will increase the user satisfaction level. E-learning has a potential to create a more effective learning process due to the opportunity for students to interact with teachers and friends. The level of user satisfaction is a very important aspect in measuring the success of the system (Kamal et al. 2020). The higher the level of user satisfaction, the success rate of implementing the information technology will be higher(Purwati, et al., 2021; Achmadi & Siregar, 2021).

The system has been running for five years since 2016. From the result of observation, there are deficiency and weakness found from the system and also the e-learning has never been analyzed before on the student satisfaction level to the system. Therefore, it is necessary to analyze the e-learning especially in measuring the satisfaction level of the e-learning. Several problems were found, students are uncomfortable when using the system because of the display is still not user friendly which make they feel difficult to submit courses they want to take, the server often down, and the time on the e-learning is faster than the time it should be, it caused time to do or submit quiz and assignment shorter. Based on the problems described above, it is necessary to analyze the satisfaction level of the user from the system. In this research, the End-User Computing Satisfaction (EUCS) method is used. EUCS was developed by Torkzadeh and Doll in 1991 and can be applied in measuring user satisfaction level(Putera & Candiasa, 2021)**.**

End user computing satisfaction (EUCS) is a method or measurement model that is widely used by researchers in general to measure the level of user satisfaction of an information system by comparing user expectation with the facts perceived by user of the system (Munap et al. 2018). The components that become the benchmark for user satisfaction in this research are content, format, ease of using the e-learning, timeliness, and accuracy which are the constructs of eucs method (Tjong et al. 2018). User satisfaction will affect the intention to use the system and actual use. The satisfaction which felt by users will lead to acceptance of the e-learning. Torkzadeh and Doll in Ngurah et al. (2017) found five important aspects in measuring the user satisfaction level. The five aspects are content, accuracy, format, ease of use, and timeliness. Based on the introduction, the author is interested to do research on user satisfaction level of e-learning in Poltekkes Kemenkes Riau. This research is very important to do because due to the Covid-19 pandemic all learning process in Poltekkes Kemenkes Riau are carried out online using e-learning and that applies to all students and lecturers. Therefore, the role of e-learning is very important and e-leaning must be able to become a medium with good quality and of course make the learning process easier and provide satisfaction to the users. The objective of this research is to determine the student satisfaction with the e-learning system at Poltekkes Kemenkes Riau with using end user computing satisfaction method. Similar research was conducted by Sevtiyani and Fatikasari (2020) with the title User Satisfaction Analysis of SIMPUS Using EUCS Method at Puskesmas Banguntapan II. The result obtained is the factors that affect the user satisfaction of SIMPUS are format and timeliness. Another research was conducted by Jati et al. (2015) with the title Implementation of Academic Information System Analysis Using End User Computing Satisfaction Model (EUCS) at informatics engineering education study program. The result obtained is the factors that affect the user satisfaction of academic information system are content, accuracy, format, ease of use, and timeliness. Research by Sari and Syamsudin (2017) with the title Factors Analysis of End User Computing Satisfaction on User Satisfaction Case Study: Balikpapan Middle Tax Service Office. The result obtained is the factors that affect the user satisfaction are content, accuracy, format, ease of use, and timeliness.

2. Methods

2.1 Population and Sample

The population of this research is the students of Poltekkes Kemenkes Riau with the number of 887 students. The sample amount is calculated with using the slovin method Supriyanto and Iswandari (2017). Using 10% of margin of error and the result is 90 students will be the sample of this research. Taking the sample is using the accidental sampling method Sugiyono (2013).

2.2 Research Instrument

The data collected with using questionnaires that given to the respondents which is the students of Poltekkes Kemenkes Riau. The questionnaire made based on the eucs variables. Using five rating scale of respond based on the likert scale measurement data (Suwandi et al. 2018).

2.3 PLS-SEM Analysis with SmartPLS

The data that has been obtained will be processed using the SmartPLS 3.0 application with the PLS-SEM analysis method (Anwar and Azisan 2019). The process of data analysis consisted of measurement model analysis which consist of convergent validity and discriminant validity after that structural model analysis which consist of path coefficient, coefficient of determination, and t-test (Hair et al. 2020, Sarstedt et al. 2014, Hair et al. 2017).

2.4 Research Hypothesis

Hypothesis of this research are:

H1: Content (CON) has a significant positive influence on user satisfaction.

H2: Accuracy (ACR) has a significant positive influence on user satisfaction.

H3: Format (FORM) has a significant positive influence on user satisfaction.

H4: Ease of use (EOU) has a significant positive influence on user satisfaction.

H5: Timeliness (TML) has a significant positive influence on user satisfaction.

3. Results and Discussion

3.1 Convergent Validity

Convergent validity is carried out to see the value of standardized loading factor which represent the relation between the indicators and the variables. If the value amount is 0.7 and above, it is said to be valid and means the indicator is adequate (Rifai, 2015). According to Harlie and Chin in Ann et al. (2017) if the value amount is 0.5 and above, it is still can be used.

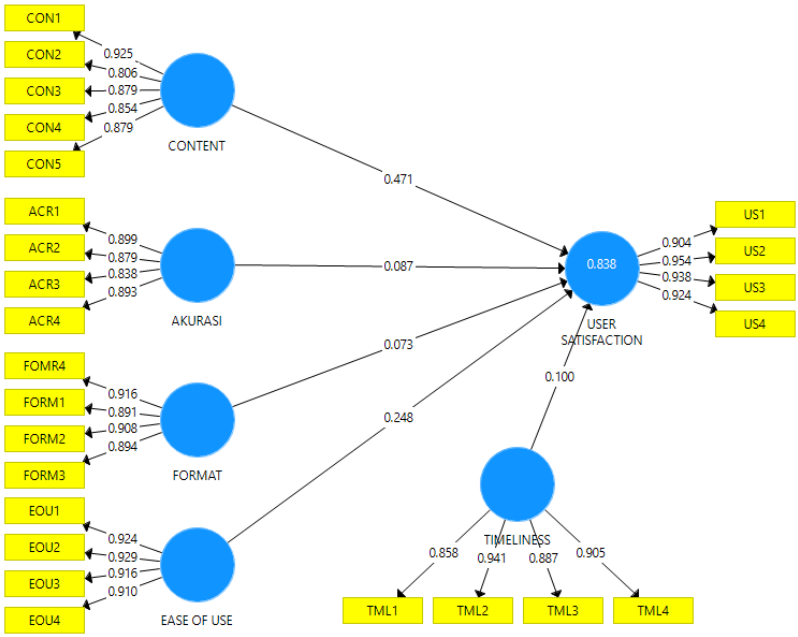

Figure 1. Outer Loading Value

The calculation result show (Figure 1) that all the indicators of each variables have outer loading value over 0.7. That means all the indicators is adequate and valid.

3.2 Internal Consistency Reliability

This section is carried out to check the value of composite reliability. If the value amount is 0.7 and above, it is said to be valid (Sarstedt et al. 2014).

Table 1. Composite Reliability

Variable	Composite Reliability
Accuracy	0.931
Content	0.939
Ease of Use	0.956
Format	0.946
Timeliness	0.943
User Satisfaction	0.963

The calculation result (Table 1)show that all variables have composite reliability value over 0.7. That means all variables are valid.

3.3 Average Variance Extracted

AVE value is obtained by averaging the reliability of the indicators of a construct (Hair et.al 2020). If the value of ave is over 0.5, it described that the variable is valid.

Table 2. Average Variance Extracted

Variable	Average Variance Extracted
Accuracy	0.770
Content	0.756
Ease of Use	0.845
Format	0.814
Timeliness	0.807
User Satisfaction	0.865

The calculation result show (Table 2) that all variables have ave value over 0.5. That means all variables are valid.

3.4 Discriminant Validity

Discriminant validity is carried out in two steps, first by looking at the cross loading value and second by looking at the fornell lackers value. Measurement of cross loading between indicators is carried out by comparing the relationship between one indicator to another. If the relationship between indicator and its variables is greater than the others, then it is said adequate (Devi and Hoyyi 2015). Measurement of fornell lackers is carried out by comparing the value of ave root between the variables. The calculation result of discriminant validity in this research show that all variables are valid and adequate.

3.5 Path Coefficient

Discriminant validity is carried out in two steps, first by looking at the cross loading value and second by looking at the fornell lackers value. Measurement of cross loading between indicators is carried out by comparing the relationship between one indicator to another. If the relationship between indicator and its variables is greater than the others, then it is said adequate (Devi and Hoyyi 2015). Measurement of fornell lackers is carried out by comparing the value of ave root between the variables. The calculation result of discriminant validity in this research show that all variables are valid and adequate (Table 3).

Table 3. Path Coefficient

Variable	Path Coefficient
Accuracy – User Satisfaction	0.087
Content – User Satisfaction	0.471
Ease of Use – User Satisfaction	0.248
Format – User Satisfaction	0.073
Timeliness – User Satisfaction	0.100

The calculation result show that whole path in the model has a positive influence with a value that is above 0.

3.6 Coefficient of Determination

Coefficient of determination is carried out to define the type of each endogenous variable. If the value is 0.75 and above is considered strong or accurate, 0.50 is moderate, and 0.25 or less is weak.

Table 4. Coefficient of Determination

Variable	Coefficient of Determination
User Satisfaction	0.838

The calculation result show (table 4) that the value of endogenous variable which is user satisfaction is 0.838 and it means the exogenous variable which are content, accuracy, format, ease of use and timeliness represent strongly (83.8%) variance of user satisfaction and the rest (16.2%) is influenced by other factors that is not included in this research.

3.7 T-Test

T-test is carried out using bootstrapping method with one tailed test and 5% significance used. This test is carried out to know if the hypothesis rejected or accepted. If the t-statistic value is higher than the t-table value, then the hypothesis is accepted. If the t-statistic value is lower than the t-table value (Table 5), then the hypothesis is rejected.

Table 5. Hypothesis Test

Variable	Original Sample	T-Statistic	P Values	Description
Accuracy – User Satisfaction	0.087	0.656	0.256	Rejected
Content – User Satisfaction	0.471	3.242	0.001	Accepted
Ease of Use – User Satisfaction	0.248	2.093	0.018	Accepted
Format – User Satisfaction	0.073	0.568	0.285	Rejected
Timeliness – User Satisfaction	0.100	1.025	0.153	Rejected

3.8 The Effect of Content on User Satisfaction

The result obtained after the calculation show that the hypothesis is accepted and the content variable has a positive and significant effect on user satisfaction. It is proven by the value of t-statistic is 3.242 and the value of p values is 0.001. The result showed that the content of the e-learning is already good, useful, and meet the students need for learning process.

3.9 The Effect of Accuracy on User Satisfaction

The result obtained after the calculation show that the hypothesis is rejected and the accuracy variable doesn't have a positive and significant effect on user satisfaction. It is proven by the value of t-statistic is 0.656 and the value of p values is 0.256. This situation can happen for several reason like the time on the e-learning is faster than the time it should be. Often when there is a quiz or assignment from the lecturer, the time for submit the task is shorter than it should be. Because of that, students often late when submit the assignment. Another reason is, there are few features when we click on that, it turns out to be different thing shown.

3.10 The Effect of Format on User Satisfaction

The result obtained after the calculation show that the hypothesis is rejected and the format variable doesn't have a positive and significant effect on user satisfaction. It is proven by the value of t-statistic is 0.568 and the value of p values is 0.285. This situation can happen for several reasons like the display of the system is still confusing, few icons or features have the same function, and when there is a new assignment or quiz from the lecturer, there is no notification that given from the system.

3.11 The Effect of Ease of Use on User Satisfaction

The result obtained after the calculation show that the hypothesis is accepted and the ease of use variable has a positive and significant effect on user satisfaction. It is proven by the value of t-statistic is 2.093 and the value of p values is 0.018. The result showed that the e-learning is ease to use by students of Poltekkes Kemenkes Riau. The easier to

operate the system, students satisfaction also increases against the system. The ease that offered by the system will make it easier for students in their lectures matters such as teaching and learning activities.

3.12 The Effect of Timeliness on User Satisfaction

The result obtained after the calculation show that the hypothesis is rejected and the timeliness variable doesn't have a positive and significant effect on user satisfaction. It is proven by the value of t-statistic is 1.025 and the value of p values is 0.153. The value of t-statistic is lower than the t-table value which is 1.66 and because of that the hypothesis is rejected.

4. Conclusion

Based on the research of User Satisfaction Analysis of Scele in Poltekkes Kemenkes Riau, the result obtained there are two variables that affect user satisfaction on the e-learning of Poltekkes Kemenkes Riau. The variables are content and ease of use. In this study, the content variable and the ease of use variable have a positive and significant influence on user satisfaction, this means that if the e-learning content is complete, useful, and in accordance with the user needs it will increase the satisfaction. Similar to content variable, if the system is easy to use for students in Poltekkes Kemenkes Riau, it will increase the satisfaction. The developers of the e-learning must pay attention to these two variables for the success of e-learning in the future. Content, accuracy, format, ease of use, and timeliness variables in this research represent strongly (83.8%) variance of the user satisfaction based on the coefficient of determination calculation.

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