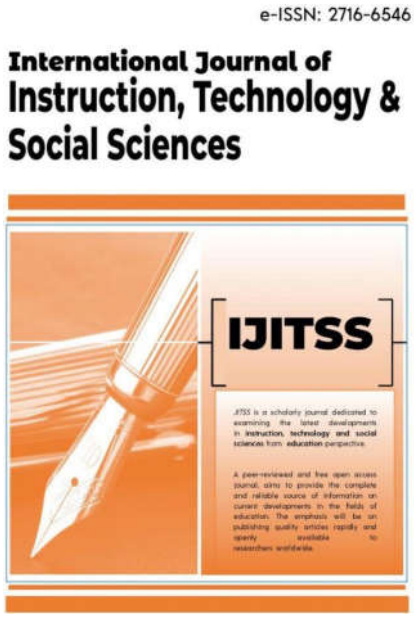

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Factors Affecting Successful implementation of Blended Learning at Higher Education

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Abstract

Studies have found that the use of blended learning in teaching and learning can improve the quality of education. In this regard, the acceptance of blended learning is considered critical in determining the success of the technology implementation. However, the number of studies that have been conducted to examine the acceptance of blended learning has largely focused on student's perceptions of blended learning. Few researches have considered teachers' perceptions as an important element in blended learning especially in Higher Education Institutions. It is questionable whether the technology acceptance models that have been previously developed can be used to examine the acceptance of blended learning by teachers in educational sector. Questions are also raised to the idea that perhaps there may be other factors that play important roles in this context. This concept paper investigates the influencing factors that affecting the adoption of blended learning based on UTAUT2 and TPaCK. A comprehensive understanding of this new framework can assist decision makers to identify the reasons for the acceptance or resistance of blended learning among teachers in the future and support them to enhance the acceptance and usage.

Introduction

The term "Blended Learning" (BL) is widely used in academic fields and has grown rapidly since the early 2000s. The need to embrace these new trends is essential for higher institutions. BL helps learners to increase their interest in learning and offer teachers to deliver the lecture and assess student learning using creative and innovative methods. Even though the utilisation of BL gives positive effect towards learners, without the support and acceptance of teachers, it is impossible to effectively implement BL in Malaysian higher education institutions (HEIs).

In this study, technology enhanced learning is seen as information and communication technology (ICT) used in educational contexts with the goal of improving learning and interaction among students. In addition, BL in this study is primarily applied in a virtual learning environment (VLE) where the VLE is an adapted version of the Moodle platform. Hence, the aim in implementing BL is to build a richer learning experience for students by integrating face-to-face sessions with online activities. Despite the desire to combine the best aspects of both worlds the formula sometimes ends up with a combination of the two's worst features (Bonk & Graham, 2012).

Chen and Yao (2016) have pointed out a tendency in previous studies on BL which was to identify and discuss factors with a prime focus on technology. There are less studies on university lecturer's views of the implementation of BL. Several large-scale studies in education showed that teachers have

generally good digital skills and make use of technology frequently (OECD, 2016). However, this use is mainly limited to the preparation of lessons and to word processing, presentation, and information tools (European Commission, 2013).

Yeop et al. (2018) argued that lack of training in using ICT and not much support from school management is being as one of the stated reasons beside authenticity and validity of the information. The meaningful integration of technology as a tool to facilitate teaching and learning has been a challenge to many teachers around the world (Fraillon et al., 2014) and number of studies on the reason why teachers reject or accept technology is very limited (Yeop et al., 2018). Hence, the technology acceptance among teachers in Malaysia is still unclear and needs further study. Many prior studies were focussed on the acceptance of technology among students. Therefore, there is a need to study the factors that influence teacher's adoption and use of BL as a teaching method.

Problem Statement

A number of studies found that teachers are reluctant to use ICT and some do not use it effectively during the implementation of a new system where one of the common issues is resistance to change (Dashtestani, 2014; Nawi et al., 2012; Salim et al., 2018). The adoption level of each teachers to change are closely related to the failure or success of the implementation introduced. There is still unclear indication how the teachers' handle with all the changes even though the teacher had discovered an educational context that has substantial alteration and impacts the teachers' role (Smits & Voogt, 2017). A study conducted by Garrote Jurado (2012) found that teachers use VLEs mainly to distribute documents, send messages, and for course administration but no interaction and collaboration take place. In order to provide more understanding, additional research concerning teachers' acceptance and use intention is needed. Therefore, there are some issues and several factors according to Venkatesh et al. (2012) that have a significant influence on individual's intention to use or reject technology that need to be explored in order for BL to succeed.

A study by Villalon (2018) concluded the importance of systematic technology training, instructor's expertise with technology, and knowledge of course content for the implementation of the BL courses. Despite having all factors that are important for innovation adoption, in educational context, teacher's knowledge has not been incorporated. Batiibwe and Bakkabulindi (2016) claim that some factors such as knowledge was not present in most of previous studies of the use of innovations. According to Omaswa (2014), perception related to the use of ICT among academic staff was low despite e-learning being a powerful tool for strengthening teaching and learning capabilities. This problem arises due to lack of acceptance of technology by teachers on TPaCK knowledge (Mishra & Koehler, 2006). Ertmer et al. (2012) also agree that the strongest barriers that hinder teachers to accept and use technology were their current level of knowledge and skills. The more knowledge they have, more likely they accept and use the new approach.

Most previous research only focused on either technology adoption or knowledge factors among teachers separately. In educational context, teachers are taken as the main player in teaching environments that use ICT. Therefore, their knowledge factors as described by Mishra and Koehler (2006) should be considered important to be added in technology acceptance (TA) theories. These knowledge variables have been conceptually identified but yet to be empirically tested. This conceptual paper believes that this aspects of new variables in TA serves as the novelty and worthiness of the study.

Literature

BL means a harmonic combination between conventional learning and online learning, where both are the most essential modalities in promoting learning activities (Garrison & Vaughan, 2008; Riley et al., 2013) There are various with value added benefits for learners in BL environment in Malaysian HE context (Jones, 2016). Recently students are enjoying flexibility environment such as accessing the learning materials, preparing for incoming class, giving feedback and ideas, sending assignment and real time communication with students and lecturers in the borderless environment. Another study by Osman and Hamzah (2017) involving 248 students from University Sultan Zainal Abidin (UniSZA) revealed that the institute plays a major role and goes hand in hand in establishing BL as a learning tool of 21st century. Ismael Challob et al. (2017) studied on effectiveness of using BL method on English as a Foreign Language (EFL) student's writing apprehension and improvement. They found that the students' writing apprehension has not only improved significantly but as well as in their writing performance together with skills in various aspects of EFL writing.

A study was done among 129 Arabic learners in University Kelantan Malaysia on factors that affect students' interest in BL. Data analyses revealed that characteristic of lecturers, quality of information, quality of the system and technical supports plays a vital role in moulding the behaviour in using e-learning (Wan Daud & Ghani, 2019; Lateh & Raman, 2005). Similarly, a qualitative study by Kumar et al. (2020) regarding perception of postgraduate students on BL mode taught by lecturers in a reputed Malaysian university. The result indicated that students were very accommodating towards BL and brings a thoughtful reflection for teachers to adapt their teaching which creates more meaningful learning for learners.

On the other hand, a study by Win and Wynn (2015) found that half of the students disagreed on BL implementation in engineering and law subjects where 75% of them preferred to have traditional classes. Even though BL has offered a lot of benefits, majority of the students still preferred the face-to-face learning activities instead of online instruction. Therefore, despite the strong emphasis given to BL in education, little has been done to evaluate how prepared these teachers are to carry out this method (Rahman, 2014) up until a study pointed out that students preferred the traditional classes than BL method. One of the underlying concerns with faculty meeting the expansion of BL is the integral part of technology acceptance and the pedagogical practices in online instruction. Shepherd et al. (2007) posited that some teachers might have lack of confidence on their technical competence and knowledge which could adversely affect their perceptions about online teaching or integrating technology into the classroom. Even though the utilisation of BL gives positive effect towards learners, without the support and acceptance of teachers, it is impossible to effectively implement BL in Malaysian HEIs.

There is still unclear indication how teachers' handle with all the changes even though the teacher had discovered an educational context that has substantial alteration and impacts the teachers' role (Smits & Voogt, 2017). In order to provide more understandings, additional research concerning teachers' acceptance and use intention is needed. Most teachers have the confidence and are optimistic upon the capacity of ICT in improving the achievement of students learning (Mamat et al., 2015; Abdullah et al., 2013; Sailin, 2014; Hamid, 2011). On the other hand, they seldom practice ICT in their teaching activities (Hamzah et al., 2010; Raman, Don & Kasim, 2014; Sailin, 2014; Hamid, 2011; Wan Ali et al., 2009). It is a major issue to be solved on BL acceptance by the teachers in Malaysian HEIs. The benefit of using technology in education will not be effective since there is low teachers' acceptance of ICT and incapable to use ICT in a correct and optimum manner (Teo et al., 2015; Yahya et al., 2012). Therefore, according to Venkatesh et al. (2012), there are some issues and several factors that have a significant influence on individual's intention to use or reject technology that need to be explored in order for BL to succeed.

This study will be based on UTAUT2 model that strongly demonstrates the advantages of predicting technology acceptance and actual use. There are a few models on the acceptance and use of technology that have been used over the years by researchers, but none of them is more advantageous than UTAUT2

model that has been constructed by Venkatesh and colleagues (Oye et al., 2012). Venkatesh et al. (2012) explained that the UTAUT2 model improve in explaining behavioural intention (BI) from 56% to 74% and 40% to 52% on technology use respectively. These percentages were obtained from the same research data collection on behavioural intention of the real use of technology which strengthens the research model. In addition, despite all these high recognition on UTAUT2 model, Marchewka et al. (2007) and Alshahrani and Walker (2017) stated that the validity and reliability of UTAUT2 in the educational context needs further investigation. This suggests that further investigation can be undertaken to explore the use of UTAUT2 theoretical framework in educational context.

UTAUT2 is still new and has not been examined enough in Malaysia especially in educational context (Sharifi fard et al., 2016; Raman & Don, 2013). Moreover, none of the previous studies that employed UTAUT2 considered the level of knowledge factors related to teachers even though it has been used to evaluate teachers' technology acceptance level. Without any additional construct to differentiate technology acceptance between consumer and teachers, the accurate factors that influence technology acceptance cannot be achieved. Therefore, regardless of having few studies using UTAUT2 as their research model in educational contexts, UTAUT2 model may still be less appropriate and other variables should be counted to include in this model (Raman & Don, 2013).

There is no construct that specifically intended to address teacher's knowledge in technology, content and pedagogy as they are the expert in those areas (Batiibwe & Bakkabulindi, 2016). These components are important in educational sector especially for teachers, in order to construct students understanding and optimizing on what technology has to offer in HE. Bardakc and Alkan (2019) contended that different adoption models may be required to study the adoption of different technology services on the case of teacher's BI. Based on these empirical researches, the integration of other factors in UTAUT2 for better understanding on technology acceptance among teachers in Malaysia is crucial.

Some missing teacher's aspects such as knowledge, cognitive, and expertise were not stressed in the model. Teachers' cognitive aspect is essential when new technology is involved, since it influences teacher's decision-making and behaviour (Kramarski & Michalsky, 2010; Shin, 2013). Hence, cognitive aspect can be considered when looking into factors that influence teacher's technology acceptance. Mishra and Koehler (2006) suggested Technology Pedagogy and Content Knowledge (TPaCK) to be required as a significant field of teachers' expertise in 21st century learning environments.

The studies on the adoption of BL in Malaysia using UTAUT2 model specifically in teacher's perspectives have not been widely explored in education field (Arbaugh, 2014). Hence, there is a gap in the existing technology acceptance theories as UTAUT2 mostly used in consumer behaviour research and lacks in educational context. Therefore, the researchers tend to fill the gap by including another three factors related to teacher's knowledge into the main UTAUT2 model. The three additional factors are adapted from TPaCK model that developed by Schmidt et al. (2009). The conceptual framework (Figure 1) is mainly based on Venkatesh et al. (2012) and Schmidt et al. (2009) models that illustrates the proposed research model that consist of three determinants of TPaCK constructs.

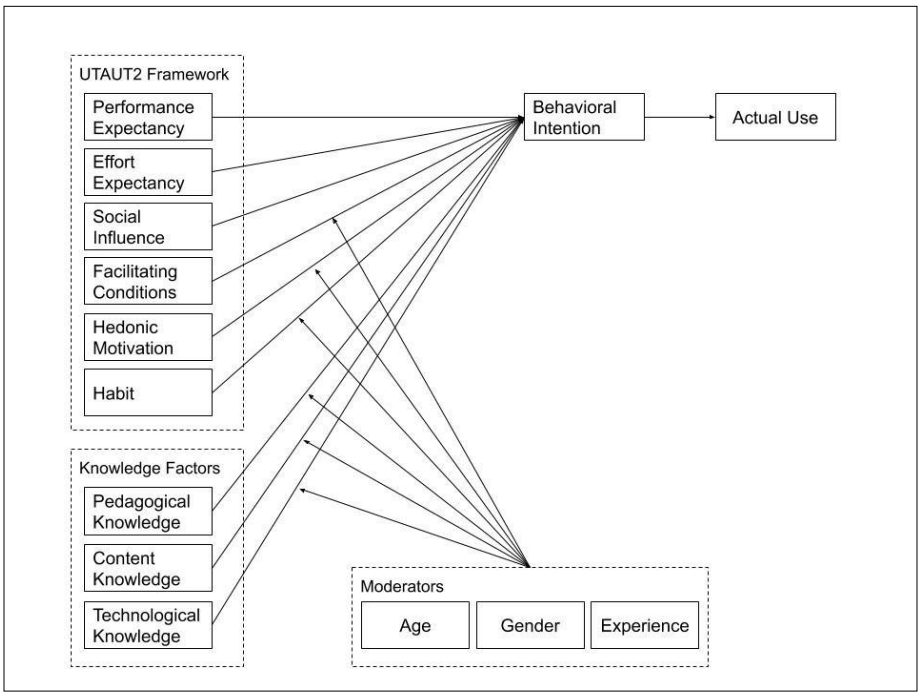

Figure 1. Conceptual Framework

According to Venkatesh et al. (2012) demographic variables do have moderating effect between the main variables and BI. These moderators such as gender, age and experience were used in number of studies that employed UTAUT2 model. However, the findings of moderators in previous researches seems inconsistent and many studies on BL did not address these factors as moderators (Villalon, 2018). Furthermore, Niehaves & Plattfaut (2014) have proposed to explore UTAUT2 models that combine the comprehensiveness of existing technology acceptance models with socio demographic variables such as education and experience and among older adults has it fail to defend its robustness.

Gender chosen as a moderator in the study due reported gender differences regarding usage of ICT behavior among teachers. Dang et al., (2016) claimed, males are more interested in such technology inclusion in instructions compared to females. However, Ateş Çobanoğlu (2018) reported a contradictory result regarding ICT usage among two genders. It will be valuable to include whether gender do moderates and affect the adoption of BL among teachers even though they do come from a same societal background.

Over the years, older citizens are increasingly becoming more technology savvy but they are still comparatively less than other age (Barnard et al., 2013; Magsamen-Conrad et al., 2015). Consequently, the study of ICT acceptance and use by older adults has become an increasingly relevant field of study (Altawallbeh et al., 2015) but still shows inconsistencies and lack of clarity (Macedo, 2017). Yet to this date, no empirical examination has yet substantiated the relevance of age as a moderator, this study undertakes to explore the one of the role factors in moderating BI that affect the adoption of BL among teachers.

Referring to experience as a moderator, previous findings reveals that factors of the intention of use (Straub, 2009; Venkatesh & Davis, 2000), exert marginal effects in the prediction trees. Due to the absence of deepening analysis of this relationship, this study tends to explore further on the role of experience as a moderator in BI as the driving factors that affect the adoption of BL among teachers. As most of the studies resonates within students, it will be a great challenge to expand the scope of research attempting suggestions for educators to be employed in UTAUT2 model. It is important to

study the demographics of the users or potential users. This may assist the policy makers to identify specifics needs of various segments before applying new execution (Williams et al., 2015). These three demographics variables; age, gender, and experience are identified as an important moderator that need to be included in this study. Therefore, UTAUT2 model with additional factors adapted by TPaCK and three moderators will be used to identify the driving factors that affect the adoption of BL among teachers in Malaysian HEIs.

Discussion and Conclusion

The primary goal of this study is to assess technology acceptance on teachers' acceptance and use of BL. The review of the literatures in this research offers a clear description on the acceptance and use of BL particularly in Malaysian context of educational system. In addition, there are limited number of studies have been done to investigate the level of teacher's acceptance on the use of BL in Malaysia. Therefore, UTAUT2 model was chosen to analyse the data and has been found to successfully predict 70 % of the variances in BI to use a technology. In theoretical aspect, there are some missing components on most of TA frameworks in terms of knowledge factors.

Many studies have combined other models of TA to understand the acceptance of technology particularly in BL. A study conducted by Ateş Çobanoğlu (2018) integrated the TAM and Community of Inquiry (COI) on satisfaction for implementing BL in class. A study conducted by Huart et al. (2015) studied the faculty engagement with BL by combining TAM and TPB. Another study concerning the implementation of BL by Radovan and Kristl (2017) integrated COI and UTAUT. However, there is no combination between UTAUT2 with any other frameworks or model of TA in educational context in terms of teacher's knowledge. In analysing the studies conducted in the realm of higher education around the implementation or construct of TPaCK, each provide some type of awareness and in some cases suggestions on how TPaCK relates to the professional learning of higher education faculty. Furthermore, the researcher believes that this model integration between UTAUT2 and TPaCK would help to answer the problems arise.

Hence, this research model is trying to strengthen UTAUT2 model by integrating it with TPaCK model. This might be the critical success factors in educational context in Malaysia HEIs. Understanding which factors have the strongest significant influence on the BI to use BL will help curriculum developers and professional training developers in designing better and useful teaching and training strategies. It is believed to play a role that can contribute towards increasing awareness among education administrative and practitioners (Raman, Chang & Khalid, 2015; Thannimalai & Raman, 2018) on the potential of BL. It is also hoped to strengthen the BL implementation in Malaysian HEIs. Furthermore, in terms of ICT integration, the implementation of BL is closely to aligned with Malaysian HE reforms objectives. Thus, this conceptual paper will be of great significance in enhancing the achievement of the country's related HE reform objectives. It is expected to contribute to the effectiveness of BL implementation and the quality of education for all universities in Malaysia or even in other countries that have a similar HE context.

As a conclusion, the main existing technology acceptance theories indicate that the successful of BL adoption cannot be described using a single theory of TA. Therefore, further modification of UTAUT2 with additional constructs that fit within the context of teacher and technology need to be considered.

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