Effectiveness of Academic Information System Quality on Improving Student Satisfaction in Higher Education Institutions

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Abstract

This article would identify in at determining the role of Academic Information System in improving student satisfaction in higher education institutions. This research used quantitative approach with 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 obtained as samples in this study. By using regression data analysis, the study
found that Academic Information System simultaneously has a significant effect on student satisfaction. The results
of this study confirmed studies done previously.

**Keywords:** Academic information system quality, student satisfaction, higher education.

**1. Introduction**

Academic Information System is a very vital in the world of education in general and for higher education institutions
both private and public in particular. Academic Information System can also be a benchmark of the quality of the
institutions concerned. The better or more complicated the system the better the higher education institution. Academic
Management Information System is also an assessment point related to the accreditation status of a higher education
institution.

Management of higher education institutions is inseparable from the use of information technology. Starting
from handling the problem of admission administration of new students, student academic data management, lecturing
activities implementation, resource management, and executive policy making process, can be completed effectively
and optimally with the utilization of information system. So does in an educational institution, especially School of
Economics (STIE) Enam Enam of Kendari.

Currently STIE Enam Enam of Kendari has Academic Information System which is very helpful in
processing information about students, lecturers, academic administration, lecture process, campus facilities, and
student activities both outside and inside the institution. The existence of website-based Academic Information System
STIE Enam Enam of Kendari is very important because the existence of an information system is very helpful in the
delivery of campus activity information to students, lecturers, education staff, and foundation leaders who need
information about the academic process of STIE Enam Enam of Kendari more easily, efficient, precisely, and faster.

Related to the quality of Academic Information System of STIE Enam Enam of Kendari in higher education
management services, of course can said that it is very precise. In practice, many higher education institutions use
Academic Information Systems that can be found in various forms, from those using very simple system to those
having very high complexity. The effectiveness of the quality of Academic Information System in the management
of higher education institutions need more attention, given its role that is central enough in the process of making
managerial decisions or other decisions. To improve the effectiveness in the utilization of the quality of Academic
Information System service, especially in terms of academic administration, further researches are needed. This is
intended for the academic management process at STIE Enam Enam of Kendari to become more effective and efficient
so as to support the achievement of the institution (Yusuf, M., & Wekke, I. S. 2020). But the phenomenon that occurs
is the Academic Information System of STIE Enam Enam has not been able to provide the best service to students
where there are still many students who complain because of lack of responsiveness of officers in responding to the
access that will be done by students in the Academic Information System services. Research conducted by Ratnawati
explains that Student Academic Information System can increase student's satisfaction. If the service system is able
to provide effective services, the students will feel very satisfied. Contrarily, if the system is often experiencing
interruption or delayed response, the student will feel dissatisfied.

Based on the empirical facts, some student service facilities have to wait for response from Access Service
Units such as Prodi, BAAK, BAUK, and P3M. The students still assume that the Service Units are slow and less
responsive in responding to their wishes, so that they sometimes have to report to the Service Units to be responsible.
This indicates that the performance of the Service Units is still less effective.

The Service Units of Academic Information System of STIE Enam Enam of Kendari, in this case are Prodi, BAAK,
BAUK, and P3M, also gain access in providing services to students and complete the main tasks as their responsibility,
but the results of leadership assessment in survey and performance appraisal on each end of the semester show that
their performance has not been good (Sanusi, A., Purwanto, M. R., Wekke, I. S., Utu, L., & Laxmi Lydia, E. 2020).Utilization of information system in the Service Units is still very less, especially in updating the title of
researches, updating the values of the courses, updating lecturers’ data, updating SAP and GBPP data, and in
responding to student demand on the utilization of Academic Information System. Unfavorable performance in the
Service Units also impacts students’ satisfaction.

**2. Literature Review and Hypothesis**

**2.1 Academic Information System**
Academic Information System is a resource that contains information relating to academic issues in campus. Academic Information System, in addition to being a resource of information in campus, can also be used as a medium of communication between lecturers and students, students with students, lecturers with relevant campus officials and anyone who is in the campus environment. Using internet technology, access to this system can be done not only on campus, but can also be done out of campus, even anywhere in the world as long as there is a computer connected to the internet. (Tukwain, S. M. F., Fatimah, F., & Wekke, I. S. 2018). Academic Information System is a web-based information system that aims at forming Knowledge-based System that can be accessed via the internet (Mochamad Arifin 2002), such as information relating to lectures contained in educational institutions, such as curriculum, lecture unit (SAP), Study Plan Card (KRS), Study Results Card (KHS), lecturers, lecture materials, practical work, final project, research, and others.

According to Husein and Wibowo, information system is a set of interconnected components, whose function is to collect, process, store, and distribute information to support decision making and oversight within the organization. In addition to supporting decision-making, coordination, and oversight, an information system can also assist managers in analyzing problems, creating complex issues, and creating new products (Husein, Muhammad Fakhriz dan Wibowo, Amin. 2002).

Information system is a framework in which human (human and computer) resources are coordinated to transform inputs into outputs to achieve company objectives (Mochamad Arifin 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 (Lavi, M. and Leidner, D.E. 1999). Davis and Olson in Alavi and Leidner defined 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 (Lavi, M. and Leidner, D.E. 1999).

Meanwhile, in the latest study of DeLone and McLean (The DeLone and McLean Model of Information Systems Success: A Ten-Year Update), the model has undergone changes. This model was developed with the aim of updating the D & M IS Success Model and evaluating its usefulness given the drastic changes in information systems, particularly the rapid growth of e-commerce [5].

The D & M IS Success Model difference with the previous model lies in the additional dimension in The Update D & M IS Success Model, namely service quality and net benefit. In The Update D & M IS Success Model, DeLone and McLean recommend to add service quality as a dimension that is not less important for the success of information systems, in addition to system quality and information quality, especially in the scope of e-commerce where the strength of frontline service (front liners) is very important. This is because The Update D & M IS Success Model emphasizes the comprehensive development of the measure of the success of e-commerce (W. H. DeLone 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.

2.2 Student 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 (Wekke, I. S., Aghsari, D., Evizariza, E., Junaidi, J., & Harun, N. 2018). Conversely, if the performance is as expected, then the customer will be very satisfied. Whereas, when performance exceeds expectations, customers will be very satisfied. Customer expectations can be shaped by past experiences, comments from relatives, and promises and information from various media. Satisfied customers will be loyal longer and less sensitive to price, and will make good comments about the company.

According to Kotler, satisfaction is one's satisfaction level after comparing perceived performance or results to his expectation (Philip Kotler 2000). Thus, satisfaction or dissatisfaction is the conclusion and 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 (Fandy Tjiptono, 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 in using service provided has met the expectation.

To measure the user's satisfaction well needs a measurement instrument that is not only appropriate, but also must have a high quality. There are several methods of measuring user satisfaction on the quality of the Information System, namely USISF (User Satisfaction of Information System Function) (Johanes Soebiyantoro 2002).

USISF (User Satisfaction of Information System Function) is a method of measuring user’s satisfaction on Information System function service, which is done for certain application system. Leon in Soebiyantoro suggested 8 items including: (1) Relationship with staff of Information System Unit, (2) process undertaken to make changes by Information System Unit to the request of Information System service users, (3) user’s understanding about system used, 4) user’s participation, (5) the attention of the staff of the Information Systems unit, (6) the reliability of the outputs, (7) the relevance of the outputs, and (8) communication with the staff of the Information Systems Unit (Johanes Soebiyantoro 2002).

From Academic Information System quality variable, it appears that the quality of Academic Information System has a significant effect on student satisfaction. This finding is in line with experts’ opinion 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, applied information system will help the process of learning and improving academic quality (Fantazy, K., & Abdul Rahim A. Al Athmay, A.-A. 2014). The use of information system will also assist lecturers and education personnel in conducting the quality assurance cycle of higher education institutions (Schomaker, R. 2015). Rachel in research in Egypt also found that the use of information system has a direct impact on the process of organizing higher education institutions (Schomaker, R. 2015). Similarly, Roslan's research shows how an information system assists students in activities so that the quality of an information system affects students' satisfaction in academic activities (M. Roslan Mohd Nor & Malim, M. 2014).

Based on the phenomenon and the results of previous research, the conceptual framework in this study is as follows:

![Figure 2. Conceptual framework](image)

H0: There is no significant influence of the quality of Academic Information System on Student satisfaction
H1: There is significant influence of the quality of Academic Information System on Student 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. Determination of sample in this research used purposive sampling method. Based on calculations with the slovin formula Slovin (Sangadj Sangadj, Etta Mamang., sopiah. 2010) 91 samples of the total population of 1,060 students were obtained.

Sources of data in this study consist of primary and secondary data. Primary data is data obtained directly from first source, either from individual or individual, like results of interview or results of questionnaire (Husen,
2000). Meanwhile, to test the validity of the data, this study used the validity test (Pearson correlation or product moment Pearson method). While in term of reliability test, this study used alpha Cronbach value. Meanwhile, data analysis in this study consisted of descriptive statistical analysis and inferential analysis (linear regression analysis). The measurement of Academic Information System quality was referring to the latest DeLone and McLean models (2003), namely The Update D & M IS Success Model. The indicators are: (1) System quality, (2) Information quality, and (3) Service quality. Meanwhile, for student satisfaction indicators adapted from Leon (1996) in Soebiyantoro (2003) are USISF (User Satisfaction of Information System Function) including; (1) Relationship with staff, (2) Processes made to make changes, (3) User understanding of system used, (4) User participation, (5) Staff attention, (6) Reliability of output, (7) Relevance output, and (8) Communication with staff.

5. Result
Validity test was done by 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 (questionaire) tested is valid. Instrument validity test results. Meanwhile, the data reliability testing used criteria greater than the value of alpha cronbach 0.6. Based on the results of the data conducted in this study, all the criteria have been met.

5.1 Factor Analysis
Based on the results of analysis factor test by 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>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Value</th>
<th>KMO MSA</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>System Quality (X.1)</td>
<td>0.854</td>
<td>0.697</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Information Quality (X.2)</td>
<td>0.788</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Service Quality (X.3)</td>
<td>0.876</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Processed Data, 2015

The results of factor analysis shows that the three indicators are significantly forming the Academic Information System quality variable with a significance value \( 0.000 < 0.05 \) which means the level of significance of the overall indicators of Academic Information System quality, when viewed from the test Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA) with a value of 0.697 or above 0.50 was obtained which means the process of analysis can be continued. Factor analysis which is most significant in formation is service quality (X.3) of 0876 which is the dominant indicator to form the Academic Information System quality variable, while the other indicators, in sequence, are system quality (X.1) with value 0.854 and the quality of information (X.2) with a value of 0.788. Service quality is the highest indicator because service quality is the weight of the service in the Academic Information System related to the technological equipment used (tangibles) and the attitudes of empathy, reability, responsive, assurance.

While for variable of student satisfaction was only measured from one indicator that is USISF (User Satisfaction of Information System Function) (Y.1), then in this research it is assumed that the indicator is still feasible or significant in forming student satisfaction.

5.2 Hypothesis testing
To prove the research hypotheses proposed in this study, linear regression method was used with the results of the analysis as follows:

<table>
<thead>
<tr>
<th>Independent Variable (X)</th>
<th>Regression Coefficient (( \beta ))</th>
<th>tCoung</th>
<th>tSignificance</th>
<th>Annotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Academic Information System (X1)</td>
<td>0.612</td>
<td>7.602</td>
<td>0.000</td>
<td>Significant</td>
</tr>
</tbody>
</table>
Based on the above calculation results, it can be explained that; 1) The number of constants (a) is -5.363 so it can be interpreted that the students of STIE Enam Enam are less satisfied if the quality of Academic Information System is not improved, 2) Regression coefficient (b1) is 0.612 so it can be interpreted that there is a positive influence of Academic Information System quality on student satisfaction. It means that good Academic Information System will increase student satisfaction, 3) Coefficient of determination (R Square) is equal to 0.539, meaning that variation of change of student of STIE Enam Enam of Kendari is determined by Academic Information System quality of 53.9%. The rest, of 47.1% is determined by other variables not included in this research model. Other variables are, such as, infrastructure, learning model, academic culture, etc. 4) F count is 51,412 with significant value of F that is 0.000 <0.05. Thus, it can be said that the hypothesis that the quality of information systems and service unit performance simultaneously have a significant effect on student satisfaction, namely Hypothesis 1, is acceptable, while Hypothesis 0 is rejected, 5) The value of t count for the variable of the quality of Academic Information System is 7,602 with a significant value of t that is 0.000 <0.05. This means that hypothesis 1 is acceptable and Hypothesis 0 is rejected.

### 6. Discussion

The quality of Academic Information System simultaneously has a significant effect on student satisfaction. This can be understood because the students have a perception that the quality of Academic Information System at STIE Enam Enam of Kendari in general has been good if observed from indicators of System Quality, Information Quality, and Service Quality. Of the many indicators that exist, empirically, the quality of the system is best perceived by the students. This means the Academic Information System of STIE Enam Enam is easy to use by students. Academic Information System is also easy to access with other than computer equipment, speed of accessing Academic Information System of STIE Enam Enam is very good, Academic Information System gets interruption (crash / hang) rarely, and confidentiality of student data in Academic Information System is also guaranteed safe. In addition, the quality of service is also well perceived by the students. This means that the equipment used by Staff in the utilization of Academic Information System is adequate, Staff are cared about the problems faced by students in utilizing Academic Information System, Staff are able to provide services Academic Information System well, Staff are responding quickly to the needs of students on Academic Information Systems, and Students are believing in the ability of Staff in providing services Academic Information System (Ismail, R., Wekke, I. S., Dinesh Kumar, A., Pandi Selvam, R., Shankar, K., & Nguyen, P. T. 2019).

However, the quality of information system in its implementation is not yet optimal. This means that Academic Information System data have not been fully accurate in accordance with student activities. Delivery of Academic Information System data has not been fully timely, the data presented in the Academic Information System has not been fully in accordance with the needs of students, as well as information presented in the Academic Information System has not been completely easy to read.

Therefore, the policy to be taken to further optimize the quality of Academic Information System is to prepare Academic Information System in accordance with student activities, to deliver data timely and accurately in accordance to the needs of the students, and easy to understand. The implications of the good quality of Academic Information System can spur the increase in student satisfaction that is implemented in user satisfaction with information system functions (USISF). It means that students are satisfied with the good relationship between students and staff of Academic Information System service unit. In addition, students also feel satisfied with the Academic Information System service provided because it is easy to understand, and they will continue to utilize Academic Information System during being students of STIE Enam Enam of Kendari. They are also satisfied with the hospitality and benefits of Academic Information System. Academic Information System has been able to provide services in accordance with student expectations and also can provide good direction to students about the use of Academic Information System.

The results of this study reinforce the theory put forward by Ahmad and Ogunsola saying that an information system that is planned, managed, and applicable will have an impact on the management of higher education institutions (K Ahmad, & 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).
Finally, the use of information systems will assist lecturers and education personnel in conducting the quality assurance cycle of higher education institutions (Schomaker, R. 2015). Rachel in his research in Egypt also found the same research results that the use of information systems will have a direct impact on the process of organizing higher education institutions (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 (M. Roslan Mohd Nor & Malim, M. 2014). The results of this study also reinforce previous research done by (Zanial Zanial. 2011), that the Academic Information System has a significant effect on user satisfaction, and research conducted by Apri Wahyudi, Sowiyah, Alben Ambarita (Apri Wahyudi, Sowiyah, Alben Ambarita. 2014), that Academic Information System can help learning activities according to the needs of students. Furthermore, this study also confirms the results of research of Riza Wahyudi, Endang Siti Astuti, and Riyadi (Riza Wahyudi, Endang Siti Astuti, dan Riyadi. 2011) that Management Information System has a significant effect on student satisfaction.

7. Conclusion
Academic Information System simultaneously has a significant effect on student satisfaction. This can be understood because students assume that the quality of Academic Information System at STIE Enam Enam of Kendari is good. In general, the implementation and control of the quality of the system, the quality of information, and the quality of services provided for the students, have been felt very in accordance with their expectation. Thus, STIE Enam Enam of Kendari needs preparing Academic Information System in accordance with student activities, delivering data in a timely manner and accurately in accordance with the needs and understandable by students to maintain and, even, increase student satisfaction in using Academic Information System which exists. In addition, to be able to obtain more comprehensive results, this research can actually be developed by adding some other variables that can affect satisfaction, such as infrastructure facilities, learning models, and academic culture.

References


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