THE IMPACT OF ICT USAGE TOWARDS LEARNING PROCESS QUALITYAMONG LECTURERS ON SELECTED PRIVATE UNIVERSITIES IN MEDAN, INDONESIA

by

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LIST OF ABBREVIATIONS

APJII	Asosiasi Penyelenggara Jasa Internet Indonesia
ICT	Information and Communication technology
KMO	Kaiser Meyer Olkin
UGT	Uses and Gratification Theory
UMA	Universitas Medan Area
UMSU	Universitas Muhammadiyah Sumatera Utara
UPPB	Universitas Pembangunan Panca Budi
VIF	Variance Inflation Factor

LIST OF SYMBOLS

α	Significance level
B	Coefficient regression
e	Residual
N	Population size
n	Sample size
p	Significance value
R	Coefficient correlation
R^2	Coefficient determination
S	Standard deviation
X	Independent variables prediction
Y	Dependent variables prediction

Impak Penggunaan ICT terhadap Kualiti Proses Pembelajaran dalam Kalangan Pensyarah di Universiti Swasta Terpilih di Medan, Indonesia

ABSTRAK

Penggunaan ICT menyediakan suatu kejayaan bagi proses pengajaran dan pembelajaran di universiti. Universiti yang memiliki sumber ICT yang mencukupi akan memberikan perubahan yang besar terhadap proses pembelajaran dan peningkatan kepada pelajar. Walaup bagaimanapun, sebagai salah sebuah negara yang terbesar di Asia Tenggara, penggunaan ICT di Indonesia masih berada pada tahap yang rendah. Kekurangan sumber ICT ini berlaku pada pendidikan tertinggi di Indonesia, terutama bagi kalangan pensyarah. Pensyarah yang berfungsi sebagai pengurusan sumber manusia di universiti sepatutnya dapat memberikan suatu perkhidmatan dan mendatangkan manfaat di mana para pendidik perlu menguasai bidang dan kemahiran ICT. Penggunaan ICT yang rendah disebabkan oleh beberapa faktor seperti kekurangan kemahiran, pengetahuan dan motivasi. Oleh hal yang demikian, kajian ini dijalankan untuk melihat hubungan antara pengetahuan dan motivasi terhadap penggunaan ICT. Selain itu, kajian ini bertujuan untuk mengenal pasti hubungan antara penggunaan ICT dengan kualiti pembelajaran. Penyelidikan ini menggunakan reka bentuk penyelidikan kuantitatif dan data dikumpul dengan menggunakan soal selidik. Kajian ini melibatkan 260 orang responden. Data di analisis dengan menggunakan statistik deskriptif dan regresi. Hasil kajian menunjukkan bahawa motivasi dan tahap kemahiran ICT mempengaruhi penggunaan terhadap ICT dengan nilai signifikan sebanyak 0.000 dan seterusnya penggunaan ICT memberi kesan terhadap kualiti proses pembelajaran dengan nilai signifikan sebanyak 0.000. Hal ini dilihat sebagai suatu sumbangan dalam bidang pendidikan di mana ICT memainkan peranan yang penting dalam meningkatkan kualiti pengajaran seseorang pensyarah. Maka, wajarlah setiap universiti menitikberatkan perkara ini dan mengaplikasikan kemudahan teknologi yang sedia ada dalam setiap lingkungan.

The Impact of ICT Usage towards Learning Process Quality Among Lecturers on Selected Private Universities in Medan, Indonesia

ABSTRACT

The application of ICT is providing a great achievement for teaching and learning process in the universities. A higher education with adequate ICT resources gained a substantial alteration in the learning process and improvement for the learners. Nevertheless, Indonesia is the largest country in Southeast Asia is classified as the low use of ICT. A shortage of the ICT establishment is occurred in higher education in Indonesia, especially for the lecturers. Lecturers as the human resources management in universities should be able to produce services for the needs of higher education customers. Whereas ICT is potentially turning the substantial changes and benefits, thus the educators have to master ICT knowledge and the competencies. The small use of the technology is due to the occurrence of the digital divide which is caused by several factors, namely the inability to operating, caused by lack of skill or knowledge, and motivation. Therefore, the study is conducted to discover the relationship between the knowledge and motivation towards the use of ICT. Also, the study is arranged to identify the relationship between ICT usage and the learning process quality. The research employed the application of the quantitative research design and data collection through a survey questionnaire. A total of 260 respondents participated in this study. The statistical techniques which are the descriptive statistical analysis and regression analysis methods were employed to analyze the data. The result reveals that the motivation to use ICT and knowledge level of ICT have the contribution towards the utilization of ICT with both significant values as much as 0.000. Then, the use of ICT also has a great impact towards learning process quality with significant value as 0.000. The outcome of the study gives the contribution in term of education. The results show how the role of ICT in the quality of a learning process and education through lectures. With the evidence of the significant relationship between the utilization of ICT towards learning process quality, hence the university should apply this technology in a circle.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter will illustrate base description regarding the field of study in this research project. It consists with background of the study, problem statement, research questions, research objectives, scope of the study, significance of the study, and organization of the thesis. At the end of this chapter, all the element that consists in chapter one will be summarized.

1.2 Background

ICT (Information and Communication Technology) contains all technical devices used for facilitating communication and dealing information, including computers, network hardware, communication lines and all the necessary software (Ahmed, 2016). ICT can be assigned as getting information to personal life such as information about health, hobbies, recreation, and spiritual, and for profession sector namely science, technology, trade, business, and news of the association profession (Gulhane, 2016). Globalization that supported by technological advances and information has made the distance limitation no longer a barrier (*i.e.* borderless) (Umara & Hassan, 2015).

Through this technology, communications were well improved, in particular for communities previously isolated from the rest of the world or even the rest of the country they reside in (Jere, Thinyane, Boikhutso, & Ndlovu, 2013). Less than ten years, the Internet in Indonesia began to be known not only to the students but also the public. Along with that, the Internet technology industry in various fields is growing rapidly (APJII, 2015).

Industrial Internet technology is to develop not only any aspect of the technology (such as Broadband wireless access) but also the technical infrastructure (access speed, application), physical infrastructure (devices to access the Internet such as tablet PCs, smartphones) and to develop the market (APJII, 2015). According to APJII (Asosiasi Penyelenggara Jasa Internet Indonesia), in 2015 the majority used the Internet in Indonesia in trade and services sectors. The results showed that Internet users in almost every province, the majority of activities are in the business sector is as much as 31.5%, the service sector as much as 26.1%. However, there are only 8.3% activities was in the education sector (APJII, 2015). In 2014, the Ministry of Communications of Indonesia conducted a survey of ICT access and used indicators of the household sector, led nationally by Badan Litbang Kementerian Komunikasi dan Informatika. The household population used as a method of sampling amounted to 9,680 households with a 95% confidence level and margin of error estimation of about 1%. According to the survey, 25% of households own a computer, 22% of households have Internet access, and mobile phone (83.20%). Based on the type of respondent workers, government employees/military/police have the highest proportion (58.6%) and college students (42.6%) (Kominfo, 2015).

According to Hermana (2014), Indonesia is included in the group of countries that have a low use of ICT as stated in Table 1.1. Some substantial population countries such as China, India, Indonesia, and Pakistan are countries that have low ICT users. This circumstance was indicates that in the given country distribution of computer and Internet users which are not evenly distributed (Hermana, 2014).

Table 1.1: The intensity level of ICT usage in Asia

No.	Country	Level of ICT usage	No.	Country	Level of ICT usage
1.	South Korea	Very High	20.	Philippines	Low
2.	Singapore	Very High	21.	Mongolia	Low
3.	Taiwan	Very High	22.	Palestine	Low
4.	Japan	Very High	23.	Jordan	Low
5.	Hong Kong	Very High	24.	Oman	Low
6.	Malaysia	High	25.	Thailand	Low
7.	UEA	High	26.	Kyrgyzstan	Low
8.	Bahrain	High	27.	Syria	Low
9.	Macao	High	28.	Sri Lanka	Low
10.	Israel	High	**29.**	**Indonesia**	**Low**
11.	Saudi Arabia	Intermediate	30.	India	Low
12.	Qatar	Intermediate	31.	Vietnam	Low
13.	Kuwait	Intermediate	32.	Pakistan	Low
14.	Brunei	Intermediate	33.	Yemen	Low
15.	Lebanon	Intermediate	34.	Cambodia	Low
16.	PNG	Low	35.	Myanmar	Low
17.	Maldives	Low	36.	Nepal	Low
18.	Iran	Low	37.	Bangladesh	Low
19.	China	Low	38.	Laos	Low

(Source: Hermana, 2014)

ICT is developed to solve particular problems that people deemed to be important and has proven to be powerful support in addressing a broad range of issues in education and other fields (Moursund, 2005). Education is one of the areas that touched on the impact of this development of information technology. As an unlimited source of information, the Internet is used as a source of learning in education. Even some major universities were proclaimed of new learning system from this network-based technology, such as the concept of distance learning, web-based education, and e-learning (Adri, 2008). ICT has been incorporated in compulsory schooling, and an increasing number of detailed qualification examinations have been established in recent years (Kohzaki, 2015). In the same way, Cannell (2013) stated that learning through networking on the Internet is an effective method for reinforcing learning and that the increased access to information is beneficial for educational purposes.

As seen in today the use of ICT in education has caused introduction substantial changes for learning. Firstly, the rich representations, the broad distribution and easy access to information, and changes human beings' earning life. Also, ICT plays new and innovative modes of learning at all educational levels (Lee, 2001). All of these changes evidence that ICT is becoming an integral element of educational reforms and innovations in current society and education is reaching an age of e-education (Zhiting & Hanbing, 2001). Similarly, Ansah (2013) agreed that ICT has brought many benefits to higher learning institutions and it is evident that any university shunning ICT is imperiling its survival.

However, according to Minister of Research Technology and Higher Education, Mohammad Nasir, the quality of education in Indonesia is still left behind from other ASEAN countries, such as Singapore and Malaysia, and this condition raised a concern (Redaksi-Campus, 2015). The current quality of education in Indonesia was in bad condition, so higher education priorities were focused on improving the quality and relevance, especially for the lecturers (Redaksi-Campus, 2015). Countries in Southeast Asia can be classified into three stages of ICT development. Some countries are already integrating the use of ICT in the higher education system (e.g., Singapore). Others are starting to apply and test various strategies (e.g., Brunei, Malaysia, the Philippines, and Thailand) (Hong & Songan, 2011). Singapore can implement sophisticated systems based on its fully established infrastructure and facilities. The success of Singapore's ICT in education effort was mainly structured upon the successful training of educators to work in an ICT-enhanced environment made Singapore are classified as high-income countries (Hong & Songan, 2011; Nessipbayeva, 2013).

On the other hand, Malaysia and Thailand are upper-middle income countries, while Indonesia and the Philippines are classified as lower-middle income countries (Hong & Songan, 2011). In Malaysia, ICT has a central role in maintaining the quality of higher education, and it will be a basis for the competitive advantage of the universities (Arokiasamy, 2012). However, the development of ICT in the institution of higher education in Indonesia is a minus value of the use of ICT (Perbawaningsih, 2013).

According to Sumarno (2012), the quality of the higher education system can be seen based on the dimensions of the elements are interrelated, which includes the quality of the system upstream, inputs, major work processes, output, leadership system and professional life. Quality inputs related to the quality of human resources, funding, tools and equipment, buildings and land, energy, and information. Human resources were classified into the input of students, lecturers, and employees (Sumarno, 2012). Higher education issues that need attention include the educational qualifications of lecturers, and their commitment to research is still low (Sumarno, 2012; Riksana, 2011). The competence of educators very sued for being able to improve the quality of the learning process continuously. An understanding of the knowledge management is fundamental as framework improvements. Later, need to search for information about aspects that need to be fixed, so implementation of the learning process can be increased (Suharsaputra, 2015).

Quality education in the construction of a country is a necessity. Through quality education will be resulting human resources quality and competitive power as one row of the input process of development. Without quality education, the purpose of the construction of a nation cannot be realized properly (Sauri, 2015). The quality of human resources and the competitiveness of nations closely related to the quality of national education, while the national education influenced by the development of education. Thus, to improve these conditions should be addressed by improving the quality of education and professionalism of education managers (educators, especially lecturers) (Sauri, 2015).

Human resources management in universities for carrying out its functions needs to set a standard of work quality of lecturers. It means a lecturer should be able to produce services by the needs of higher education customers (Sauri, 2015). Arwildayanto (2012) also said that lecturer professional competence related to the mastering of the material, structure concept, and the mindset of science. An educator is to be charged in mastering standard subjects competence and utilizing information and communication technology to develop them (Arwildayanto, 2013).

Reiser and Dempsey (2006) explained that the use of technology in the learning process involves the use of a computer, projector, power point, e-mail, online tutorials, any of application on the websites, blogs, and the Internet. Complementary to this, Cannell (2013) agreed that there is positivity about transforming teaching and learning by using technology effectively. Ayu (2011) explained that lecturers would be able to add their knowledge in preparing lessons by using a computer and the Internet. With the Internet, lecturers easily get a reference for the purposes of making syllabus, implementable curriculum, and others. Even lecturers are also able to present an active learning material such as videos and animations, either in the form of content material, evaluation, and quiz.

The Internet has a profound influence on improving the quality of educators. By using the Internet, lecturers will be able to enrich their information and knowledge for teaching. Indirectly, it will increase their quality. Improving the quality of lecturers will also improve the quality of education (Chotimah, 2011).

In this day, the ability to use ICT has become a requirement for the public. Everyone should be expected to have the capacity to using ICT, this is due to the need for ICT itself is on the rise, thus demanding peoples (the public) to be able to use it (Syastra, 2014). Knowledge level of lecturers in using ICT can be seen through their creativity in ICT as well as variations in the number of ICT tools used in and out of a classroom. The impact of the use of ICT in teaching is increasing competence and confidence lecturers to transfer knowledge, not only in teaching activities but also in research (Floria, 2015).

To appropriate a new technology one should first be motivated to use it. When sufficient motivation is developed, one should be able to acquire physical access to a computer, the Internet or another digital medium (Dijk, 2012). Positive attitude towards ICT is a must and also an added advantage to the implementation of ICT-related programs (Kandasamy & Shah, 2014). Successful use of information technology is highly dependent on the technology itself and the level of expertise of individuals who operate it. To determine the functional purpose and important aspects of the interaction of information technology requires the ability and level of knowledge (Akbar, Ratnawati, & Novita, 2010).

The ability of lecturers in utilizing ICT in the learning process is still low. It can be seen from the lack of lecturers who can operate computers and the Internet. Whereas in this era of globalization now use or utilization of the technology is essential, given the high use of technology in a society also reflect the educational level of the community itself (Mugara, 2011).

Competence of human resources (i.e. lecturers) associated with the acquisition of ICT is still inadequate. This circumstance makes improving the quality of learning process through ICT is still not running optimally (Ali, 2009).

1.3 Problem Statement

From the above section, the study determines the problem statement as the limitation of ICT usage in Indonesian higher education institutions among lecturer for their learning process quality. Supposedly, lecturers can use ICT such as: present a dynamic learning material such as videos and animations, either in the form of content material, evaluation to improving their learning process quality (Ayu, 2011).

With this emerging technology, lecturers should take advantage of it to increase their quality of teaching and learning process such as increasing their knowledge from the Internet. Because the Internet is an unlimited source of information and has the latest information (Chotimah, 2011, Lestari, 2011; Rahardjo, 2001). However, use of this technology is still low among lecturers (Elvi, 2015). In accordance to Hermana (2014), Indonesia has a low level of ICT usage, comparing to other Asian countries. As stated by advisor to the Minister of Education and Culture Sector Higher education, Paulina Pannen, many of lecturers are still inadequate to use ICT namely developing Internet-based education, both in using technological devices, or using software and social media (Elvi, 2015).

In Indonesia, the low-level of ICT usage may be exacerbated by the occurrence of the digital divide (Hermana, 2014), which is caused by several factors, namely: inability to operate a variety of existing information technology (Zulham, 2014), caused by lack of skill or knowledge (Yulfitri, 2008), and motivation to use (Dijk, 2012). This study will be conducted in Medan, Indonesia. Medan is the capital of the North Sumatra province of Indonesia, located on the northern coast; Medan is the fourth largest city in Indonesia behind Jakarta, Surabaya, and Bandung, and the biggest Indonesian city outside Java. The population of the city in 2012 reached about 2.1 million inhabitants (Siahaan, 2011). However, there is an inequality of educational quality between universities in Java, and outside Java, universities outside Java is still lagging far behind than the universities in Java (Putri, 2015). In 2014, Internet usage penetration in North Sumatra reached only 25%. Compared to other provinces in Sumatra, namely: Aceh, West Sumatera, Riau, etc., penetration of Internet usage in North Sumatra is still relatively low (APJII, 2015).

1.4 Research Objectives

Based on the background, there is a gap between expectation and reality. Lecturers should be able to use ICT to find out sources for their teaching, as a media to communicate with students, tool to evaluate student performance, and as a teaching tool. But reality, rarely to find lecturers in Indonesia who could be able to use ICT as explained before. Consequently, the use of ICT cannot be used to raise the quality of Indonesian higher education.