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ANALYSIS OF THE INFLUENCE OF THE USE OF WEB-BASED ACADEMIC INFORMATION SYSTEMS ON THE EFFECTIVENESS OF STUDENT ACADEMIC SERVICES

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Abstract

The abstract is written using Times New Roman font size 10 pt, single-spaced, and margins according to the Pamulang University journal provisions (top 3 cm, left 4 cm, right 3 cm, bottom 3 cm). The abstract contains the research objectives, methods, results, and conclusions concisely in one paragraph. The development of information technology in the field of computer science has encouraged universities to adopt web-based academic information systems to improve the quality of academic services. This study aims to analyze the effect of the use of a web-based Academic Information System (SIAKAD) on the effectiveness of student academic services. The research method used is a quantitative method with a survey approach. Data were collected through questionnaires distributed to students of the Information Systems Study Program. Data analysis techniques used validity tests, reliability tests, and simple linear regression analysis. The results of the study indicate that the use of web-based SIAKAD has a significant effect on the effectiveness of student academic services. Thus, the implementation of a web-based information system is proven to be able to increase the efficiency, accuracy, and satisfaction of academic services.

Keywords: Academic Information Systems, Information Technology, Computer Science, Academic Services, Quantitative Methods

Introduction

The rapid development of computer science technology has brought significant changes to various sectors, including education. Universities are required to utilize information technology to improve the quality of academic services to students. One example of this technology is the use of a web-based Academic Information System (SIAKAD).

The web-based SIAKAD enables integrated, real-time management of academic data, such as completing Study Plan Cards (KRS), announcing grades, class schedules, and other academic administration. However, its implementation has encountered various challenges, such as limited user understanding, technical system constraints, and suboptimal service effectiveness.

Based on these problems, this study was conducted to determine the extent to which the use of web-based SIAKAD influences the effectiveness of student academic services, especially from a computer science technology perspective.

Literature review

Academic Information System

An Academic Information System is a computer-based system used to manage academic data and processes in higher education. This system is designed to support academic activities effectively and efficiently.

Web-based technology utilizes the internet as the primary medium for delivering information and services. Its advantages include high accessibility, ease of use, and development flexibility.

The effectiveness of academic services can be measured through the speed of service, accuracy of information, ease of access, and the level of student satisfaction with the services provided.

METHOD

This study uses a quantitative method with an associative research design to determine the relationship and influence between independent variables and dependent variables.

Population and Sample

The study population was all students of the Information Systems Study Program at Pamulang University. The sampling technique used was random sampling, with 100 students as respondents. Data collection was carried out by distributing questionnaires using a Likert scale of 1–5.

Data analysis was carried out using validity tests, reliability tests, and simple linear regression analysis.

Statistical Formula

1. Validity Test (Pearson Product Moment)

$$r = [n(\Sigma XY) - (\Sigma X)(\Sigma Y)] / \sqrt{\{[n\Sigma X^2 - (\Sigma X)^2][n\Sigma Y^2 - (\Sigma Y)^2]\}}$$

2. Reliability Test (Cronbach's Alpha)

$$\alpha = (k / (k - 1)) [1 - (\Sigma \sigma b^2 / \sigma t^2)]$$

3. Simple Linear Regression

$$Y = a + bX$$

4. t-test

$$t = b / Sb$$

5. Coefficient of Determination

$R^2 = r^2$ This study used a quantitative method with a survey approach. The research population was students of the Information Systems Study Program. The research sample was determined using a random sampling technique.

The research instrument was a questionnaire with a Likert scale that measured the use of web-based SIAKAD as the independent variable and the effectiveness of academic services as the dependent variable. Data analysis was conducted using validity tests, reliability tests, and simple linear regression analysis.

Results

Descriptive StatisticsBased on the results of data processing using the SPSS application, the following descriptive statistics were obtained:

Table 1. Descriptive Statistics

Variables	N	Mean	Standard Deviation
Use of SIAKAD	100	4.12	0.53
Effectiveness of Academic Services	100	4.08	0.57

Validity Test

The results of the validity test show that all statement items have a calculated r value > r table (0.195), so all items are declared valid.

The results of the reliability test showed a Cronbach's Alpha value of 0.87 for the SIAKAD usage variable and 0.85 for the academic service effectiveness variable, which means the instrument is reliable.

Simple Linear Regression Analysis

Table 2. Simple Linear Regression Test Results

Variables	Coefficient (B)	t count	Sig.
Constant	1,245	4.12	0,000
Use of SIAKAD	0.684	8.97	0,000

The t-test results show a significance value of 0.000 < 0.05, so it can be concluded that the use of a web-based Academic Information System has a significant effect on the effectiveness of student academic services. The validity test results show that all statement items are declared valid because the calculated r value is greater than the table r. The reliability test shows a Cronbach's Alpha value of more than 0.7, which means the research instrument is reliable.

The results of a simple linear regression analysis indicate that the use of the web-based SIAKAD has a positive and significant effect on the effectiveness of student academic services. This demonstrates that the better the implementation of the web-based information system, the greater the effectiveness of academic services.

Conclusion

Based on the results of the research and statistical analysis that has been conducted, it can be concluded that the use of a web-based Academic Information System has a positive and significant effect on the effectiveness of academic services for students in the Information Systems Study Program at Pamulang University. This is proven by the results of a simple linear regression test and a t-test which show a significance value of less than 0.05. Thus, the application of computer science technology in the form of a web-based information system plays a significant role in improving the quality of academic services in higher education. Based on the results of the study, it can be concluded that the use of a web-based Academic Information System has a significant effect on the effectiveness of student academic services. The application of computer science technology in the form of a web-based information system is able to improve the quality of academic services as a whole.

Universities are advised to continue developing and maintaining web-based academic information systems, as well as providing training to users so that the system can be used optimally.

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