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A STUDY ON LECTURERS' SELF-EFFICACY IN USING TECHNOLOGY IN THE CENTRE OF FOUNDATION STUDIES, UiTM DENGKIL CAMPUS

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ABSTRACT

It is undebatable that technology adds advantages in teaching and learning and there is a need to prepare the younger generation and encourage them for changing work, social and cultural environments. This study investigates the level of self-efficacy in technology use among the lecturers at the Centre of Foundation Studies, UiTM Dengkil Campus, Selangor and the relationship between self-efficacy in technology use and the use of technology in classroom. The study also seeks explanation for the reasons to the use of technology in classroom among the lecturers. It applies both qualitative and quantitative approach to observe lecturers' self- efficacy in using technology in teaching. Six-Point Likert-scale questions developed from Technology Proficiency Self-Assessment Scale (TPSA) were administered amongst 51 lecturers. Collected data from the survey was then prepared for the statistical procedures using Statistical Package of Social Science (SPSS) Version 2.0. It is found that there are significant correlations between lecturers' self-efficacy in technology use and the application of technology in the classroom (r=0.413). The finding obtained from this study concludes that increases in self-efficacy are correlated with the use of technology in classroom. This study finally concludes that there is a need for lecturers to equip themselves with the current technology advancement and to apply it in the process of teaching and learning to create a more meaningful learning environment.

Keyword: Lecturer's self-efficacy, technology proficiency, technology in education

INTRODUCTION

Numerous efforts have been taken by the government to upskill the lecturers in technology and digital knowledge to create a productive classroom and amplify the effectiveness of students' learning. This allows the lecturers to make themselves relevant to the rapidly progressing pedagogical approach. Using technology in classroom is important to give a positive impact on students' learning. Students may likely have a high level of technology self-efficacy if the lecturer has as well, hence creating a more conducive learning environment to the students. A study discovered that students would use computer and online platforms if they feel confident in using technology in the classroom [1]. Another study showed that students not only felt the learning efficiency increment when accessing information, but also highlighted that the use of technology in classroom benefited them better in the workplace [2]. They agreed that most traditional learning methods like using textbooks and whiteboards could not deliver the lesson the same way as the advanced learning approaches.

Self-Efficacy

Bandura studied self-efficacy as the psychology of procedures that change one's confidence, beliefs and ability [3]. When it comes to self-efficacy, one is able to deduce whether an action should take place, how many attempts should one strive and how long the strive is sustained when dealing with drawbacks and complications. Other people's concern about an individual's capability has not affected on him or her, but rather the personal belief that he or she can perform a challenging task is measured. Threatening situations are feared and avoided if individuals believe that they exceed their capability, whereas those who have faith in themselves will behave assuredly to perform necessary activities. Those who doubt their capabilities may have the tendency to give up on a difficult task, as opposed to those who have higher self-efficacy who would put more effort and strive harder [4]. Thus, a good quality work performance may not be achieved without high self-efficacy.

A study that focused on sport competition examined the athletes' self-efficacy when they lost the game [5]. Their low self-efficacy was reflected by a stream of misery with statements like "I stink" and "I don't belong in the field". The researchers believe that one's strong and consistent self-efficacy is needed to sustain the effort put in work and the success that may follow, and this can be possible when he or she develops and improves his or her skills and undergoes changes to meet the demands of his or her functioning workplace. For example, the athletes in would have had a much positive level of self-efficacy if the people around them (relatives, coach or spectators) could boost their confidence after the loss. Later research made a connection between their perceived control model with Bandura's self-efficacy theory [6]. The model, which includes three beliefs (strategy, capacity, and control beliefs), looks at the ability to put effort in strategizing an individual's work performance, guided by a strong control belief and capacity belief that he or she can produce work accomplishment. Self-efficacy is mirrored by 'I believe I can do this' capacity belief.

Lecturer's Technology Self-Efficacy

Information and communication technology (ICT) in education is a system which is implemented through a systematic effort to modernize the education, and there are efforts to develop the information society [7]. There is positive relationship between ICT use in teaching and the students' achievements. The usage of ICT during lessons conducted in classes has improved the learning outcomes of students. Hence, the use of ICT should be recognised by all teachers in order to enhance students' achievement in academic [8].

It is significant to understand the lecturer's self-efficacy with respect to numerous instructional practices [9]. The higher the level of technology self-efficacy among lecturers, the more inclined they are to accept transformations and choose the best option in teaching. As the Internet became more vital in our daily routines, it also impacted the teaching and learning process [10]. Lecturers admitted that students are more interested and engaged when completing assignments using internet by providing them different choices, increasing their level of interest, and providing opportunities relatable to their experiences. While a survey found that most new teachers have challenges in using technology in their first years of teaching [11], another survey proved that many new teachers now are digital natives and have grown up using technology and they have high confidence in applying technology in their daily routines [12]. Relating efficacy for technology use in classroom especially in selecting appropriate tools used should be explored further in order to enhance teaching and learning.

Therefore, creating a conducive learning environment to the students should start by having lecturers with high technology self-efficacy. A successful use of technology in classroom can be seen when the goal of a lesson is met after using certain applications or when tools and resources run smoothly in classroom. This, in turn, strengthens their technology self-efficacy even more, to the extent that they would consider using technology in other classes. However, if the method fails due to some external challenges or not fully utilizing technology, self-efficacy in using technology can be weakened. They may face failure in transforming classes and are unable to align with learning goals, making integrating technology into curricular content more difficult.

In this study, lecturers' technology self-efficacy and the use of technology in classroom are two important variables for lecturers to achieve best learning environment. Therefore, the main purpose of this study is to investigate the statistical relationship between self-efficacy in technology use and the use of technology in classroom. Three research questions were constructed as to guide this study:

1. What is the mean score of lecturers' self-efficacy in technology?

2. What is the mean score of technology use in classroom amongst the lecturers?

3. Is there any significant relationship between lecturers' self-efficacy in technology use and the use of technology in classroom?

METHODOLOGY

The main aim of this study is to investigate the level of self-efficacy in technology use and the correlation with the use of technology in the classroom amongst the lecturers at the Centre of Foundation Studies, UiTM Dengkil Campus, Malaysia. To achieve the research objective and research

questions of this study, both quantitative and qualitative procedure were employed for data collection and analysis.

A set of instruments consisting of demographic data and six-point Likert-scale questions developed from Technology Proficiency Self-Assessment Scale (TPSA) was administered amongst the respondents. Christensen and Knezek presented self-efficacy as 'confidence in one's competence' to operate this instrument [13]. This instrument comprised 38 items measured on a 6-point scale, 1 being "strongly disagree" and 6 being "strongly agree". The items were organized as follows: a) items 7, 8, 10 and 11; referring to email; b) items 12, 15 and 16; referring to World Wide Web; c) Items 18, 19, 20 and 21; referring to integrated application; and d) items 23, 24, 25 and 26; referring to teaching with technology. Cronbach's Coefficient Alpha was used in order to measure the reliability of the instruments used. The reliability of the instrument was established and the results proved that the instrument was reliable (α=.951).

To improve the sampling process, 51 lecturers were randomly selected from the Science Faculty (Physics, Biology, Chemistry and Mathematics), Law Faculty, TESL department, Academy of Contemporary Islamic Studies (ACIS) and Akademi Pengajian Bahasa (Academy of Language Studies, APB). From the survey, 11 lecturers were below the age of 30, 34 between the age of 31-40, 3 between the age of 41-50, and 3 over the age of 50. Data collection tool was performed using Google Form that allowed each respondent to answer in 10 minutes. Collected data from the survey was then prepared for the statistical procedures using Statistical Package of Social Science (SPSS) Version 2.0. To support the survey, a brief interview session with a small selection of the respondents was then conducted to further discuss on their survey responses.

RESULTS AND DISCUSSION

From the survey, the mean score of lecturers' self-efficacy in technology use is derived from Table 1.

Table 1: **Lecturers' Perceived Self-Efficacy in Technology Use**

Responses	*r*	%
Strongly disagree	6	0.31
Disagree	29	1.5
Do not know	166	8.57
Neither agree nor disagree	356	18.37
Agree	653	33.69
Strongly Agree	728	37.56

Table 1 shows that 37.56% of the lecturers perceived the highest level of self-efficacy in technology. The mean score is equivalent to 1.1765 (1 = high, 2 = low), which shows that most of the lecturers rated their perceived self-efficacy as high in technology use. This is similar to previous studies who found that many teachers are digital natives and felt confident in their ability to implement technology as part of the teaching and learning process [12, 14].

The survey also analysed the mean score of technology use in classroom among lecturers. The mean score is derived from Table 2.

Table 2: Technology Use in Classroom Among Lecturers

Teaching Field	No	Yes	Total
Physics	1 12.5%	6 14%	7 13.7%
Biology	0 0%	4 9.3%	4 7.8%
Chemistry	1 12.5%	3 7%	4 7.8%
Mathematics	3 37.5%	2 4.7%	5 9.8%
Law	2 25%	4 9.3%	6 11.8%
ACIS	0 0%	3 7%	3 5.9%
APB	1 12.5%	15 34.9%	16 31.4%
TESL	0 0%	6 14%	6 11.8%
TOTAL	8	43	51

As tabulated in Table 2 above, 43 lecturers responded "YES" to applying blended learning in-class application. The mean score is equivalent to 1.1373 (1 = high, 2 = low), which explains that they feel comfortable in using technology in their teaching and learning. They found it useful to apply technology in classroom as it helps to expedite the understanding of the students in certain chapters. It is also believed that when technology is applied, students are more engaged in the classroom. The use of technology such as flipped classroom will also allow lecturers to have greater insight into students' understanding of information and learning as a result of more inter-communication in classroom [15].

Table 3 below displays the statistical relationship between perceived self-efficacy and technology use in classroom amongst the lecturers. The findings showed that there was a positive and significant relationship between perceived self-efficacy and technology use in classroom ($r=413$, $p<0.01$).

Table 3: Correlation Between Perceived Self Efficacy and

Technology Use in Classroom Among Lecturers

		Perceived Self-Efficacy	Technology Use in Classroom
Perceived Self-Efficacy	Pearson Correlation Sig. (2-tailed) N	51	.413*.00351
Technology Use in Classroom	Pearson Correlation Sig. (2-tailed) N	.413*.00351	51

**Correlation is significant at the 0.01 level (2-tailed).*

An earlier study stated that "having a high computer self-efficacy among the basic preconditions for positive self-efficacy regarding the use of computers for instruction" will also lead to the usage of technology in classroom [16]. In fact, another study discovered a positive relationship between lecturers' self-efficacy and technology integration in their teaching approaches [17]. These lecturers recognize high technology self-efficacy a crucial component that allows them to provide a more effective teaching and learning environment, especially for today's generation that is making Internet an essential part of their lives. All this research provides a critical appraisal to the current study; the ability of the lecturers to display the various ways of applying technology in classroom (for example, adapting lesson plans to incorporate technological tools and engaging students to explore real issues digitally) starts by having high confidence in using technology.

Besides conducting the survey, the researchers also interviewed selected lecturers based on their responses from the questionnaire. When they were asked how they feel about their technological competency level, majority of the lecturers perceived their technological level as intermediate to advance. Besides sending emails and using search engines to subject matter, they also believe that they could use social media tools in classroom and evaluate students' work in various format. Lecturers realise that in this 21st century, it is a necessity to equip themselves with the technology that can be applied in classroom which will help the process of teaching and learning. Though most lecturers have high self-efficacy in technology use, they understand that they need to learn more about enhanced technology from time to time.

The lecturers were also asked how useful technology is in their teaching and learning. Most of them agree that there are three main advantages of applying technology in classroom. Firstly, technology helps teaching and learning more interactive. Students and lecturers can interact easier and with the application technology, students can get quick feedback from the lecturers [18]. Secondly, due to the availability of different platforms, technology in classroom can help to inject more creativity in the learning process. Contemporary technologies often bring new possibilities for people to be creative [19], thus allowing them to have better knowledge retention. Lastly, the use of technology in classroom helps to improve students' achievement as students can expand their knowledge and get better understanding [8].

Lastly, the lecturers were asked about the challenges that they had faced in using technology in classroom. Some responded that they fear their incapability to consistently adapt with the technological changes. This situation can be supported by earlier research who found that teachers' use of technology in classroom has been correlated with their belief in their ability to do so [20]. If the lecturer does not have confidence to apply the technology, the chances for the lecturer to apply the technology will be smaller. The lecturers believe that they had low self-efficacy in using more complicated tools and platforms such as creating wiki blog, data analysis tools and troubleshooting system applications. This, in fact, had affected their time, not just during class hours but also when preparing the lesson itself.

CONCLUSION

The current research was carried out to investigate the level of self-efficacy and the relationship between self-efficacy in technology use and the use of technology in classroom among the lecturers at the Centre of Foundation Studies, UiTM, Selangor, Malaysia. Using a set of questionnaires by Christensen and Knezek that comprises 38 items [13], the research is able to gather data that supports these two research questions. Evidence suggests that lecturers' technology self-efficacy can be an important predictor of pedagogical success in classroom and be a valuable and critical variable to be considered for professional development.

Firstly, this study provides explanation for the substantial and consistent research findings of the relationship between technology self-efficacy and the use of technology in classroom among the lecturers. The higher the level of perceived self-efficacy in technology, the more the lecturers use technology in classrooms. These results are certainly in support of a few research that showed a high self-efficacy in using technology in classroom and the positive impacts they bring to the students' academic development [12, 14, 21]. A lesson that utilizes technology in the classroom, used by both lecturers and students, can create a more effective learning environment for students, provided that the lecturers have intermediate level, if not advanced, technology self-efficacy.

Secondly, this study is able to explore the implications for future research. Because of the consistent research findings, the possibilities to extend the scope to other significant variables are immense. One variable is digital natives and digital immigrants. Future studies on technology beliefs from digital natives and digital immigrants could provide a more in-depth perspective about technology self-efficacy and they handle technology resources in classroom. Comparing the divergent response may provide better strategies for university leaders to "find a way to effectively communicate in order to better educate lecturers as to what currently exists to aid them in their instructional practice" [9]. Another variable is the different departments in the university. Explicit findings that compare the reasons for using or not using technology in classroom among the different departments (eg: Science and Social Science) could help provide a more concrete solution to encourage all lecturers to benefit technology in their lessons, regardless of their syllabus content.

Lastly, findings from this study could bring implications on lecturers' professional development. The most significant data suggests that there is knowledge gap in troubleshooting the system, which had made a few lecturers have low self-confidence to use technology for Blended Learning and future lessons. Lecturers must be trained to handle malfunctions in situations where they might mishandle the tool, to improve lecturers' belief in technology. This matter can be expanded further to observe how the lecturers react to difficulties and challenges when using educational technology, which can provide more accurate information about their perceived technology self-efficacy in their classroom. This, in turn, not only allows the lecturers to fully utilize technology for lesson developing and in-class use, but also to sustain an ongoing need for learning and relearning about technology.

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