Students Acceptance of Mobile Final Project Guidance using Technology Acceptance Model

Kristiawan Nugroho, Sugeng Murdowo
AMIK Jakarta Teknologi Cipta
Jl. Kelud Raya No 19 Semarang, (024) 8310002
e-mail: kristiawan1979@gmail.com

Abstract

The final project is a form of research work produced by diploma students in completing the lectures. Unfortunetly, some universities are still using manual methods in which lecturers and students, meet directly in conducting guidance, the problem is difficulty in arranging time to meet between lecturers and students especially students who have worked. The mobile system of final task guidance is developed as a solution to enable lecturers and students to communicate whenever and wherever, this research uses Technology Acceptance Model (TAM) method to analyze factors influencing the acceptance of computer application by lecturers and students, By testing technique using TAM obtained test result as follows that from F test result obtained Fcount equal to 8,805, then Fcount> Ftable (8.805> 2.42),so it can be concluded that Confidence, Hassle, Time Limitations, Usability, Ease of Use, and Behavioral Behavior jointly affect the actual usage.

Keywords: Final Project,Mobile,Technology Acceptance Model

1. Introduction

The final project as a form of student research is conducted by diploma students in Indonesia. In making the final task students communicate with supervisors to consult on research conducted. The final project is the culmination of the learning process of a student in applying all the knowledge that has been learned both scientific knowledge and technique [1].

In the Diploma program students must complete the final project in the form of research and preparing final report which is assisted by each supervisor. Currently the students especially those who are already working have difficulty arranging the time to meet the lecturers in conducting guidance. This problem resulted in the decline of students who could pass on time.

The development of information and communication technology is very advanced today. Various studies have shown that the use of ICT helps various agencies, especially education in applying the learning process easier and more effective [2]. Other studies like Bosco [3] show that learning with ICT is better than conventional learning.

This study aims to design a mobile system guidance and monitoring of students' final tasks to facilitate communication between lecturers and students in completing final project guidance. With the mobile system guidance of the final, The student expected can at any time do guidance online without being limited by the place and time so that the number of graduation students in completing the final task to be increasing.

2. Research Method

A good application is an application that helps the user in completing the task and can be fully accepted by the user. Research on online guidance or Eguidance [4] under the title E-Guidance And Student's File Follow Up System: A Web Base Interactive Guidance And Students File Follow Up Interface For Turkey, this study produced an interactive web useful for students in communicating about learning materials more effectively. In addition it has also developed Final Year Project Supervision Management System [5] which is a web-based application that is useful in supervising end-of-year science projects that have been proposed by students.

Both the above research produce a web-based application that can be used as a means of communication between lecturers and students in conducting learning activities, By using this application lecturers can also monitor the tasks assigned to students. Web-based applications help students in communicating with lecturers in completing final project guidance. Students can complete the final task in a timely manner.

In this research, we designed a mobile system of guidance and monitoring of student final task that can be run by lecturers and students through smartphone. By using a smartphone is expected to facilitate more lecturers and students in communicating through the final task of guidance with more flexible whenever and wherever.

The research method used in this research is TAM (Technology Acceptance Model), Davis introduced TAM in 1986. Technology Acceptance Model is a form of method that is useful in analyzing the acceptable factors in an application of new technology and the influence of external variables that influence trust, attitudes, and intentions in the application of new technologies [6].

TAM is used in measuring the level of acceptance of technology to the user in online learning at the University in Egypt [7]. The study involved 153 students studying online learning. Having studied using TAM it can be concluded that DBMU students tend to have negative attitudes toward the use of online learning, do not consider online learning as easy to use, do not feel the usefulness of online learning, and they intend not to use learning on line.

TAM consists of two main aspects: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are the extent to which people believe that using a particular technology then people will be free of effort , while PU can be defined as the extent to which people believe that using a particular system will improve its performance. After the TAM, the researchers began to develop this model by adding external variables in TAM [8], It shown in figure 1.
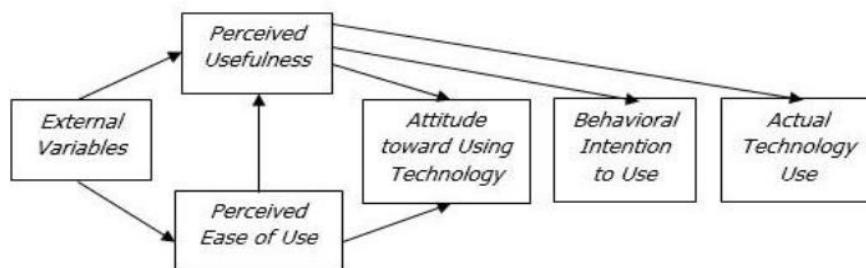

Figure 1 : TAM with external variabel

The addition of external variables in this study is the time and complexity constraints. The complexity[9], namely "the degree to which an innovation is perceived as being difficult to use". Researcher[10] found a positive relationship between complexity and ease of use. While time constraint is a factor related to the amount of time that students use in using the final task guidance system, because some students are already working so they find it difficult to take the time to do final project guidance online.

3. Results and Analysis
A. System and application design

The mobile system of final task guidance is designed to be run in Android operating system smartphone so easy to be used by students and lecturers wherever they are. The design of the system using the use case shown in Figure 2.
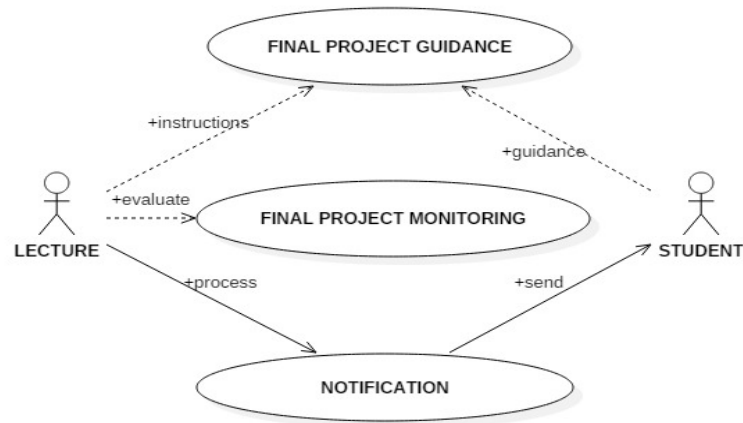
Figure 2 : Use case diagram

The figure of use case diagram above shows the relationship of 2 actors yairu lecturers and students, they interact in the process of guidance and monitoring the final task. The notification process will be accepted automatically by both the lecturer and the student in informing the status of final assignment.
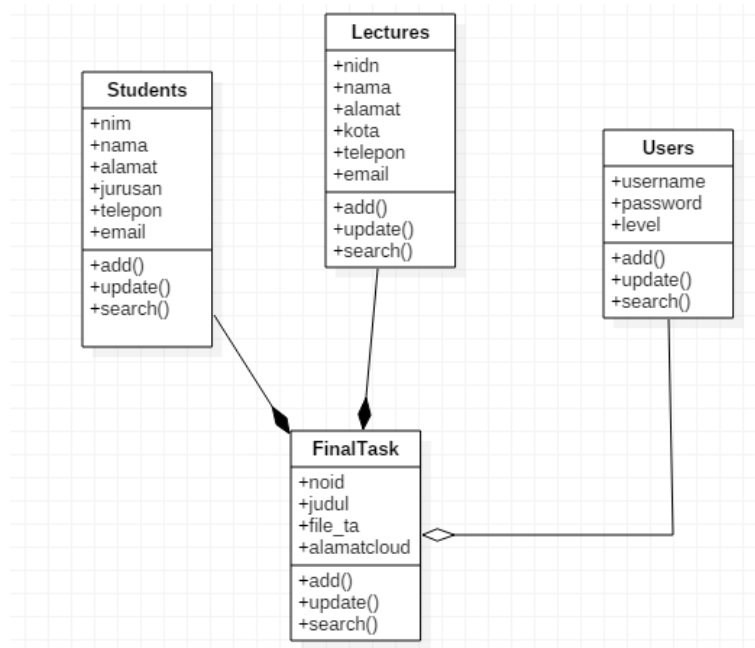

Figure 3 : Class diagram

The design of the class diagram in the figure 3 above shows the relationship between the class of students and lecturers which is the main class in the final task guidance system, then there is also a user class used in managing the user who can log into the system and the final task class is a class that contains the details of the task end students stored in the cloud server.

The interface of mobile system application of final task guidance can be seen in figure 4 as follows.

Figure 4 : Mobile final project guidance system

B. Hypotheses and Technique of Data Analysis
1. Hypotheses

The hypotheses of this research is about the relationship between Confident, Usefulness, Complexity, Time Limitations, Ease of Use, Behavioral intent shown in figure below.
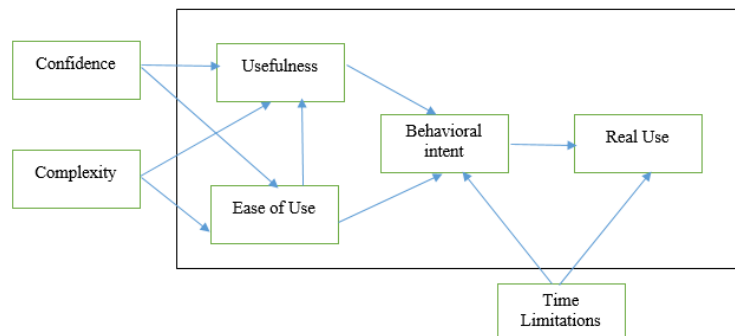

Figure 5 : Hypotheses of student's acceptance

2. Measurement Validity Test

Validity indicates the extent to which the measuring tool is able to measure what it wants to measure. In testing the validity using Pearson Correlation technique, where the process is seen from the correlation value at the total value of the answer. The values in the answer row are compared with r table with a significance value of 5% and the sample number of 30 rtables is 0.361. The test results are valid if rcount> from rtabel, from the research variables there are 2 variables that are declared invalid.

3. Reliability of Measuring Instruments Test

Reliability test is used to determine the consistency of measuring instruments that usually use the questionnaire. Reliability test is a continuation of the validity test where the items included in the test is a valid item only. By using the limit 0.6 can be

known whether the instrument is reliable or not. With less than 0.6 is less good, for a value of 0.7 is acceptable and above 0.8 is good.

A. Reliability Analysis Results Test
The results of the analysis in the reliability test shown in Table 4.1 below.

Table 1 Reliability Results Test

No Urut	Variabel	CronBach's Alpha	N Of Items
1	Confidence (X1)	0.933	2
2	Complexity (X2)	0.665	3
3	Time Limitations (X3)	0.694	2
4	Usefulness (X4)	0.854	6
5	Convenience (X5)	0.832	6
6	Behavioral intent (X6)	0.864	5
7	Usage (Y)	0.793	5

Source: Primary Data Processing Results SPSS Ver 17

B. Test of Regression Coefficient Together (F Test)
Regression test is jointly used to determine the effect of together dependent variable (X) on the dependent variable (Y). F test results can be seen in Table 4.2 as follows:

Table 2 F Test Results

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.998	6	.666	8.805	.000[a]
	Residual	1.741	23	.076		
	Total	5.739	29			

a. Predictors (Independent): Confidence, Hassle, Time Limitations, Usability, Ease of Use, Behavioral Intent.
b. Dependent Variable: The real use.

Source: Primary Data Processing Results SPSS Ver 17

Based on F test results from the above table using the significance level of 0.05 and df 1 (number of variables -1) and df2 (nk-1) or 30 - 6 - 1 (where n = number of respondents, k = number of independent variables) is read from the table F of 2.42.

For testing criteria if F arithmetic <F table, then Ho is accepted and If Fcount> F table then Ho is rejected.

From F test result obtained Fcount equal to 8,805, then Fcount> Ftable (8.805> 2.42), then Ho rejected. So it can be concluded that Confidence, Hassle, Time Limitations, Usability, Ease of Use, and Behavioral Behavior jointly affect the actual usage.

C. Partial Regression Coefficient Test (t test)
T test is used to know the partial independent variable (X) significantly influence the dependent variable (Y). Test results f by using multiple linear regression can be seen in table 4.3 as follows:

Table 3 T Test Results

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.896	.683		-1.312	.202
	XH1	.416	.115	.458	3.611	.001
	XH2	-.473	.253	-.384	-1.874	.074
	XH3	.564	.196	.461	2.881	.008
	XH4	.623	.245	.511	2.540	.018
	XH5	.355	.306	.290	1.160	.258
	XH6	-.352	.310	-.322	-1.134	.269

a. Independent Variables
- XH1 - Confidence
- XH2 - Complexity
- XH3 - Time Limitations
- XH4 - Usefulness
- XH5 - Ease of Use
- XH6 - Behavioral intent
b. Dependent Variable XH7 - Real Use

Source: Primary Data Processing Results SPSS Ver 17

Test criteria Test t is if the value of t count> ttabel then H1 accepted and Ho rejected, and if the value t count <ttabel then H1 is processed and Ho accepted. For t table value can be seen from statistic table with significance value 0.05 / 2 = 0.025 and degrees of freedom df = 30-6-1 = 23 is 2,042.

Here are the results of each hypothesis:
1. Testing based on confidence variables uses that belief of use affects the actual use of E Guidance. This is evidenced by the value of tcount> ttable (3.611> 2.042) which means H1 accepted.
2. Tests are based on the complex variables that the complexity does not affect the actual use of E Guidance. This is evidenced by the value of t count <ttabel (-1.874 <2.042) which means H1 is rejected.
3. Testing based on time limit variables that time constraints affect
4. actual use of E Guidance. This is evidenced by the value of tcount> ttable (2.881> 2.042) which means H1 accepted.
5. Testing based on time usability variables that usability affects the actual use of E Guidance. This is evidenced by the value of t count> ttable (2.540> 2.042) which means H1 accepted.
6. Testing based on the convenience variables that the ease does not affect the actual use of E Guidance. This is evidenced by the value of t count <ttable (1.160 <2.042) which means H1 is rejected.

Tests based on behavioral intention variables that behavior intentions have no effect on the actual use of E Guidance. This is evidenced by the value of t count <ttabel (-1.134 <2.042) which means H1 is rejected.

4. Conclusion

Technology Acceptance Model (TAM) is a method often used by researchers in testing the level of acceptance of applications by a group of users. This method can show the user's perception of the benefits of technology. Perceptions show positive or negative results depending on the level of acceptance of the technology. After conducted testing using technology acceptance model on mobile system of final task guidance hence can be concluded that based on Test f it is explained that Confidence, Hassle, Time Limitations, Usability, Ease of Use, and Behavioral Intentions simultaneously affect the actual usage.of E Guidance can be seen from F count> F table (8.805> 2.42). Based on the results of the test t can be seen that the Confidence, Time Limitations, Usability, together affect the actual use.of E Guidance. Can be seen from tcount> ttable, 3.611> 2.042 for confidence. 2.881> 2.042 for time constraints and 2.540> 2.042 for usability.

References

[1] Siti Rozaimah Sheikh Abdullah, Nurina Anuar, Masli Irwan Rosli, Noorhisham Tan Kofli & Norliza Abd. Rahman. " Improvement in the   Implementation of Undergraduate Research Project" . International   Forum on Engineering Education 2012 (IFEE 2012).

[2] Matjaž Debevc," Usability testing of e-learning content as used in two learning management systems". University of Maribor, Faculty of Electrical Engineering and Computer Science,Slovenia.

[3] Matjaž Debevc." Usability testing of e-learning content as used in two learning management systems". University of Maribor, Faculty of Electrical Engineering and Computer Science,Slovenia

[4] Nurettin Dogat,Mehmet Akif Tokat ."E-Guidance and Student's File Follow System: a web based interactive guidance and student's follow up interface for Rurkey. February 2008.

[5] Marini Abu Bakar, Jamhiriah Jilani, Norleyza Jailani, Rozilawati Razali,Zarina Shukur, Mohd Juzaiddin Abd Aziz. "Student Centered Learning Environment for Project Monitoring" .The 4th International Conference on Electrical Engineering and Informatics (ICEEI 2013).

[6] King, W. R., & He, J. A meta-analysis of the technology acceptance model. Information & Management, 43(6). 740–755. 2006.

[7] Taher Farahat." Applying the Technology Acceptance Model to Online Learning in the Egyptian Universities". International Educational Technology Conference"IETC2012,Egypt.

[8] Geoffrey S.Hubona,Elizabeth Kennick. The Influence of External Variables on Information Technology Usage Behavior,Proceedings of the 29th Annual Hawaii International Conference on System Sciences. 1996.

[9] E. M. Rogers, Diffusion of Innovations. New York: The Free Express 2003

[10] Davis, F.D. 1989.Perceived Usefulness. Perceived Ease of Use and User Acceptance of Information Technology. MIS Quarterly.