STUDENTS' BARRIERS TO ONLINE TUTORIAL

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ABSTRACT

An online tutorial should be the core of the student learning support services in the digital era to maintain the quality of distanced higher education. However, in Universitas Terbuka with supposed to be the cyber university of Indonesia, the participation in the online tutorials was still not encouraging. For example, the average of the percentage of students' involvement in the first academic semester of 2017 to the 2nd semester 2018 for one course was 2.21%. This study aimed to identify barriers for students to participate in the online tutorial. The method consisted of two stages. First, analyzing qualitative data that were gathered through open-ended questions to identify factors of the barriers. Second, developing 20 items' questionnaire based on the factors identified in the first stage and analyzed using Partial Least Squares Structural Equation Model (PLS-SEM). The study involved 76 students in the first stage and 237 students in the second. The results of the study revealed that the students' barriers to online tutorial reflected in four factors, i.e. (1) information, (2) motivation, (3) technical, and (4) supports; each factor confirmed significantly (p-values < 0.05) with t-values equal to 14.108, 27.875, 7.502, and 25.640, respectively. The study proposed some recommendations to improve student participation in online tutorials.

Keywords: Online tutorial, barriers to participation, structural equation model.

INTRODUCTION

Tutoring is an essential part of distance education to help students through written communication, telephonic communication, or face-to-face communication to overcome learning difficulties (Puspitasari, 2002; Bukhari, 1997). An online tutorial is a tutorial service delivered via the internet. The purpose of the online tutorial is to provide learning support services that enable students to interact with tutors through the internet to resolve the difficulties of students in learning the primary teaching materials independently (self-instructional study material). The online tutorials are different from the delivery of courses via the internet or what is known as online learning, as is popularly known as MOOC in recent times. The difference between online tutorials and online learning lies in the topic discussed and the purpose of its activities. In a tutorial, the difficulty of students in learning self-instructional study material determined the issue presented, and the activities aimed to help students to overcome these difficulties. Whereas, online learning could discuss the subject matter as a whole of a course and targeted to achieve the objectives of the course. In online learning could also include examinations to evaluate learning outcomes. In other words, online tutorials are complementary as the online to learning activities that are carried out by either face-to-face, online, or blended.

Universitas Terbuka (UT) provides online tutorial services for students to overcome the difficulties in comprehending the self-instructional study material in the form of modules delivered in printed and digital format. In most courses at UT, online tutorials are offered optionally to the students; however, UT encourages the students to take online tutorials. Until now, the level of student participation in online tutorials is still deficient. For example, in the Education Statistics course (PEMA 4210), the average proportion is only 2.21% (see Table 1) and raises questions that require answers, what are the obstacles for students to participate in the online tutorials?

Table 1. Students' participation in online tutorial (PEMA4210 Course)

Semester	Number of Students	The Proportion of Students taking Online Tutorial	
		Number	%
2016/2017.1	22,557	232	1.03
2016/2017.2	14,210	248	1.75
2017/2018.1	19,215	486	2.53
2017/2018.2	17,457	616	3.53
Average			2.21

Research on online tutorials is not as much as online learning research that hardly found in the literature. Some of these online tutorial studies highlight more the effectiveness of online tutorials as a support service to students in learning in the form of online learning or e-learning, among others: (1) online tutorials are as useful as face-to-face tutorials as a learning aid for e-learning learning (Iwasaki, et al., 2019), (2) online tutorials provide fewer learning experiences compared to face-to-face tutorials on distance education (Price, Richardson, & Jelfs, 2007), (3) online tutorials help students improve learning outcomes students who learn through e-learning and online tutorials are responded well by students. Research conducted by Riveros (2009) on interactions between tutors and students in an online tutorial concluded that the communication of tutors and students was different from interactions in face-to-face class and took place in two directions dynamically (double-way dynamic). From a few studies of online tutorials, no research was found on the barriers of students to participate in the online tutorials. Therefore, this article is the result of research on the obstacles of students in the online tutorials that can hopefully enrich the body of scientific knowledge in distance education, especially in the area of learning support services.

METHOD

This study used a mixed-method approach to answer questions about what the students' obstacles were to take part in online tutorials. There are many definitions of mixed-method research. In this article, the notion of a mixed-method referred to an empirical study involving the collection and analysis of qualitative and quantitative data (Almalki, 2016). Research with a quantitative approach is deductive research, and it can be deriving some hypotheses regarding a variable with its dimensions or sub-variables, deductively from the theory already available as a result of the accumulation of previous studies. In this study, related to the variable barriers students to online tutorials are still unavailable, and lack of theories to rely upon to parse the dimensions of these variables. The qualitative approach, by contrast, could be an inductive study, which concludes the dimensions of a variable from the opinions of students who feel inhibited from participating and engaging in the online tutorials. The method implemented in this study consists of the following three steps.

Step 1: Quantitative Analysis to Students' Opinion

First, distributing a written questionnaire asking what obstacles students have in attending the online to students taking face-to-face tutorials. This questionnaire was an open question regarding obstacles that prevent students from taking online tutorials. There were 76 students responded to the questionnaire. The results of this questionnaire were then analyzed qualitatively to get an overview of the factors underlying students' barriers to take online tutorials. The academic staff of the mathematics education study program in Universitas Terbuka discussed each written answer in the survey to classify the responses by their underlying meaning.

Step 2: Developing Likert Scale Questionnaire

The next step was developing a questionnaire in the form of a Likert scale to measure the level of student barriers in taking online tutorials based on literature reviews and the results of the first step. A literature review is needed to classify the statements obtained in the first step into the dimensions or sub-variables

of the variables of barriers to online tutorials that are prevalent in discussing online tutorials. However, as mentioned earlier, the literature on online tutorials is minimal, especially for research on students' obstacles to participate in online tutorials. Because of the lack of documentation on online tutorials, some of the naming dimensions for obstacle variables in online tutorials adopted the name of aspects from the literature on e-learning or online learning. In some cases, barriers to online tutorials are similar to barriers to e-learning; for example, barriers to student access and technological obstacles were the same meaning in the online tutorial and online learning.

Step 3: Using PLS-SEM to Analyzed the Data

The questionnaire resulted from the second step, then distributed to the students. A sample of 237 students filled out the questionnaire measuring the level of barriers to online tutorial participation. The results then analyzed with partial least squares structural equation model (PLS-SEM) using the Smart-PLS software. Using PLS-SEM was to overcome the constraints of the less theoretical basis in building structural models, and the data might not fulfill standard assumptions (Hair, Hult, Ringle, & Sarstedt, 2017).

FINDINGS

Students' Opinion on Barriers to Participation in the Online Tutorial

A qualitative descriptive analysis was carried out on students' written answers to open questions related to student barriers to following the tutorial. The 76 written answers resulted in four student answer groups, namely: (1) the boundaries conveyed by 34 (44%) students related to the lack of online tutorial information, (2) boundaries provided by 20 (26%) students related to technical restrictions at the time of starting the tutorial, and (3) barriers delivered by 7 (10%) students related to obstacles during the tutorial take place.

Some students revealed the obstacles before students followed the online tutorial from students' responses to an open question in the questionnaire. The hindrance includes information about online tutorials that do not reach students. The students expected that information should consist of the notion of online tutorials, benefits, and ratings in online tutorials, schedule of implementation of online tutorials, how to register online tutorials, and who are the contact persons. A student wrote that information about online tutorials was not available. He wrote that since the first semester as a UT student until the sixth semester studied at UT, he did not know yet how to follow the tutorial. He recommended that UT's team should go to the study group in some remote areas to explain the online tutorials. In fact, every regional office center of UT has informed new students about the online tutorial during a face-to-face meeting in the orientation program of the new students. However, not all new students can take part in these activities. Many students live in remote areas, making it difficult to go to the location of the activities.

Although some students may already have adequate information about online tutorials, the students have internal barriers due to a lack of motivation to follow the tutorial. Based on the theory of expectancy-instrumentality-valence (Simone, 2015), motivation is a function of the perception of the benefits of pursuing an online tutorial and the perceived ease of doing so. In this case, some students know the benefits of online tutorials, but consider it as difficult to follow. Alternatively, students judge online tutorials as not useful even though they can use them. A student wrote that he felt face-to-face tutorials to be more effective than online tutorials for achieving learning goals. Another student wrote that he had problems with his, so he could not read through a computer screen.

Obstacles felt by students when carrying out online tutorials are related to procedures for registering participation in online tutorials as well as barriers in slowly internet speeds in certain areas. Students complain about the complexity of the stages to follow the online tutorial. A student wrote that he was interested in taking online tutorials, but before the implementation of the online tutorial, he could not activate his account. Other students complained about the difficulty of registering to participate in online tutorials.

Student barriers to starting the online tutorial above suggest the need for technical assistance provided by UT. Technical support is needed by students, whether they are going to take part in online tutorials or when students have taken part in the online tutorial. In this case, many students feel they do not know how to

obtain technical assistance or do not even know that there is practical assistance provided by UT. A student wrote that he needed a written-guidance to use the online tutorial. Other students expressed the different things during the online tutorial; he could not find feedback from tutors regarding the tasks he was doing.

As mentioned earlier, the study of barriers to online tutorials was scarce. Therefore, to complete the above findings in identifying student barriers to online tutorials, the researcher adopted some research results that report several obstacles in participating in online learning or e-learning. Muilienburg & Berge (2005) reported eight factors in describing students' barriers to online learning, i.e. (1) administrative issues, (2) social interaction, (3) academic skills, (4) technical skills, (5) learner motivation, (6) time and support for studies, and (7) cost and access to the internet, and technical problems. Palmer, Bowman, & Haroff (2013) identified technical, structural, and cultural as the barriers to part-time in online learning. Technical barriers include having no access to the internet or computer and a lack of computer skills. Structural barriers comprise some factors that are related to poverty and social marginal. Cultural barriers contain factors related to learned behavior from a community culture, such as learning style. Srichanyachon (2014) identified students' challenges to participate in online learning, namely problems with online systems and personal issues. Issues with online systems included connection errors, system complexity, communication convenience, and attractiveness. The particular difficulties of students consisted of a lack of computer skills, internet skills, understanding the platform used for online tutorials, and lack of money to support the cost of internet connection. O'Doherty et al. (2018) mentioned the main barriers to online learning were time constraints, poor technical skills, inadequate infrastructure, absence of institutional strategies and support, and negative attitudes.

Based on a descriptive qualitative study of student answers to open questions and some previous research reports about participation in online learning, four factors identified as students' barriers to participating in the online tutorials, namely: (1) lack of information about online tutorials, (2) the low motivation of students to follow the tutorial online, (3) technical barriers to starting and using online tutorials, (4) lack of support services felt by students. The four factors were then developed as a questionnaire with a Likert scale to measure the size of the students' barriers to taking online tutorials. For this reason, each factor was developed by a five-point statement of obstacles to follow the online tutorial so that students would assess all 20 items as "Strongly Disagree" to "Strongly Agree.".

Measurement Model of Students' Barriers to Online Tutorial

A questionnaire to measure student barriers to taking online tutorials was given to 327 students to fill in. Student responses were analyzed using a structural least square structural equation model (PLS-SEM) using Smart-PLS software (Ringle, Wende, & Becker, 2015). Figure 1 presented the analysis results in the form of diagrams to describe the students' barriers to participate in online tutorials (Barriers). There were four factors reflected the barriers, i.e., information about online tutorials (Information), students' motivation to participate in online tutorials (Motivation), technical skills to get through the online tutorial (Technical), and availability of supports in the online tutorial (Support). Each factor in Figure 1 was associated with several indicators or observed variables that counted up from items in the questionnaire.

The discriminant validity measures the validity of the measurement, namely the value of the average variance extracted (AVE) of each item in the questionnaire. The AVE value of each item questionnaire that is more than 0.50 indicates significant convergent validity, and a higher AVE value towards the latent variable intended than to other latent variables shows the discriminant validity (Fornell & Larcker, 1981). Table 2 showed that all items in the questionnaire or observed variable have an AVE value > 0.50 for the intended latent variable. Also, the AVE value for each observed variable has the highest value on the expected latent variable. Thus, measurements on the model studied show convergent validity and discriminant validity.

Table 2. Discriminant validity

Item	Examples of the statements	Average Variance Extracted				T-Stat
		Information	Motivation	Support	Technical	
I. Information						
I1	…	0.732	0.159	0.419	0.003	18.448
I2	…	0.786	0.145	0.429	0.121	25.050
I3	I don't know the schedule of the online tutorial	0.861	0.237	0.418	0.104	41.658
I4	…	0.818	0.331	0.391	0.128	26.443
I5	I don't know what devices needed for an online tutorial	0.827	0.365	0.402	0.069	35.556
M. Motivation						
M6	…	0.425	0.700	0.309	0.112	13.238
M7	…	0.217	0.824	0.316	0.197	21.435
M8	I think there is no benefit for joining the online tutorial	0.183	0.876	0.406	0.264	45.122
M9	Probably, join an online tutorial will just waste my limited time	0.279	0.904	0.424	0.299	61.099
M10	…	0.241	0.851	0.478	0.237	39.155
T. Technical						
T11	…	0.014	0.122	0.025	0.664	7.608
T12	…	0.014	0.122	0.025	0.664	11.680
T13	I have difficulties in reading through a computer screen	0.026	0.298	0.202	0.794	20.184
T14	…	-0.011	0.182	0.168	0.803	18.144
T15	I don't have devices for a tutorial online	0.202	0.171	0.387	0.739	19.283
T16	…	0.441	0.188	0.143	0.550	13.686
S. Support						
S17	...	0.381	0.419	0.797	0.355	24.750
S18	I need a written guidance	0.523	0.378	0.854	0.180	39.689
S19	I need an opportunity to guided practice	0.396	0.425	0.884	0.277	45.627
S20	...	0.405	0.348	0.825	0.228	28.097

Table 3 listed the reliability of the measurement for each variable. From Table 4, it appeared that for each measurement variable, the Cronbach alpha value was slightly higher than 0.80. Thus, analyses for each latent variable indicated adequate reliability (Sarstedt & Ringle, 2017).

Table 3. Reliability

Variable	Alpha Cronbach	T-Value	P-Value
Information	0.865	51.868	0.000
Motivation	0.888	54.463	0.000
Supports	0.861	48.241	0.000
Technical	0.840	44.319	0.000

Overall, the reliability measurement of students' variables barriers to online tutorials shown by Alpha Cronbach is equal to 0.887. Therefore, the instrument to measure the barriers variable has demonstrated adequate reliability.

Structural Model of Barriers to Online Tutorial

The following Figure 1 was the structural model of barriers to online tutorials (Barriers) that reflected in four factors of inhibiting the students from taking the online tutorials. These factors are (1) lack of information received by students regarding online tutorials (Information), (2) the motivation of students to take online tutorials (Motivation), (3) technical barriers faced by students when they will start and during online tutorials (Technical), and (4) less of the supports felt by students (Support).

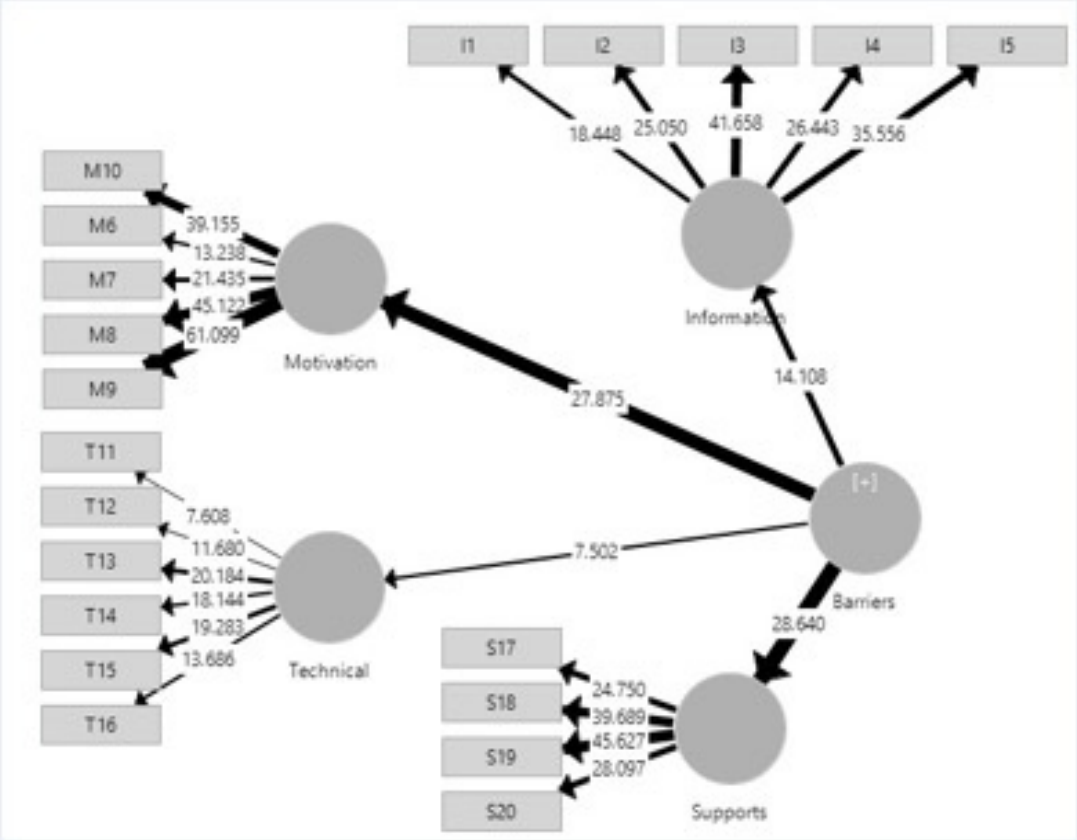

Figure 1. Structural model of students' barriers to online tutorial

The number on the arrow line indicates the significance of the correlation coefficient (t-values) to represent the strength of the relationship between two variables, in this case, the power of an observed variable reflected latent variable or the strength of the latent variable reflects other intangible variables. Another critical parameter in a structural model of SEM was R^2 or coefficient of determination to indicate the proportion of the dependent variable explained by the predictors (Zhang, 2016). Table 4 showed the coefficient of determination for each dimension variable of barriers to the online tutorial. Based on these two parameters, t-values, and R^2, some interpretations of the model in Figure 1 as follows.

Figure 1 showed that the latent variable of the Support (availability support service for using online tutorial) indicated by 28.640 of t-value, which was the most strength variable to reflect the latent variable of the barriers to an online tutorial, and the proportion of information explained by the variable was 45.6%. The observed variable of s19 was the most strength item in the questionnaire in reflecting the Support variable with t-value = 45,627. As could be seen in Table 2, the s19 is a statement that expressed the students need an opportunity to a guiding practice of the online tutorial. The next item, which was the second most strength to reflect the barrier to participation in the online tutorial, was s18 with t-value = 39.689. The s18 is a statement that expressed the students need written guidance to join and carry out the online tutorial (see Table 2). UT provided such a written manual; however, to disseminate information to a large number of students spread out in remote areas was not an easy task. Administrative issues could classify both the barriers of supporting students to online tutorials and information regarding the online tutorial. Therefore,

the finding agreed with the results of Mulienburg & Berge (2005) that placed the administrative issues in the first rank to explain student barriers to online learning.

The second best in reflecting barriers to participation in an online tutorial, as could be seen in Figure 1, was the motivation variable, with T-value = 27.875. In Table 4, the motivation variable reflected the proportion of variances in barriers to online tutorials equal to 43,4%. Motivational variables are internal barriers for students to take online tutorials. Students' perception of the value and the ease of the online tutorial influenced motivation to join the tutorial online. (National Academies of Sciences, Engineering, and Medicine, 2018). So, the barriers that come from motivation can be tangible in the form of perceptions of fewer benefits of participation in the online tutorial or perceptions of natural difficulties following online tutorials. The questionnaire items that most strongly show motivational barriers are points M8 and M9, which state that students do not see the benefits of online tutorials. The findings regarding motivation to take part in this online tutorial are slightly different from the conclusions of a study by Mulienburg & Berge (2005), which place motivation at a lower rank, after technical obstacles, as the variable that most explains barriers to online learning. These differences can occur because, in online learning or e-learning, the choice to participate does not as freely as in the online tutorial. In online learning, the activities could include all the subject matter in a course. They could be the only activities in the course so that joining online learning is to take or leave the course, while in the online tutorial, the subject material might be in other learning activities.

Table 4. Coefficient of determination

Variable	Coefficient of Determination
Information	0.304
Motivation	0.434
Supports	0.456
Technical	0.242

The third variable that reflected the barriers in following online tutorials is the variable lack of information about the online tutorial with the t-value = 14.108, with the coefficient of determination equal to 30.4%. This obstacle applies to students wanting to join the online tutorials, but they do not find an explanation for how to join it. The questionnaire item that most reflects this variable is the point I3 (t-value = 41.658) and I5 (t-value = 35.556), which states that students do not know the schedule and equipment needed to take online tutorials. UT undoubtedly provided the timing of the online tutorials. The problem was how the students could have and grasp the schedule. Indonesia is an archipelago nation in which 13000 islands inhabited of 17000 islands in Indonesia. Therefore, to spread out the information was not an easy task. Information variables fall into administrative categories, as do support variables. Thus, in conclusion, the regulatory issues are the biggest obstacle in organizing online tutorials. Organizational constraints can also affect the lack of student motivation in online tutorials.

Fourth, the technical constraint variable is the variable that least explains the variable of the barriers to an online tutorial, with t-value = 7.502 and the coefficient of determination, R^2, at 24.2%. This barrier is related to the technical difficulties experienced by students when participating in the online tutorials. This difficulty is often related to the use of computers, for example, lack of access to computers or internet networks. Some students have trouble reading text on the gadget screen, perhaps related to the age factor. Due to openness in recruiting students, UT still has many elderly students, and most students used smartphones to join online tutorials. However, since the technical constraints were the least of the determination coefficient in this research finding, then it could be interpreted that the technological barriers were not the most crucial to inhibit the students to take part in the online tutorial. This finding was consistent with Ismaila, Tukur, & Gambari (2019), which concluded that smartphones were easy to use for learning in higher education.

CONCLUSION AND RECOMMENDATIONS

Barriers to students in online tutorials are related to (1) lack of support services for students, (2) lack of student motivation, (3) lack of information about online tutorials, and (4) technical obstacles related to online tutorials. Administrative barriers, related to support services and information about online tutorials, dominate student barriers in online tutorials. It is this organizational constraint that can also affect the lack of student motivation in online tutorials. The conclusion was in line with the results of

Barriers to students in online tutorials are related to (1) lack of support services for students, (2) lack of student motivation, (3) lack of information about online tutorials, and (4) technical obstacles related to online tutorials. Administrative barriers, related to support services and information about online tutorials, dominate student barriers in online tutorials. It is this organizational constraint that can also affect the lack of student motivation in online tutorials. The conclusion was in line with the results of Mulienburg & Berge (2005) that the main factor in explaining student barriers to online learning is the administrative issues. However, the findings regarding motivation to take part in this online tutorial are slightly different from the conclusions of a study by Mulienburg & Berge (2005) that place the technical obstacles as the variable that most explains barriers to online learning comparing to students' motivation. The different conclusions might come from the year of the study, which related to the popularity of the gadget and this finding was consistent with research conducted by Ismaila, Tukur, & Gambari (2019) that smartphones were easy to use for learning in Pre-Service Teachers Colleges of Education in North-West, Nigeria.

Recommendations

To increase the number of students using the online tutorial in the future, UT and similar open and distance university with a large number of heterogeneous students spread out in remote areas, should:

- Provide student support services specialized for a tutorial online in every regional office center.
- Inform the students of the benefits and easiness of tutorials online to their learning.
- Provide and distribute written guidance of online tutorials.
- Offer online practice for students whenever they need it.

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