

E-Consult: Validating of Thesis Advisory Model Based on Management Information System in IAIN Bukittinggi

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Abstract— This study aims to determine the level of validity of the thesis advisory model using management information system base called e-Consult. The instruments used were developed and validated by 9 experts in terms of content, construct and language. After being validated, the instruments were distributed to 6 respondents to find out the level of validity for the three research products. This study is Research and Development (R&D) using the Borg and Gall approach with the focus on step 3, namely the field testing step. The data were analyzed by using Muliyardi's formula (2006). The results of the study reveals the average score of 3.00, for product 1, 3.10 for product 2 and 3.10 for product 3. Based on the confirmation score modified from Riduwan (2010), it is concluded that product 1 is in valid category, and products 2 and 3 is in very valid category.

Keywords—Validity Test; Thesis Advisory; e-Consult

I. INTRODUCTION

The final stage of college educational process require students to fulfill their obligations to compose scientific works and reports as their final project commonly referred to as an undergraduate thesis for undergraduate level (S1), graduate thesis for graduate level (S2) and dissertation for doctoral level (S3).

According to [1] thesis is a scientific work written by an undergraduate student who discusses a particular topic or field based on the results of a literature review from experts, the results of field research, or the results of development or experiment.

Meanwhile, [2] suggest that thesis is a scientific writing composed as a requirement to complete undergraduate study. It is a proof of academic ability of a student in the field of research. It becomes a graduation requirement in college, which is required for undergraduate students with the aim that they can express their thoughts or ideas systematically.

The course credit for thesis is far greater than other courses, but it is quite different from them. Unlike other courses, thesis does not have fix scheduled and face-to-face meeting in the classroom. Every student has their own individual advisory schedule with their appointed advisors.

The process of making this thesis is guided and advised so that the quality of the reports can be scientifically accounted for. To guarantee the quality of the thesis writing, students are usually guided and advised by two lecturers with certain qualifications and requirements.

Thesis advisory process certainly requires advisors' availability to give their time and attention to inspecting, correcting, and giving suggestions and solutions to the thesis written by students. In normal conditions there is no apparent problem since the advisor and student can attend the advisory process face to face on an agreed occasion. However, if the advisor is out of duty or is busy, it becomes a problem.

E-Consult as an engineering system product, which has become an online thesis advisory application in IAIN Bukittinggi. Designed in previous research, it has provided great help for advisors who are with their duty inside or outside campus. Through this application, they can guide and advise their students with their thesis progress.

The design of e-Consult needs to be validated to see how valid this product is. By testing this validity, the researcher believes that the product has a validity value both in terms of construct, content and language, so that it can be declared feasible to be used and to overcome some constraints identified in previous studies.

II. THEORETICAL REVIEW

A. Validation

Basically, research and development gives birth to a model with novel quality. The quality of the product produced from

this research is determined by the relevance, consistency, practicality and effectiveness of the product.

The validity in this study is that of explained by [3] as the need for intervention which refers to the level of intervention developed. Validity based on the logical interrelationship between various related components logically often referred to as construct validity. Model development based on an adequate theory is usually called content validity, while the suitability of the model with the official language used is commonly known as language validity.

B. Thesis Advisory

Thesis advisory is a planned activity between the advising lecturer and students who are guided in relation to various matters in planning, implementing and reporting the results of their thesis research. It is carried out continuously and integrally, continuous means are carried out continuously, starting from the preparation of research plans, implementation, and reporting to the thesis examination. Being integral means that the thesis as a whole unit must be guided and advised continuously as a whole.

According [4], the general expectation of thesis advisory is: (1) students' determination to complete their thesis writing and to work hard finishing it as soon as possible, (2) students' critical thinking in reviewing their thesis report, (3) students' appreciation of time with their predetermined target, (4) students' honesty and openness to expressing ideas and (5) students' good writing.

C. Management Information System

A Management Information System (MIS) is a system or process that provides the information necessary to manage an organization effectively. MIS and the information it generates are generally considered essential components of prudent and reasonable business decisions. [5]

The existence of Management Information System in the era of the 4.0 industry revolution is very helpful to facilitate human life in various fields. The use of information technology with the rapid development of both hardware and software is so fast, contributing to changing the face of modern management in organizational decision-making.

In general, the Management Information System study will refer to the aspects of information technology utilization in the modern managerial system and specifically to the development of the Management Information System in producing various industrial products in the form of hardware and software. [6]

The possibility of such development also inspires the researcher to produce various products in the form of online thesis advisory software by utilizing the development of information technology called e-Consult.

D. E-Consult

E-Consult is the result of application system engineering built using the PHP programming language using Dreamwaver

with MySQL database that is capable of performing functions as a digital mediator for students' thesis advisory.

E-Consult is online and can work optimally in accordance with its main function in online conditions. E-Consult can stand alone in a domain, or become a subdomain of an existing domain, with a capacity of + 100MB. It is very light to be accessed with computers that have low specifications, including with the use of smart phones.

Viewed from the value of its benefits, this application has the following advantages:

1. E-Consult is an online thesis advisory application to help the thesis advisory process run smoothly, automatically and computerizedly.
2. E-Consult is intended as a supplement to the direct advisory model that has been carried out.
3. E-Consult is a thesis advisory application based on management information systems with complete features and can be accessed anywhere and anytime .
4. E-Consult contains complete information regarding guidance thesis advisory needs. Facilitate its process, so that distance and time will not be a problem .
5. Recording all processes automatically.
6. Providing the advisory history.
7. Providing convenience for advisors to place announcements and other files that are useful for their students, ,
8. There is room for the advisor to offer a link to a website, e-journal or a link to virtual storage (google drive, dropbox, etc.) owned by the advisor with regard to additional or supporting materials needed by students.
9. E-Consult is able to change the habit of using paper to use paperless file.
10. E-Consult has a notification menu that will notify a user, if the account gets a response from another account
11. E-Consult can be easily transferred to any college *E-Consult*.
12. E-Consult is equipped with **Thesis Advisory Contract**
13. E-Consult is also equipped with **Thesis Advisory Matrix**

III. RESEARCH METHOD

A. Development Model

Based on the problems discussed, the researcher chose a development model developed by Borg and Gall and introduced in 2003 [7] with stages as shown below:

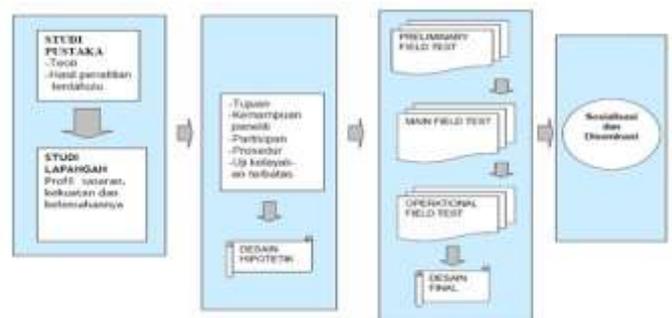


Figure 1 Borg and Gall Research and Development Model

The picture above shows that the development process offered by Borg and Gall consists of gathering initial research and information, planning, initial product development, initial product trials, major product revisions, main product trials, operational product revisions, operational product trials, final product revisions, and dissemination and implementation.

From the steps above, there is a main product test in which the product validity test has been obtained from selected experts with certain requirements.

The product validity test will be applied to the thesis writing manual (product 1), e-Consult application (product 2) and e-Consult user guide book (product 3). Each product will be validated in terms of content, construct, and language.

As for the experts who will carry out product validation, they consists of 9 persons: 3 research experts who will see the content aspect, 3 technology experts who will see the construct aspey, and 3 linguists who will see the language aspect.

B. Preliminary Field Test

Thesis advisory model using management information system which has been designed and developed is validated to 9 experts (expert validation). This is done to obtain theoretical, substantive, and methodological feasibility recognition.

The experts involved in this validation consist of linguists, content experts and IT experts, while the products to be validated consist of: thesis writing manual (product 1), application e -Consult (product 2) and user manual (product 3)

C. Validity Test

Validity test was carried out by using instruments that had been previously validated. Data from the results of the expert validation test were processed by using the Muliyardi formula (2006):

$$R = \frac{\sum_{j=1}^n V_{ji}}{Nm}$$

Description:

- R = mean score
- V_{ji} = obtained scor of expert -j to criteria -i
- n = number of experts
- m = number of criticality

To confirm the mean score obtained after processing the data, the following criteria were used [8]:

Tabel 1 Validity Test Criteria

No.	Score	Category
1	Jika rata-rata ≤ 3,20	Very Valid
2	2,40 < rata-rata ≤ 3,20	Valid
3	1,60 < rata-rata 2,40	Sufficiently Valid
4	0,80 < rata-rata 1,60	Less Valid
5	Jika rata-rata ≤ 0,80	Not Valid

Extracted from (Riduwan, 2010)

D. Intraclass Correlation Coefficient (ICC)

Intraclass Correlation Coefficient (ICC) is used to assess the reliability between two or more respondents, in other words the ICC is done to see the consistency of the answers given by respondents to the questions submitted in the instrument.

To do an ICC Analysis, the following steps can be taken:

- a. If the respondent's variation is assumed to be random, the following ICC formula is used:

$$ICC = \frac{\sigma_s^2}{\sigma_s^2 + \sigma_o^2 + \sigma_e^2}$$

Description :

- (σ²) : variance as a variation measurement,
- s : observed object
- o : observert
- e : random error.

- b. If the variation of respondents is assumed to be fixed, then the variation of respondents does not need to be taken into account in calculating the total variation. If the ICC > 0.50, it can be concluded that the level of stability is adequate, if ICC measures > 0.80 then stability is high. [9]

Table 2 Validity Test of Item

Correlation Coefficient	Meaning
0,800 – 1,000	Very high
0,600 – 0,799	High
0,400 – 0,599	Sufficient
0,200 – 0,399	Low
0,000 – 0,199	Very Low

Source: (Soegiyono, 2015)

Data from the results of observing the use of the product will be processed statistically by tabulation techniques [10] by determining the total score, mean score, ideal score, and percentage of the respondent's level of achievement. The level of achievement of respondents is calculated by the formula:

$$\text{Level of achievement} = \frac{\text{Mean score} \times 100\%}{\text{Ideal score}}$$

with the criteria as follows:

- 90-100% = very good or very high
- 80-89% = good or high
- 65-79% = average or sufficien
- 55-64% = less
- < 54% = low

IV. RESEARCH FINDINGS

The validity of the products that have been produced in the previous stage was using expert judgment. The product in question consists of; thesis writing guidebook (product 1), e-Consult application (Product 2) and user manual (product 3).

The validity aspect consists of; Content validity in which the validator evaluates the content of the material in each product, construct validation in which the product design is

assessed and language validation in which the language aspects used in each product is evaluated.

A. The Result of Validity Test for Thesis Writing Guidebook

This product 1 validity test was given by 5 experts consisting of experts in language, content and constructs. The scores obtained are as follows:

Table 3 Expert Validation for Product 1

No	Validator	Mean Score	Interpretation
1	Prof.Dr. Z. Mawardi Effendi, M.Pd	3.85	Valid
2	Dr. Wakhinuddin, M.Pd	3.42	Valid
3	Dr. H. Ishak Aziz, M.Pd	3.89	Valid
4	Prof. Dr. Atmazaki, M.Pd	3.76	Valid
5	Dr. Deswalantri, M.Pd	3.68	Valid
Mean Score		3.72	Valid

In the above test, the obtained mean score is 3.72 interpreted as valid. Based on this data, it can be concluded that product 1 of this study in the form of thesis writing guidebook is declared valid. valid.

Meanwhile, the reliability test and interclass correlation coefficient can be seen from the SPSS output below:

Reliability Statistics

Cronbach's Alpha	N of Items
.821	65

The SPSS output table above shows that the value of Cronbach's Alpha is 0.821 greater than the alpha value of 0.05, so it can be interpreted that product 1 has a high reliability value.

Intraclass Correlation Coefficient

	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df 2	Sig
Single Measures Average	.395 ^a	.200	.656	5.571	4	24	.000
Measures	.821 ^c	.636	.930	5.571	4	24	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

The test results seen in the above table show that the ICC obtained value is 0.821, so it can be concluded that the respondents have a high level of consistency in providing answers to product 1 validation.

B. The Result of Validity Test for e-Consult Application

This product 2 validity test 2 was carried out by IT experts because e-Consult application is an IT product that should be validated by experts with good understanding with IT problems and Educational technology.

The Result of this validity test can be seen in the following table:

Table 4 Expert Validation for Product 2

No	Validator	Mean Score	Interpretation
1	Dr. Ridwan, M.Sc	3.75	Valid
2	Dr. Supratman, M.Pd, M.Kom	3.60	Valid
3	Dr. Zulfani Sesmiarni, M.Pd	3.89	Valid
Mean Score		3.75	Valid

The table above shows the mean score of 3.75, so it is interpreted as valid. Thus, the product of e-Consult application can be said to be valid.

The test of e-consult reliability and interclass correlation coefficient can be seen from the SPSS output below:

Reliability Statistics

Cronbach's Alpha	N of Items
.783	20

The results of the SPSS output above show that the value of Cronbach's Alpha is 0.783, which is greater than the alpha value of 0.05, so it can be interpreted that product 2 has a high reliability value.

Intraclass Correlation Coefficient

	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df 2	Sig
Single Measures Average	.340 ^a	.154	.608	4.604	4	24	.000
Measures	.783 ^c	.560	.916	4.604	4	24	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

The test results seen in the above table show that experts in the IT field have a high level of consistency in giving a response to this e-Consult application.

C. The Result of Validity Test for User Manual

The product 3 validity test was conducted by 5 experts consisting of experts in language, content and construct. The scores obtained for the test are as follows:

Table 5 Expert Validation for Product 3

No	Validator	Mean Score	Interpretation
1	Prof.Dr. Z. Mawardi Effendi, M.Pd	3.56	Valid
2	Dr. Wakhinuddin, M.Pd	3.65	Valid
3	Dr. H. Ishak Aziz, M.Pd	3.89	Valid
4	Prof. Dr. Atmazaki, M.Pd	3.50	Valid
5	Dr. Deswalantri, M.Pd	3.60	Valid
Mean Score		3.64	Valid

The above test shows the mean score of 3.64, so it is interpreted as valid. Thus, it can be concluded that the product 3 of this study in the form of a user manual is declared as valid.

The reliability test of the user manual with its interclass correlation coefficient can be seen from the SPSS output below:

Cronbach's Alpha	N of Items
.760	21

The SPSS output table above shows that the value of Cronbach's Alpha is 0.760, which is greater than the alpha value of 0.05, so it can be interpreted that product 3 has a high reliability value.

Intraclass Correlation Coefficient

	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df 2	Sig
Single Measures Average	.260 ^a	.109	.518	4.168	4	24	.000
Measures	.760 ^c	.524	.906	4.168	4	24	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

The test results in the above table show that the obtained ICC value is 0.760, so it can be concluded that the respondents have a high level of consistency in providing answers to the validation of product 3 of this study

V. DISCUSSION

The validity test that has been carried out in this study by experts proves that the three products produced in the development process; (1) thesis writing guidebook, (2) e-Consult application and (3) e-Consult user manual are valid in terms of content, construct and language. Thus, this product is ready to be furtherly developpe in the next stage, effectiveness and practicality.

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