

E-LEARNING READINESS OF DISTANCE LEARNERS

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ABSTRACT

The development of information and communication technology is growing rapidly, resulting in the increasing use of online learning or e-learning, especially in the distance education system. Universitas Terbuka (UT), the Indonesia Open University, is no exception. The university has been offering e-learning in the form of online tutorials since 2002. However, there has not been a thorough study on student readiness to participate in UT e-learning. This article describes student readiness to take part in e-learning at UT. The study was conducted using a survey involving 81,786 UT students who participated in online tutorials during the second semester of 2017. Only 1,532 students responded to the survey. The results concluded that, in general, the students are quite ready to study via e-learning at UT. The students' e-learning readiness is strongly influenced by the ability to self-regulate their learning, to be self-directed learners, and to use various softwares.

Keywords: *e-learning, e-learning readiness, online learning, Universitas Terbuka*

INTRODUCTION

Advancement in Information and Communication Technology (ICT) is increasing rapidly today, resulting in the development of online learning or e-learning. E-learning or online learning can be defined as learning activities that use online technology (Clayton, 2004; 2006). Online learning is a development of distance education that is highly dependent on ICT. For governmental and educational institutions, online learning provides a solution for expanding access to education in places where classroom or face-to-face instruction is not possible.

As the only university in Indonesia implementing a distance education system, Universitas Terbuka (UT) has applied e-learning since 2002 in the form of online tutorials (Puspitasari, 2016). UT started to provide online tutorial using Moodle's Learning Management System (LMS) since 2004 (Belawati, Hardhono, Sinar, & Patria, 2009) and has been able to offer online tutorials for all courses since 2013. Online tutorials are a learning support service provided by UT for all students, but students are not required to utilise the service. However, the number of UT students who participate in online tutorials has increased steadily.

In addition to online tutorials, UT also provides a variety of computer-based and web-based programmes to help students learn, such as digital library, virtual reading rooms, open learning resources, UT digital learning materials, and online community forums which are

accessible through the UT website. Thus, when students need learning resources, they can easily access the relevant learning materials/programmes. However, UT has not yet conducted a comprehensive study on whether or not UT students are ready for online learning.

LITERATURE REVIEW

Kalelioglu (2017) stated that student readiness to participate in e-learning is one of the factors that support their success in studying in the system. According to Rasouli, Rahbania, & Attaran (2016), factors that determine the success of participation in e-learning consist of computer skills, internet skills, self-study skills, time management skills, interest to learn, communication skills, skills to use online resources and effective learning strategies. Meanwhile, Farhat & Mohammadi (2010) reported that before taking part in e-learning, students need to have five main competencies, namely metacognitive skills, cognitive skills, navigational skills, communication skills, and collaborative skills to work with computers and gain Internet access.

Although the growth of Internet users in Indonesia has been very fast, from only 1% in 2000 to 34.1% in 2016 and 50.4% in 2017 (Internet World Stats, 2017), there is no further research whether those Internet users are sufficiently ready to use it. According to Sufandi, Daryono & Darmayanti (2015), a country needs to measure e-readiness in order to assess the readiness of a community or country regarding the implementation of ICT strategies in the country. E-learning readiness is defined as the degree of readiness of an institution or organisation to various aspects of technology used in online learning before online learning is implemented (Hashim & Tasir, 2014).

As a country with more than half of its population constituting Internet users, it is expected that Indonesia would have already conducted an e-learning readiness study. In the context of UT, an e-learning readiness study is important, given the spread of UT student residence that can represent Indonesia e-learning readiness. Research on e-learning readiness is also important because although the majority of Internet users in Indonesia (65%) reside in Java (Asosiasi Penyelenggara Jasa Internet Indonesia [APJII], 2016), UT students all across Indonesia can also access online tutorial services and other web-based learning programmes.

However, UT's diverse student backgrounds and varying levels of Internet access in Indonesia make it difficult for UT to develop an e-learning programme that is appropriate for all regions. Therefore, it is necessary to conduct a study to determine UT students' readiness to study via e-learning.

The objectives of this research are to determine UT students' levels of e-learning readiness, and the factors affecting their e-learning readiness. In particular, this research study aims to answer these questions:

- (1) How is the e-learning readiness of UT students?;
- (2) What factors affect the e-learning readiness of UT students?; and
- (3) What is the most dominant factor affecting e-learning readiness of UT students?

METHOD

Any online learning generally uses a LMS, an internet-based computer system that integrates and manages all educational activities, starting from registration, provision of learning materials, learning process, to assessment (Belawati, *et al.*, 2009). In this research, online learning is defined as a method of learning that is held online with the help of the

Internet, in which lecturers, tutors and students do not meet directly in the classroom. This study focused on Moodle-based UT online tutorials and excluded other UT online learning programmes.

This research used the quantitative approach. Data collection was conducted through a survey involving UT students who participated in online tutorials during the second semester of 2017. The instrument used was adapted from the MOOC Readiness Questionnaire Survey (Embi, 2014) used in Malaysia. A MOOC (Massive Open Online Course) is a form of e-learning, so the questionnaire used to measure the readiness level for MOOCs can also be used to measure the level of any e-learning readiness. The original instrument consisted of three parts. For the purposes of this study, the instrument comprised two parts. The first part addressed the respondents' identity and the second part consisted of questions to measure e-learning readiness. The first part of the questionnaire was modified and adapted to the needs of this study, which involved the respondents' demographic information, such as (1) gender, (2) age, (3) previous education, (4) UT Regional Center, and (5) employment status.

In the trial phase, the second part of the questionnaire, which consisted of 52 questions about e-learning readiness, was revised to 49 questions. The 49 questions (numbers 9 to 57) included the following aspects: (1) Technology Access, (2) Online Skills and Relationships, (3) Motivation, (4) Online Audio/Video, (5) Internet Discussion, (6) Importance to Your Success, and (7) Others. This part of the questionnaire used a five-point Likert scale, consisting of 1 = Completely Disagree, 2 = Strongly Disagree, 3 = Not Sure, 4 = Strongly Agree, and 5 = Completely Agree.

The revised questionnaires were distributed to UT online tutorial participants in the second semester of 2017. An email to request their willingness to complete the online survey was sent to 81,786 online tutorial participants. The email also provided the link to the online survey (<http://survey.ut.web.id/index.php?r=survey/index&sid=272665>). Questionnaires were also distributed to students who sat for the final semester examinations throughout Indonesia. A total of 500 questionnaires were printed and distributed to students taking the end-of-semester examinations. A total of 1,102 students completed the online survey while 430 students filled and returned the printed questionnaires. Overall, there were 1,532 completed questionnaires that were available for further analysis.

Data analysis was done using R software. Descriptive analysis was used for demographic data. Data concerning research questions on e-learning readiness of UT students was analysed using the mean (average) scores of the five-point scale. An average score below three means that it can be generally said that students are not ready to participate in UT e-learning. An average score above three means that students can be considered ready to take part in UT e-learning. An exploratory factor analysis was used to analyse the data related to research questions about factors that affect e-learning readiness of UT students. Data concerning the research questions about the most dominant factors affecting e-learning readiness of UT students was analysed using the Pearson correlation.

RESULTS AND DISCUSSION

The percentage of male respondents (51%) slightly outnumbered that of female respondents (49%). The number of students aged 30 years or younger (63%) was almost twice as that of respondents aged above 30 years (37%). A majority of respondents were 21 to 26 years old. This indicated that young adult students were more interested in filling out the UT e-learning readiness survey.

Most of the respondents of this study (80%) held high school diplomas. The rest had 2-3 years undergraduate diploma (12.5%), bachelor's degree (7%), and some have master's degree (0.5%) and doctorate degree (1%). As many as 88% of respondents were working students and only 12% did not work. Most of the respondents were currently studying at the undergraduate level (95%), while the remaining 5% were taking postgraduate programmes.

To find out whether or not this adapted instrument was accurate in measuring UT e-learning readiness, a validity and reliability test was conducted on the research instruments. Spearman correlation was used to test the validity of this instrument, because the data obtained were ordinal. The results of the validity test indicated that all the questions that measure e-learning readiness of the respondents can be considered valid because all had values greater than the p-value. The reliability test indicated Cronbach values as follows.

Table 1: Test Results for the Reliability of e-Learning Readiness Instrument

No.	Variable	Alpha Reliability Value	Result
1.	Access to Technology	0,8159	Reliable
2.	Skills and Online Communication	0,8561	Reliable
3.	Motivation	0,7761	Reliable
4.	Audio/Video Online	0,7615	Reliable
5.	Online Discussion (Online Chatting)	0,6326	Reliable
6.	Important for Successful Learning	0,7795	Reliable
7.	Others	0,9070	Reliable
	Total	0,9000	Reliable

E-learning Readiness of UT Students

In order to determine the e-learning readiness levels of UT students, the mean or average score of each indicator or question in the second part of the questionnaire was calculated. Table 2 lists the mean value of each indicator that measures the e-learning readiness level of UT students.

Table 2: Mean Values of Each Indicator

Number	Indicator	Mean
Q9	I have access to a computer connected to the Internet.	4.21
Q10	I have access to a fairly new computer (e.g. having enough RAM, speaker, CD-ROM).	3.89
Q11	I have access to a computer with adequate software (e.g. Microsoft Word, Adobe Acrobat).	4.20
Q12	I have basic skills to operate a computer (e.g. saving files, creating folders).	4.46
Q13	I have basic skills to browse the Internet (e.g. using search engines).	4.41
Q14	I can send an email with attachments.	4.42
Q15	I can use the computer several times a week to participate in online tutorials	3.97
Q16	I can communicate effectively with others using online technology (e.g. online chatting).	4.21
Q17	I can express my opinion in writing well.	4.10
Q18	I can use online equipment to work with other students from different places.	3.80

Number	Indicator	Mean
Q19	I can respond to online tutorial discussions as scheduled.	3.58
Q20	I can upload online tutorial assignment answers as scheduled.	3.65
Q21	I can stay motivated even though the tutor is not always online all the time.	3.82
Q22	I can complete an assignment even though there are more interesting online activities (e.g. emailing friends, browsing websites).	3.79
Q23	I can complete my work even though there are more interesting activities at home (e.g. television, family, etc).	3.80
Q24	I can relate the video material in the online tutorial with the written material.	3.67
Q25	I can take notes while listening to videos in online tutorials.	3.62
Q26	I can better understand the written material when presented in video format in the online tutorial.	3.68
Q27	I can chat through online media.	4.13
Q28	I am used to following some discussion topics in chat groups simultaneously.	3.58
Q29	I can follow online chatting while typing (doing work).	3.50
Q30	I hope to have enough time before answering questions during online chatting.	4.02
Q31	Communicating with tutors on a regular basis is essential for my success in online tutorial.	4.23
Q32	My activity in studying lecture material is important to support my success in online tutorial.	4.27
Q33	The experience of using information technology helps me succeed in participating in online tutorials.	4.28
Q34	Lecture materials related to my work support my success in online tutorials.	4.12
Q35	I can use a computer or laptop to participate in online tutorials 4-5 times a week.	3.63
Q36	I can access the Internet to participate in online tutorials 4-5 times a week.	3.65
Q37	I have access to a printer.	3.53
Q38	I have headphones, microphones and speakers to take part in courses that provide video conferencing.	3.57
Q39	I can use web browsers/search engines (e.g. Firefox, Safari, Internet Explorer, Google) to browse the Internet.	4.29
Q40	I'm good at typing.	4.05
Q41	I am experienced in using Microsoft Office software (e.g. Word, PowerPoint, and Excel).	4.13
Q42	I am experienced in downloading/installing programmes or plug-ins, like Java, Adobe Reader, Quick Time, etc.	3.70
Q43	I'm used to sending/receiving emails.	4.25
Q44	I'm used to sending/receiving emails with attachments.	4.22
Q45	I can manage/plan my time well.	3.68
Q46	I can meet deadlines on a regular basis.	3.49
Q47	I can study independently.	3.87
Q48	I can study together in a group.	3.81
Q49	I can spend about nine hours per week to study/participate in tutorial online / work on the assignment/readings for each three-credit course.	3.43
Q50	I do not hesitate to ask for help if I have difficulty in learning.	4.02

Number	Indicator	Mean
Q51	I am an advanced reader.	3.54
Q52	I am able to follow the directions in the online tutorial.	3.89
Q53	I feel comfortable receiving feedback from fellow students or tutors in online tutorials.	4.06
Q54	I have experience in online courses.	3.55
Q55	I feel comfortable learning in an environment where I do not have to come to campus often or not have to come to campus at all.	3.76
Q56	I can learn from various learning media (e.g. text, video, podcast, online discussion, video conference).	4.00
Q57	I consider myself to have a strong learning motivation.	4.01
	Average Score	3.91

The average score of UT students' e-learning readiness was = 3.91, indicating that respondents (n = 1532) were generally quite ready to participate in UT online learning. The highest average score was obtained for question 12, i.e. "I have basic skills to operate a computer (e.g. saving files, creating folders)", which was 4.46. This indicated that respondents generally have the ability to type using word processors. While the lowest score obtained was 3.43 for question 49, i.e. "I can spend about nine hours per week to study/participate in tutorial online/work on the assignment/readings for each three-credit course", which indicated that the respondents were generally not able to allocate a study time of nine hours per week to study a three-credit course as required.

Factors affecting e-learning readiness of UT students

In order to determine whether or not the 49 questions in the second part of the questionnaire also resulted in a number of common factors similar to the original instrument, an exploratory factor analysis was conducted. The results of the factor analysis formed nine factors that were able to explain 60,89% of total variance from the 49 indicators. This research used factor rotation with varimax method to minimise the number of indicators with high loading factor on each factor/indicator.

After looking at the characteristics of the statements or indicators formed in each group, the new categories of factors can be labeled as shown in Table 3.

Table 3: Indicator Grouping and Factor Labeling

FACTOR	LABEL	INDICATORS	SCORE AVERAGE
FACTOR 1	Ability for self-regulated learning	Q15, Q19, Q20, Q21, Q22, Q23, Q35, Q36, Q45, Q46, Q49	3.68
FACTOR 2	Skills using online technology	Q12, Q13, Q14, Q16, Q17, Q39	4.32
FACTOR 3	Ability to use software	Q40, Q41, Q42, Q43, Q44	4.07
FACTOR 4	Factors that support successful learning	Q31, Q32, Q33, Q34	4.23
FACTOR 5	Ability for self-directed study	Q47, Q48, Q50, Q51, Q52, Q53, Q57	3.89
FACTOR 6	Access to technology	Q9, Q10, Q11, Q37, Q38	3.88
FACTOR 7	Online discussion skills	Q18, Q27, Q28, Q29, Q30	3.81

FACTOR	LABEL	INDICATORS	SCORE AVERAGE
FACTOR 8	Ability to understand online video	Q24, Q25, Q26	3.66
FACTOR 9	Comfort in learning online	Q54, Q55, Q56	3.77

The most dominant factor influencing e-learning readiness of UT students

In order to find out which factors of the nine factors formed in the exploratory factor analysis that was the most dominant in affecting student e-learning readiness, a Pearson correlation analysis was conducted. The most influential factor is the factor with the greatest Pearson correlation value compared to the others.

Table 4: Correlation of Pearson and Factor Ranking

FACTOR		Pearson Correlation Value	Factor ranking on e-learning readiness
FACTOR 1	Ability for self-regulated learning	0,79	1
FACTOR 5	Ability for self-directed study	0,76	2
FACTOR 3	Ability to use software	0,74	3
FACTOR 2	Skills using online technology	0,73	4
FACTOR 7	Online discussion skills	0,73	4
FACTOR 6	Access to technology	0,72	5
FACTOR 9	Comfort in learning online	0,72	5
FACTOR 8	Ability to understand online video	0,69	6
FACTOR 4	Factors that support successful learning	0,66	7

Based on the Pearson correlation value in Table 4, Factor 1, which was “ability to manage learning”, had a greater value than the other factors. Therefore, Factor 1 was considered as the most influential factor for UT Students’ e-learning readiness. The second factor that most affected UT e-learning readiness is Factor 5, which is “ability for independent study”. The third factor is “ability to use software”, and so on.

Factor 1 (Ability for self-regulated learning), represented by questions 15, 19, 20, 21, 22, 23, 35, 36, 45, 46, and 49, was the most dominant factor in influencing e-learning readiness. This capability includes the ability to manage time, follow schedules, take time to participate in online tutorials and doing assignments regularly, and the ability to focus on learning although there are other more interesting activities. The average scores obtained by the respondents indicated that the students generally have not developed a strong ability to manage themselves in learning (average score = 3.68).

Factor 5 (Ability for self-directed study) was the second factor that influenced the students’ e-learning readiness at UT. This factor includes questions number 47, 48, 50, 51, 52, 53, and 57, which represented the ability to learn (either individually or in a group), feeling comfortable to ask for help or feedback if needed, ability to read, and having a strong motivation to study. The average score for this factor was 3.89. The mean score was below 4, indicating that there were respondents who rated themselves as not having the ability to study independently yet.

Factor 3 (Ability to use software) was the third strongest factor in influencing e-learning readiness of UT students. This factor includes questions number 40, 41, 42, 43, and 44, which represented the ability to use technology, such as typing, using Microsoft Office,

downloading and installing software, and opening and sending emails, either with or without attachments. Generally, respondents appear to have the ability to use ICT, such as using computers, sending emails, and using the web browser.

The results of this study indicate that the research indicators formed nine factors with a variance of 61%. According to Farid (2014), in the social sciences a total variance of 60% or more is considered sufficient. Of the nine factors, the three strongest factors affecting e-learning readiness of UT students were (1) Factor 1, the ability for self-directed learning, (2) Factor 5, the ability for self-directed learning, and (3) Factor 3, the ability to use software.

The ability for self-regulated learning also involves the ability to manage time, so that students can fulfil deadlines and study time. Time management is an important aspect of self-regulated learning. One example of the importance of time management is how e-learning participants in Ankara University Distance Education Center, Turkey, expected guidance from their tutors in managing their time (Ilgaz & Gülbahar, 2015). A study in Thailand conducted by Ngampornchai & Adams (2016) also reported that there was a positive relationship between students' e-learning readiness and their ability to self-manage (self-regulation). In particular, students who are more self-regulated believed that online learning is useful and easy to use.

Self-directed learning skills are central to the distance education system, including in online learning. Smith, Murphy, & Mahoney in 2003 reported a study involving undergraduate students that aimed to identify the factors that construct e-learning readiness. They found that there were two factors that determined e-learning readiness, namely the comfort of learning online (comfort with e-learning) and self-directed learning.

In terms of the ability to use software, the results of this study were in line with the opinion of Dray, Lowenthal, Miskiewicz, Ruiz-Primo, & Marczyński (2011) who determined that involvement in using technology is more important than access to technology. In this case, the ability to use software may be developed if the participant actively uses technology or has technological involvement (i.e. has a high technology engagement). The results of this study were different from those provided by Ilgaz & Gülbahar (2015), who found that the factor that mostly influenced e-learning readiness in Ankara, Turkey, was access to technology. However, in this study, access to technology is the fifth strongest factor together with the comfort of online learning. On the other hand, a study by Ngampornchai & Adams (2016) also reported that students who were accustomed to using various types of technology might not have a positive perception of e-learning.

The results of this study indicated that UT students were quite ready to participate in e-learning (average score of 3.91). The dimension of online learning readiness with above average mean scores indicates that participants are generally ready to follow online learning (Cigdem & Yildirim, 2014). The readiness of UT students to follow e-learning is slightly better than e-learning participants in Thailand who have e-learning readiness scores slightly higher than the neutral score (Ngampornchai & Adams, 2016).

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the students' readiness in participating in e-learning at UT, it can be concluded that in general, UT students are quite ready to take part in online learning. There are three capabilities that mostly affect UT students' readiness for e-learning, namely the ability for self-regulated learning, the ability for self-directed learning, and the ability to use software. UT still needs to train students on how to be self-regulated learners, especially how to manage time, make a study schedule, monitor their own studies, and motivate themselves to be able to keep to the study schedule. The ability to be self-directed learners

should also continue to be trained, especially on how to obtain other learning resources, whether using the Internet or other sources, tutors, using UT online community facilities, through contact centers, and by setting up study groups with other students. Learning with friends does not have to be done via face-to-face meetings, but by utilising the facilities available on Microsoft 365 which are free for UT students, such as sharepoint facilities, class notebook, yammer, and others. UT will still have to continue introducing these facilities and educate students on how to use them in order to guide them to become more self-directed.

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