Volume: 3 Issues: 12 [June, 2018] pp.62-73
International Journal of Education, Psychology and Counseling
eISSN: 0128-164X
Journal website: www.ijepc.com

EDUCATORS' ATTRIBUTES AND THE APPLICATION OF TECHNOLOGY IN ACCOUNTING CLASSROOM

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Accepted date: 08 April 2018 **Published date**: 28 June 2018

To cite this document: Dangi, M. R. M., & Saat, M. M. (2018). Educators' Attributes and The Application of Technology in Accounting Classroom. *International Journal of Education, Psychology and Counseling, 3(12),* 62-73.

Abstract: *With the recent important changes in technology and industrial requirement, it is vital for educators to formulate and redesign their teaching skills and to imbue themselves with technological knowledge, which are crucial elements for training the future generations. The ICT advancement has also changed the educators' style of delivery in teaching and learning as the virtual classrooms, e-learning, and blended learning are slowly but surely gaining a momentum. However, the potential gain of using technology in education is still not fully realised and utilised by educators. Therefore, studies are needed to identify the educators' attributes in using technologies and to examine how technologies are being used or can be used. In addition, numerous studies on the adoption of educational technology have been focusing on the perception and acceptance of technology issues, barriers, and attitudes towards technology. Moreover, most of the subject of the studies were children or student. Hence, research that focuses on educators, especially the attributes or characteristics that determine an educator's decision whether or not to adopt educational technology is still lacking. In this study, the authors demonstrate the association between the educators' attributes, namely behaviour, constructivist role, and discovery ability and the adoption of educational technology in accounting education; and discusses the institutional commitment and support as a moderator in the relationship. The proposed hypotheses for the framework and its theoretical explanation are discussed further in this paper.*

Keywords: *Accounting Education, Educational Technology, ICT, Technology Adoption*

Introduction

It has been a global phenomenon for a modern organisational setting to call for a workforce that is equipped with up-to-date skills in line with the advancement of ICT environment. Regardless of business settings, industry types, education system, or the professional field such as accounting, every business player is integrating technology into their practice to cater for the current trend, to fulfil business requirements, to prepare the students for the market demand and

to adapt with the changing environment (Yap, Ryan, & Yong, 2014). Babalola and Tiamiyu (2012) pointed out that the teaching and learning of accounting subject require a new age of educational practices by educators; shifting from the traditional method of information delivery towards a contemporary teaching and learning experience. Educators may use many types of technology ranging from a variety of media, hardware and software, animations, graphics, images, video, and data transmission equipment in delivering the content and application of knowledge to students whether in or out of the classroom (Guney, 2014).

Sweeder (2007) suggests that to stimulate teaching and learning process, educators should apply a systematic blending and creative use of product and technology ideas, which is termed educational technology. In this regard, the three elements—content, teaching processes and technology—are integrated to construct appropriate, context-specific strategies and representations by educators aiming for an innovative, efficient, and effective teaching and learning experience. Furthermore, recent development in the accounting field called for an extensive use of the latest technology including the implementation of complex accounting practices that need aggressive changes in learning and teaching of this subject (Dimitrios et al., 2013; Guney, 2014; Pan & Seow, 2016). The critical factors for the success of the implementation of technology in the educational environment are the full support and attitudes of educators since they play the major role in conveying the belief and values to the students (Breedt, 2015; Sabzian & Gilakjani, 2013). However, a question arises whether the higher education institution and educators allows adaptive skill and stimulates innovation in applying technology in teaching and learning to deliver the needs of the industry (Ishak, 2016). A lot of the existing studies on the adoption of educational technology focus on perception and acceptance of technology (Apostolou, Dorminey, Hassell, & Rebele, 2018), issues, barriers, and attitudes towards technology (Abrahams, 2010), and most of the studies' employed children or student as their subject (Brown, 2016; De Jong & Joolingen, 1998; Takaya, 2008; Schunk, 2012); however, similar study involving educators as subject is scarce.

Despite the huge investments of ICT in the educational institution all over the world, there is little evidence of ICT adoption among educators, which is far behind the business sector (Andoh, 2012; Koksal, 2013). Hence, it creates gaps between the educational institution and industrial practice in regards to technology usage and this inconsistency will create a conflict of a digital divide in the future (Yilmaz & Kilicoglu, 2013). Granted, some educators in the higher education institution had adopted the current trend and embraced and successfully merged technology into their teaching and learning process, yet there is still resistance from other educators and faculties who perceived this effort as a violation towards academic freedom (Buckenmeyer, 2010; Henard & Roseveare, 2012). Nevertheless, the reason for under-utilisation of technologies among educators is still unclear and requires deep understanding to study this phenomenon (Breedt, 2015). Besides, there is still a dearth of empirical findings in the literature regarding the use of educational technology, especially in the area of accounting education (Garza, 2011; Watty et al., 2014; Apostolou et al., 2018), and thus far the integration of ICT in the teaching and learning of accounting education in universities is still lacking (Rhodes, 2012).

Since education continues to evolve and technology has become the forefront for educators to deliver learning outcomes and transform instructional practices (Watty, 2014), hence, the key issue that currently bugging the research works in accounting education is to identify the extent to which an educator will adopt new information technologies (Babalola & Tiamiyu, 2012). Educators are deemed empowered to play a key role in the education ecosystem, therefore, they

are responsible to expose their students to the use of technology skills in the classroom (Deloitte, 2016). Therefore, without educators' active participation, the intention to integrate technology in the teaching and learning process would be unattainable. Despite this challenge, education institution still has to incorporate all available technologies to add value to the educational system, especially in anticipating the future needs (Evans, Buritt & Guthrie, 2015). The advances in technologies and current industrial needs are creating new scenarios and experience for both the accounting educators and students. Accordingly, this has become the fundamental motivation that propels this study. In particular, the objective of this study is to identify the association between educator's behaviour; educator's constructivist role; and educator's discovery ability to the adoption of educational technology in accounting education. Hence, the factors that inspire or the reason that inhibits accounting educators to adopt or not to adopt educational technology in the classroom could be determined as well. This study tends to propose a theoretical framework on the adoption of educational technology among educators in Malaysia that include instructors, tutors and lecturers who teach accounting courses in public universities. It is also expected that this study could have potential implications for the existing literature, particularly contributing to the educational technologies in accounting education field.

Literature Review

Educational Technology: The Next Big Thing in Accounting Education

It has been contended that the content of professional accounting education which is considerably remain the same for over five decades is inadequate for the future accounting professional (Fouché, 2013). There is a need for accounting education to develop intellectual capital pool emphasising on improving teaching quality, promoting research and development, and instilling the lifelong learning culture (Gomes, 2013). Thus, the current method of delivering knowledge in accounting requires a paradigm shift if the educators wish to remain effective. As the new generations of learners are being more exposed to technologies, they have different ideas, different needs, and demand innovative methods of learning the accounting subject (Gomes, 2013). In fact, some researchers found that applying technology in teaching accounting are deemed necessary to supplement the pedagogy (Dimitrios et al., 2013; Kiboss & Tanui, 2013; Grabinski, Kedzior, & Krasodomska, 2015; Yap et al., 2014). This is because, the role of accounting and accountants has changed and it is likely been affected by the context in which accounting operates; the influence of changing technology on gather, storage, processing and retrieval of data; as well as the summarisation of transaction data to produce financial statements (Wells, 2018). However, it has been highlighted by several researchers that accounting educators do not adopt the readily available technologies as a teaching strategy, despite having access to all the necessary resources (Breedt, 2015). In fact, a study by Rhodes (2012) found that there is no integration of current ICT and technologies in the teaching and learning of accounting education in the universities.

A study by Ahadiat (2008) indicates that the most frequently used technology in accounting education is the information technology such as E-mail, Internet, word processing, spreadsheet, presentation, and data analysis software. Moreover, it is very rare for the accounting educators to use audio technology while video technology is hardly ever used in this discipline. Basically, the accounting curriculum utilises application software packages that simulate records and process accounting transactions within the functional modules, such as accounts payable, accounts receivable, payroll, and trial balance (Ogundana, Ibidunni & Jinadu, 2015). However, the current trend is witnessing a rapid development and advancement of technology that requires accounting field to acquire relevant knowledge and skills in the application of present

technologies that is not only meant to meet the expectation of future employment but also served as an enhancement and value-added knowledge and skills among graduates and educators (Ogundana et al., 2015). Adopting technology in accounting education is seen as a fundamental needs to prepare the students for future industrial requirements. It is impossible to predict the future with a degree of certainty, therefore, educators, in particular, should undertake an endeavour to be well-informed of the latest technologies that continue to evolve. According to a report by Association of Chartered Certified Accountants [(ACCA), 2013], the future accountant must be ready for and anticipate technological changes so that they can prepare themselves to minimise the burden and maximise the benefits by exploiting technologies.

The Influence of Educator's Behaviour on the Adoption of Educational Technology in Accounting Education

The development and implementation of educational technology require the expertise of education developers and media producers as well as the enthusiasm of educators (McManus, 2015). The lack of engagement of educators seems to be one of the main obstacles contributing to the paucity of educational technology adoption in the classroom. This could stem from the educators' behaviour (Wyatt, Klenowski & Colbert, 2014) and attitudes (Albirini, 2006); they were resistant to change and some of them pointed out insufficient of time and high workload as excuses. This situation does not only hinder the integration of technology and education but it can disrupt the effort to produce highly skilled and knowledgeable students as the future workforce. According to Buckenmeyer (2010), when student achievement is regarded as the ultimate goal, technology can be an effective supporting tool to fulfil this objective. Hence, it is rather reasonable to assume that technology implementation by educators will lead to achieving the goal.

There are plethora of researchers studying educators' intention to integrate technologies in their teaching instructions (Breedt, 2015; Capo & Orellana, 2011; Lee et al., 2010; Teo, Lee, Chai & Wong, 2010; Smith, 2015) and these researchers had documented that attitude was found to be a significant predictor of intention to use technology. In other words, educators with a positive attitude are inclined to adopt technology in their teaching-learning process. In a similar vein, Balash, Yong, and Abu (2011) cited that educators' beliefs and skills are crucial in utilising educational technology in their teaching activity. This could also be affected by factors such as attitude, propensity, and commitment. On the other hand, Teo, Milutinovic and Zhou (2016) suggests that attitude towards behaviour can be defined as an individual's positive or negative feelings about performing a behaviour (e.g. using technologies), and subjective norms, which refers to an individual's perception to the extent that their behaviour ought to be performed because of the influence from other important people in the society. For instance, educators may think that using educational technology is important in teaching and learning because the leaders in their institution are explicit about the benefits of integrating technology into the education system. On the other hand, the perceived behavioural control described the perception of an individual on how easy or difficult it would be to perform a particular behaviour (Teo et al. 2016). Therefore, it is proposed that:

H1: *Accounting educators behaviour influences the adoption of educational technology in accounting education.*

The Influence of Educator's Constructivist Roles on the Adoption of Educational Technology in Accounting Education

The constructivist roles can be explained as new learners build their own knowledge instead of being transmitted by the instructor. For example, they choose and develop their knowledge through individual and social activities (Biggs, 1996). It is a sense where an individual creates their own novel understanding based on what they know and believe towards what comes into them (Richardson, 2003). Phillips (2000) states that the underlying concept of constructivist roles relies on the idea that knowledge is built and not acquired. In the same manner, Chrismastuti and Purnamasari (2015) posit that an individual with constructivist roles is eager to learn and find their own competence, knowledge, skills, technology, and any other things that drive him/her to develop their self. Accounting educators are therefore deemed learners if they take a concerted effort to develop themselves by learning new technologies to be applied in their teaching strategy. As technology evolves, an effective educator who adopts educational technology will subsequently evolve with the current technology in which he/she will deliver an effective, relevant content to his or her students (Humes & Raisner, 2010). Hence, accounting educators with constructivist roles will constantly try to cultivate their own ideas, experience, belief, and information according to their perceptions and will persistently update their own mental models to reflect new information to align with the reality (Olusegun, 2015).

It is important for educators to realise that the implementation of educational technology requires them to decide what technology fits in their classrooms; to explore the best practice; and exclude the elements that do not work, so that students' needs as learners can be fulfilled. Furthermore, they could find their own understanding and take ownership of the learning process (Humes & Raisner, 2010; Juniu, 2006). Prior studies have shown that there is a relationship between educators with constructivist instruction style and the technology used in the classroom (Judson, 2006; Gilakjani, Leong & Ismail, 2013). Therefore, it is perceived that accounting educators who are prone to constructivist teaching practice will be more likely to use technology in their classroom and integrate those technologies into their teaching practice than those who are not. Therefore, we propose that:

H2: *Accounting educators' constructivist roles influences the adoption of educational technology in accounting education.*

The Influence of Educator's Discovery Ability on the Adoption of Educational Technology in Accounting Education

Discovery ability refers to an individual action in obtaining knowledge for himself/herself (Takaya, 2008). Discovery involves constructing and testing hypotheses rather than simply reading or listening to others to gain information (Schunk, 2012). It is an active, hands-on style of learning where an individual actively participating in the learning process rather than passively receiving knowledge from the instructor (Brown, 2016). Meanwhile, Castronova (2002) describes discovery ability as an approach to learning that can be facilitated by certain teaching methods and guided learning strategies. For instance, the learning process took place within the individual, the teaching and instructional strategies are designed by the teacher, and the environment created when such strategies are used (Castronova, 2002). Thorsett (2002) suggests four components that instigate discovery ability to occur, namely curiosity and uncertainty; the structure of knowledge; sequencing; and motivation. These four components trigger the individual interest to discover new things and engage with the new environment. In this regard, an individual with discovery learning ability will take initiative to many current classroom practices including simulation-based learning, which is a role-playing opportunity in an artificial environment that allows students to practice or witness the application of complex skills and concepts (Lee, 2010).

There is a solid agreement among researchers who claimed that discovery ability is the most effective ways of promoting one's learning (Arifani, 2016). Moreover, many researchers described discovery ability as the individual engagement in self-directed, process-oriented, and exploratory environment towards learning. However, most of the previous research work revolved around children and students as their subject of interest (Brown, 2016; De Jong & Joolingen, 1998; Takaya, 2008; Schunk, 2012). Hence, thus far, the number of research conducted involving educators as subject, specifically in the accounting field is scarce. There is still much to explore in regards to individual discovery ability and it should serve as a means to define and provide a structure to the individuals' way of learning; thus acts as a guide for educational research (Thorsett (2002). Therefore, it is proposed that:

H3: *Accounting educators' discovery ability influences the adoption of educational technology in accounting education.*

The Moderating Role of Institutional Commitment and Support

Institutional commitment and support such as the governance and policy; training and mentoring; infrastructure; organisational support; and financial capability are the contributing factors that encourage the adoption of educational technology (Balash et al. 2011). The policy set up by a particular educational institution or even the government somehow will influence the reaction of communities within the institution. Any sudden formidable change in the traditional role of educators tends to stimulate some form of resistance (Koksal, 2013), frustration, and scepticism (Breedt, 2015). However, if the policies made are able to make wise of the selection and deployment of ICT and technologies, which is to enhance education for all, it could possibly influence an individual to employ such policy (Breedt, 2015). Training and mentoring are also considered essential for the educators to get familiar with technology (Balash et al., 2011). This was evidenced by prior studies that found a positive relationship between training on educational technology and educators' attitude towards their adoption of technology in the classroom (Becker et al., 1999; Sabzian & Gilakjani, 2013). Infrastructure is also one of the factors that affect technology integration in education by educators (Gulbahar, 2008) because poor infrastructure and lack of technological resources, such as computers and internet access could be the main barriers to effective implementation of technology (Brzycki & Dudt, 2005).

Several researchers (see Andoh, 2012; Balash et al. 2011; Breedt, 2015; Wang, Xu, Chan, & Chen, 2002) proposed that support from an institution is important to facilitate the initiative of technology integration for teaching improvement. Organisational support by institution or faculty includes time, money, and recognition since the endeavour to integrate technology in education ecosystem also requires massive costs of maintaining and upgrading the infusion of such technologies (Breedt, 2015); acquiring hardware, software, and peripheral equipment, sufficient support staff to troubleshooting and providing technical assistance and many other facets related to faculty development and other campus organisation (Gillard, Bailey, & Nolan, 2008). Although educators have the necessary skills and motivation to apply technologies in the class, without organisational support such effort will pulverise even before the initiation (John, 2015). Hence, based on this argument, we proposed that:

H4: *The association between educators' behaviour and the adoption of educational technology in accounting education is moderated by institutional commitment and support.*

H5: *The association between educators' constructivist roles and the adoption of educational technology in accounting education is moderated by institutional commitment and support.*
H6: *The association between educators' discovery ability and the adoption of educational technology in accounting education is moderated by institutional commitment and support.*

Methodology

This study proposes to use a mixed method approach that combines qualitative and quantitative method. The combination permits a more complete and synergistic utilisation of data than do separate quantitative and qualitative data collection alone (Johnson, Onwuegbuzie & Turner, 2007). Besides, it may offset any weakness in either qualitative or quantitative approach, hence, a broader perspective or result could be gathered from the issues or problems of the study. A questionnaire and survey questions will be constructed to gain the response from the respondents which is the educators who teach accounting course in public higher education institution.

The questionnaire to be constructed will include the section for demographic information and the section for questions related with the constructs in this study which is based on the conceptual framework as the ground conception. The instrument for the questionnaire may also referring to the past studies and the variables that could be drawn out is governed by the theories that built the construct of this study. The survey questionnaire will be distributed to the respondents through email, while the in-depth interview require researcher to establish a meeting with the respondents and a voice recorder will be used to record the interview session.

The data will be analysed using Statistical Package for Social Science (SPSS) and Structural Equation Modelling (SEM) software for the quantitative data obtained from survey-questionnaires. This analysis will generate descriptive statistics (such as frequencies, means, and standard deviations), reliability analysis, factor analysis, correlational analysis, regression analysis, normality analysis and other necessary analysis. Additionally, the qualitative data gathered through interviews will be analysed using Atlas.ti to support the quantitative data results.

Proposed Framework

This study proposed a theoretical framework that is constructed based on interrelated theories that serve to form propositions to specify the relationships among variables used for this research to develop the framework and hypotheses. Particularly, this study draws from three theories namely theory of planned behaviour (TPB), constructivist learning theory (CLT) and discovery learning theory (DLT) that explain the educator's behaviour, constructivist role and discovery ability respectively. Figure 1 shows the proposed framework that examine the influence of educator's behaviour, constructivist role, and discovery ability towards the adoption of educational technology in accounting education with the moderating effect between institutional commitment and support.

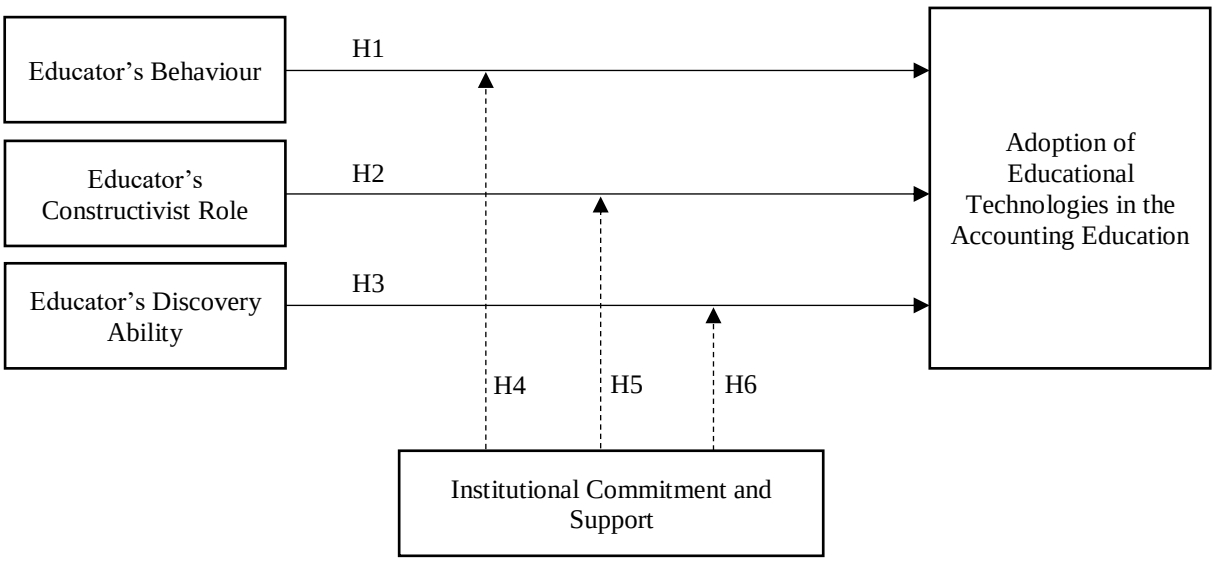

Figure 1: Proposed Framework for the Adoption of Educational Technologies in the Accounting Education

Conclusion

Education technology has a huge potential to support information processing by helping students to develop mental representations through the mix of media elements accessible to them. This includes the content and sometimes learning activities that could be combined with multimedia elements, including text, image, video and audio to present information. A lot of research also demonstrated positive outcomes from the use of technology in teaching and learning in which it would help accounting lecturers to prepare their students with the 21st century highly-required skills such as creativity, collaborative problem-solving, and self-directed learning. Educators are the most appropriate candidate for the task of deploying educational technology in the classroom. Hence, it is crucial to determine the association between educators' attributes, such as behaviour, constructivist role, and discovery ability and the adoption of educational technology in accounting education.

If the framework of this study is validated, the findings of this study are expected to identify the educator's attributes that could effectively implement educational technology in accounting education. This study will benefit the government, higher education institution, the society, and academic community in general. The study's result may assist in identifying what technologies and applications are appropriate for the most effective delivery of curriculum and which of the educators' attributes are susceptible in encouraging technology usage in teaching and learning activities. Thus, it can be used as a guideline to develop human capital development and strategies in promoting active teaching-learning process through education technology adoption in the classroom. A model could be generated based on this study that could distinguish factors that influence the educators in adopting educational technology in their teaching and learning activities. Considering the inadequate understanding of the educators' attributes in adopting or disproving educational technologies in their teaching strategy, this study may bridge the gap in the literature. Comprehending the reasons why accounting educators are reluctant to adopt educational technologies and use them extensively in their daily activities despite the readily

available technology will facilitate future efforts to nurture the application of technology in teaching and learning activities among educators.

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