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DETERMINANTS OF STUDENT SATISFACTION IN ONLINE TUTORIAL: A STUDY OF A DISTANCE EDUCATION INSTITUTION

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ABSTRACT

Education system nowadays tends to utilize online learning, including in higher education. Online learning system becomes a major requirement in implementing learning process, including in Indonesia. Universitas Terbuka has implemented online learning system known as online tutorials to support the distance learning system. One interesting issue that needs to be explored is to analyze factors that can influence students' satisfaction in online tutorials. This research aims to analyze factors that determine student satisfaction in online tutorials and what factors that need to be improved. Research procedure includes collecting data via email, validity test, reliability test, and hypothesis test using multiple linear regression. This paper will discuss the results of research procedures to find out what factors are affecting student satisfaction and some improvements required based on the viewpoint of the students.

Keywords: **Course structure, online tutorials flexibility, online tutorials quality, student satisfaction, technology quality.**

INTRODUCTION

Information and communication technology has created new opportunities for education, especially in higher education. The advances in knowledge, methods and techniques associated to the field of information and communication technologies (ICT) are allowing significant changes in the educational practice. The applications are a lot and they allow increasing the capacity in ranges of distance communication. The development of information and communication technology has placed e-Learning as the paradigm of modern education. Learning can occur anywhere and anytime, even there is a geographical separation between students and teacher or peer students. The development of technology makes distance education all possible and encourages more people to become engaged in learning, especially adults. Developments occurring in Internet-based technologies, in recent years, have enabled the e-learning model to be a significant factor in distance education (Askar & Halici, 2004). Distance education via the Internet can provide colleges and universities with a low-cost, flexible option to expand into global markets (Casey, 2008).

E-Learning is the use of telecommunication technology to deliver information for education and training. The great advantages of e-Learning include liberating interactions between learners and instructors, or learners and learners, from limitations of time and

space through the asynchronous and synchronous learning network model (Katz, 2000; Katz, 2002). E-learning's characteristics fulfill the requirements for learning in a modern society and have created great demand for e-Learning from businesses and institutes of higher education. E-learning is a useful tool for enhancing the quality of teaching and learning. E-learning is an "innovative approach to education delivery via electronic forms of information that enhance the learner's knowledge, skills, or other performance" (Siritongthaworn et al., 2006).

Student satisfaction is important in the evaluation of distance learning as it is related to the quality of online learning and student performance. Interaction is a critical indicator of student satisfaction; however, its impact has not been tested in the context of other critical student- and class-level predictors. Some studies have conducted to evaluate factors that influence student satisfaction in an online learning environment. The results are still varying. These differences become an interesting topic to study, especially in distance education system. Universitas Terbuka (UT) is a higher education institution that implements open and distance education system, which means there is no placement test to be an UT's student to provide greater opportunities for Indonesian citizens to participate in higher education. Distance education also has a meaning that students are separated from the teachers and other students. That's why UT has responsibility to provide learning process by utilizing a variety of media and technology, one of which is the use of ICT for the provision of e-Learning. In order to inform student satisfaction in online learning, this study was designed to explore factors that influence student satisfaction on UT's e-Learning or known as online tutorials. We begin by introducing the background of the study followed by literature review. The next section discusses the research methods, research results, and concludes with conclusion.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

E-Learning in Distance Education

E-learning, defined as an education based on electronic tools and media via Internet and network technologies, offers an alternative education model, bringing together teachers and students from different environments (Driscoll, 2002). Arbaugh (2002) defined e-learning as the use of the Internet by users to learn specific content. Other researchers define e-learning as using modern Information and Communications Technology (ICT) and computers to deliver instruction, information, and learning content (Selim, 2007). The stakeholders of e-learning are learners, faculty, administrative and technical staff, and employers (Ozkan & Koseler, 2009).

E-Learning has a number of potential benefits, not least of which is the ability to overcome the temporal and spatial restrictions of traditional educational settings (Bates, 2005). Notwithstanding the advantages that E-Learning offers, a variety of factors have been identified as crucial to the success of online courses (McIsaac & Gunawardena, 1996). Now, the Internet is incorporated into educational settings to extend learning activities without depending on traditional classroom space and time (Hagel & Shaw, 2006). In fact, flexibility of time and place for learning is the most important feature of online instruction. While distance education provides an interactive, reflective, and collaborative learning setting, it is also challenging to develop educational software and find ways to support online learning environments (Ardito et al., 2006; Green, 2006) in which students' needs are fulfilled.

Because of its wider accepted concept, e-Learning has a positive and developmental role in education. E-learning can be used as informative, situating, constructive and communicative tool in the process of education (Lim and Chai, 2004). E-learning in education develops higher order skills such as collaborating across time and place and solving complex real-world problems (Bhattacharya and Sharma, 2007; Lim and Hang, 2003). In a distance education environment, e-Learning become an effective and efficient method for being able to reach a huge number of students at different places. Limitations

of distance and time can be reduced by implementing e-Learning. Distance education via the Internet can provide colleges and universities with a low-cost, flexible option to expand into global markets (Casey, 2008). However, implementing e-Learning is not as easy as organizing face-to-face lectures. Many obstacles may be encountered by the student and the instructor, including the technological constraints, the limited communication between the student and the instructor or the student with other students, as well as the convenience of online learning. However, as colleges and universities expand their offerings of online courses, educators can enhance instruction if they are aware of current research on distance education. Numerous studies have shown that teaching online requires a different pedagogy and unique set of skills from that of the traditional classroom.

Student Satisfaction

Much research has been conducted on e-Learning and its linkage to student satisfaction. The literature emphasizes the importance of research into student learning for professional practices of course designers and tutors, and for improving students' distance learning experiences (Levin & Wadmany, 2006). In designing, developing, and delivering distance education courses, it is important to put students' needs and perceptions as a central consideration. A course failing to meet student expectations and needs may lead to low levels of student involvement (Hall, 2001). Indeed, without investigating what satisfies students in distance education courses, it is difficult to meet their needs and improve their learning. Many researchers have identified important variables dealing with e-Learning. Among them, the technology acceptance model, course design, flexibility, and the expectation and confirmation model have partially contributed to understanding e-Learning success.

Student satisfaction is the subjective perceptions, on students' part, of how well a learning environment supports academic success (Lo, 2010). Strong student satisfaction implies that appropriately challenging instructional methods are serving to trigger students' thinking and learning. Important elements in student satisfaction are likely to concern the role of the instructor and of the students; these elements may be central to student learning. The present study explored some of these elements, in an effort to begin identifying the ones most helpful for ensuring students' academic success (Winberg and Hedman, 2008). Some studies found that students who participated in online collaborative tasks expressed higher levels of satisfaction with their learning process compared to students who didn't participate in online collaborative learning (Jung et al., 2002). By considering the responses of students who participated in online learning courses, it is possible to better understand the reasons why students are often dissatisfied with their online learning experience. Answering this condition, continuous evaluation becomes an important aspect in online learning, especially in distance education that most of course delivery is conducted via online.

Research Hypotheses

This research was conducted based on previous research by Sun et al. (2008) and Eom et al. (2008). The aim of this research is to investigate factors that impact on student satisfaction in an online learning environment. Based on the literature review and previous research, this research adopt four factors that is predicted will impact on student satisfaction; those are course structure, online tutorials flexibility, online tutorials quality, and technology quality. In order to attain research objective, the hypotheses proposed as follows.

H1: Course structure will positively influence student satisfaction.
H2: Online tutorials flexibility will positively influence student satisfaction.
H3: Online tutorials quality will positively influence student satisfaction.
H4: Technology quality will positively influence student satisfaction.

The research model then as follows.

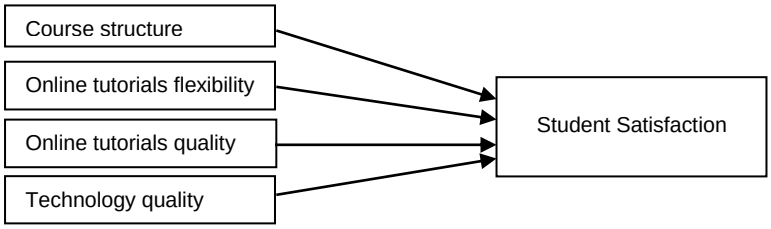

Figure 1. Research Model

METHODOLOGY

This research is designed as causal research which tries to investigate the influence of the independent variables on the dependent variable based on the theory that has been formed.

This research was conducted based on previous research by combining the research of Sun et al. (2008) and Eom et al. (2008), especially in the use of variables that have been used in those studies. This study uses four independent variables: course structure, online tutorials flexibility, online tutorials quality, and technology quality; and one dependent variable that is student satisfaction. The selection of research variables was done based on the influence of independent variables to dependent variable on the previous research.

The empirical data were collected using a cross-sectional survey methodology. Participants for this study were students enrolled in online learning for four core courses in department of management curriculum. The selected students are students who are at a minimum in the second semester with purpose that they already have perceptions of online tutorial process. Based on their experiment in online tutorial, they will be able to determine their satisfaction during the learning process. Therefore, we implement purposive sampling to get the best data. We distributed 580 online questionnaires to the students. Due to the low of response rates in survey studies, we endeavored to contact the participants if they haven't returned the questionnaire in one week. 152 questionnaires were returned and valid responses for the statistical analysis.

A survey instrument to explain variables that have been identified before was adopted from Sun et al. (2008) and Eom et al. (2008). The indicators of each variable are measured using 5 points Likert scale with the following conditions:

1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

Each variable has their own particular indicators used to measure the effect of the independent variables on the dependent variable as shown in Table 1.

Table 1. Research Variable and Indicators

Variable	Indicators	Code
Course structure	1. Course material is presented in a well structure	MK1
	2. The learning objectives in the online tutorial has been conveyed properly	MK2
	3. The material in the online tutorial has been arranged in a logical sequence and understandable	MK3
	4. The structure of the material in online tutorial already covers all the material I need to learn in one subject	MK4
Online tutorial flexibility	1. Learning through online tutorial gave me the flexibility to adjust my learning time	F1
	2. Learning through online tutorial benefit me	F2
	3. Learning through online tutorial made me have the flexibility to divide their time between learning activities / other jobs	F3
	4. There is no disadvantage I get to learn through online tutorial	F4
	5. Learning through online tutorial lets me manage my time more effectively	F5
	6. Learning through online tutorial makes me save time rather than having to attend to class	F6
	7. Learning through online tutorial made I would not miss material than if I do not attend class because I can learn the material at any time	F7
Online tutorial quality	1. Learning through online tutorial make me able to improve my learning quality	Q1
	2. Online tutorial as a whole has a good quality	Q2
	3. The appearance of online tutorial is interesting	Q3
	4. I have no difficulty using the features in online tutorial	Q4
	5. The appearance of online tutorial is up to date	Q5
	6. The material shown in the online tutorial has good quality	Q6
	7. The interaction between students and tutors are well established	Q7
Technology quality	1. I can access online learning anywhere	TC1
	2. I do not experience any problems when learning online	TC2
	3. I do not encounter any difficulty in responding to the discussion	TC3
	4. I do not see any difficulty when uploading task	TC4
	I feel that technology for online learning is:	
	5. Easy to use	TC5
	6. Have useful functions	TC6
	7. Very helpful for learning the materials	TC7
	8. Facilitate communication with tutors or other students	TC8
Student satisfaction	1. I am satisfied with the whole system of online learning	S1
	2. Overall, online learning system is already well	S2
	3. Overall, online learning has been successfully	S3
	4. Learning through online learning system enable me to learn independently	S4
	5. I will keep learning through the online learning system in the future	S5

To achieve the research objectives and prove the four hypotheses which have been proposed, then some statistical test were conducted in this study. The first step is to test the validity and reliability of the data that has been collected from survey respondents using Confirmatory Factor Analysis (CFA) and coefficient of Cronbach's Alpha. The next

step is to test hypotheses to determine the effect among variables by multiple linear regressions.

RESULTS

In testing the validity of indicators using Confirmatory Factor Analysis (CFA), each item can be classified as valid item if it has a factor loading greater than 0.40, level of significance at the 95%, and clustering in each group of variable. The result of factor analysis is shown in Table 2.

Table 2. Factor Analysis

Item Code	Component					Remarks
	1	2	3	4	5	
MK1				.835		Valid
MK2				.864		Valid
MK3				.809		Valid
MK4				.835		Valid
F1			.851			Valid
F2			.865			Valid
F3			.880			Valid
F4				.672	.419	Not Valid
F5			.773			Valid
F6			.858			Valid
F7			.771			Valid
Q1		.888				Valid
Q2	.658			.428		Not Valid
Q3		.939				Valid
Q4		.924				Valid
Q5		.918				Valid
Q6		.934				Valid
Q7		.930				Valid
TC1	.860					Valid
TC2	.896					Valid
TC3				.548		Not Valid
TC4	.961					Valid
TC5	.943					Valid
TC6	.920					Valid
TC7	.852					Valid
TC8	.906					Valid
S1					.737	Valid
S2					.723	Valid
S3					.761	Valid
S4			.479		.679	NotValid
S5					.833	Valid
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.						.866
Bartlett's Test of Sphericity			Approx. Chi-Square			7892.313
			df			465
			Sig.			.000

Based on the result of CFA, it can be seen that the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-SA) is .866, which means that the factor analysis can be proceed. KMO-SA value ranges between 0 - 1. An acceptable value of KMO-SA to perform

further analysis must be greater than 0.50. Bartlett's Test of Sphericity has value of 7892.213 and significant at 0.000. These conditions show that the factor analysis test can be continued. The results of factor analysis shows that there are four items which do not meet the validity criteria, those are F4, Q2, TC3, dan S4. Item F4 is not clustered into its group of course structure variable (component 3); it spreads in component 4 and component 5. For item Q2, it is also not clustered into online tutorial quality (component 2), it spreads in component 1 and component 4. Item TC3 should be clustered into component 1 but it is in component 4. For item S4 has a double value, which appears in the component 3 and component 5. Based on this result, those four items are then removed from the data and do not include in the further analysis. The next factor analysis therefore excludes these items with result the value of KMO-SA is .895, Bartlett's Test of Sphericity has value of 6869.292 and significant at 0.000. These conditions show that the factor analysis test can be continued. The result of factor analysis shows that all the items have factor loading greater than 0.4 and clustered into its group. Therefore, we can say that all items here are valid as shown in Table 3.

Table 3. Factor Analysis (Final)

Item Code	Component					Remarks
	1	2	3	4	5	
MK1				.872		Valid
MK2				.828		Valid
MK3				.846		Valid
MK4				.865		Valid
F1			.837			Valid
F2			.853			Valid
F3			.867			Valid
F5			.809			Valid
F6			.876			Valid
F7			.790			Valid
Q1		.888				Valid
Q3		.938				Valid
Q4		.927				Valid
Q5		.914				Valid
Q6		.935				Valid
Q7		.928				Valid
TC1	.862					Valid
TC2	.896					Valid
TC4	.960					Valid
TC5	.944					Valid
TC6	.920					Valid
TC7	.853					Valid
TC8	.907					Valid
S1					.800	Valid
S2					.738	Valid
S3					.799	Valid
S5					.803	Valid
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.						.895
Bartlett's Test of Sphericity			Approx. Chi-Square			6869.292
			df			351
			Sig.			.000

The next analysis is reliability analysis using Cronbach's Alpha. Coefficients and item-to-total correlation is used to test the reliability of each variable. A variable can be classified as a reliable variable if it has value greater than 0.60. This means that the variable has

met the reliability test. In other words, the internal consistencies of the items in the questionnaires are acceptable. A variable can be classified as reliable if it has Cronbach's Alpha value greater than 0.60. The result of reliability test showed that all variables in this research are reliable as shown in Table 4.

Table 4. Reliability Analysis

Variable	Cronbach's Alpha Based on Standardized Items	Remarks
Course structure	0.956	Reliable
Online tutorial flexibility	0.930	Reliable
Online tutorial flexibility	0.990	Reliable
Technology quality	0.979	Reliable
Student satisfaction	0.901	Reliable

To understand the influence between variables, the next analysis was conducted using multiple linear regression. The independent variable is statistically proved has influence on dependent variable if standard p value of ≤ 0.05 was employ that has meaning that the independent variable significantly influences the dependent variable, with a level of confidence of 95% and a maximum tolerated deviation rate of 5%. The result of multiple linear regression is shown in Table 5.

Table 5. Multiple Linear Regression Result

Independent Variable	Dependent Variable	t	Sig t
Course structure	Student satisfaction	7.958	.000
Online tutorial flexibility		1.930	.050
Online tutorial quality		.767	.449
Technology quality		2.371	.019
R^2			.403
Adjusted R^2			.387
F			24.685
Sig F			.000

Table 5. shows that online course structure, online tutorial flexibility, and technology quality have positive impact on student satisfaction that is showed by the value of significance of t test at 0.000, 0.050, and 0.019 (below α = 0.05). However, online tutorial quality does not support student satisfaction of online learning that is showed by the value of significance of t test at 0.449 (above α = 0.05). Adjusted R^2 value in this model is also very low, 0.387, shows that only 38.7% of student satisfaction variation can be explained by course structure, online tutorial flexibility, online tutorial quality, and technology quality. The remaining 61.3% is determined by other factors beyond the factors examined in this research. The influence of all independent variables on dependent variable can be seen from the significant value of F test at 0.000 (below α = 0.05). Since it's less than α = 0.05, regression model can be used to predict all factors that impact student satisfaction in this research.

Course structure becomes a factor that influences student satisfaction. Compared to classroom instruction, e-learning instructors are faced with additional tasks. They have to develop coherent and structured learning material that is also technically well designed (e.g., learning material with multimedia elements or hypertext structures), provide opportunities for online practice or self-tests for students and for online collaboration with peer students. In the case of blended learning, instructors have to optimally combine online and face-to-face learning sessions (Paechter et al., 2009). In a factor analysis of a

questionnaire on quality in e-learning, Selim (2007) found that items on the instructor's task list in setting up online instruction formed a distinct and important factor. Furthermore, for the students who visited the class Web site on a regular basis, what matters to their learning is not so much the usability of the course site as a measure of the quality of engagement in other learning activities. For instance, meaningful feedback that occurs among students or from a teacher may have a greater impact on perceived learning outcomes. As long as students received meaningful feedback about the course contents, an inadequate Web content design becomes less critical (Eom et al., 2006).

Besides course structure, online tutorial flexibility also has found as variable that influence student satisfaction. Students' assessments of the importance of specific achievements reflect their mastery goals and their wishes to become proficient in an area. Consequently, students who attach a high value to specific achievements are also likely to invest more effort in learning, to apply more elaborated information processing strategies, or to devote more time to learning (Bruinsma, 2004; Nurmi & Aunola, 2005). In addition, the flexibility in the choice of learning strategies and the exchange of knowledge with peer students are positively related to learning achievements. Students who use opportunities in self-regulated and collaborative learning also experience higher learning achievements.

CONCLUSION

This research tried to examine the factors that affect student satisfaction in online tutorials. The study was conducted by sending 580 online questionnaires to students who are participated in online tutorial. As many as 152 questionnaires were gathered and can be used for further analysis. The results showed that the course structure, online tutorial flexibility, and technology quality are factors that affect student satisfaction. While online tutorial quality is a factor that doesn't affect student satisfaction. This suggests that institution should pay more attention to the quality of online tutorials especially in terms of appearance quality, ease of use, and the interaction between tutors and students. Improving these factors that related to the quality of online tutorials is expected to enhance student learning outcomes. Students' participation in online tutorials can also help them to improve their learning quality in order to achieve the expected competencies.

The implementation of information and communication technology has emerged in education, especially in higher education. Many higher education institutions utilize e-Learning as a representative of modern education. Consequently, several adoption-related critical factors must be carefully evaluated before, during, and after any adoption. The adoption of e-learning technology is a complicated process of establishing and developing an integrated information technology system. With the advancement of information and communication technology, online learning will be a very promising learning method in the future. No matter how well the implementation of online learning, student satisfaction becomes the main focus that should be considered. Design of online learning, course structure and the flexibility of time become key to the success of online learning that can take participants achieve their competencies.

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