

The Effect of Service Information System Quality on the Intensity of Use of Digital Learning Service Systems

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ABSTRACT

Information systems are used by organizations to help the organization's operations become more efficient in their role as a tool to win the competition. Data processing has become an important part of the Management Information System that will affect every organization's activities. Universitas Hasanuddin's management information system has developed an online information system through the website, namely the Learning Management System. The Universitas Hasanuddin Learning Management System is prepared to support and expedite the learning process. However, the current learning management system has not been understood by lecturers and students due to poorly understood features, slow system access, and a lack of socialization of the use of the learning management system at the department or study program level, so that it does not encourage lecturers and students to use it more often. Learning Management System. This study aims to determine how the system's quality significantly affects the intensity of use. This type of quantitative descriptive research uses a survey approach in this study. The respondents in this study were adjusted for lecturers with a sample of 100 people and students with a sample of 100 people. Data collection techniques included Questionnaires and Document Studies. Data analysis techniques using Structural Equation Modeling will be processed using AMOS software version 24.00. This study found that the effect of system quality on the intensity of use resulted in a cr value of $0.328 < 1.96$ and a p -value of $0.74 > 0.05$, so there was no significant effect of system quality on the intensity of use. This answers the hypothesis in the study. Namely, H_0 is rejected, and H_1 is accepted.

Introduction

In the science of public administration, management information systems are an important component and concept. Public administrations with a focus on public organizations must achieve goals that require the use of all available resources. According to Davis (2009), providing important and influential information on all organizational operations is the task or function of the management information system. Organizations use information systems to improve organizational operations become more efficient and their role as a tool to win the competition. Information systems are one of the main factors that distinguish competitors from organizations (O'Brien, 2006). In providing an advantage over market competition, an organization

will use information systems to develop the capabilities, products, and services offered.

The presence of pandemic COVID-19 has forced all students and lecturers to do learning from home on the spur of the moment, with no preparation. The change in learning was finally carried out, which was originally face-to-face then became an online system. Therefore, it requires readiness from all parties involved in this process, such as parents, students, lecturers, universities, and the government. With that, the lecturers use various creative learning models, by utilizing existing technology for learning that is carried out online.

In the current learning system, almost all countries in the world have used technology as a solution to various obstacles faced in the world of education. According to Syarifudin (2020), improving the quality of learning in the face of COVID-19 in Indonesia requires creating an innovative learning system through the internet that can be done remotely. This is done to prevent wider transmission of the virus, which is in line with the Indonesian government's regulations, which require large-scale social restrictions. (Siregar et al., 2020). To adjust the needs of effective distance learning, the capacity of teaching staff who master technology is needed. It is because the main thing that this system needs is a computer and an internet network.

This Management Information System was developed by Universitas Hasanuddin for the first time with the World Bank through the I-Mhere project from 2007 to 2010 to achieve good governance, make campus management more effective, and realize accountability in university life (Sueb et al., 2020). Universitas Hasanuddin, for example, will change over time in order to compete in international competitions. As the largest university in eastern Indonesia, every graduate from Universitas Hasanuddin must be of high quality and quality by their respective fields of knowledge and be committed to nation-building in the future.

Today, Indonesia is in the information age. For this reason, Universitas Hasanuddin must be able to provide information quickly and accurately. With the growth and development of complex organizations, a management information system is needed that can provide data and information that will be used to determine development policies and strategies, as well as the availability of data and information. Factors that can influence the improvement of study programs in public and private universities are a good management information system, producing quality alumni, market demand, science and technology development, and human resources quality. This factor encourages universities to continue to develop, including development of facilities, educators, education staff, academic services, and so on.

Universitas Hasanuddin's management information system has developed an online information system through the website, namely the Personnel Information System (SIMPEG), Academic Information System (Neosia), Learning Management System (SIKOLA), Financial Information System, and Student Information System. The larger the organization, the more data that needs to be processed and the

information network it manages. Data processing has become an important part of the management information system that affects the entire activities of an organization. Data and information are used for decision-making, daily operations support, evaluation, and competitive needs.

Management information systems play an important role and advantage between data processing facilities and employees as users. When data is collected, it is processed between other units, after which how data is stored, *feedback* from data, and data distribution can integrate the link between the environment and parts of an organization. Accurate and fast information is an asset to the rapid development of an organization – the larger the organization, the more diverse the data that must be processed. As a result, without receiving information, companies and organizations lose control of their resources for a certain time, causing great confusion and, eventually, weakness in making strategic decisions. With competitors, the company at least beats the failure of the management system due to wrong decisions or decisions based on poor quality information.

The required report is not only raw data on the output of an education system but also the ratio of outputs and inputs of the resources used to make indicators of the effectiveness and efficiency of education for use in monitoring and improving the system needs to be carried out. Whether it is the amount of reporting (e.g., college grades, and graduations) or the quality of teaching (e.g., problem-solving ability or creativity), the output is simply a standard measure and a measure of the productivity and efficiency of a reflection process.

An efficient management information system, as a data set of final results, outputs, processes, and inputs, must be provided in a consistent manner with each other so that this efficiency ratio can be calculated (McMahon, 2004). According to Jogiyanto (2007), errors in information system implementation can be divided into two categories: technical errors (the side about the system itself) and technical system quality. Poor technical quality includes many syntactic, logical, and even informational errors. The second aspect is the non-technical aspect. Non-technical barriers are obstacles that make users of information systems want to use developed information systems or are hesitant to use developed information systems.

The results of Oktapiani et al. (2016) explained that service quality affects user intensity, user satisfaction intensity affects users, and user satisfaction affects net profit. At the same time, Wara et al. (2021) explain that user satisfaction, not usage, affects the net utility variable. User satisfaction depends only on the quality of information. Usage variables are influenced by the system's quality and service quality. One popular model, which focuses on successful implementation at the organizational level, is the model developed by DeLone and McLean (1992) known as the DeLone and McLean information systems success model.

In this model, the success of an information system can be measured by looking at how the quality of the system, whether it can provide quality information (information quality), which is no less important than whether the customers who use the system are satisfied (user satisfaction), how the system is used (use), whether this system affects its users (personal impact), and whether the influence of this system

affects the organization significantly. Theory testing by Delone and McLean (1992) itself has been applied to many studies. Many empirical studies have been carried out in various fields, so the latest criteria emerged in 2003, namely whether the services provided by this system are of a good level of *quality (service quality)* and whether the system can provide *net benefits (net benefit)*.

Universitas Hasanuddin provided an application-based SIKOLA system in 2020 to support the online learning process. This application system is expected to be able to become a bridge for lecturers and students during a pandemic that limits face-to-face meetings. The Learning Management System (SIKOLA) at Universitas Hasanuddin was launched as an application to aid and facilitate the learning and teaching processes between lecturers and students. SIKOLA is not a newly created application but an upgrade from the previously existing Universitas Hasanuddin Learning Management System (LMS) application. The LMS was eventually made SIKOLA because, since the end of 2019, the system has yet to receive the required capacity increase.

SIKOLA is a Learning Management System (LMS) application that has improved its system. In this case, what is developed is a learning process that is carried out online, the change to the SIKOLA application is a significant change that can be said to upgrade the conservative model that has been used to be online-based. In addition, several new features are also embedded, which will facilitate access for all SIKOLA users. However, SIKOLA, which has been implemented at this time, still needs to be understood properly by its users, be they students or lecturers whose learning process must go through the application. Some of the things that users complain about are that there are still some more complicated features, the most frequent complaint is the operation of the system, which is not fast when users want to access; and what also hinders this system is socialization, which is still minimal and not comprehensive to the lowest level, such as departments, and the lowest level is each study program. Some of the things above finally make users, students, and lecturers reluctant to use this system to implement daily learning. Other easier applications such as Zoom meetings and Google Meet, are used as solutions that lecturers more widely use in their learning.

After elaborating on the background mentioned above, the study was conducted to know and analyze the effect of the quality of service information systems on the intensity of online learning service systems using information system models from DeLone and McLean.

Literature Review

Other previous research has also been carried out, especially regarding information systems, in this case by Lidya Stefany Wara et al. (2021) with the title Testing the success model of the Delone and Mclean information systems on the Examination Application System (SiAP) at the Financial Audit Agency of the Republic of Indonesia representative of North Sulawesi Province, by looking at the variables of the Delone and Mclean Information System success model, SiAP, The

success of information systems is reflected in the fact that net utility variables are affected by user satisfaction and not by usage.

User satisfaction is only influenced by the quality of information, while usage variables are influenced by the quality of system and quality of service. In addition, research conducted by Haura et al. (2021) through the evaluation of the regional real estate management information system in the city of Bandung, the quality of the system and the quality of verified services do not affect user satisfaction, but the quality of information affects user satisfaction. User satisfaction has been shown to affect the benefits of SIMDA BMD. In addition, Musyafa Al Fariz (2018) also examined the Delone and Mclean information systems to measure the e-billing tax modernization system's success according to Semarang City corporate taxpayers. The quality of service factor is inadequate, with 70.2% of electronic e-billing systems considered inadequate for users and corporate taxpayers.

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Electronic Government Concept (e-Government)

E-government refers primarily to government agencies that upgrade public services through information technology (especially pathways to scholarly societies), business-industry interactions, and increased efficiency of government operations (Torres et al., 2005; Grönlund and Horan, 2005; Saheer Al-Jaghoub et al., 2010; Zaidi and Mazen K. Qteishat, 2012). E-government (1) facilitates public access to government information and services, (2) improves service quality by improving speed, information integrity, and more efficient processes, and (3) forums and opportunities for community participation as a form of the democratic process. Implementing e-government involves not only a deeper transformation of how government interacts with society but also process management in terms of 1) implementing IT for automation, collaboration, integration, government governance, etc., being present in support of each stage of decision-making, and 2) externally, they are present to become a provider of information services through online media (Grönlund, 2002).

Management Information System

According to O'Brien and Marakas (2014), Management information systems are an organized combination of people, hardware, software, communication networks, data sources, and organized policies and procedures that store, transform, and separate information in an organization. Meanwhile, Jogiyanto (2017), said that a management information system is an information system that produces outputs using inputs and various processes needed to achieve the objectives of management activities.

Delone and McLean's Model of Success

According to DeLone and Mclean (2003) in Jogiyanto (2007) stated that the information system indicators for measuring management success in information systems are:

1. The system's quality and the information produced by the system must have high accuracy and guarantee the efficiency created.
2. The quality of the information and the information produced should be relevant, as well as whether the information is obtained quickly.
3. Usage, this system is used by users without coercion but really because they need the system.
4. Satisfaction from users, when a system can provide benefits to its users, users will give feedback about the application.
5. Influence on the Individual, the information received can influence the behavior of the recipient of the information.
6. The impact is operational, and this information system can improve organizational performance.

From these indicators, a conclusion was reached that explains that the system's quality can influence the system's frequent use, and the quality of information also has the same influence, or the two things above simultaneously affect satisfaction and use. Many parts of us have a big negative and positive influence on user satisfaction. The amount of use and the level of user satisfaction have an individual influence and ultimately influence the organization.

Intention to Use

The use referred to here is whether the system is used periodically by the user. In this case, it is necessary to know the difference between using the system because it is mandatory so that it is inevitably used or because the user gets benefits so that it uses the system voluntarily. This variable can be measured using several indicators, namely:

1. Daily use
2. Frequency of use

3. Reason to use (intention to use) whether respondents use this system in assisting the completion of individual and organizational work.

Research Methods

Descriptive qualitative is used for this research, which aims to describe or explain the characteristics of the situation or research subject that is collected and analyzed quantitatively, then tested with statistics. (Djarwanto, 2012). The nature of this study is associative, which means it inquires about the impact of several or more factors (Sugiyono, 2015)

This research uses a survey approach; Syamsu (2017) said that research studies are a type of research technique that collects information from a series of samples in the form of people through questions. The survey method is a research method that uses questionnaires as the main instrument for collecting data in the field. This research was carried out at the University Campus, and data collection starts from January to March 2022. The population in this study was all lecturers and students at Universitas Hasanuddin. The lecturer population amounted to 1,532 people, while bachelor (S1) students amounted to 28,529 people. This study uses the calculation of the solvent formula sample (Sugiyono, 2015).

Respondent In this study, it was adjusted for lecturers with a sample of 100 people and students with a sample of 100 people, so the total sample used was 200. The data collection technique in this study was through questionnaires and document studies. The data in this study with analytical techniques using Structural Equation Modeling (SEM) will be processed using AMOS software version 24.00. The operational definition of each variable, Intensity of Use (intentional use), refers to how often users use information systems. Daily use, frequency, and intention to use are indicators measuring use.

Results and Discussion

Intensity of Use

The intensity of use is the extent and manner, which the user utilizes the capabilities of the information system (DeLone & McLean, 2016). The measured value is, e.g., quantity, frequency, purpose, and suitability of use. This variable refers to how often the user uses the information system. It indicates whether its use is mandatory or optional. The indicator is how often users use the information system (Jogiyanto, 2007). Usage refers to how often users use information systems. The use referred to here is whether the use is voluntary or mandatory in using the system. These variables are measured using several indicators as follows:

Frequency of Use

This indicator shows how often users use such information systems. From this indicator, the question given to respondents is how often respondents use the SIKOLA learning system application. On this question, an answer was obtained from lecturer respondents. Namely, 47% said they often use the application learning system, and 24% very often. However, there are still many lecturers who often use learning applications to support their learning methods. Namely, 29% said that they rarely access SIKOLA to support the teaching and learning process.

Then for the category of students, the respondents themselves stated that they very often access SIKOLA as much as 21% and often as much as 61%. Meanwhile, approximately 18% of those who answered "rarely" used SIKOLA's learning system (see figure 2).

**Intensity of Using the Sikola Application
(Lecturer Opinion)**

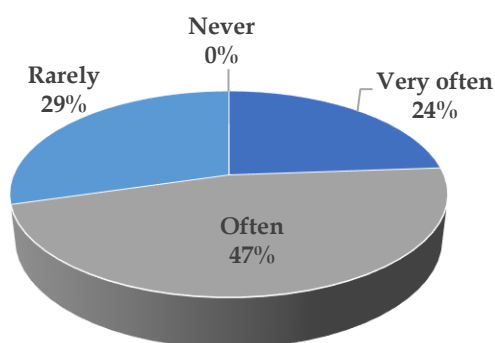


Figure 1. Answers from Lecturer Respondents about the Intensity of Use of SIKOLA

Source: Processed Data, 2022

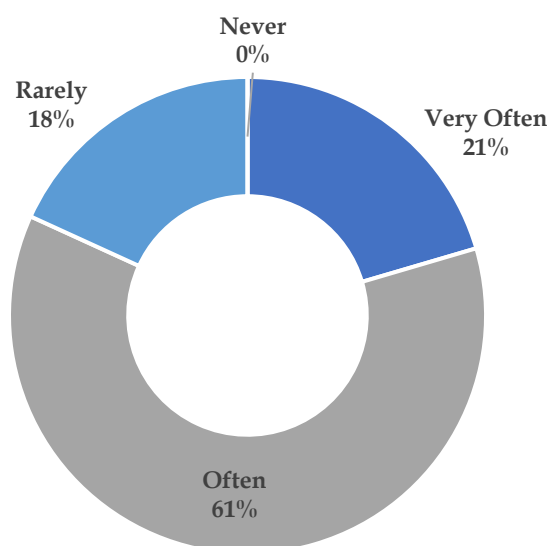


Figure 2. Student Respondents' Answers about the Intensity of Using SIKOLA
Source: Processed Data, 2022

Daily Use

In this indicator, the question asked respondents, both lecturers and students, the intensity of lecturers and students in accessing the SIKOLA learning system application daily. The data obtained from the survey results stated that lecturer and student respondents access the SIKOLA learning system application only when lectures are scheduled on certain days. As many as 64% answered when there was a lecture for lecturer respondents and as many as 73% of respondents from students stated the same. However, some respondents replied that they access the SIKOLA system daily; in this case, as much as 15% of lecturer respondents and 20% of students (see figure 3 and figure 4).

Although the number of perceptions of lecturers and students who answered rarely accessed the SIKOLA learning system in a day was only 20% for lecturer respondents and 7% for student respondents (see figure 3 and figure 4).

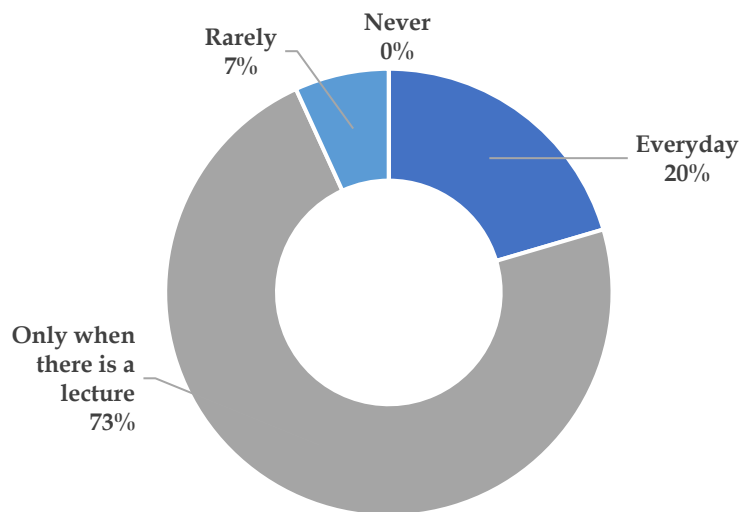


Figure 3. Answers from Lecturer Respondents about SIKOLA Access in a Day
Source: Processed Data, 2022

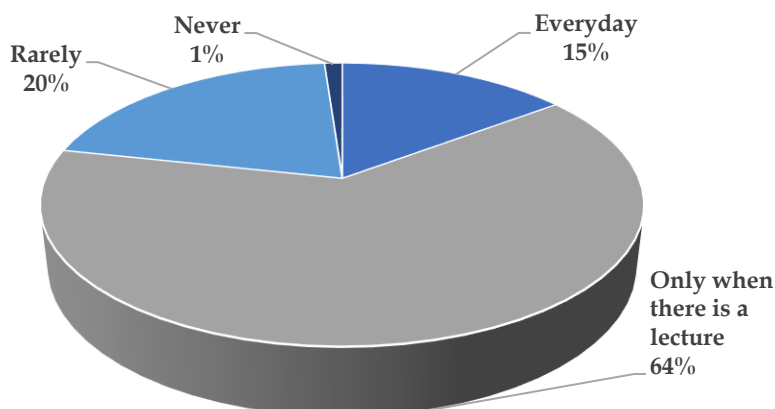


Figure 4. Student Respondents' Answers about SIKOLA Access in a Day
Source: Processed Data, 2022

Intention to Use

Intent to use is used to measure respondents' opinions about the system's usefulness to their work. The question asked was how respondents thought about the usefulness of the SIKOLA learning system application. From this question, the results obtained for the category of lecturer respondents stated that the usefulness of the SIKOLA learning system was very useful, namely as much as 31%. Similarly, SIKOLA's answer choice is useful at 56%. When the two

answers are combined, it is concluded that there are 87% of respondents who lecturers stated that the SIKOLA learning system application is useful. However, it does not deny this learning system's shortcomings. From the survey results, it is stated that 13% of lecturer respondents stated that SIKOLA's learning system is less useful (see figure 5).

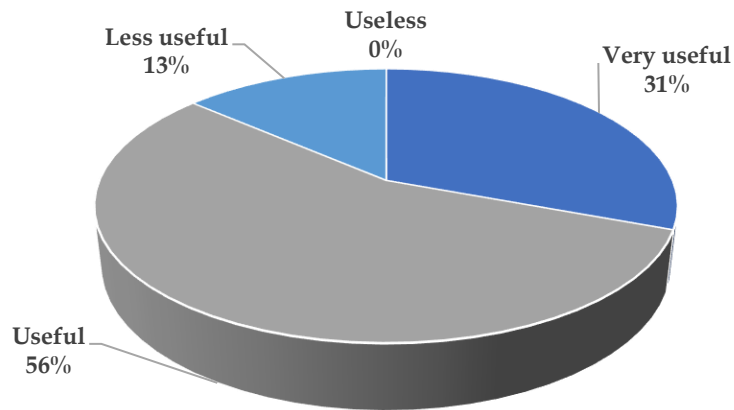


Figure 5. Answers from Lecturer Respondents about the Usefulness of SIKOLA for Students

Source: Processed Data, 2022

Similarly, the survey results for the category of student respondents were almost the same answer as lecturer respondents. The survey results stated that 29% of answers were very useful, and 64% said they were useful. As for the less useful answers, only about 7% (see figure 6).

The Use of the Syllabus Learning System for Students

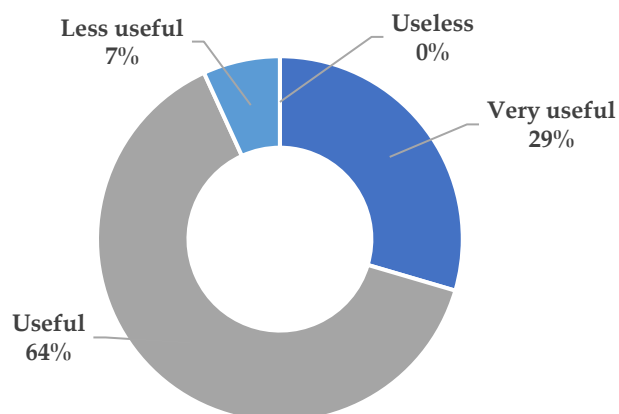


Figure 6. Student Respondents' Answers about the Usefulness of SIKOLA for Students

Source: Processed Data, 2022.

Instrument Quality Test Results

a) Validity Test

A validity test is a statement that can be trusted for its truth according to reality. The validity of its use in measuring the validity of the questionnaire should be tested. This study used *Confirmatory Factor Analysis* (CFA) in the AMOS program. CFA is Used to test the ability of indicators (questionnaire statements) used to inform variables. The validity of each indicator is seen from the size of the loading factor. The instrument is said to be valid if the loading *factor* is ≥ 0.50 (Ghozali, 2017). The results of validity testing in this study are as follows:

Table 1. Validity Test Results

Variable	Indicators	Estimate	Information
The intensity of Use (IP)	Y1 = Daily use	0,786	Valid
	Y2 = Frequency of Use	0,843	Valid
	Y3 = Intention of Use	0,805	Valid

Source: processed data, 2022

From the table above, we can see that the validation results meet the specified requirements. Therefore, the questionnaire instruments used can be classified as valid.

b) Reliability Test

A reliability test measures how consistent an instrument of statements is. To measure reliability in this study, look at CR (*Construct Reliability*). When the value obtained by CR 0.70, a construct or variable is considered reliable (Ghozali, 2017). The results of the reliability test are shown in the table below:

Table 2. Reliability Test Results

Variable	Construct Reliability
Intensity of Use	0.859

Source: processed data, 2022.

Table 2 shows that, based on the results of AMOS reliability tests, the construct reliability value for each variable is 0.70, indicating that it is reliable and will be used in future tests.

c) Hypothesis Testing

The next step is hypothesis testing. *Regression weight* was used in hypothesis testing in this study. According to Ghozali (2017), if the critical ratio (CR) value is greater than 1.96 and the p-value with a comparison of significance levels ($\alpha = 5\%$)

or 0.05, the exogenous variable has no effect on the endogenous variable. CR with three stars (***) , which means it has a very low value, amounting to <0.001

Table 3. Hypothesis Test Results

No	Hypothesis	C.R.	P -value	Conclusion
1	System quality significantly affects the intensity of use	0,328	0,74	Insignificant

Source: processed data, 2022.

Based on the hypothesis in table 3 above, it can be explained that the influence of system quality on the intensity of use produces a cr value of $0.328 < 1.96$ and a p-value of $0.74 > 0.05$, so it can be said that intense use by users has not been directly affected even though the information system has been qualified.

The results of hypothesis tests on this variable show that the intensity of use is only sometimes significantly influenced by a higher-quality system. This research has yet to align with the successful system information model by DeLone and McLean (1992). The success of a mandatory system can be assessed by SIKOLA users, lecturers, and students for the system's quality. Lecturers and students will use SIKOLA more often if they have a quality system. The application system is convenient and has an easy-to-use display, which can encourage users, lecturers, and students, to continue to use it. The faster SIKOLA responds to commands will affect the level of use. From the analysis results, it can be concluded that if the application is less reliable, less flexible, and has features and functions that users poorly understand, it will affect the intensity of use.

Furthermore, Afnan (2018) conducted a study in the context of KAI e-ticketing, finding that use is not influenced by the quality of the system used. The system of e-ticketing is simple. In addition, the e-ticketing system is a necessity, users will eventually think about their needs, not just about the quality of their system. In contrast, research by Yuliasari (2014) and Hudin and Riana (2016) concluded the same. According to Yuliasari (2014), a quality system is needed to get the desired response. On the contrary, there may be rejected if the system's quality is poor. Hudin and Riana (2016) demonstrated that a quality system has a strong influence on use.

Conclusion

Based on the results of research and analysis, it was found that the effect of system quality on the intensity of use resulted in a cr value of $0.328 < 1.96$ and a p-value of $0.74 > 0.05$, so there was no significant influence between system quality and intensity of use. This answers the hypothesis in the study that H0 is rejected and H1 is accepted. The quality of the SIKOLA system at Universitas Hasanuddin can be improved through faster system access, minimizing server errors, and evaluating existing system-supporting features to make it easier for users. In this case, students and lecturers are expected to make things simpler.

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