

# Testing The Relationship of Academic Information System, Service Units Performance, and Student Satisfaction in Private Higher Education Institutions

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## Abstract

This article aimed at determining the role of Academic Information System in improving student satisfaction in higher education institutions. This research used quantitative approach and the research

objects were students of STIE Enam Enam of Kendari. The purposive sampling method and Slovin formula were used in the sample determination and 91 students were selected as samples in this study. By using multiple linear regression analysis, the study found that Academic Information System and Service Units performance simultaneously have a significant effect on student satisfaction. In addition, partially, Academic Information System affects student satisfaction while the performance of Service Units has no significant effect on student satisfaction. The results of this study confirm and at once different from the previous studies that have been conducted.

**Keywords:** Academic Information System, performance of Service Units, and student satisfaction

## 1. Introduction

The development of information systems has now reached an extraordinary level of acceleration. The development itself has penetrated almost in all fields, not least in the field of education. Changes and developments in the world of education are required to be better, along with increasing productivity standards set by the higher education institutions. Along with the increasing complexity of operational productivity in all lecture activities and all other administrative activities in the world of education, the educational institutions must improve the service performance of its customers, in this case are the students. So with the increasing service performance, it is expected to support and facilitate the process of teaching and other administrative learning activities.

STIE Enam Enam of Kendari has a website-based Academic Information System that is very helpful in processing information about students, lecturers, academic administration, lecture process, campus facilities, and student activities, both outside and inside the institution. Academic Information System based on STIE Enam Enam of Kendari website is very important because the existence of an information system can be very helpful in delivering campus activities to students, lecturers, education staff and foundation leaders who need information with regards to the academic process in STIE Enam Enam of Kendari. (Wekke, I. S., Aghsari, D., Evizariza, E., Junaidi, J., & Harun, N. (2018). The information transfer is believed to be easier, faster, more efficient and more precise.

This research tried to obtain empirical data which is complete enough and can be trusted to describe the condition of factors related to the quality of Academic Information System on the performance of staff of STIE Enam Enam of Kendari and its impact on student satisfaction in the use of Academic Information System quality service. The data obtained can also be used to develop alternative model of the Academic Information System that can give support to every process of academic service or decision making, either in internal environment or related to stakeholders. This is considered important to synchronize the dynamics of user information needs and the dynamics of the development of management information system as a producer of information for the purposes of various services and decision making (Tukwain, S. M. F., Fatimah, F., & Wekke, I. S. 2018).

Based on the phenomenon that occurs, it appears that the Academic Information System Services STIE Enam Enam has not been able to provide the best service to students. There are still many students who complain about the Academic Information System services due to the lack of employees responses in attending to the access done by students. Research conducted by Ratnawati explains that the Academic Information System can increase student's satisfaction, if the system is able to give effective service. Conversely, if the system experience interferences or delayed responses, the students will feel dissatisfied (Ratnawati. P. 2003)

Based on the empirical facts, some student service facilities have to wait for the responses from access of Service Units such as Prodi, BAAK, BAUK, and P3M. However, Service Units are still considered slow and less responsive by students in responding to their desires, so students sometimes have to report to the Service Unit responsible. When this happens, it is a clear indication that the performance of the Service Units is still less effective. Utilization of information system of the Service Unit is still very less, especially in updating the Title of Research, updating the value of the course, updating lecturer data, updating SAP and GBPP data, and in responding to student demands on the utilization of the Academic Information System. Unfavourable performance of the Service Units also affects student satisfaction.

## 2. Literature Review And Hypothesis

### 2.1 Academic Information System

According to Wilkinson in Arifin, information system is a framework in which human (human and computer) resources are coordinated to transform inputs into outputs to achieve company objectives (Arifin Mochamad. 2002) Many other definitions of information systems have been advanced before the definition expressed by Wilkinson. Some of them are of John F. Nasbit and Martin B. Robert in Alavi and Leidner, who defined information system as a

combination of human, technological facilities or tools, media, procedures, and controls intended to organize an important communication network. In addition, the processing of certain transactions on a regular basis will help management, internal and external users, and provide the basis for intelligent decision-making (Alavi, M. and Leidner, D.E. (1999)). Davis defined that information system as a system composed of integrated person-machine elements to produce information that can support operational, management, and decision-making functions within an organization (Davis, F, 1989).

According to McLeod, a model is the abstraction of something. A model represents a number of objects or activities called entities (McLeod, Jr., Raymond; Schell, George P. 2011). Meanwhile, according to DeLone and McLean, the success of an information system can be represented by qualitative characteristics of the information system itself (system quality), output quality of information system (information quality), consumption of output (use), user response to information system (user satisfaction), the influence of information system on user attitudes (individual impact), and the effect on organizational impact (organizational impact) (DeLone W. H. and McLean E. R. 2003). The model, then, was developed with the aim at updating the D & M IS Success Model and evaluating its usefulness given the drastic change of information systems, particularly the rapid growth of e-commerce. The latest model or The Update D & M IS Success contains an additional dimension consisting of service quality and net benefit as a dimension that is no less important for the success of information systems, in addition to system quality and information quality, particularly within the scope of e-commerce where the frontline service power (front liner) is very important. This is because The Update D & M IS Success Model emphasizes the development of a comprehensive measure of e-commerce success (DeLone W. H. and McLean E. R. 2003).

In the instrument of service quality in *The Update D & M IS Success Model*, the dimensions used to measure service quality are tangibles, reliability, responsiveness, assurance, and empathy. These dimensions are adopted by researchers from the SERVQUAL concept in marketing studies which are then tested in the context of information systems (Zeithaml, A., A. Parasuraman, and Leonard L. Berry, 1988 ). Information quality refers to the output of information systems concerning value, benefits, relevance, and urgency of information (Berthon, P., Pitt, L.F. and Watson, R.T. 1996). This is measured by the accuracy, timeliness, completeness and presentation of information [9]. Meanwhile, service quality refers to the perceived quality of service, as measured by SERVQUAL (Service Quality) which includes reliability, responsiveness, assurance, empathy, and tangibles.

## 2.2 Performance

Performance is an organizational behaviour that directly relates to the activities of the work and the accomplishment of the task in which the term of the task is derived from the thought of the activities required by the worker (A. Pichardo. 1997). Gibson defines performance as a result of work related to organizational goals such as quality, efficiency, and other work effectiveness criteria (Gibson, H.L. 1977). According to Minner's, performance is defined as the level of an individual's need as a hope for the work he does (Larkin, J.M. 2000). Performance is also often synonymous with a person's ability related to a commitment to a profession (Larkin, J.M. 2000).

According to Luthan (Luthan, Fred. Avolio, Bruce j. Avey, James B. Norman, Steven M. 2007) performance, based on several findings, is linked to expectations that are closely related to work behaviours one desperately desires. Thus, a combination of the same expectations and desires employees have can lead them to get their own satisfaction (Larson M, Luthans F. 2006). Furthermore, fulfilled expectations impacting a person's high satisfaction lead to his commitment to organization and happiness in doing things (Youssef CM, Luthans F. 2006).

Employee performance is influenced by cooperation, diverse personalities, leadership, safety, employment knowledge, attendance, loyalty, toughness, and productivity initiatives that desperately need attention from the management of the organization. Flippo explained that there are 3 factors of performance appraisal related to public services, namely quality of work, supervision, and attendance (Flippo, Edwin B. 2008).

## 2.3 Satisfaction

Satisfaction can be interpreted as one's feeling of satisfaction, pleasure, and relief for having consumed a product or service. The level of satisfaction is a function of the difference between perceived performance and the expectation. If performance is below expectation, then the customer will be very disappointed. Conversely, if the performance is as expected, then the customer will be very satisfied. Customer expectations can be shaped by past experiences, comments from relatives, and also promises and information from various media. Satisfied customers will be a loyal customer longer and less sensitive to price, and will make good comments about the company (Zeithaml, V. A., 1988). There are at least two general formulations of satisfaction: first, satisfaction felt only in certain transactions and, the second, satisfaction perceived as a whole or cumulatively (Ekinici, Yuksel & Sameer Hosany. 2006). In other words, overall satisfaction is the evaluative judgment of the outcomes after choosing something (Bitner, M. J., Faranda, W. T., Hubbert, A. R., & Zeithaml, V. A. (1997).

According to Kotler, satisfaction is one's satisfaction level after comparing perceived performance or results to his expectation (Kotler, Philip, 2000). Thus, satisfaction or dissatisfaction is the conclusion and the interaction between expectations and experiences after using the services provided. The effort to realize total customer satisfaction is not an easy thing. Mudie and Cottom stated that total customer satisfaction is unattainable, albeit only temporarily (Tjiptono, Fandy. 1997). Based on the description of some experts mentioned above, it can be concluded that the satisfaction is the feeling of pleasure and satisfaction felt by individuals because the reality of using the service provided has met the expectation (Yusuf, M., & Wekke, I. S. 2020).

Based on previous studies, there are researches said that an information system that is planned, managed, and applicable will have an impact on the management of higher education institutions. (Ahmad, K., & Ogunsola, O. K. 2011). Similarly, it has been stated that the applied information system will help the learning process and the improvement of academic quality (Fantazy, K., & Abdul Rahim A. Al Athmay, A.-A. 2014) It is also demonstrated that in the use of information systems will assist lecturers and education personnels in conducting higher education institution quality assurance cycle and will have a direct impact on the process of organizing higher education institution (Schomaker, R. 2015). Similarly, Roslan's research shows how an information system will assist students in activities so that the quality of an information system affects students' satisfaction in academic activities (Roslan Mohd Nor, M., & Malim, M. 2014).

On the other hand, in the context of Service Units performance related to student satisfaction, it appears that the ability of staff in managing higher education institutions will be to support student activities [30], and to facilitate learning activities (Tach, E. C. 2002. Leadership & Organization Development Journal. Leadership & Organization Development Journal, 23, 205–214.). Education in Japan serves as an example of how an employee's ability in college will have an effect on college management (Yamada, S. 2013). Similarly, training activities to improve the ability of employees serve as part of the continuing support of student satisfaction in following education (Albadvi, P. R. A. A. 2007). Based on the phenomenon and the results of previous research, the framework of this research concept is as follows:

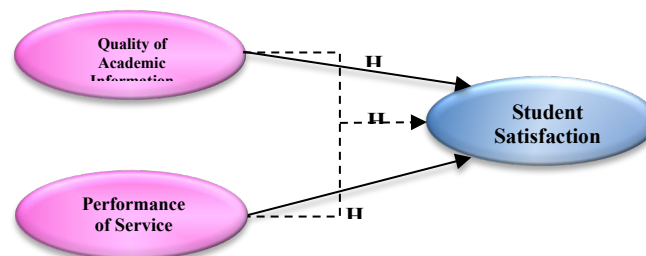


Figure 1. Conceptual framework

H1: Academic Information System and Service Units performance simultaneously have a significant effect on satisfaction

H2: The quality of the Academic Information System, partially, has a significant effect on satisfaction

H3: Service Units Performance, partially, has a significant effect on satisfaction.

### 3. Method

This study used a quantitative approach with the objects of study were all active students of study programs of management (undergraduate and graduate), and accounting (undergraduate) in STIE Enam Enam of Kendari. The purposive sampling method was used as a method in sampling, while the Slovin formula was used in determining the sample size. Based on this approach, 91 out of 1,060 students were taken as sample in this study (Sangadji, Etta Mamang., sopiah. 2010). To test the validity of the data, this study used the validity test (Pearson correlation or product moment Pearson method), while the reliability test was performed using Alpha Cronbach value. Meanwhile, data analysis in this study consisted of descriptive statistical analysis and inferential analysis (Multiple regression analysis). The measurement of Academic Information System quality referred to the latest DeLone and McLean model, that is, The Update D & M IS Success Model. Indicators for this variable consist of system quality, information quality, and service quality. Meanwhile, for service unit performance indicators, the study referred to Becker and Klimoski's one consisting of Knowledge, Skills, Abilities, Attitude and Behavior (Becker, T E & Klimoski, R J. 1989). While the indicators of student satisfaction were adapted from Leon in Soebiyantoro namely USISF (User Satisfaction of Information System Function) which includes; relationships with staff, processes undertaken to make changes, user

understanding of the system used, user participation, staff attention, output reliability, outcomes relevancy, and communication with staff (Soebiyantoro Johannes. 2002).

#### 4. Result

Validity test was done using correlation method of product moment Pearson method, with criterion of when value of  $r$  obtained is  $\geq 0.30$  at level of trust of 95%, then instrument (questionnaire) tested is valid. Instrument validity test results. Furthermore, the data reliability testing used criteria greater than the value of alpha cronbach of 0.6. Based on the results of the data conducted in this study, all the criteria have been met.

##### 4.1 Factor Analysis

Based on the results of analysis factor test involving Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA) test against indicators of each variable in this study, it was found that Academic Information System showed the results as in Table 1.

Table 1. Results of Factor Analysis Test on Variable of the Academic Information System

No	Indicator	Value	KMO MSA	Sig
1	System Quality ( $X_{1.1}$ )	0.854	0.697	0.000
2	Information Quality ( $X_{1.2}$ )	0.788		
3	Service Quality ( $X_{1.3}$ )	0.876		

Source: Processed Data, 2015

The results of factor analysis test show that the three indicators are significant to form the Academic Information System quality variable with a significant value  $0.000 < 0.05$  which means that the level of overall significance of academic information system quality indicator, when viewed from Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA), has a score of 0.697 or above 0.50, it means that the analysis process can be proceeded. Analysis of the biggest factor to form is service quality ( $X_{1.3}$ ) that is of 0.876 which is the dominant indicator to form the Academic Information System quality variable, while the other indicators in sequence are system quality ( $X_{1.1}$ ) with a value of 0.854 and information quality ( $X_{1.2}$ ) with a value of 0.788. The service quality indicator is the highest of all because the service quality is the weight of the service in the Academic Information System related to the technological equipment (tangibles) used and the attitude of empathy, reliability, responsiveness, and assurance. Meanwhile, for the variable of Service Unit Performance, the following results are obtained.

Table 2. Test Results of Factor Analysis on Service Units Performance Variable

No	Indicator	Value	KMO MSA	Sig
1	Knowledge (X2.1)	0.728	0.759	0.000
2	Skill (X2.2)	0.893		
3	Abilities (X2.3)	0.907		
4	Attitude and Behaviour (X2.4)	0.838		

Source: Processed Data, 2015

The results of factor analysis show that the four indicators significantly form the variable of the Service Unit performance with a significance value of  $0.000 < 0.05$  meaning the level of significance of overall Service Unit performance indicator, when viewed from Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA), has a value of 0.759 or above 0.50 meaning that the analysis process can be proceeded. The most important factor analysis is Abilities (X2.3) that is 0.907 which is the dominant indicator to form the variable of Service Units performance, while other indicators, in sequence, are Skill (X2.2) with value of 0.893, Attitude and Behaviour (X2.2 .4) with a value of 0.838, and Knowledge (X2.1) with a value of 0.728. Abilities indicator has the highest value because it is a competency possessed by staff/education personnel including the abilities and skills in the use of the Academic Information System. Thus, if a person has high skills and knowledge about the Academic Information System, he is also expected to have the ability to develop the quality of the Academic Information System of STIE Enam Enam.

While student satisfaction variable was measured for only one indicator, that is, USISF (User Satisfaction of Information System Function) ( $Y_{1.1}$ ), then in this research, it was assumed that the indicator was still feasible or significant as student satisfaction former.

## 4.2 Hypothesis testing

To prove the research hypotheses proposed in this study, multiple regression method was used with the results of the analysis are shown as follows:

Table 3. Results of the Multiple Regression Analysis

Independent Variable (X)	Regression Coefficient ( $\beta$ )	t <sub>Count</sub>	t <sub>Significancy</sub>	Annotation
Academic Information System ( $X_1$ )	0.612	7.602	0.000	Significant
Performance of Service Unit ( $X_2$ )	0.069	0.747	0.457	Significant
Constant (a) = -5.363				N = 91 $\alpha = 0.05$
R Square = 0.539				
F count = 51.412				
F significancy = 0.000				
Standard error = 4.40764				

Source: Processed Data, 2015

Based on the above calculation results, it can be explained that; 1) The constant (a) is -5.363, so it can be interpreted that the students of STIE Enam Enam are less satisfied if the quality of the Academic Information System is not improved, 2) Regression coefficient ( $b_1$ ) is 0.612, so it can be interpreted that there is a positive influence of the Academic Information System quality on student satisfaction. It means that good Academic Information System will increase student satisfaction, 3) Regression coefficient ( $b_1$ ) is 0.069, so it can be interpreted that there is a positive influence of the performance of Service Units on student satisfaction. It means that good performance of Service Units will increase student satisfaction, assuming that the quality of the Academic Information System is considered unchanged (constant), 4) The value of multiple R is equal to 0.734 which means that the relationship between the quality of Academic Information System and the performance of Service Units simultaneously to the student satisfaction are positive and strong, 5) Coefficient of determination (R Square) is equal to 0.539, meaning that variation of change of student satisfaction in STIE Enam Enam of Kendari is determined by the Academic Information System of 53.9%. The rest, of 47.1% is determined by other variables not included in this research model.

Other variables such as, infrastructure, learning model, academic culture, etc. 6) F count is 51,412 with a significant value of F that is  $0.000 < 0.05$ . Thus, it can be said that the hypothesis that the quality of the Academic Information System and the performance of Service Units simultaneously have a significant effect on student satisfaction, namely Hypothesis 1, is acceptable 7)  $t$  count for variable of the Academic Information System quality is 7.602 with a significant value of  $t$  that is  $0.000 < 0.05$ . Thus, it can be said that the hypothesis that the quality of the Academic Information System has a significant effect on student satisfaction, namely Hypothesis 2 ( $H_2$ ), is acceptable, 8)  $t$  count for the variable of the performance of Service Units is 0.747 with a significant value of  $t$  that is  $0.457 > 0.05$ . Thus, it can be said that the hypothesis that the performance of the Service Units has a significant effect on student satisfaction, namely Hypothesis 3 ( $H_3$ ), is unacceptable.

## 5. Discussion

The Relationship of Academic Information System, Service Units Performance, and Student Satisfaction. Academic information system and service unit performance simultaneously have a significant effect on student satisfaction. Based on the analysis, from the three indicators (system quality, information quality and service quality), the system quality is empirically best perceived by the students. (Sanusi, A., Purwanto, M. R., Wekke, I. S., Utu, L., & Laxmi Lydia, E. 2020). This means that the Academic Information System at STIE Enam Enam has been easy to use by students, easy to access on other than computer device, excellent access speed, infrequent crashes, and confidentiality of student data is guaranteed safe. In addition, the quality of service is also well perceived by the students. This means that the equipment used by the staff in the utilization of academic Information system is sufficient, the staff care about the problems faced by the students in utilizing the academic information system, the staff are able to provide the service of Academic Information System well, the staff respond quickly to the needs of students on the Academic Information System, and the students believe in the staff's ability to provide Academic Information System services.

While the performance of the service unit, in general, is perceived good by the students when observed from the indicators of knowledge, skills, abilities, and attitude and behavior. Of these indicators, skills, knowledge, and abilities are indicators that are considered the highest role. This means that Service Units at STIE Enam Enam have good operational mastery and operational skills in providing Academic Information System services to students, and can work well in fulfilling student service requests. While the other two indicators, namely attitude and behavior, do not get a good perception by students. (Ismail, R., Wekke, I. S., Dinesh Kumar, A., Pandi Selvam, R., Shankar, K., & Nguyen, P. T. 2019). This has implications that the Service Units are not fully timely, disciplined and responsible for providing Academic Information System services to students. Therefore, there should be a policy in the future that must be made to better optimize the attitudes and behaviors in providing the services.

The results of this study reinforce the theory put forward by Ahmad and Ogunsola that an information system that is planned, managed, and applied will have an impact on the management of higher education institutions (Ahmad, K., & Ogunsola, O. K. 2011). will help the learning process and improve academic quality (Fantazy, K., & Abdul Rahim A. Al Athmay, A.-A. 2014). will assist lecturers and education personnel in conducting the institutions' quality assurance cycle, and will have a direct impact on the process of holding and managing higher education institutions [(Schomaker, R. 2015). and will satisfy the students in academic activities (Roslan Mohd Nor, M., & Malim, M. 2014). These findings also reinforces Zanial's research which found that Academic Information System has a significant effect on user satisfaction (Zanial. 2011). and can assist learning activities according to student needs (Apri Wahyudi, Sowiyah, Alben Ambarita. 2014).

On the other hand, these findings are not in line with Geiner, et al. which states that the capacity of the staff of the education personnel in managing the university will be the support of student activities (Greiner, M. E., Böhmman, T., & Krcmar, H. 2007). and to be a facilitator in carrying out the learning activities (Tach, E. C. 2002). The results of this study are also different from the findings of previous research done by Yamada that found that education in Japan can be an example of how the ability of employees in higher education institutions will give effect in the management of higher education institutions (Yamada, S. 2013). Similarly, these results are inconsistent with Albadvi's findings that training activities to improve employee capacity are as part of continuing support for student satisfaction in their learning activities (Albadvi, P. R. A. A. 2007).

## 6. Conclusion

Academic information system and service unit performance simultaneously have a significant effect on student satisfaction. This can be understood because the students assumed that the quality of academic information system at STIE Enam Enam of Kendari is good. In general, in the implementation and control of the system quality, information quality and services quality provided to the students, are accordance to the expected norms. With regards to the relationship between the academic information system and the student satisfaction, this study partially confirmed that an information system that is managed in a planned and applicable manner will have an impact on the management of higher education institutions (Ahmad, K., & Ogunsola, O. K. 2011). aiding learning processes and improving academic quality in conducting the institutions' quality assurance cycle and the process of organizing higher education institutions and may impact user satisfaction in academic activities (Riza Wahyudi, Endang Siti Astuti, dan Riyadi. 2011). In contrast, in the context of service unit performance, it was found that it could not be a supporter, facilitator (Tach, E. C. 2002.) and did not have a significant impact on high user satisfaction (Yamada, S. 2013). Furthermore, in order to study deeper on more related comprehensive topics, development should be done by adding some other variables that can significantly influence satisfaction such as infrastructure, learning model and academic culture, and others.

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