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The effect of System Quality, Information Quality and Service Quality on Use Intensity and Satisfaction of Integrated Academic Informastion System(SIAT) Users in Gorontalo State University Rizan Machmud* Faculty of Economics, Gorontalo State University
*rizan@ung.ac.id Abstract Information technology is very crucial at this time where almost all forms of business use information technology.

One form of use of information technology is a product made from the Information and Communication Technology Technical Implementation Unit (UPT TIK) of Gorontalo State University (UNG) namely the Integrated Academic Information System (SIAT). SIAT is currently running for eight years in all faculties in UNG, but no research has been conducted on the level of satisfaction of its use of SIAT products.

Using the DeLone and McLean (2003) model, this research was conducted to examine the satisfaction of SIAT users in terms of system quality, information quality and service quality and the intensity of the use of SIAT. Explanatory research methods with survey approaches are carried out. Data collected as many as 386 data from 500 data distributed by stratified random sampling method. Data were analyzed by PLS-SEM to test the hypothesis.

The results showed that system quality had no significant effect on the intensity of use of SIAT, information quality and service quality had a significant effect on intensity of use, then when the intensity of use was intensely used by users, user satisfaction was better and vice versa when the satisfaction of users of SIAT was good. the higher it is.

Keyword: system quality, information quality, service quality, usage intensity, user satisfaction
PRELIMINARY In a dynamic business, change is something that cannot be avoided. Especially if it is related to the Development of Information Technology (IT). Today's rapid development can make work faster, easier, more efficient and effective in various forms of business, including service businesses (Murdick et.al, 1997; Mc.Leod, 1997). McKeen in al. (1994) explain why information system users are very vital and

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cannot ignore.

Thus the satisfaction of system users (User satisfaction) is a need to be fulfilled. The response and feedback that the user raises after using the information system is a way to measure user satisfaction. According to Stanton (1994) and Kotler (2002) satisfied or not consumers are determined by comparing the expectations of a product or service with experience when consumers consume the product or service. If the product performance meets the expectations of the user, the level of customer satisfaction is high and vice versa.

Gorontalo State University (UNG), one of the business centers of higher education services in Gorontalo Province, is trying to keep abreast of information technology. One proof is that UNG has developed an information system application called SIAT (integrated academic information system) as a one-door academic service for students and the entire UNG community. SIAT itself has been implemented in all faculties in UNG for more than 8 years at UNG.

The problem is that during this period there has never been a study to measure the satisfaction of SIAT service users to find out more about the success of a system. To analyze the level of satisfaction of SIAT users, the models from DeLone and McLean try to be applied to measure the intensity of use and user satisfaction. According to DeLone and McLean, the quality of information, system quality and service quality have an effect on the level of information system usage and the level of satisfaction of information system users.

LITERATURE REVIEW Information Systems Information is crucial for management for management decision making, the right information can make a decision taken better and minimize the risk of decisions made. Quality information can be obtained from an information system developed by the organization. McLeod et al. (2007: 10) explains that the Information system is a virtual system that allows management to control the operations of a company's physical system, in other words reducing manual processes in each company's operations.

Information System is a collection of hardware, software, brainware, procedures and or rules that are integrated to process data into information needed for decision making to solve problems. The opinion from McLeod above is supported by (Laudon and Laudon, 2000) which explains that information systems will produce output in the form of images, sounds and interconnected writings that result from collecting data, processing, storing, and distributing information to support making satisfaction and supervision in the organization.

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Then Bodnar and Hopwood (2000) explain that computer-based information systems are the necessary combination of hardware and software to transform data into information. Laudon and Laudon, (2000) explain that in designing information systems a technical approach and behavioral approach are needed or a combination of the two approaches. The technical approach emphasizes the mathematical model of a system of information and technological skills physically and formally a system while a behavioral approach is related to human behavior needed to respond to behavioral problems such as system utilization, implementation, and creative design that have an impact on behavior and attitude changes. King et al. (1994) support this statement by revealing that information systems must consider internal and external factors.

Internal factors, namely human factors that influence the process of adoption and design of information systems themselves, besides that King et al explained that human behavior in information systems includes the value system of individuals and organizations, norms, and strategic interests and needs of the organization. External factors that come from the environment outside the organization.

System Quality, Information and Services and Their Impact on Usage Intensity and User Satisfaction Previous research is from Ives et al., (1983); Bailey and Pearson, (1983); Doll and Torkzadeh, (1988); Seddon and Yiew, (1992); Mahmood et al. (2000); Doll et al. (2004); Livari, (2005); Landrum and Prybutok, (2004) generally explain the success of information systems represented by user satisfaction.

DeLone and McLean (1992) state that satisfaction of information system users is influenced by 2 (two) variables, namely the quality of the system and the quality of information. Then DeLone and McLean (2003) develop that information system user satisfaction is influenced by 3 (three) variables, namely system quality and information quality and service quality. Quality of service is added to accommodate human factors in the use of information systems.

The three variables are predicted to affect significantly the intensity of system usage and also affect the satisfaction of the users of the information system in question. A system success will have an impact on individual and organizational users, and user satisfaction which in turn impacts on organizational performance (Markus and Keil, 1994).

System quality is defined as **the quality of the combination of hardware and software in information systems** (DeLone and McLean, 1992), when the quality of the system is increasingly considered good by the user, it can lead to better system quality and quality of system output provided. For example the speed of time to access; and the usefulness of the

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system output, will cause users not to feel reluctant to reuse, thus the intensity of system usage will increase.

Similarly, the quality of information is information obtained by users as correct information from trusted sources (King et al 1994; DeLone and McLean, 1992; 2003) which will make users believe that the information produced is appropriate for making decision-making bases. The stronger the trust in the information produced, the more likely the information system will be used more often and user satisfaction with the information produced can be better. DeLone and McLean (2003) add a measure of service quality, because they want to add elements of human behavior in information systems.

Kettinger et al (1995) and Li (1997) state that information systems cannot be separated from human behavior, because designers and users of information systems are humans themselves so that those who are able to measure the success or failure of information systems are users, namely humans. The opinion of Jiang et al (2002) is one of the cornerstones of DeLone and McLean (2003) to add an element of service quality.

Jiang explained that information systems are closely related to service quality (SERVQUAL), which was first introduced by Parasuraman and Zeithamal (1984). Parasuraman and Zeithamal measure SERVQUAL with tangible, reliability, responsiveness and empathy. Jiang et al (2002) explained that information systems are called tangible because they are a combination of hardware and software that can be physically seen and felt, then information systems are measured by reality because information systems are highly dependent on users.

Responsiveness measures information systems based on service responses for their use. Assurance relates to the knowledge possessed by information system designers and users of information systems. Finally, information systems are created basically as a form of empathy or a sense of concern for users having caring users.

Referring to this, the better quality of service that can be felt by users will open the opportunity for users to feel like continuing to use information systems. In addition, when the information system is often used is an indication of the satisfaction of users of information systems. Referring to the opinion above, the hypothesis appears in this study, namely: H1: System quality affects significantly the intensity of the use of information systems H2: information quality affects significantly the intensity of information system usage H3: service quality significantly affects the intensity of the use of information systems. H4: the intensity of the use of information systems will have a significant effect on user satisfaction.

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H5: user satisfaction has a significant effect on the intensity of the use of information systems RESEARCH MODEL Referring to the research hypothesis above, this research model can be made. The research model can be seen in Figure 1. Figure 1. Research Model Note: IS-Q: system quality; INF-Q: quality of information; SERVQUAL: service quality; Inn-Use: intensity of use of information systems; User-Sat: user satisfaction. RESEARCH METHODS This research is explanatory research with a survey approach.

The object of this research is the SIAT information system that has been implemented at UNG for 8 years. Respondents from this study were UNG students in the Faculty of Economics semester 3 and above. The Faculty of Economics was chosen because it is a pioneer Faculty that implements SIAT.

The 3rd Semester students and above were chosen because they had become SIAT information system users for more than a year, so it was expected that they would know enough about SIAT. The sampling method was taken proportionally in each department in the Faculty of Economics, UNG with a stratified random sampling method. In this study 386 data were collected during a period of 2 months collecting data from 500 data distributed through the SIAT student account and e-mail from UNG students who were already registered at SIAT.

It can only be collected 386 possibly caused by many e-mails being inactive or rarely used by students or new e-mails of students who are not informed by the SIAT manager. The data collected was analyzed using PLS-SEM with 2.0M3 SmartPLS software. Validity test is done by looking at the value of the loading factor and AVE which is higher than 0.5

while the reliability test uses a reference composite composite value greater than 0.7 (Hair et al. 2010). In this study, the hypothesis can be accepted if it has a higher C.R value than 1960. DEFINITION OF VARIABLES AND MEASUREMENTS Quality of the SIAT System The quality of the system is the student's perception of **the quality of the combination of hardware and software in** the SIAT information system (DeLone and McLean, 1992).

The indicators used are 4 of the 8 indicators used by Hamilton and Chervany (1981), namely ease of use, ease of access (system flexibility), speed of access (response time), and resistance to damage (reliability). The respondent's perception of the indicator was measured by a 1-5 Likert scale. Information Quality SIAT Information quality refers to student perceptions of the output of information systems, concerning the value, benefits, relevance, and urgency of the information produced (Pitt and Watson, 1997).

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This variable is measured by the 4 indicators used by Bailey and Pearson (1983), namely accuracy, timeliness, completeness and presentation of information. Respondents' perception of the indicator was measured by a Likert scale Quality of Service SIAT Quality of service refers to the perceptions of students in the process of using information systems by users.

The indicator is a combination of hardware and software (tangible), the information system is very dependent on its users (reliability), information systems are responsive to service users (responsiveness), information systems require workers who have knowledge and information systems that have caring users (empathy).) (Jiang et al. (2002). Intensity of Use of Information System SIAT The intensity of the use of information refers to how often students use information systems.

This variable is measured by the indicators McGill et al. (2003) which only consists of one item, namely frequency of use. Respondents' perception of the indicator was measured by a 1-5 Likert scale. Information System User Satisfaction SIAT System User Satisfaction (User satisfaction) is a perception of the response and feedback that the user raises after using the information system. This variable is measured by the indicators McGill et al.

(2003) which consists of 3 items, namely efficiency (efficiency) an effectiveness (effectiveness), and satisfaction (satisfaction), and pride in using the system (proudness). Respondents' perception of the indicator was measured by a 1-5 Likert scale. RESEARCH RESULT Test Validity and Reliability As previously explained, the value of alpha and cronbach is used as a reference to determine the validity and reliability of the research instrument. The results of validity and reliability tests can be seen in table 1. Table 1.

Test Validity and Reliability Item Loading Factor AVE Composite Reliability System Quality 0.584 0.777 ease of use 0.581 system flexibility 0.795 response time 0.698 Reliability 0.759 Information Quality 0.582 0.704 Accuracy 0.682 Timeliness 0.583 Completeness 0.658 Format 0.592 Service quality 0.588 0.733 Tangible 0.804 Reliability 0.768 Responsiveness 0.830 Assurance 0.624 Emphaty 0.628 Usage Intensity frequency of use 0.671 0.671 0.811 User Satisfaction 0.529 0.744 Efficiency 0.753 Effectiveness 0.501 Satisfaction 0.734 Proudness 0.699 From table 1, it can be concluded that the statement items of all the variables studied have a factor loading value greater than 0.5

and do not need to be dropped because it produces a value of AVE that is also higher than 0.5. In other words, if it refers to the Factor loading and AVE values, all research variables

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can be considered valid. Then for the reliability of the reference value, the composite reliability value is greater than 0.7 (Hair et al. 2010).

Table 1 states that all research variables for composite reliability values are at reliability values above 0.70. Hypothesis testing After testing validity and reliability and the results are declared valid, the next step is to test the hypothesis. The results of hypothesis testing can be seen in the picture of model 2 below: Note: Ific Significant ---> not significant
DISCUSSION AND CONCLUSION Based on the results of the analysis of research, it can be elaborated on the effect of system quality, information quality, service quality, intensity of use, and user satisfaction on the SIAT information system. In model 2 shows that there is an effect of the system quality variable on the usage intensity of CR 1.09 or lower than the reference value of 1960, in other words hypothesis 1 is not accepted.

This can be interpreted that there is no significant influence between the quality of the system and the intensity of the use of SIAT. These results explain that UNG students seem to perceive that the quality of the SIAT system does not pay too much attention to the quality of the system or whether the students who are needed by the academic services are good or not because they may not fully understand the system processes, hardware and software problems that students can know running well or not.

In other words what makes students more often access SIAT is not the quality of the system, but it seems the quality they feel regardless of how the application is designed. In the figure of model 2 above it is shown that the quality of information has a significant effect on the intensity of the use of SIAT. This is indicated by the value of CR 2.52 which is higher than 1960. In other words, hypothesis 2 is accepted.

These results indicate that after students feel they can get academic information that can be trusted quickly and well through SIAT. For example, information issued by SIAT is valid information from trusted sources, because students can get one academic information from grades or submission of examinations or graduations.

In the picture of model 2 above, it is also shown that hypothesis 3 is accepted, because service quality has a significant effect on the intensity of the use of SIAT with a value of CR 4.10 higher than 1960. These results provide a strong belief that the better the quality of SIAT services, the higher the intensity of the use of SIAT.

The quality of SIAT services is indicated by menus or features that are considered beneficial for students. Students feel that with the existence of SIAT students are very helpful, with this online-based academic information system students simply have to re-

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register to other academic needs, enough access from anywhere and paperless.

So with the convenience, the SIAT will continue to be accessed by students happily not just running the obligation to access the SIAT issued by UNG. Although it is obligatory to access SIAT but when the service cannot function, there are complaints from students. If the obligation to access SIAT is accompanied by good service quality from SIAT including services from its managers, students will feel happy, this means that students' expectations of SIAT can be well accommodated. Then for hypothesis 4 shows a significant value of CR 2.03 which is higher than 1960 which means that the higher the intensity of the use of SIAT, the higher the user satisfaction of SIAT.

This result can be interpreted that when SIAT was widely accessed, it seems that this could be an indication that SIAT users were very satisfied with SIAT. The logic is that if there is continuous access from SIAT, this indicates that the user, the student himself, is very fond of the quality of SIAT. The level of satisfaction will be largely determined by consumers by comparing the expectations of a product or service with results based on pleasant experience or not by consuming the product or service (Stanton, 1994).

In other words, SIAT which is often used or accessed with good feelings by students is a strong indication that the level of satisfaction with SIAT is also getting better. Hypothesis 5 is also acceptable because it produces a CR value of 3.44 which is higher than 1960. This means that there is a significant influence if the user is satisfied with SIAT, the user is more intense with the SIAT application.

This indicates that students who are satisfied with the SIAT information system will continue to access SIAT if needed with happy feelings. Kotler (2000) revealed that if the product exceeds its expectations, consumers will make repeat purchases, repeated purchases in this case are re-access to SIAT

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