Analysis of student attitudes towards e-learning using Fishbein Multiattribute approach

Jasuli

Department of Economics Education, Postgraduate School, Universitas Negeri Surabaya

jasulijasuli16070925003@mhs.unesa.ac.id

Abstract. This research aimed to know students' attitudes toward e-learning and to determine what attributes were considered to be dominant by students toward the use of e-learning. The research population was all postgraduate students in the 2016 academic year at Universitas Negeri Surabaya. The sampling technique is using nonprobability sampling and purposive sampling with the sample totaled 100 respondents. The research instrument is using questionnaire with semantic differential scale. The models used to analyze is multi-attribute Fishbein model. The findings indicated that student attitudes toward e-learning are positive and easy accessibility which is considered as the most important attribute by students toward the use of e-learning.

1. Introduction

The rapidly changing globalization followed by the rapidly changing information technology also, resulting in the loss of limits that restricted all human activity. Because of the limitation loss, then all human activity can be done freely. Changes or development of information technology is so rapidly appearing on the internet media. Every year internet users are always improving, everyone knows that. By using the internet, we can exceed the limit. In the sense, we can know everything through the internet, even though it is far from us. Using the internet we can access all the information either from domestic or abroad.

The rapid changes of globalization is followed by the development of information technology. The change of globalization is also followed by the development in the world of education. Previously in the world of education, education can only be done in a class or a specific place. In today's era of globalization, everything has changed. Currently, education can be done either in class or out of class, even from home. Learning can still take place even if there is no meeting between teachers and students.

the outdoor learning and face-to-face learning can be done with the help of fast-growing technology. By utilizing the internet, learning can be done anywhere and anytime. Distance learning by using the internet is called e-learning. E-learning is a process of distance learning by connecting principles in a process of learning with technology [1].

At this time, many educational institutions have used e-learning in the learning process. One of the universities using e-learning as one of the learning processes is Universitas Negeri Surabaya. Vi-learn is one of the forms of e-learning applied in Universitas Negeri Surabaya since 2015.

As an educational institution or college, it is necessary to always improve the quality of all aspects contained in e-learning. To find out what are the deficiencies of e-learning that is used, it is necessary to know the responses or attitudes of e-learning users, i.e. students. An attitude represents a person's general feeling of favorableness toward some stimulus objects [2]. The purpose of knowing the attitude of the student is to know the response to the e-learning which is established whether good or not good. From the student's attitude, the institution can be used as evaluation material to improve the deficiency of e-learning applied.

Thus, the objectives of this research are: (1) to know student attitudes toward e-learning; (2) to determine what attributes are considered dominant by students toward the use of e-learning.

2. Literature review

2.1 Attitude
According to Fishbein and Ajzen, an attitude represents a person's general feeling of favorable or unfavorable toward some stimulus objects [2]. In our conceptual framework, we acquire attitudes toward the object. Kotler and Keller told that an attitude is a person's enduring favorable or unfavorable evaluations, emotional feelings, and action tendencies toward some objects or ideas [3]. Attitudes put us into a frame of mind: liking or disliking an object, moving toward or away from it. It can be concluded that attitude is a response of a person toward an object that favorable or unfavorable. Peter and Olson told that attitude as a person's overall evaluation of a concept [4]. Evaluations are effective responses, usually at relatively low levels of intensity and arousal. Solomon told that attitude is a lasting, general evaluation of people (including oneself), objects, advertisements, or issues. He calls anything toward which one has an attitude object (Ao) [5].

2.2 E-Learning
E-learning is flexible learning using ICT resources, tools, and applications, and focusing on interactions among teachers, learners, and the online environment. E-learning usually refers to structured and managed learning experiences, and may involve the use of the internet, CD-ROMs, software, other media, and telecommunications [6]. Hartley defines e-learning as learning enabled by the internet, intranets, and other electronic networks as well as the development, delivery, and evaluation of content provided to learns through these networks [7].

3. Research method

3.1 Research design
This study used the descriptive analytical method by using survey techniques. Descriptive research is a research that aims to provide an overview of research variables. This study includes data collection, processing, analyzing data obtained and conclusion.

3.2 Population and sample
Population consists of entire research object such as group of people, events or things [8]. The research population was all postgraduate students in 2016 academic year at Universitas Negeri Surabaya.

Sampling is the process of selecting a sufficient number of elements from the population so that a study of the sample and an understanding of its properties or characteristics would make it possible for us to generalize such properties or characteristics to the population elements [9]. Sample is elements or members of population [8]. Sample size larger than 30 and less than 500 are appropriate for most research [10]. For that reason, the sample size is 100 with the sampling technique is using nonprobability sampling and purposive sampling.

3.3 Operational variable and measurement

Student attitudes toward e-learning attributes are the attributes of student response to the e-learning expressed in seven statements that are divided into two categories: first is very important, important, moderately important, neutral, moderately unimportant, not important, and very unimportant. The second category is strongly agree, agree, moderately agree, neutral, moderately disagree, disagree, strongly disagree. Measurement of positive attitudes and negative attitudes by using semantic differential scale.

Variable attitude toward e-learning in this study are the attributes attached to e-learning [11]:

a. Non-linearity. Users are free to access the learning object and there are facilities to provide requirements depending on the user's knowledge.
b. Self-managing. Lecturers can manage their own learning process by following the structure that has been made.
c. Feedback-Interactivity. Learning can be done interactively and provided feedback on the learning process.
d. Multimedia-Learners style. E-learning provides multimedia facilities. The advantages of using
e. Multimedia, students can understand more clearly and real according to the background of their students.
f. Just in time. E-learning provides whenever the user needs, to solve problems or just want to improve knowledge and skills.
g. Dynamic Updating. Have the ability to update the contents of the material online on the latest changes.
h. Easy Accessibility/Access Ease. Only use the browser (and maybe some devices are installed).
i. Collaborative learning. With learning tools enable interaction, it can communicate directly at the same time (synchronous) or communicate at different times (asynchronous). Users can communicate with creators of materials, other students.

3.4 Data Analysis Method

3.4.1 Validity and Reliability Test. Validity is concerned with whether it already measured the right concept and reliability with stability and consistency of measurement [12]. Validity is a measure of accuracy in measurement. A construct with perfect validity contains no measurement error [13]. In other words, validity is a test to know how well an instrument that is developed to measures the particular concept. Validity is measured from critical values for Pearson's (r). If the r_{count} is more than r_{table} then the question is valid. Reliability is a test of how consistently a measuring instrument measures whatever concept it is measuring [12]. In other words, reliability is a test which will show how far the measure tool can be trusted and reliable. The reliability test in this research is based on Cronbach's alpha. Sekaran and Bougie [14] told that reliabilities less than 0.60 are considered to be poor.

3.4.2 Fishbein Multiattribute Model. In this Fishbein and Ajzen says that a person's attitude toward an object is a function of his belief that the object is associated with certain attributes and evaluative responses that connected to that belief [15]. Mathematical formulation of the multi attributes model of attitude toward the object, by Fishbein, can be formulated as follows:

$$A_o = \sum_{i=1}^{n} b_i e_i$$

(1)

Where:

Ao = Attitude toward an object
b   = Strength of belief that the object has attribute i

e   = The evaluation of attribute i
n   = The number of beliefs

4. Result and discussion

4.1 Result

4.1.1 Validity and reliability test

- *Validity test.* The validity test used in this study used with SPSS 21, with the number of respondents in this test amount 30. Therefore r table value with the number of respondents 30 is 0.361 (r table = 0.361). If the value of r count less than r table then not valid, while if value r_{count} more than r_{table} then valid. The results were presented in Table 1, Table 2, and Table 3.

Table 1. Validity Test on Component of Evaluation

Item	Person Correlation	Significant	Status
Non-linearity	0.819	0.000	Valid
Self-managing	0.895	0.000	Valid
Feedback Interactivity	0.581	0.001	Valid
Multimedia Learners	0.819	0.000	Valid
Just In Time	0.720	0.000	Valid
Dynamic Updating	0.625	0.000	Valid
Easy Accessibility	0.781	0.000	Valid
Collaborative Learning	0.843	0.000	Valid

Table 1 shows that all value of r_{count} more than r_{table}. Therefore, it can be stated that all question items on the component of evaluation are valid.

Table 2. Validity Test on Component of Belief

Item	Person Correlation	Significant	Status
Non-linearity	0.841	0.000	Valid
Self-managing	0.845	0.000	Valid
Feedback Interactivity	0.836	0.000	Valid
Multimedia Learners	0.874	0.000	Valid
Just In Time	0.751	0.000	Valid
Dynamic Updating	0.859	0.000	Valid
Easy Accessibility	0.869	0.000	Valid
Collaborative Learning	0.849	0.000	Valid

Table 2 shows that all value of r_{count} more than r_{table} (0.361). Therefore, it can be stated that all question items on the component of belief are valid.

- *Reliability test*

Table 3. Reliability Test

Item	Cronbach's Alpha	Rule of Thumb	Status
Evaluation	0.889	0.60	Reliable
Belief	0.938	0.60	Reliable

Table 3 shows that both items have value of Cronbach's alpha more than 0.06. Therefore, it can be stated that all question items are reliable.

4.1.2 Fishbein Multiattribute Analysis. To answer the research objective, then used Fishbein multiattribute model to measure the overall student attitude. The result is in a form of a score. The measurement is based on the calculation of evaluation (ei) and belief (bi) towards the identified attributes. Table 4 shows the results of attitude analysis of postgraduate students in 2016 academic year at Universitas Negeri Surabaya:

Table 4. Result of Student Attitude Analysis e-learning

No	Attributes	e_i	b_i	$Ao = e_i . b_i$
1	Non-linearity	6.10	6.23	37.94
2	Self-managing	6.02	6.10	36.69
3	Feedback Interactivity	6.06	6.08	36.81
4	Multimedia Learners	5.94	5.96	35.37
5	Just In Time	5.21	5.75	29.90
6	Dynamic Updating	5.22	5.79	30.20
7	Easy Accessibility	6.42	5.97	38.30
8	Collaborative Learning	6.03	6.22	37.51
	$Ao = \sum e_i . b_i$			282.72

The overall score of the student attitudes towards e-learning has been found based on identified attributes from the Fishbein's model. Table 3 shows how the calculation of consumer attitude is computed. The score of consumer attitude towards e-learning, in general, is 282.72. After that, the next step is to determine which score is positive or negative.

To make the interval from very negative to very positive use the following equation:

$$Interval = (m - n)/b \qquad (2)$$

Where:
m = the highest score may occur
n = the lowest score may occur
b = the number of intervals will be established

In this study, the interval used is to contain five classes, which are very negative, negative, neutral, positive and very positive. Then, find the highest and lowest score may occur. In this study, the highest score (m) that may occur is 389. The lowest score (n) may occur is 8. Table 5 shows the table of intervals.

Table 5. Attitude assessment interval [2]

$8 \leq Ao \leq 81.8$	Very Negative
$81.6 < Ao \leq 158.6$	Negative
$158.6 < Ao \leq 235.4$	Neutral
$235.4 < Ao \leq 312.2$	Positive
$312.2 < Ao \leq 389$	Very Positive

The attitude score acquired in this research is 282.72. Therefore, based on table 5, the score 282.72 is positive. It means student attitudes toward e-learning is positive. Based on table 4, the most

dominant attribute is easy accessibility with the totaled score is 38.30. Thus, the objective of this research is answered.

4.2 Discussion

The students attitude towards e-learning where the Ao is 282.72 is considered as positive. It means that e-learning of Universitas Negeri Surabaya is considered good by the students. Students give the highest score on the attribute of easy accessibility. Where Ao score for easy accessibility is 38.30. It is because e-learning Universitas Negeri Surabaya is easy to access, and easy to access all facilities in e-learning Universitas Negeri Surabaya. Then, the second highest attribute is nonlinearity. Where Ao score for nonlinearity is 37.94. It is because students can freely access all the subject matter or download the material and the tasks from their lecturers, as well as the facilities provided by the Universitas Negeri Surabaya such as wireless to access e-learning. While the attribute that gets the lowest score from the student is just in time. Where Ao score for just in time is 29.29. It is because students assume that the learning material contained in e-learning has not been able to solve the problems of students and not yet able to improve the knowledge and skills of students. Although using e-learning media, face-to-face learning is still needed.

The overall dominant attribute is easy accessibility with the total score is 38.30. However, when viewed on each component (evaluation and belief) on the evaluation component, the attribute gets the highest score is easy accessibility with the total score is 6.42. It is because students expect e-learning that is easy to access. While in the belief component, the attribute that gets the highest score is nonlinearity with the total score is 6.23. It is because students assume that e-learning University-Negeri-Surabaya gives can freely access all the subject matter or download the material and the tasks of lecturers, as well as the facilities provided by the Universitas Negeri Surabaya such as wireless to access e-learning. Then on the evaluation component, the attribute that gets the second highest score is non-linearity with the total score is 6.10. It's because students expect e-learning that gives freedom in accessing e-learning. While on the belief component, attribute that gets the second highest score is collaborative-learning. It is because students assume that e-learning University of Surabaya can enable the communication directly with lecturers or with other students.

5. Conclusion

The conclusions of this research are as follows: (1) Student attitude toward e-learning is considered positive. (2) The dominant e-learning attribute towards student attitudes is easy accessibility.

References
[1] Chandrawati S 2010 pemanfaatan e-learning dalam pembelajaran cakrawala kependidikan *Cakrawala Kependidikan* **8 (2)** pp 1–10
[2] Fishbein M and Ajzen I 1975 Belief, Attitude, Intention, and Behavior (United State: Addison-Wesley Publishing) *An introduction to theory and research. Massachussets: Addison-Wesley* p 216
[3] Kotler P and Keller, K L 2012 Marketing Management (New Jersey: Prentice Hall) *Marketing Management (New Jersey: Prentice Hall)* p 168
[4] Peter J P and Olson J C 2010 Consumer Behavior and Marketing Strategy (New York: Mc-Graw Hill) *Consumer Behavior and Marketing Strategy (New York: Mc-Graw Hill)* p 128
[5] Solomon M R 2013 Consumer Behavior: Buying, Having and Being (United State: Pearson Education) *Consumer Behavior: Buying, Having and Being (United State: Pearson Education)* pp 273–4
[6] Education M O 2010 E-Learning and Implications for New Zealand Schools: A Literature Review (New Zeland: The University of Education) *E-Learning and Implications for New Zealand Schools: A Literature Review (New Zeland: The University of Education)* p 7
[7] Hartley E D 2006 Selling E-Learning, American Society for Training and Development (United

States of America: ASTD) *Selling E-Learning, American Society for Training and Development (United States of America: ASTD)* p 1

[8]   Sekaran U and Bougie R 2009 Research Methods for Business: A Skill-Building Approach (New York: West Sussex) *Research Methods for Business: A Skill-Building Approach (New York: West Sussex)* pp 262–3

[9]   Sekaran U 2003 Research Methods for Business: A Skill-Building Approach (New York: Wiley & Sons) *Research Methods for Business: A Skill-Building Approach (New York: Wiley & Sons)* p 266

[10]   Sekaran U 2003 Research Methods for Business: A Skill-Building Approach (New York: Wiley & Sons) *Research Methods for Business: A Skill-Building Approach (New York: Wiley & Sons)* p 295

[11]   Agustina M 2013 Pemanfaatan E-Learning Sebagai Media Pembelajaran Aplikasi Teknologi Informasi *Pemanfaat. E-Learning Sebagai Media Pembelajaran Apl. Teknol. Inf.* pp 8–12

[12]   Sekaran U and Bougie R 2009 Research Methods for Business: A Skill-Building Approach (New York: West Sussex) *Research Methods for Business: A Skill-Building Approach (New York: West Sussex)* p 157

[13]   Hair J J and Wolfinbarge 2010 Essensial of Marketing Research (New York: Mc-Graw Hill) *Essensial of Marketing Research (New York: Mc-Graw Hill)* p 157

[14]   Sekaran U and Bougie R 2009 Research Methods for Business: A Skill-Building Approach (New York: West Sussex) *Research Methods for Business: A Skill-Building Approach (New York: West Sussex)2* p 325

[15]   Fishbein M and Ajzen 1975 Belief, Attitude, Intention and Behavior (United State: Addison-Wesley Publishing) *Belief, Attitude, Intention and Behavior (United State: Addison-Wesley Publishing)* p 29