Test of Easy Factors and The Utilization of University Website in Supporting Student Learning Processes

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ABSTRACT

The existence of a university website is an integral part of the existence of the university itself. But it is necessary to test the acceptance of the website for users, and how university websites affect student learning. The study was conducted using a quantitative descriptive approach with multiple linear regression analysis tools. The questionnaire was conducted on students as one of the website users by asking about the ease and usefulness of the website. The results of the study show that from 6 hypotheses about web site usability, 83.33% of the hypotheses are accepted, or in general, it can be said that university websites are useful for students in supporting their learning. While related to the ease of use of the website, 6 hypotheses (85.71%) were received from 7 existing hypotheses or showed university websites were easy to use by users (students).

Keywords: university website, easy and utilization factor, student learning, quantitative descriptive, multiple linear regression analysis

INTRODUCTION

Web sites, including educational institution websites, are quickly becoming an excellent medium for disseminating information and visibility (Abid Ismail & K.S. Kuppusamy, 2018). The existence of a university website is an integral part of the existence of the university itself.

Educational institutions' websites must be easily accessible to all parties, both internal and external to the university, so that all available resources (information) can be easily achieved (Nishtha Kesswani & Sanjay Kumar, 2016). Related to academic activities as the main activity of the university, in addition to being a source of information, university websites should also support the success of student learning activities. Many academic activities at the university can be supported by a website by providing a variety of facilities or menus on the university's website.

So as a very important media and means in the process of academic activities, the university's website must be evaluated whether it is really easy to use and useful for its users or not. This research is intended to find out the acceptance of the website, also to find out its usefulness for users (students), by using the akakom.ac.id website as an object of research.

The study was conducted using Technology Acceptance Model (TAM). TAM is a model developed to predict the acceptance and use of technology, using features developed by technology and capabilities according to job requirements. (F. Munoz-Leiva, S. Climent-Climent, F. Liébana-Cabanillas, 2017)

METHOD

This research uses a quantitative approach with a descriptive type that aims to describe the perceptions of the benefits and convenience of the akakom.ac.id website by users (students). Students are given a Likert scale questionnaire to determine the perceptions of student convenience in using the

website and the perceived usefulness of the website for students in learning. Likert surveys, with a 5-point scale, are used because respondents are often uncomfortable with giving solid yes or no (or likes/dislikes), but like shades in their answers (Abhijit Gosavi, 2015).

The survey about the usefulness of the website consists of 6 questions related to the website can facilitate the lecture process; information needed can be obtained on the website; information about lectures can be obtained on the website; saving time in doing coursework; website benefits to support the lecture process; and websites make fewer tuition fees.

While the survey on ease of use consists of 7 questions related to difficulties in accessing the website; speed of use; ease of obtaining lecture information; increased proficiency with frequent access to websites; websites can be used practically; flexibility of using the website; and the website makes students more independent.

The data obtained is validity and reliability. Validity test is done by using the Pearson Product Moment Method. Pearson correlation coefficients are used to measure the extent to which two variables predict each other (Dana Indra Sensuse, Elin Cahyaningsih, and Wahyu Catur Wibowoa, 2015). Validity test will produce a correlation coefficient whose values range from -1, 0 and 1. A value of -1 means that there is a perfect negative correlation, 0 means that there is no correlation and value 1 means there is a perfect positive correlation.

The product moment correlation can be calculated by the following formula.

$$\frac{N\sum XY - (\sum X)\,(\sum y)}{\sqrt{[\{\sum x^2 - (\sum x)^2\}\ \{N\sum Y^2 - (\sum Y)^2\}]}}$$

Where N is the count of the test subjects, ∑x is the number of score points (x), ∑y is the number of variable scores (y).

Reliability testing is done to ensure that the research questionnaire used to collect data on research variables is reliable. Currently, reliability test and statistical theories have been widely used. More and more manufacturers of electronic parts have been publishing the reliability test data in different ways (DAI Ruidong & GUO Chun, 2016).

Reliability shows the consistency of a measuring device in measuring the same symptoms, in several measurements using the formula as follows:

$$rtt = \frac{M}{M-1}\ 1 - \frac{Vx}{Vt}$$

Where, *rtt* is the reliability of the instrument, *M* is the number of items, V_x is the item variation, and V_t is the total variation.

For the data obtained, the normality test is done to find out whether the data to be used in the regression model is normally distributed or not. To test a data with normal distribution or not, it can be known by using a normal plot graph.

Data analysis was carried out using multiple linear regression methods using the formula:

$$Y=\alpha + \beta_1 X_1 + \beta_2 X_{2\,+}\, e$$

With *Y* is the perception of the usefulness and convenience of the website using the TAM method, α is the constant value, β is the estimate coefficient, X_1 is the perception of usefulness, X_2 is the perception of convenience, and *e* is an error.

RESULT AND DISCUSSION

Validity test is used to test whether the validity of each questionnaire is valid or not, determined by the magnitude of the r count which can be known using correlation, where the significance rate (a) = 5%. In this study the number of respondents was 103 people with df = n-2 (103 – 2 = 101) and real rates 5% and obtained from the value of R Table = 0,1937 as shown in Table 1 and Table 2 below. This shows that each question in the research questionnaire was declared valid and feasible to use.

Table 1 Perception Validity Test Results for Website Benefits

Variable	Number	R. Count	R. Table	Explanation
Benefit Perception (X_1)	1	0,781	0,1937	Valid
	2	0,822	0,1937	Valid
	3	0,834	0,1937	Valid
	4	0,834	0,1937	Valid
	5	0,835	0,1937	Valid
	6	0,675	0,1937	Valid

Table 2 Perception Validity Test Results for Ease of Website

Variable	Number	R. Count	R. Table	Explanation
Ease of Perception (X_2)	1	0,530	0,1937	Valid
	2	0,838	0,1937	Valid
	3	0,788	0,1937	Valid
	4	0,735	0,1937	Valid
	5	0,785	0,1937	Valid
	6	0,805	0,1937	Valid
	7	0,721	0,1937	Valid

The reliability test, as shown in Table 3, produces an alpha cronnach number of 0.886 (benefit perception) and 0.865 (ease of perception) which means that all questions on the questionnaire are declared reliable (greater than 0.60).

The normality test performed to get the results is used to determine whether the residuals studied are normally distributed or not. Fig 1. shows the results of the normalization test for perceptions of benefit and convenience of more than 0.5, which means normally distributed.

Table 3. Reliability Test Results

Reliability Statistics		
Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**	**N of Items**
.879	**.886**	**6**
.863	**.865**	**7**

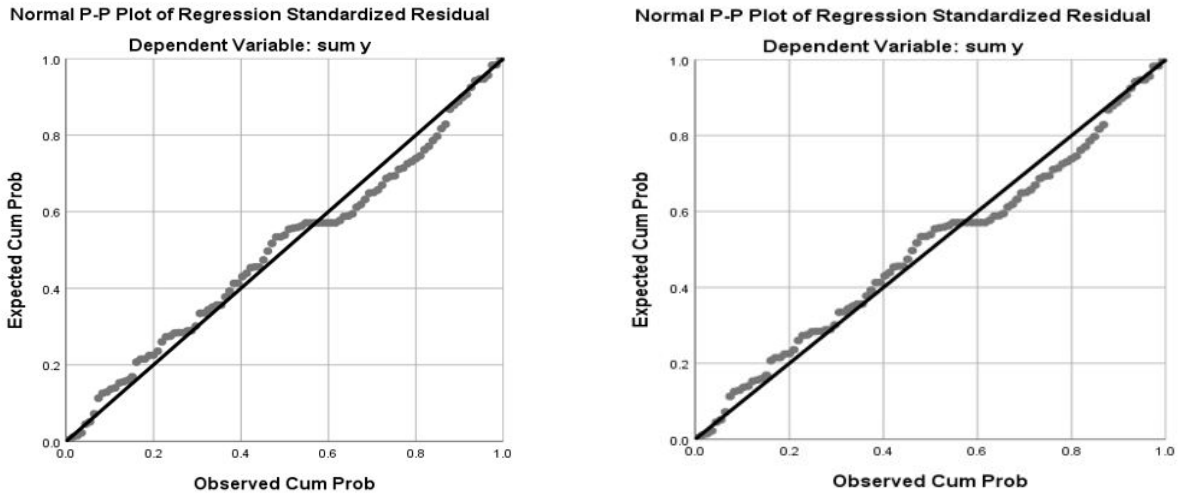

Fig 1. Test results for the normality of perceptions of benefits and convenience

The results of the normality test of the perception of the usefulness and convenience of the website if made in the form of a histogram graph look like in Fig. 2 below.

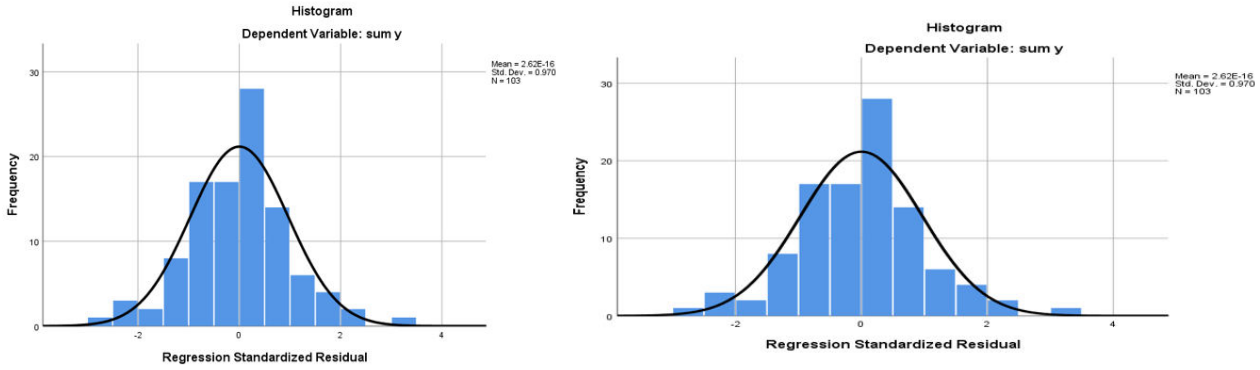

Fig 2. Normality test results (graph histogram) perceptions of benefits and convenience

From Fig. 2 above, it can be said that the points spread around the lines and bell histogram graphs, so it can be concluded that this study is normally distributed.

Linear regression calculations are performed on perceptions of usefulness and perceived ease. The results of linear regression calculations on the perception of benefits can be seen in Table 4.

Table 4. Linear regression of perceived usefulness

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.521	1.364		6.978	.000
	XI1	1.094	.451	.112	2.424	.017
	XI2	2.461	.512	.245	4.808	.000
	XI3	1.824	.505	.200	3.612	.000
	XI4	1.638	.437	.187	3.754	.000
	XI5	2.370	.436	.277	5.440	.000
	XI6	1.113	.297	.149	3.743	.000

a. Dependent Variable: sum y

Based on the results of the above calculations can be compiled a multiple linear regression equation between independent variables (Y) by entering multiple linear regression coefficients into the form of multiple linear regression equations as follows:

$$Y= 9,521 + 1,094x1 + 2,461\ x2 + 1.824x3 +1.638x4 +1.638x5 +1.113x5 +e$$

From the results of the regression equation above, it can be seen that the question items related to the website can facilitate the lecture process does not have a positive effect on the perception of usefulness, this can be seen through the regression coefficient value of 1.094 which shows the coefficient value does not have a positive effect.

The results of linear regression calculations on perceived ease can be seen in Table 5. Based on the results of calculations in Table 5, a multiple linear regression equation can be arranged as follows:

$$Y = 3,287 + 0,471x1 + 3,636x2 + 2,270x3 + 1,169x4 + 1,095x5 + 1,553x6 + 1,809x7 + e$$

Based on the results of the regression equation above, it can be seen that the question items related to difficulties in accessing the website do not have a positive effect on the perceived ease of the website, this can be seen through the regression coefficient value of 0.471 which shows the coefficient value has no positive effect.

Table 5. Linear regression of perceived ease

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	3.287	1.658		1.983	.050
	X21	.471	.378	.042	1.245	.216
	X22	3.636	.532	.350	6.836	.000
	X23	2.270	.459	.219	4.948	.000
	X24	1.169	.347	.132	3.369	.001
	X25	1.095	.536	.100	2.042	.044
	X26	1.553	.463	.155	3.354	.001
	X27	1.809	.343	.212	5.282	.000
a. Dependent Variable: sum y						

The F test can be done by comparing F count with Table F if F count> from F Table, (Ho is rejected Ha is accepted) then the model is significant. The model is significant during the Significance (%) column <Alpha. And vice versa if F count <F Table, then the model is not significant, this is also marked the column value Significance (%) will be greater than alpha.

The F test of benefit perception gets results as shown in Table 6.

Table 6. Anova test of perceived usefulness

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6381.488	6	1063.581	149.180	.000[b]
	Residual	684.435	96	7.130		
	Total	7065.922	102			
a. Dependent Variable: sum y						
b. Predictors: (Constant), XI6, XI3, XI1, XI4, XI5, XI2						

F Count in column F is 149,180, with Significance of 0,000, greater than the value of F Table which is 0,139 with an error rate of 5% or in other words F Count> F Table (149,180> 0,139). Based on hypothesis testing criteria if F Count> F Table with a significance level of 0,000 <0,05. Shows that the influence of the website's perceived usefulness is positive.

Table 7. Anova test of perceived ease

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6478.983	7	925.569	149.809	.000[b]
	Residual	586.939	95	6.178		
	Total	7065.922	102			
a. Dependent Variable: sum y						
b. Predictors: (Constant), X27, X21, X25, X23, X24, X26, X22						

In Table 7 F Calculate in column F equal to 149,180, with a significance of 0,000, greater than the value of F table which is 0,139 with an error rate of 5% or in other words F Count> F Table (149,180> 0,139). Based on hypothesis testing criteria if F Count> F Table with a significance level of 0,000 <0,05. Shows that the influence of perceived ease of website has a positive effect.

How much influence the independent variables partially on the dependent variable is measured using the T Test.

Table 8. T test of perceived usefulness

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.521	1.364		6.978	.000
	XI1	1.094	.451	.112	2.424	.017
	XI2	2.461	.512	.245	4.808	.000
	XI3	1.824	.505	.200	3.612	.000
	XI4	1.638	.437	.187	3.754	.000
	XI5	2.370	.436	.277	5.440	.000
	XI6	1.113	.297	.149	3.743	.000
a. Dependent Variable: sum y						

Based on the results of the T Test as shown in Table 8 it can be seen that the value of the constant significance is 0,000 <0,05, so Significance Ha is accepted. Value T Count, T Table,

Significance, and the effect of questionnaire questions on the perception of the usefulness of the website can be seen in Table 9.

Table 9. T Test Results on perceptions of usefulness questionnaire questions

Questions	T Count	T Table	Significance	Influence	Hypothesis
Website can facilitate the lecture process (X11)	2,424	1,984.	0,17 > 0,05	Negative	Rejected
Information needed can be obtained on the website (X12)	4,808	1,984	0,000 > 0,05	Positive	Accepted
Information about lectures can be obtained on the website (X13)	3,612	1,984	0,000 > 0,05	Positive	Accepted
Time savings in doing coursework (X14)	3,754	1,984	0,000 > 0,05	Positive	Accepted
Benefits of the website to support the lecture process (X15)	5,440	1,984	0,000 > 0,05	Positive	Accepted
The website makes the tuition fees less (X16)	3,754	1,984	0,000 > 0,05	Positive	Accepted

Table 10. T test of perceived ease

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.287	1.658		1.983	.050
	X21	.471	.378	.042	1.245	.216
	X22	3.636	.532	.350	6.836	.000
	X23	2.270	.459	.219	4.948	.000
	X24	1.169	.347	.132	3.369	.001
	X25	1.095	.536	.100	2.042	.044
	X26	1.553	.463	.155	3.354	.001
	X27	1.809	.343	.212	5.282	.000

a. Dependent Variable: sum y

Table 10 shows the value of constant Significance is 0.50> 0.05, then Significance Ha is accepted. Value T Count, T Table, Significance, and the effect of questionnaire questions on perceived ease of website can be seen in Table 11.

Table 11. T Test Results on perceived ease of questionnaire questions

Questions	T Count	T Table	Significance	Influence	Hypothesis
Difficulties in accessing the website (X21)	1,245	1,984	0,216 > 0,05	Negative	Rejected
Usage speed (X22)	6,836	1,984	0,000 > 0,05	Positive	Accepted
Ease of getting lecture information (X23)	4,948	1,984	0,000 > 0,05	Positive	Accepted
Increased proficiency with frequent access to websites (X24)	3,369	1,984	0,001 < 0,005	Positive	Accepted

Website can be used practically (X25)	2,042	1,984	0,044 > 0,05	Positive	Accepted
Flexibility of website usage (XI6)	3,354	1,984	0,001 < 0,05	Positive	Accepted
Website makes students become more independent (X27)	5,282	1,984	0,001 < 0,05	Positive	Accepted

CONCLUSION

The results of the answer analysis of the 6 hypotheses about the usefulness of the website show that 83.33% of the hypotheses are accepted, or in general it can be said that university websites are beneficial for students in supporting their learning. While related to the ease of use of the website, 6 hypotheses (85.71%) were received from 7 existing hypotheses, or showed university websites were easy to use by users (students). The results of this study can be different for other university websites, or with different questions and amounts.

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REFERENCES

Ismail A. and Kuppusamy K.S. (2018) Accessibility of Indian universities' homepages: An exploratory study, Journal of King Saud University – Computer and Information Sciences 30, 268–278.

Kesswani N. and Kumar S. (2016) Accessibility analysis of websites of educational institutions, Perspectives in Science 8, 210—212.

F. Munoz-Leiva S., Climent-Climent, and F. Liébana-Cabanillas (2017), Determinants of intention to use the mobile banking apps: An extension of the classic TAM model, Spanish Journal of Marketing - ESIC 21, 25---38

Gosavi A. (2015) Analyzing Responses from Likert Surveys and Risk-Adjusted Ranking: A Data Analytics Perspective, Procedia Computer Science 61, 24 – 31

Sensuse, D.I., Cahyaningsih, E., and Wibowo, W.C, (2015) Identifying Knowledge Management Process of Indonesian Government Human Capital Management using Analytical Hierarchy Process and Pearson Correlation Analysis, Procedia Computer Science 72, 233 – 243.

Ruidong, D. and Chun, G. (2017), Researches and investigation on manufacturers` reliability test data of electronic parts, Energy Procedia 127, 242–246