WEBSITE ANALYSIS OF ACADEMIC INFORMATION SYSTEM ON STUDENT OF PANGKEP STATE POLYTECHNIC OF AGRICULTURE SATISFACTION USING WEBQUAL 4.0

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ABSTRACT

The academic information system website at Pangkep State Polytechnic of Agriculture is a forum for conveying information about campus activities. But students are still complaining. This study aimed to determine the extent of the influence, relationship, proportion, and any possible effect of Webqual dimensions on student satisfaction. Data were analyzed using multiple linear regression with random sampling of 200 students. The results showed that the dimensions of Webqual positively affected student satisfaction. The relationship between dimensions of web qual and student satisfaction was strong, with an R-value of 0.797. The proportion of the dimensions of Webqual that influenced student satisfaction was 63.5%. The results of the T and F tests indicated that H0 was rejected and Ha was accepted, which meant that the dimensions of Webqual had an effect on student satisfaction. The academic information system has reached the level of student satisfaction, but it needs to be maximized.

Keywords: Usability, Information Quality, Service Interaction, Student Satisfaction

INTRODUCTION

The era of the Industrial Revolution 4.0 that is currently taking place requires various sectors to be able to adapt to technological developments. One form of adaptation to technology is using media or platforms that can be accessed online anytime and anywhere, such as websites. Websites are one of the most popular forms of information media today. Almost every agency and organization has a website that is used to deliver information, services, and even promotions. Based on the results of a survey conducted by the Association of Internet Service Providers (APJII) for the period of Quarter II/2020, the number of Internet users in Indonesia reached 196.7 million. This number increased by 23.5 million or 8.9% compared to 2018 (Association of Internet Service Providers, 2020). Therefore, the growth of media sites in Indonesia is increasing. Almost every agency has a website that is used as a means or medium of information.

According to Monalisa and Manik et al. (2017), a website or the World Wide Web is one of the critical media sites where users can find all kinds of information related to their respective fields, which can be accessed anywhere and anytime. Because of the superiority of the website, many institutions have developed it into an academic information system that can be accessed online. The existence of an integrated information system will make it easier for universities to process student data. On the other hand, students will also find it easy to register, make tuition payments, view academic reports, update class schedules and absences, and fill out Study Plan Cards. Quality facilities are certainly an added value for universities.

Seeing this, Pangkep State Polytechnic of Agricultural utilizes academic information systems and tries to provide satisfactory services as a forum that allows students to take care of all campus needs without having to meet them. However, in its implementation, there are still problems, such as system errors in several features such as re-registration, study plan card programming, values on study results cards that do not match, and class schedules and absences not updated. This kind of phenomenon often occurs at the end of the semester, even though the campus has gone through several developments. Therefore, to find out to what extent end users can accept the academic information system services of the Pangkep State ofPolytechnic of Agricultural, it is necessary to carry out an assessment. This measurement serves to improve the quality of service to students. Based on the description above, the authors are interested in conducting analytical research as outlined in "Website Analysis of Academic Information System on Students of Pangkep State Polytechnic of Agriculture Satisfaction Using WebQual 4.0."

RESEARCH METHODS

Researchers used quantitative descriptive research methods. The research location is at the Pangkep State Polytechnic of Agriculture. Sources of data obtained from questionnaires, as well as supporting documents such as agency profile documents. The data collection technique used a closed-type questionnaire with a Likert scale. The population and sample were 10% of the total number of students. The sample was taken using a stratified random sampling technique based on the semester level, namely semester II-VIII. According to Natsir (2004), the formula for the number of samples of each section with the stratified random sampling technique is:

$$\text{Number of samples} = \frac{\text{Number of subpopulations}}{\text{Total Population}} \times \text{Number of samples required}$$

Table 1. Number of Students of Pangkep State Polytechnic of Agricultural

Part	Number of Sub Populations	Number of Samples
Semester II	259	26
Semester IV	605	60
Semester VI	569	57
Semester VIII	571	57
Total	**2004**	**200**

Source: Processed by the Author

Instrument Test

a. Validity Test

Validity test is used to measure the accuracy of a test in carrying out its measurement function (Azwar, 2014). The assumption is said to be valid if the value of $r_{count} > r_{table}$. Basis of decision making validity test are:

a. If the value of $r_{count} > r_{table}$, then the question item is declared valid
b. If the value of $r_{count} < r_{table}$, then the question item is declared invalid

b. Reliability Test

Reliability test is a tool to measure the questionnaire which is an indicator of a variable. A questionnaire is said to be reliable if a person's answer to the statement is stable over time (Ghozali, 2013). The researcher used Cronbach alpha > 0.6.

Classic Assumption Test

a. Normality Test

Normality test is a test used to see whether the distribution of data in a group or variable is normally distributed or not (Hidayat, 2013). This test was carried out using histogram and probability plot methods. The basis for decision making is if the data spreads around the diagonal line and the histogram is in the form of a bell shape, then the regression model has met the assumption of normality.

b. Linearity Test

Good data must have a linear relationship between the dependent variable and the independent variable. If the probability value > 0.05, then the relationship between the independent variable and the dependent variable student satisfaction (Y) is linear.

c. Multicollinearity Test

According to Ghozali (2013), stating that the VIF value > 10 and the Tolerance value > 0.10, there is no multicollinearity.

d. Heteroscedasticity Test

Ghozali in Ghifari (2016), Explains that the heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. This test is carried out using the glejser test, if the sig value of each variable is > 0.05, then there is no symptom of heteroscedasticity.

Hypothesis Test

According to Ghozali (2016), The F test was conducted to see the effect of all independent variables simultaneously on the dependent variable. T test was conducted to see the effect of all independent variables partially on the dependent variable. The level used was 0.5 or 5%, if the significance value of F < 0.05 it could be interpreted that the independent variables simultaneously affected the dependent variable or vice versa.

Data Analysis

According to Sugiono (2019), Multiple linear regression is an equation model that explains the relationship of one dependent variable/response (Y) with two or more independent variables/predictors (X1, X2__Xn). The purpose of the multiple linear regression test is to predict the value of the dependent variable/response (Y) if the value of the independent/predictor variable (X1, X2__ Xn) is known. In addition, to find out how the direction of the relationship between the dependent variable and the independent variable. Multiple linear regression equation:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \ldots + bn\ Xn$$

Y = The dependent variable (the value of the variable to be predicted)
a = Constant
b1, b2,_, bn = Regression coefficient value
X1, X2,_, Xn = Independent variable

RESULTS AND DISCUSSION

1. Overview of Research Sites

Pangkep State Polytechnic of Agricultural is a state within the Ministry of Education and Culture, whose main campus is located in Pangkep, South Sulawesi. This campus was inaugurated by the President of the Republic of Indonesia on September 9, 1990. In 2020 Politani Pangkep has 5 Departments with 15 Study Programs at the D3 and D4 levels, and 1 Study Program at Masters (S2) level. (Source: https://polipangkep.ac.id/).

2. Instrument Test Results

A. Validity Test

The validity test uses the value of rtable = 0.138 (r_{table} = 200), it can be concluded that all indicators of usability, information quality, service interaction and student satisfaction variables are declared valid.

Table 2. Validity Test Results of Independent and Dependent Variables

Item	r count	r table	Description
Usability			
X1	0,684	0,138	Valid
X2	0,755	0,138	Valid
X3	0,815	0,138	Valid
X4	0,811	0,138	Valid
X5	0,739	0,138	Valid
X6	0,695	0,138	Valid
X7	0,729	0,138	Valid
Information Quality			
X1	0,853	0,138	Valid
X2	0,792	0,138	Valid
X3	0,84	0,138	Valid
X4	0,875	0,138	Valid
X5	0,797	0,138	Valid
X6	0,87	0,138	Valid
X7	0,804	0,138	Valid
Service Interaction			
X1	0,842	0,138	Valid
X2	0,72	0,138	Valid
X3	0,701	0,138	Valid
X4	0,852	0,138	Valid
X5	0,879	0,138	Valid
X6	0,832	0,138	Valid
X7	0,814	0,138	Valid
Student Satisfaction			
Y1	0,784	0,138	Valid
Y2	0,78	0,138	Valid
Y3	0,754	0,138	Valid
Y4	0,706	0,138	Valid
Y5	0,733	0,138	Valid

Y6	0,764	0,138	Valid
Y7	0,752	0,138	Valid
Y8	0,735	0,138	Valid
Y9	0,716	0,138	Valid
Y10	0,73	0,138	Valid
Y11	0,652	0,138	Valid
Y12	0,721	0,138	Valid

Source: Primary Data Processed by SPSS 24 (2022)

B. Reliability Test

The reliability test for the variables of usability, information quality, service interaction and student satisfaction can be seen from the Cronbach alpha value > 0.6. So it is stated that the level of reliability is reliable.

Table 3. Statistical Reliability of Independent and Dependent Variables

Variabel	Number of items	Cronbach's Alpha	Test Criteria	Description
Usability	7	0,863	0,6	Reliabel
Information Quality	7	0,925	0,6	Reliabel
Service Interaction	7	0,911	0,6	Reliabel
Student Satisfaction	12	0,923	0,6	Reliabel

Source: Primary Data Processed by SPSS 24 (2022)

C. Classic Assumption Test

1. Normality Test

The results of the normality test isprobability plot test, seen at residual points spread around the diagonal line, meaning that the residual points of the regression model are normally distributed, thus the requirements for normality as a statistical test using regression can be fulfilled.

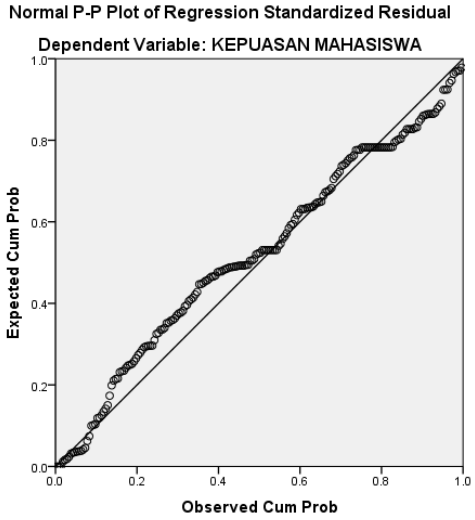

Figure 1. Probability Plot Normality Test Results

2. Linearity Test

The significance value obtained is 1 > 0.05. This shows the independent variable to the dependent has a linear relationship.

Table 4. Results of ANOVA Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
Unstandardized Residual *	Between Groups	(Combined)	2.095.453	147	14.255	.880	.726
		Linearity	.000	1	.000	.000	**1.000**

Unstandardized Predicted Value	Deviation from Linearity	2.095.453	146	14.352	.886	.715
	Within Groups	842.217	52	16.196		
	Total	2.937.670	199			

Source: Primary Data Processed by SPSS 24 (2022)

3. Multicollinearity Test

All independent variables have tolerance values > 0.1 and VIF values < 10. This shows that there is no multicollinearity in each variable.

Table 5. Multicollinearity Test Results

Coefficients[a]			
Model	Unstandardized Coefficients	Tolerance	VIF
(Constant)	7.878		
Usability		**.338**	**2.958**
Information Quality		**.255**	**3.916**
Service Interaction		**.248**	**4.030**

Source: Primary Data Processed by SPSS 24 (2022)

4. Heteroscedasticity Test

The Glejser test can be done to prove the data is free from heteroscedasticity, Glejser test is by regressing the absolute value of the residual to other independent variables. The criteria used are rejecting H0 if the significance value < value is 5%. It is known that the significance value of each variable is > 0.05. So it can be concluded that in Glejser test there is no heteroscedasticity.

Table 6. Glejser Test Results

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.666	1.058		-1.575	**.117**
Usability	.074	.080	.107	.914	**.362**
Information Quality	.110	.083	.178	1.318	**.189**
Service Interaction	.019	.082	.032	.233	**.816**

Source: Primary Data Processed by SPSS 24 (2022)

HYPOTHESIS TEST

A. T Test

The t-test (partial) of the usability variable has a significance probability value (P-value) = 0.000 <0.05 and a tcount of 5.134 > 1.972, then H0 is rejected and H1 is accepted. It can be concluded that usability (X1) partially affects student satisfaction (Y). In this case, the academic information system website of Pangkep State Polytechnic of Agricultural, already has an attractive appearance, is easy to use and easy to access. That way students feel happy and satisfied in finding the information they need. Other studies also give the same result, that usability partially has a positive influence on the level of student satisfaction. The ease of use of the website, website interface design and features on the XYZ website can increase student or customer satisfaction.

Then the information quality (X2) has a significance probability value (P-value) = 0.041 < 0.05 and a tcount value of 2.061 > 1.972, then H0 is rejected and H1 is accepted. The results show that information quality has a partial effect on student satisfaction. In this case, the academic information system website has provided the required information, although some features are not up to date.

Furthermore, service interaction (X3) has a significance probability value (P-value) = 0.001 < 0.05 and a tcount value of 3.426 > 1.972, then H0 is rejected and H1 is accepted. These results indicate that service interaction partially has a positive effect on student satisfaction. In this case, the academic information system of the Pangkajene Islands State Agricultural Polytechnic has provided satisfactory services, such as ensuring the security of student information. Although the website has not provided a communication space between academics and students.

So it was concluded that all independent variables simultaneously had a significant effect on student satisfaction on the academic information system website of the Pangkajene Islands State Agricultural Polytechnic.

Table 7. T Test Results

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	7.878	1.617		4.873	.000
Usability	.632	.123	.381	**5.134**	**.000**
Information Quality	.263	.127	.176	**2.061**	**.041**
Service Interaction	.431	.126	.297	**3.426**	**.001**

Source: Primary Data Processed by SPSS 24 (2022)

Data Analysis

A. Multiple Linear Regression

Multiple linear regression analysis was used to predict the effect of usability, information quality, and service interaction variables on student satisfaction.

Table 9. Test Results of Multiple Linear Regression Equations

$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$
$Y = 7,878 + 0,632X1 + 0,263X2 + 0,431X3 + e$

Source: Primary Data Processed by SPSS 24 (2022)

From the above equation can be explained as follows

a) The constant of linear regression equation is 7.878, which means that if the variables usability (X1), information quality (X2), service interaction (X3), do not exist or the value is 0 then student satisfaction (Y) in the academic information system of the Pangkep State Polytechnic of Agricultural has a value of 7.878. This is because there are other factors other than usability factors, information quality service interaction in influencing student satisfaction.

b) The value of the regression coefficient (b1) for the usability variable (X1) is 0.632, meaning that if the usability variable is increased by 1%, student satisfaction will increase by 0.632. This means that for an effort to develop an academic information system in terms of website interfaces carried out by the Pangkep State Polytechnic of Agricultural, the resulting usability dimension is 0.632. If the usability dimension is developed by 1% or more, it will increase student satisfaction. On the other hand, if there is no development or a decrease in usability quality, student satisfaction will decrease. This shows that the usability variable contributes positively to student satisfaction, meaning that there is a unidirectional relationship between the usability dimension and student satisfaction.

c) The value of the regression coefficient (b2) for the information quality variable (X2) is 0.263, meaning that if the information quality variable is increased by 1%, student satisfaction will increase by 0.263. This means that for an effort to develop an academic information system in terms of the completeness of the latest and detailed information, which is carried out by the Pangkep State Polytechnic of Agricultural, the resulting information quality dimension is 0.263. If the development of the information quality dimension is 1% or more, it will increase student satisfaction. Conversely, if there is no development or a decrease in the quality of information quality, then student satisfaction will decrease. This shows that the information quality variable contributes positively to student satisfaction, meaning that there is a unidirectional relationship between the dimensions of information quality and student satisfaction.

d) The value of the regression coefficient (b3) for the service interaction variable (X3) is 0.431, meaning that if the service interaction variable is increased by 1 percent, student satisfaction will increase by 0.431. This means that for an effort to develop an academic information system in terms of facilitating students in interacting with universities in the academic field, which is carried out by the Pangkep State Polytechnic of Agricultural, the resulting service interaction dimension is 0.431. If the development of the service interaction dimension is 1% or more, it will increase student satisfaction. Conversely, if there is no development or a decrease in the quality of service interactions, student satisfaction will decrease. This shows that the service interaction variable contributes positively to student satisfaction, meaning there is a unidirectional relationship between the dimensions of service interaction and student satisfaction.

B. Correlation Coefficient Test and Coefficient of Determination

Based on the results of the correlation coefficient test, the value of r obtained is 0.797 or is in the "strong" range. It is concluded that the level of usability (X1), information quality (X2), service interaction (X3) relationship on student satisfaction is strong. While the Coefficient of Determination, it is known that the coefficient of determination R2 is 0.635, meaning that the three variables used in this regression equation are said to have an effect of 63.5% on student satisfaction with academic information systems. While the rest is influenced by other variables outside the study by 36.5%, are the dimensions of responsiveness, assurance, and empathy.

Table 10. Correlation Coefficient Summary Model

Model Summary				
				Change Statistics
R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig. F Change
.797	**.635**	**.629**	3.871	**.000**

Source: Primary Data Processed by SPSS 24 (2022)

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the results of research conducted at Pangkep State Polytechnic of Agricultural, it can be concluded:

1. From the multiple linear regression equation Y = 7.878 + 0.632X1 + 0.263X2 + 0.431X3, This means that if usability, information quality, and service interaction = 0, then student satisfaction is 7.878, whereas if usability, information quality and service interaction = 1, then will increase student satisfaction by 0.632X1, 0.263X2 and 0.431X3.
2. The relationship between usability, information quality, and service interaction on student satisfaction on the academic information system website, seen from the correlation test (r) of 0.797 means that it has a strong relationship.
3. The proportion of the effect of usability, information quality and service interaction on student satisfaction on the academic information system website, seen from the coefficient of determination test (R2) as much as 63.5% simultaneously while partially at 0.629 or 62.9%.
4. The results of T test for the three variables show the usability variable t_{count} (5.134) > t_{table} (1.972), the information quality variable shows t_{count} (2.061) > t_{table} (1.972) and the service interaction variable shows t_{count} (3.426) > t_{table} (1.972) thus partially the three dimensions of webqual 4.0 have a significant effect on student satisfaction. The F test shows f_{count} (113.482) > f_{table} (2.65) meaning that simultaneously the three dimensions of webqual 4.0 have a significant effect on student satisfaction.

Suggestion

Based on the results of the research that has been done, some suggestions to be maintained in increasing student satisfaction are:

a. Academic information system officers are expected to be more optimal in providing quality information and maintaining the level of user security and being more professional in serving students.
b. It is recommended to conduct further research on factors of student satisfaction outside of this research, the variables of responsiveness, assurance, and empathy.

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