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Forewords

Praise and gratitude to Allah SWT, because of Allah's love for us so that we are still given a long life and can carry out our various daily activities. May all our activities become our acts of worship, Aamiinnn

in accordance with the commitment of the Jurnal Serambi Ilmu Journal to continue to improve the quality of its manuscripts since the volume 22 number 1 has been published full in English.

We are also be proud that the number of submitted manuscripts is quite large, but only a few are acceptable and worthy of publication. This means that Jurnal Serambi Ilmu has become one of the scientific publications that are considered by experts and education enthusiasts.

For this reason, Jurnal Serambi Ilmu is committed to continuing to maintain the quality, service and discipline that applies in scientific publications.

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Prototype Model for Final Project Evaluation and Student Satisfaction (Study at the AMIK Indonesia Banda Aceh Laboratory)

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Abstract

The purpose of this study was to evaluate a student's final project using the prototype model for evaluation of student's final project at AMIK Indonesia Banda Aceh. The method used is a quantitative approach in order to analyze the level of success of the Prototype Model to evaluate students' final assignments. Data collection for user needs is carried out using data analysis techniques through observation, interviews and also literature studies to collect data used in the evaluation of students' final assignments. the prototype model of student final project evaluation at AMIK Indonesia Banda Aceh was measured using end user satisfaction (EUCS). The sample and function testing in this application is done by black box testing, all of which will work fine. The results of the prototype model of student final project evaluation at AMIK Indonesia Banda Aceh are correct based on the evaluation using the Boehm Turner radar chart. The success rate of the application of the Student Final Project Prototype Model at AMIK Indonesia Banda Aceh using the end user satisfaction (EUCS) at the level of satisfaction so that it can be concluded that the application of the student final project evaluation prototype model at AMIK Indonesia Banda Aceh is very appropriate to be developed.

Keywords: prototype model, evaluation, final project

INTRODUCTION

The learning process requires innovations for quality improvement involving the organization of materials, methods, learning processes, and how to use learning media, as well as evaluating learning outcomes (Yazdi, 2012). In conventional learning systems, namely face-to-face in class, there are several shortcomings such as students being less interested (Ginting, 2013), less focused on listening to the teacher's material, some students often miss taking notes on subject matter (Aminoto & Pathoni, 2014) resulting in divided student concentration (Aminoto & Pathoni, 2014,:. Pathoni, 2014).

The lack of face-to-face time for the implementation of the final project evaluation on campus also requires the application of learning innovations, one of which is E-Learning. Utilization of E-Learning for learning media has a function to complement and improve the quality of learning and assist in increasing student understanding (Hanum, 2013).

Without eliminating the face-to-face learning process, the use of e-learning complements the shortcomings of the learning method, with the availability of media students can use to explore limited learning materials carried out by universities such as questions and answers with lecturers, quiz exercises, and others, e-learning can be accessed anytime and anywhere as long as it is connected to the internet well. In addition, a multimedia-based E-Learning system in which there is an attractive graphic display will make students more interested in participating in the learning process (Listyorini & Widodo, 2013).

The problem that often occurs is the lack of compatibility of the time possessed by students with the time possessed by the supervisors to guide students face to face. So that when carrying out the final task guidance face-to-face, the intensity of the guidance process becomes hampered due to the lack of maximum available time. Another obstacle is the limited time for completing the student's final project, which cannot be more than one semester. But many students can take more than two semesters to be able to reach the final trial exam.

The success of a goal is determined by the planning function that is set and the monitoring or monitoring function that goes well (Risnandar, 2015). With the evaluation function, it is to see how appropriate the planning of activities carried out so as not to deviate from the schedule that has been prepared and to follow the development of programs that will be carried out regularly and continuously through a model..

The prototype model of the student final project evaluation application is one form of academic service that can be used to facilitate student final project administration and assist students and lecturers in implementing the final project guidance, checking the submission of the final assignment title submitted by students, appointing the name of the supervising lecturer by the head of the program studies, monitoring the progress of the final project carried out by students, guiding students in carrying out their final assignments online, arranging methodology seminar schedules, and scheduling student final assignments.

Related research

This model is not new, it has been widely used by various other universities, for example the Evaluation of the Usability Test of the e-Repository using the Nielsen's Attributtes of Usability (NAU) AMIK Indonesia Method. The research method used is divided into 4 stages consisting of activities in it, which consist of; 1) Initiation, 2) Pre-User Testing, 3) Pre-User Testing, and 4) Post User Testing. The results of the research carried out are that the usability test with the Nielsen' Attributes of Usability (NAU) model can be used in finding the quality of a website, Iqbal and Bahruni's research (2019).

Evaluation of the e-Tracer Study using the HOT (Human-Organization-Technology) Fit Model, AMIK Indonesia Banda Aceh. This research has added a reference to the use of the HOT-FIT model for further researchers or other researchers in measuring the success rate of system implementation, and can also be used as input for the student body as the manager of the e-Tracer Study system (Akbar and Mukhtar, 2019).

WebQual 4.0 and Importance-Performance Analysis (IPA): Exploration of the Quality of the e-Quisioner Website, AMIK Indonesia. The results of this study indicate that the level of performance is very good and on the e-Quisioner website that needs to

be maximized to facilitate use, display, and also for improvements to the information and communication pages that need to be considered by the managers of this E-Quisioner website, (Ismail and Al-Bahri, 2019).

From the two studies above, it was found that they have several similarities, namely looking for performance results and the level of success of a system. The difference with the research of Iqbal and Bahruni (2019) is to look for the quality level of a website. The three studies above show that there are several differences from the plan proposed by the researchers, namely the researcher makes an information system evaluation model and adopts several pre-existing evaluation models or methods so that we can expect the results of this study to be used as guidelines in conducting evaluations. information systems and to be able to apply as standard operating procedures (SOP) to see how the level of success, effectiveness, efficiency and satisfaction for users.

Other research by Putra and Arkan (2017) have created a student final project guidance system at Bangka Belitung University with a web server and android approach. The advantage of this model system is that lecturers and students will receive notifications via android smartphones when students upload their final project documentation and the results of the review by the lecturer. Testing this system obtains results to be able to provide information about the progress of working on the final project in a timely manner, whether the student has uploaded the final project documentation to get a review from the supervisor or the final project document has been reviewed by the supervisor for smartphone users based on Android.

Likewise, research conducted by Ramayasa and Arnawa, (2015) discusses monitoring the progress of thesis work at STMIK STIKOM Bali. The method used to create the system is divided into three major processes, namely (a) collecting data, (b) analyzing data, and (c) displaying data. For the design using data flow diagrams as a design tool. The results of this design will then be built by other development teams to be used by supervisors, students and management.

The prototype method itself is a method that describes the life cycle of a system that aims to provide an overview of the system that will be developed to customers based on interfaces and logical concepts (Setiawan, 2017). The prototyping technique itself consists of three main stages, namely the first stage of listening to customer needs.

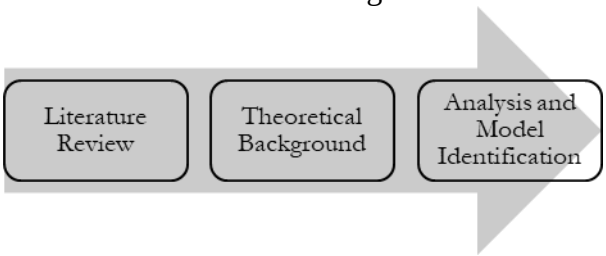
The results of the stage of listening to customer needs followed by making an analysis of customer needs. The second stage is the stage of building a system prototype based on an analysis of customer needs and improving the prototype that was built if there are deficiencies. The third stage is the system testing and evaluation stage (Sukamto & Salahuddin, 2014). Therefore, this research will also provide good benefits in helping students complete their final assignments at AMIKI Indonesia Banda Aceh.

RESEARCH METHOD

Research Design

Penelitian ini dirancang melalui tiga tahapan yaitu; 1) tinjauan literatur, 2) membahas teori tentang model evaluasi sistem informasi dan fit, 3) analisis dan identifikasi model. Langkah-langkah penelitian ini dapat dilihat pada gambar berikut.

Figure 1
Research Stages



From the various data collected, it will be used to create a model, by combining several research results from Iqbal and Bahruni (2019) using the Usability Test e-Repository Evaluation using the Nielsen's Attributtes of Usability (NAU) method, Akbar and Mukhtar (2019) evaluating using HOT (Human-Organization-Technology) Fit Model, and Ismail and Al-Bahri (2019) using the WebQual 4.0 model and Importance-Performance Analysis (IPA). From several previous studies, it tends to have conformity to the theory put forward where technology (system quality, information quality, service quality environment) by looking at the Net Benefit in the application of the system.

Population and Research Sample

The population and samples were obtained from AMIK Indonesian lecturers, students, and employees, where the number of students involved was 4,622, lecturers were 21 people, and employees were 5 people. In determining the sample from students using the slovin formula (in Usman, H and Akbar, P. S., 2006). which are as follows:

$$n = \frac{N}{(1+(Nxe^2))} = \frac{4.622}{(1+(4.622\ x\ 0.1^2))} = 97.88$$

Description: n= Sample Size, N= Population Size, 1= Constant Number and e=Error rate. Based on the results of the slovin formula, it can be rounded up as many as 98 respondents obtained by researchers can be declared valid and can be used as samples in this study.

In this study, the method used was started from the current system analysis stage, for data collection the researchers carried out the following ways:

1. Observation

Observation activities are data collection techniques by conducting direct observations of objects at the research location (Gunawan & Wahyuni, 2017). The data obtained from observations are the final project evaluation system for AMIK Indonesia students in Banda Aceh.

2. Interview (Interview)

Data collection with interview techniques is a data collection activity in the form of direct conversations between sources and interviewers by means of face-to-face direct contact (Gunawan & Wahyuni, 2017). In this study, interviews were conducted with the informants.

3. Literature Studies (Literature)

Data collection with literature study technique is done by reading and studying written materials from various sources of documents, both printed and electronic to support this research.

In the development of this application the method used is a prototype model. The prototype model is used to connect the user's lack of understanding with some technical matters and specify all the needs for users and software developers (Shalahuddin & Rosa, 2015).

Based on these data, an application model is designed that makes it easier for students to complete their final assignments, where all the elements involved can perform their respective roles without having to meet face to face.

RESULTS AND DISCUSSION

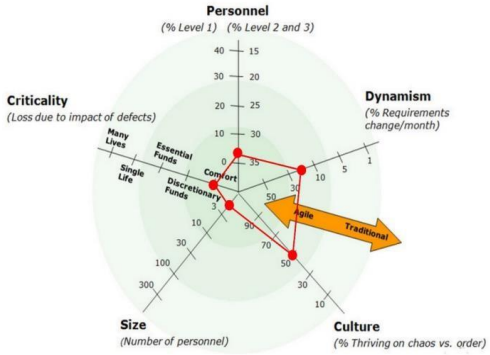
The sources of data in this study are based on their respective roles, namely as makers and users. The data is processed using PLS and only those who act as users, this is because what is being tested is the satisfaction of end users with the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh. The following is an example of a test model table for the Prototype Model for Evaluation of Student Final Projects at AMIK Indonesia Banda Aceh for makers and users:

Table 1
Example of Boehm Radar Chart Results

Question Category	Interview result
Personnel ability	1 people belong to category 1 A 1 people belong to category 2
Dynamism	Dynamic system changes there are not many system changes in 1 week and in 1 month.
Culture	The two respondents used to work together Both respondents tend to be comfortable with a less stringent system loop. If by percentage chaos vs order di level 51%
Personal amount	2 people, 1 from the customer as program manager and 1 person programming
Critical impact	The critical impact is still in the comfort level because the system has not yet failed.

Data from table 1 if entered into the Boehm Turner radar chart, it will look like the example image below:

Figure 2
Example of Evaluation Results Using the Boehm Turner Radar Chart



From the example in Figure 2 it can be seen that the data tends to approach the center of the radar chart. It can be said that the application development program for the Student Final Project Evaluation Prototype Model is suitable for use with the agile method (extreme programming).

Statistik Deskriptif

Here it can be seen about the tendency of respondents' answers to each research variable, using the Likert scale model assessment. The tendency of respondents' answers can be seen from the form of descriptive statistics of each variable.

The respondent's answer category can be indicated by the average value of the respondent's answer with the respondent's answer category from the results of the answers from 98 respondents to each of the variables studied. The data measurement model for respondents' answers is to use a Likert scale, with 4 categories that can be divided into four levels, as shown in table 2 below.

Table 2
Scale Models Measure Based on Levels

No.	Scala	Information
1	1,00 – 1,75	Very dissatisfied
2	1,76 – 2,50	Not satisfied
3	2,51 – 3,25	Satisfied
4	3,26 – 4,00	Very satisfied

Source: Processed Field Data 2021

The results of data tabulation by looking at the mean in each question item from each variable collected, then the data for the explanation of each variable can be seen in the following table:

a. An example of the average table of respondents' answers about the content variables of the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh is presented in the following table:

Table 3
Variable Mean Value Scale Model Content

Indicator	Mean	Information
Isi 1	2,74	Satisfied
Isi 2	2,67	Satisfied
Isi 3	2,80	Satisfied
Isi 4	2,75	Satisfied
Rerata	2,74	Satisfied

Source: Processed Field Data 2021

From the example table 3 shows that there are 4 indicators used as a measuring tool for the content variable where the overall average value is 2.74, so that the content variable of this system can be said to be satisfied with the scale.

b. To measure the average value of respondents' answers about the accuracy variable from the application of the Prototype Model for the Final Project Evaluation of Indonesian AMIK Students, it is presented in the following table:

Table 4
Variable Mean Value Accuracy

Indicator	**Mean**	**Information**
Accuracy 1	2,75	Satisfied
Accuracy 2	2,72	Satisfied
Rerata	**2,73**	Satisfied

Source: Processed Field Data

From the example table 4 shows that there are 2 indicators that are used as a measuring tool for the accuracy variable where the overall average value is 2.74, so that the accuracy variable of this system can be said to be satisfied with the scale.

c. To measure the average value of respondents' answers about the format variable from the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh, it is presented in the following example table:

Table 5
Variable Mean Value Scale Model Format

Incikator	Mean	Information
Format 1	2,73	Satisfied
Format 2	2,70	Satisfied
Average	2,71	Satisfied

Source: Processed Field Data

From the example table 5 shows that there are 2 indicators that are used as a measuring tool for the format variable where the overall average value is 2.71, so that the format variable of this system can be said to be satisfied with the scale.

d. To measure the scale of the average value of respondents' answers about the ease of use variable from the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh presented in the following example table:

Table 6
Variable Mean Value Scale Model Format

Indicator	Mean	Information
Easy to use 1	2,79	Satisfied
Easy to use 2	2,84	Satisfied
Average	2,81	Satisfied

Source: Processed Field Data

From the example table shows that there are 2 indicators that are used as a measuring tool for the ease of use variable where the overall average value is 2.81, so that the ease of use variable of this system can be said to be satisfied with the scale.

e. To measure the average value of respondents' answers about the timeliness variable from the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh, it is presented in the following table:

Table 7
Variable Mean Value Scale Model Punctuality

Indicator	Mean	Information
On time 1	2,60	Satisfied
On time 2	2,58	Satisfied
Average	2,59	Satisfied

Source: Processed Field Data

From the example table 7 shows that there are 2 indicators that are used as a measuring tool for the timeliness variable where the overall average value is 2.59, so that the timeliness variable of this system can be said to be satisfied with the scale.

e. To measure the average value of respondents' answers from all variables, it is presented in the following table example:

Tabel 8
Satisfaction Mean Value Scale Model (EUCS)

Indicator	Mean	Information
Contents	2,70	Satisfied
Accuracy	2,71	Satisfied
Format	2,71	Satisfied
Easy to Use	2,77	Satisfied
On Time	2,58	Satisfied
Average	2,68	Satisfied

Source: Processed Field Data

From the example table shows that the overall average value is 2.68, so it can be said that user satisfaction is on a satisfied scale. However, if you pay close attention, the level of satisfaction tends to approach the lower limit of the satisfied scale, which is 2.51, especially for the punctuality variable which has the lowest value of 2.58. From some of these things it can be concluded that the level of user satisfaction is satisfied but at a low level.

Test with PLS (Partial Least Square)
Test Measurement Model/ Outer Model

Evaluation of the measurement model is to measure the correlation between indicators and latent constructs/variables. By knowing the correlation, the validity and reliability of a model will be known. To measure construct validity and reliability, it is done by looking at convergent validity, discriminant validity and construct reliability [15].

Convergent Validity

The loading value (outer loading) has a higher level of validity if it has a loading factor value greater than 0.70 [15]. The following is the loading value for each indicator owned by each variable.

Table 9
Scale Model The Factor Loading Value Of Each Indicator

Kontruk	Composite Reliability	Cronbachs Alpha
Acuracy	0.8733	0.72
Format	0.978	0.9581
Isi	0.9253	0.8926
Easy to Use	0.9539	0.9032
On time	0.872	0.7033

Source: Processed Field Data

Based on the table above, it can be seen that the loading factor value of all variables is above 0.70, so it can be said that all items have high validity.

Discriminant Validity

Discriminant validity of the measurement model with reflexive indicators is assessed based on the measurement crossloading with the independent variables. If the value of the correlation construct with the measurement item is greater than the value of the correlation with other variables, then it shows that the independent variables predict the size of their block will be better than the size of the other blocks. The crossloading value of each variable is presented in the following example table:

Table 10
Cross Loading Value Scale Model of Each Indicator

Variabel	Accuracy	Format	Contents	Ease of Use	On time
Accuracy 1	0.8702	0.3803	0.358	0.3364	0.0896
Accuracy 2	0.8902	0.5562	0.478	0.2505	0.4362
Format 2	0.5565	0.9794	0.971	0.6026	0.2762
Format 2	0.4921	0.978	0.868	0.6795	0.2788
Contents 1	0.3467	0.7381	0.876	0.8582	0.2861
Contents 2	0.5145	0.7505	0.865	0.5655	0.3237
Contents 3	0.4717	0.8072	0.882	0.5923	0.4474
Contents 4	0.3348	0.8448	0.871	0.5161	0.2735
Easy to Use 1	0.3202	0.5718	0.683	0.9545	0.1747
Easy to Use 2	0.3122	0.6778	0.718	0.9552	0.1646
On Time 1	0.2354	0.2998	0.389	0.0988	0.8796
On Time 2	0.3032	0.1979	0.282	0.2127	0.8768

Source: Processed Field Data

From the example of table 10, it can be seen that the correlation value between the variables and their measurement items (bold) is higher than the correlation value with other constructs. So it can be concluded that all independent variables predict indicators on their block better than indicators in all indicators is valid.

Composite reliability

The test for evaluating the outer model is by looking at the reliability of the latent variable construct which is measured by two criteria, namely composite reliability and Cronbach alpha from the indicator block that measures the construct. The construct is declared reliable if the value of composite reliability and Cronbach's alpha is above 0.70

[15]. The composite reliability and Cronbach alpha values for each variable are presented in the following table:

Tabel 11
Value Scale Model *Composite Reliability* dan *Cronbach Alpha*

Variabel	Indicator	Loading Values
Isi	Contents 1	0,861
	Contents 2	0,866
	Contents 3	0,882
	Contents 4	
Akurasi	Accuracy 1	0,870
	Accuracy 2	0,891
Format	Format 1	0,979
	Format 2	0,978
Easy to Use	Easy to Use 1	0,956
	Easy to Use 2	0,956
On Time	On Time 1 On Time 1	0,881 0,878

Source: Processed Field Data

Based on the data in table 11 above, the composite reliability value of all constructs is far above 0.70. Cronbach's alpha value for accuracy and punctuality is only slightly above 0.70 while for others it is far above 0.70. So it can be said that all constructs have very good reliability.

Table 12
Composite Reliability and Cronbach . Value Scale Model

Information	**Original Sample (O)**	**T Statistic (IO/STERRI)**
Accuracy -> EUCS	0.063	1.8091
Format -> EUCS	0.3394	3.2373
Isi -> EUCS	0.3539	2.5071
Easy to Use -> EUCS	0.3445	6.2558
On Time -> EUCS	0.0095	0.3086

Source: Processed Field Data

The t-statistic value from table 16 is then compared with the t-table value obtained from looking at the values of df and . In this study, the value of df = 32-5 = 27 and = 0.05 so that the t-table value = 1.703. The variable is declared significant if the value of t count > from t table .

From the graphic above, it can be seen that the variables of accuracy, format, content, ease of use have a t-hitung value greater than the t-table value, while timeliness has a lower t-table value than the t-table. From the tables and graphs above, it can be concluded that the variables of accuracy, format, content and ease of use have a positive

and significant effect on end user satisfaction (EUCS) at a significance level of 5%. The ease of use variable has the highest t-statistic value number 1 with a value of 6.255.

In sequence number 2 the format variable with *t-statistic* 3,2373. Sequence number 3 variable fill with value t-statistic 2,507 and the last significant variable is accuracy with a value of *t- statistic* the lowest is 1,809. Meanwhile, the variable on time is not significant because the value of t-count < from the t-table at the level of significance 5 %. This variable has a value of t-count 0,308 statistik [15]. This test tests whether each variable (accuracy, format, content, ease of use, punctuality) has a significant effect on the EUCS variable.

Explainatory Power

Evaluation of the second type of structural model is the relationship between exogenous constructs can be seen by observing the value of R-Square (R2). The value of R-Square (R2) reflects the extent to which an exogenous construct can explain other exogenous constructs. R-Square (R2) the EUCS variable is presented in the following table:

Tabel 12
Model Skala Nilai *R-Square*

Variabel	R. Square
Model EUCS	0.9764

From the example in table 12, the R-Square (R2) value is 0.9764. This can show, there is a fairly strong relationship between 5 independent variables (content, accuracy, format, ease of use, timeliness) together on the results of end user satisfaction (EUCS). The R-Square (R2) value of 0.9764 can be interpreted that 5 independent variables (content, accuracy, format, ease of use, timeliness) together explain the end user satisfaction variable (EUCS) of 97.64% while the remaining 2, 36% is explained by other variables not examined in the research model.

CONCLUSION

Based on the results of data processing above, it can be concluded as follows:

1. The Prototype Model of Student Final Project Evaluation at AMIK Indonesia Banda Aceh is correct based on the evaluation using the Boehm Turner radar chart. The success rate of the application of the Student Final Project Prototype Model at AMIK Indonesia Banda Aceh using the end user satisfaction (EUCS) at the level of satisfaction so that it can be concluded that the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh is very appropriate to be developed.
2. The application of the extreme programming method in the development of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh was in accordance with the 12 extreme programming practice standards. Several variables, namely testing, refactoring can be applied to the maximum. So that the

success rate (end user satisfaction) of the application of the Student Final Project Evaluation Prototype Model at AMIK Indonesia Banda Aceh becomes the material for evaluating the maximum current application of AMIK Indonesian student final project services.

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