

# BARRIERS TO USE E-LEARNING PLATFORM IN INDONESIAN HIGHER EDUCATION: FACTORS RELATED TO PEOPLE AND ORGANIZATION

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***Abstract***—*The advancement of Information and Communication Technology (ICT), especially in the current industrial era 4.0 has forced organizations in almost all fields, including Higher Education institutions, to change. The Indonesian government through the Directorate General of Higher Education responds to this demand by necessitating for the integration of ICT in teaching and learning in universities. However, the fact was that the integration of ICT by Indonesian lecturers has not met the expectation yet. Therefore, this study aims to investigate the barriers experienced by Indonesian lecturers in integrating ICT into teaching and learning. A qualitative research approach was conducted involving twenty-one lecturers from an Indonesian private university as participants. The authors carried out in-depth interviews and analysed data using qualitative data analysis. The results demonstrate that several barriers has impeded the use of ICT in teaching and learning among Indonesian lecturers. The barriers can be classified as barriers related to people and organization. Lack of organizational support was found as the major barrier to using ICT in teaching and learning in Indonesian Higher Education Institution.*

***Keywords***—*barriers, ICT use, Indonesian lecturers*

## I. INTRODUCTION

This study aims to investigate barriers in using Information and Communication Technology (ICT), especially online teaching and learning platform in teaching and learning in Higher Education (HE) institutions in Indonesia. We have witnessed that the advancement of ICT in today's era, people name it as Industry 4.0, has forced organizations in almost all fields, including Higher Education (HE) institutions, to change. ICT has become one of the prominent reasons for changes in HE institutions due to the demand of an ICT savvy business community. It enables the communities in improving competitive advantages (Lepeley & Alborno, 2012; Seethamraju, 2012; Zeeshan et al., 2011). At the simplest level, ICT support

changes in the administrative service system from paper-based to paperless. In this context, ICT enables faculty members to improve the efficiency of the academic service process in HE. ICT also "disrupts" how HE institutions design and deliver their curriculum. For example, technological innovation in the field of education enables HE institutions to provide learning process that not to be limited by geography, time, and subject matter. By using ICTs such as E-Learning, lecturer and student interactions increase. E-Learning enables lecturers to apply more active and collaborative learning methodologies (Kabir, 2012). Students can access lecture content anytime and anywhere as long as they are able to access internet. Access to information is broader through various online sources, such as electronic books, electronic journals, and other online sources.

The strategic value of ICT as a driver of change and improvement in the quality of learning in higher education has received serious attention from the Ministry of Research, Technology and Higher Education of the Republic of Indonesia through the Directorate General of Higher Education (DGHE). Since 2003 in the Higher Education Long Term Strategy (HELTS) 2003-2010, the DGHE stated that one of strategies to achieve excellence in teaching and learning in HE in Indonesia is the integration of ICT into teaching and learning. This concern is increasingly emphasized by the Ministry of Research and Technology of the Higher Education in the vision statement for 2015-2019, "a high quality of HE institutions in science and technology and innovation to support the nation's competitiveness". To respond, the DGHE formulated strategic policies in various aspects ranging from institutions, fields of study, curriculum, resources, research to innovation, and cyber university development. One of the implementation of the policies is the use of E-Learning learning system to complete the face-to-face learning. E-Learning is instruction delivered through digital devices such as computers connected to Internet networks that are intended to support learning (Mayer & Clark, 2011).

The benefits of ICT integration into teaching and learning in HE, however, has not shown satisfactory results. There are evidence that the use of ICT in teaching and learning has little effect on the improvement of learning process (Hu and Hui, 2012; Means et al., 2009). In addition, lecturers' ability in using ICT is still problematic (Blin & Munro, 2008; Watty et al, 2016). While the universities have implemented ICT-integrated learning system to improve teaching and learning, the teaching approach is still teacher centred, showing that lecturers seem unable to utilize ICT as it should be. Additionally, ICT has not been used for learning purposes since lecturers use ICT only for storing data and subject matter or only for word processing or spreadsheet assignments (Fry & Love, 2011).

Bingimlas (2009) and Ertmer (1999) argued that identifying the barriers of ICT use would help academic institutions to improve the use of ICT to enhance the quality of teaching and learning. Therefore, a study focused on the investigation of barriers to using ICT in teaching and learning in HE institutions is necessary. This study addressed the needs by examining factors hinders the use of ICT in Indonesian HE.

## II. LITERATURE REVIEW

### A. *ICT and E-Learning Concepts*

The literature shows that the acronym ICT can take both a single (technology) and a plural form (technologies) so that it is sometimes written as ICTs (Lloyd, 2005). The term ICT can be defined broadly to refer to a convergence of tools or technologies for communication. As suggested by Berce et al. (2008), ICT includes an assortment of tools, including hardware, software, and communications facilities (such as local area networks or LAN, wide area networks or WAN, the Internet, and bandwidth). Inherent in this term is conventional technologies (such as radio, television and telephone technology) and sophisticated computer-based technologies (Reddi, 2004). In educational context, ICT includes equipment (hardware), software, internet, online teaching platforms, and social media used in teaching and learning activities (Sandery, 1999; Shaw, 2010; UNESCO, 2003). Specifically, the ICT referred to in this study is E-Learning or electronic learning. It is the process of learning using Internet-based media. The term E-Learning is often interpreted the same as several terms in educational technology, such as on-line learning, virtual classroom and virtual learning.

### B. *Barriers to Using ICT in Higher Education*

Ertmer (1999) grouped barriers to using ICT in teaching and learning into two—the first and the second order barriers. The first-order barriers are obstacles that are extrinsic to educators, such as lack of equipment, insufficient time, lack of training, and inadequate support from the organisation. The second-order

barriers are typically those that are intrinsic to educators or refer to lecturers' beliefs, including beliefs about ICT and unwillingness to use ICT in teaching and learning. In a similar vein, the British Educational Communications and Technology Agency (BECTA) in 2004 grouped the barriers according to whether technologies relate to the individual, referred to as teacher-level barriers and barriers that come from institutions, referred to as school-level barriers (Jones, 2004). The teacher-level barriers include lack of time, lack of confidence, resistance to change and negative attitudes, no perception of benefits, and lack of access to resources. The school-level barriers include lack of time, lack of access to resources (inadequate hardware and software), lack of effective training, and technical problems. Echoing Ertmer (1999) and BECTA's study (Jones, 2004), Balanskat et al. (2006) suggested similar factors that impede ICT-use in teaching and learning. However, they added one group of factors as the third group of barriers, system-level barriers. These factors are those related to the wider educational framework, such as the rigid structure of the traditional schooling system (Balanskat et al., 2006).

### C. *Barriers to Using ICT in Developing Countries*

Scholars argued that country where HE institutions are located is an important consideration in identifying barrier factors of ICT use in teaching and learning. HE institution in developed countries obtain an adequate ICT infrastructures and facilities since the governments focus on the investment of ICT-integrated teaching and learning (Nutt, 2010; Tanner, 2011). In contrast, Al-Debei and Al-Lozi (2012) reported that HE institutions in developing countries face infrastructural barriers, including lack of appropriate technological infrastructures, lack of Internet accessibility, and lack of resources and facilities. Mayoka et al. (2013) revealed that the main barrier for HE institutions in Uganda to use ICT in teaching and learning was the lack of ICT resources. Inadequate ICT facilities were also found in Bangladesh (Khan et al., 2012) and Turkish HE institutions (Ocak, 2011), which resulted in underutilisation of ICT in teaching and learning. In contrast, many HE institutions, especially those that are located in developed countries, do not have problems related to insufficient ICT facilities. In Nigeria, factors related to lecturers has become barriers to using ICT in HE business schools. The barrier includes the low intention to use ICT in teaching and learning, lack of motivation to use ICT, and lecturers 'confidence to use ICT due to their lack of ICT skills (Isiyaku et al., 2014; Umoru, 2012). A similar barrier was also found in HE institutions in Indonesia (Pannen, 2003) and Vietnam (Peeraer & Van Petegem, 2011). Furthermore, for HE institutions located in a country where English is not the first language, the ability to speak or to understand English language influences individuals' willingness to use ICT. Since English is the dominant language of the computer (software), Internet and ICT supported tools;

English literacy is important for ICT users. Lack of English literacy had been found as a significant barrier to using ICT in HE institutions in developing countries, such as India, Bangladesh and Kuwait (Ali & Magalhaes, 2008; Huerta & Sandoval-Almazan, 2007; Khan et al., 2012; Rao, 2004).

**III. METHODS**

The study aims to investigate barriers to using ICT in Indonesian HE institutions. To address this objective, the researcher explored participants' views or perceptions of factors which had hindered lecturers to use ICT. There was no attempt to find a single answer for understanding barriers to using ICT in HE in Indonesia. There were no hypotheses tested. In this study, the researcher treated the research context (Indonesia as a developing country) as important since it may have influenced ICT use in HE. Due to the exploratory nature of this study, qualitative research approach is relevant (Braun & Clarke, 2013). The approach enabled the researcher conducting in-depth investigations in natural settings to discover barriers to using ICT in HE in Indonesia (Creswell, 2009).

The term ICT refers to an online teaching platform hereinafter referred to as E-Learning. Research subject was lecturers at a private university in Indonesia, in the Department of Management and Business. Twenty one lecturers were involved as research participants. To identify barriers to using ICT in teaching and learning, semi-structured-individual interviews were conducted to collect primary data. A single main question used to explore participants' answers was "what are factors hinder your E-Learning use?". In accord with Braun and Clarke's (2013) statement that interviews should be conducted in a location "in which the participants feel comfortable and safe" (p. 91), the participants selected the venues for their interviews. All participants chose their workplace as a suitable venue. The semi-structured interviews enable probing for deeper understanding. Consequently, there were significant variations in the duration, ranging from 50 minutes to one and a half hours. The researcher used an MP3-audio recorder and the voice recorder function on a mobile phone (for backup) to record the conversations. The researcher applied three guidelines—plain language statement, consent, and confidentiality—to ensure the ethical treatment of participants in this research study. The researcher used three steps of qualitative data analysis: data reduction, data display, and conclusion drawing (Miles et al., 2014). In the data reduction process, the researcher selected, simplified, and transformed the raw case data taken from interview transcripts into codes and then categories (Miles et al. 2014). The researcher then organised and assembled the information, made interpretations, and drew conclusions. In this chapter, data is displayed in tabular forms and narrative.

**IV. RESULTS AND DISCUSSION**

The analysis identified 16 codes that indicated barriers to using ICT in teaching and learning at UMY SB. Table 1 shows that the codes can be classified into three categories: Lecturers' ability in using ICT, Lack of time, and Lack of organisational support.

**Table 1.** Barriers to Using in Teaching and Learning in Indonesian HE

<b>Codes</b>	<b>Categories</b>
1) <i>computer illiteracy</i>	1) Lecturers' ability in using ICT
2) <i>in sufficient time</i>	2) Time (Lack of time)
3) <i>busy</i>	
4) <i>need time</i>	
5) <i>Internet connection</i>	
6) <i>bandwidth</i>	3) Lack of organisational support
7) <i>lack of technical support</i>	
8) <i>slow response</i>	
9) <i>rarely updated software</i>	
10) <i>inadequate number of computer</i>	
11) <i>the E-Learning on and off</i>	
12) <i>lack of ICT staff</i>	
13) <i>lack of training</i>	
14) <i>need to upgrade ICT knowledge</i>	
15) <i>no continuous training</i>	

Computer illiteracy was found as a barrier. It referred to efforts to understand how to use ICT effectively in teaching and learning. A comment from one academic staff indicated that some lecturers were still computer illiterate, especially in the use of the online teaching platform or E-Learning. "I see some barriers. First is lecturers' computer literacy" (Anwar IBS14). Three participants (14 per cent) reported a lack of time as one of the factors hindering the use of E-Learning platform in teaching and learning. They reported having a lack of time for preparing course material, such as making slides using PowerPoint™. One participant underlined that lecturers had a lack of time to integrate ICT in their teaching activities, including teaching preparation. In addition, other participants reported that they lacked the time to review students' online tasks via E-Learning platform. "If we give online tasks via E-Learning, we have to allocate time for correcting the tasks. I have tried in Business Plan. It was not easy. Sometimes I have no time to open it [the student task]. For me, time becomes my problem. It becomes my barrier to using eLearnin" (Hasrin IBS7). The data analysis indicated that lack of organisational support was the major barrier to using ICT in teaching and learning. This factor could be distinguished into four barriers, slow access to the Internet due to poor bandwidth, inadequate ICT

infrastructure, lack of technical support, and lack of training.

#### V. CONCLUSION

Data gathered from interviews at an Indonesian private university produced some thought leading to results with respect to the issues associated with ICT use in teaching and learning.

- a. The academic staff reported factors related to organisation, including lack of training and lack of organisational support as their barriers to using ICT in teaching and learning. Inadequate bandwidth, which resulted in slow access to the Internet, was a major problem faced by participants. This problem has hindered the academic use E-Learning platform in teaching and learning.
- b. The study also found factors related people which is lack of time (ability to manage or allocate time to integrate ICT/E-Learning platform in teaching and learning) as another barrier.

However, the analysis found that regardless of barriers, such as inadequate bandwidth and lack of ICT infrastructure, the academic staff demonstrated high willingness to use ICT in teaching and learning.

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