Journal of Information Technology Education: Research

An Official Publication of the Informing Science Institute
InformingScience.org

JITEResearch.org

Volume 21, 2022

FACTORS IMPACTING TEACHERS' CONTINUED IT ADOPTION IN PRE-COLLEGE EDUCATION

Abrar Y. Aldekheel	The Public Authority for Applied Education and Training, Shuwaikh, Kuwait	ay.aldekheel@paaet.edu.kw
Omar Khalil	Kuwait University, Sabah Al-Salem University city, Kuwait	omar.khalil@ku.edu.kw
Zainab M. AlQenaei*	Kuwait University, Sabah Al-Salem University city, Kuwait	zainab.alqenaei@ku.edu.kw

* Corresponding author

ABSTRACT

Aim/Purpose	This study was designed to examine the extent to which high school teachers intend to continue using the tablet PC in their teaching within the context of the Tablet Project initiative in Kuwait. It explores what drives their adoption intention.
Background	Blended learning offers teachers the potential to adopt IT to augment their instructions and refocus their content, target group, context, and ethical facets, explore new modes of education and consider effective methods to educate students, and experience more flexibility in both course design and delivery method. To reap the potential benefits of integrating IT in education, the Ministry of Education in Kuwait introduced the "Tablet Project" in public high schools during the 2015-2016 academic year; three years later, it was unclear whether the teachers would continue using tablet PCs in their teaching.
Methodology	The research model adapts constructs from the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technological, Pedagogical, and Content Knowledge (TPACK) models. It includes facilitating conditions (FC), social influence (SI), and teaching efficacy (TE) as predictors of teachers' behavioral intentions (BI) to continue using the tablet PC in future teaching. The model also proposes a moderating effect of gender, age, and tablet PC experience on BI. To test the research hypotheses, a data set was collected from 206 teachers and analyzed using the partial least squares structural equation modeling (PLS-SEM) method.

Accepting Editor Stamatis Papadakis | Received: July 18, 2022 | Revised: September 19, October 5, 2022 | Accepted: October 7, 2022.
Cite as: Aldekheel, A. Y., Khalil, O., & AlQenaei, Z. M. (2022). Factors impacting teachers' continued IT adoption in pre-college education. *Journal of Information Technology Education: Research, 21,* 465-500.
https://doi.org/10.28945/5029

Contribution	This study provides empirical evidence on important predictors of continuous IT adoption in teaching activities and identifies lessons that could guide initiatives aimed to embed IT in the pre-college education system in Kuwait as well as other similar systems. It contributes results to advance theories and models aimed to explain and predict sustainable IT adoption in education systems across cultures.
Findings	While TE arises as a non-significant predictor of BI, SI emerges as the strongest predictor of BI. FC is the second significant predictor of BI, although its direct effect on BI is non-significant. Gender, age, and tablet PC experience have non-significant moderating effects on BI. These results provide significant statistical support for the predictive power of the model, as it explains approximately 50% of the variance in BI.
Recommendations for Practitioners	Since this research is directly connected to the reality of IT adoption in teaching in the Kuwaiti high school system, the findings should be of value for the Kuwaiti educational system and future teachers' professional development initiatives. They should inform future actions and strategies aimed at successfully integrating IT in pre-college education in Kuwait and other similar countries.
Recommendations for Researchers	The findings add to the ongoing research effort aimed to develop a better understanding of the intention to continue using IT in instruction and its influential factors across cultures (e.g., Arabian culture), especially since most earlier TPACK studies were carried out in Asian countries and the US. Our findings also confirm the value of UTAUT constructs (i.e., SI and FC) in explaining and predicting the intention to continue using IT by high school teachers, as the research model explains approximately 50% of the variance in the teachers' BI.
Impact on Society	This research offers empirical evidence that adds much-needed nuance to the discourse on teachers' IT adoption intention and behavior and informs policies and strategies in support of initiatives aimed to integrate IT into education. The provision of a technical and organizational ecosystem that is conducive to sustainable IT integration in the Kuwaiti education system must be part of a more comprehensive initiative to digitize the entire education system. Education policy makers should embrace a digital mindset to adopt IT and transform the teaching, learning, and managerial processes in the system.
Future Research	Future research could replicate this study and compare the results, employ other research methods (e.g., focus-group discussions and observations) to investigate teachers' IT adoption in various educational contexts, adapt research models that include other predictors, and investigate and produce results on students' perspectives regarding their initial and continuous adoption of the tablet PC within the Tablet Project context.
Keywords	Unified Theory of Acceptance and Use of Technology (UTAUT), Technological, Pedagogical, and Content Knowledge (TPACK), information technology (IT), education, teaching efficacy (TE), behavioral intention (BI), Kuwait

INTRODUCTION

Information technology (IT) integration in education has recently expanded worldwide (Kim & Lee, 2020) and has great potential to enhance teaching approaches and utilize teachers' IT skills to provide innovative teaching and learning experiences (Al-Awidi & Aldhafeeri, 2017; Alenezi, 2018; Ching & Roberts, 2020; Pamuk et al., 2013; Pirhonen & Rousi, 2018). This interest has intensified and become a necessity throughout the recent COVID-19 pandemic. The COVID-19 pandemic was one of the

key disruptions in the current teaching and learning environment. Thus, numerous relevant research conducted during that period contributed to effective IT adoption (Lapitan et al., 2021; Sangeeta & Tandon, 2020; Ting & Abdul Aziz, 2021). Yet, IT integration in education varies depending on IT adoption objectives and IT system types. This integration ranges from merely assisting face-to-face teaching to providing blended (or hybrid) learning modes, to enabling exclusive online learning services (AlQenaei et al., 2021; Auster, 2016; O'Byrne & Pytash, 2015). However, the successful implementation of initiatives to integrate IT into education depends primarily on the crucial roles of multiple participants, including teachers, students, and administrators. This study focuses on the role of teachers in IT integration in education and evaluates teachers' behavioral intention (BI) to continue using IT in the context of a blended learning initiative in pre-college education in Kuwait. Blended learning, as used in this study, denotes hybrid learning as well as mixed-mode learning (Auster, 2016; O'Byrne & Pytash, 2015).

The adoption of blended learning provides teachers with a transformative experience in which new modes of education challenge teachers to consider the best ways to educate students (O'Byrne & Pytash, 2015). The flexibility of blended learning (e.g., ease of modification and manipulation of class size, time, tools, and location) allows teachers to organize and structure their content to achieve their learning goals in a professional and innovative environment (Di Marco et al., 2017; Harrell & Wendt, 2019; Postholm, 2006). Teachers can use IT to pioneer and design interactive teaching methods to build and deliver content, empower students' learning skills, and establish an inspiring learning environment (Engelbertink et al., 2020; Napier & Smith, 2009; Porter et al., 2016). They can also combine in-class activities and other online tasks that students can carry out elsewhere via their personal computers, e.g., tablet PCs (Arispe & Blake, 2012; Dang et al., 2019; Delialioglu & Yildirim, 2007; Hockly, 2018; Van Doorn & Van Doorn, 2014).

Nevertheless, teachers' adoption, or continuous adoption, of IT in instruction is contingent on multiple factors, including the individual characteristics of participants, the chosen IT systems, the supporting technical and organizational structure, the education program characteristics, and culture (Alenezi, 2018; AlQenaei et al., 2021; Hew & Brush, 2007; Nguyen et al., 2015; Polly et al., 2010). In addition, teachers' adoption of IT hinges on their technological self-efficacy, beliefs, and attitudes (Al-Awidi & Aldhafeeri, 2017; Alenezi, 2018). Teachers may believe that IT does not improve instruction and learning (Ifenthaler & Schweinbenz, 2013); they may not know how to use IT capabilities to facilitate learning and instruction (e.g., Al-Awidi & Aldhafeeri, 2017; Alkhezzi & Abdelmagid, 2011; Bauer & Kenton, 2005; Kalonde, 2017; Karsenti & Fievez, 2013), and/or they may not have adequate access to social and technical infrastructural support for IT adoption (Moran et al., 2010; Sangeeta & Tandon, 2020).

During the 2015-2016 academic year, the Ministry of Education (MOE) in Kuwait launched a blended learning initiative called the "Tablet Project" in high schools. Tablets used Android operating systems and were equipped with licenses for Microsoft products and NetSupport School as classroom software solutions. Tablets were intended to be used for all core subjects in high school. To supplement face-to-face learning with out-of-class learning, the government provided teachers and students with access to tablet PCs equipped with various applications and offered easy access to varied digital content (AlQenaei et al., 2021). Three years later, however, information emerged implying that the Tablet Project was not advancing as expected (Al-Awidi & Aldhafeeri, 2017). Challenges to the project included the absence of a clear vision and plan for the project, lack of professional training for teachers and students, varied teachers' attitudes and readiness across schools, an insufficient internet connection in many schools, and inadequately developed digital curriculum and content (Al-Awidi & Aldhafeeri, 2017; Aldhafeeri et al., 2016; Alenezi, 2018).

While studies (Alayyar et al., 2012; Aldhafeeri et al., 2016; Alenezi, 2018; Alfelaij, 2015; Alhashem & Al-jafar, 2015; Alkhezzi & Abdelmagid, 2011; Mohammad, 2014) have investigated issues that could generally impede effective IT adoption in education in Kuwait, almost no empirical evidence exists on the extent of high school teachers' adoption, and continuous adoption, of the tablet PC in

teaching within the context of the Tablet Project. To bridge this research gap, we carried out an investigation to evaluate: (1) the extent of high school teachers' adoption behavior of the tablet PC in teaching, and (2) the extent of these teachers' BI to continue using the tablet PC in their future teaching. The results pertinent to teachers' adoption of the tablet PC in teaching and its influential factors were described in AlQenaei et al. (2021). This paper reports the results that are pertinent to teachers' BI to continue using the tablet PC in teaching and its predictors.

We adapted a research model to answer two fundamental research questions:

(1) To what extent are high school teachers willing to continue using the tablet PC in their future teaching?
(2) What drives high school teachers' intentional behaviors to continue using the tablet PC in their future teaching?

The model includes four constructs: facilitating conditions (FC), social influence (SI), teaching efficacy (TE), and BI. FC, SI, and BI are adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Brown et al., 2021; Moran et al., 2010; Venkatesh et al., 2003, 2016), and TE is adapted from the Technological, Pedagogical, and Content Knowledge (TPACK) model (Mishra & Koehler, 2006). Our research model proposes that FC, SI, and TE predict teachers' BI to continue using the tablet PC in their future teaching, and the individual differences in gender, age, and tablet PC experience moderate these proposed relationships.

Given its vital role in today's education processes, ineffective long-term use of IT may contribute to the failure of these processes. The motivation for this study is to gain a better understanding of the teachers' role, or lack of it, in sustaining an effective implementation of the Tablet Project in advancing pre-college education in Kuwait. This study provides empirical evidence on important predictors of continuous IT adoption in teaching activities and identifies and documents lessons that could guide future initiatives to embed IT in the pre-college education system in Kuwait and other similar contexts. In addition, it contributes results to advance theories and/or models aimed to explain and predict sustainable IT adoption in education systems across cultures.

LITERATURE REVIEW AND RESEARCH BACKGROUND

IT INTEGRATION IN EDUCATION AND THE TABLET PROJECT

The accessibility and progression of current information technologies (ITs) have enabled many educational institutions to develop their systems and adopt blended learning programs (Al-Awidi & Aldhafeeri, 2017; Alenezi, 2018; Ching & Roberts, 2020; Dang et al., 2019; Pirhonen & Rousi, 2018). This expansion of IT has offered both educators and students a motivating environment and introduced blended learning to enhance learning skills and explore effective educational approaches (Engelbertink et al., 2020; Nguyen et al., 2015). It offers students access to content at any time with minimal effort (Delialioglu & Yildirim, 2007), integrates learning into life, helps them learn by doing and discovery (Lapitan et al., 2021; Napier & Smith, 2009), and allows students to participate in different learning activities (e.g., online synchronous classes, remote lectures, self-assessment, and sharable content and collaborative techniques) (Arispe & Blake, 2012; Dang et al., 2019; Di Marco et al., 2017; Doering & Veletsianos, 2008; Lapitan et al., 2021; O'Byrne & Pytash, 2015; O'Connell & Lang, 2018; Olapiriyakul & Scher, 2006; Ranganathan et al., 2007; Van Doorn & Van Doorn, 2014; Zhou et al., 2020).

Blended learning also offers teachers the potential to adopt IT to augment their instructions and refocus their content, target group, context, and ethical facets (AlQenaei et al., 2021); explore new modes of education, and consider effective methods to educate students (O'Byrne & Pytash, 2015); and experience more flexibility in both course design and course delivery methods (Gerbic, 2011; Olapiriyakul & Scher, 2006; Van Doorn & Van Doorn, 2014). It also enables teachers to manipulate time, space, and place to improve teaching and learning (Harrell & Wendt, 2019); create opportunities

for enhancing active and student-centered learning (Di Marco et al., 2017; Leinonen et al., 2014); collaborate and share information (Falloon & Khoo, 2014); and effectively assess students' learning and feedback (Denison et al., 2016). The adoption of IT in teaching and learning has been applied in various subjects at schools starting from kindergarten and early childhood years. The subjects not only span the core courses offered but also courses in programming, robotics, and mobile applications (Kalogiannakis & Papadakis, 2017, 2020; Papadakis & Kalogiannakis, 2022; Papadakis et al., 2021; Tzagkaraki et al., 2021).

To reap the potential benefits of integrating IT in education, the MOE in Kuwait introduced an initiative to implement the "Tablet Project" in public high schools during the 2015-2016 academic year. The initiative aimed to cultivate learning skills and improve the pre-college education system with IT integration. The MOE provided students in the 10th, 11th, and 12th grades and their teachers, with tablet PCs to access their online school resources and assessments. The tablet PC is an affordable, portable device that has multiple features that can be easily customized and integrated into the development of new curricula and pedagogical strategies (Clark & Luckin, 2013; Dhir et al., 2013). As such, the adoption of the tablet PC, as a hedonic device, was expected to have bearings on both teaching and learning practices (Clark & Luckin, 2013; Falloon & Khoo, 2014; McGuire, 2016; Montrieux et al., 2016). In addition, the tablet PC, along with connectivity, would enable teachers and students to engage in flexible teaching and learning opportunities (Alfelaij, 2015; Mac Callum & Jeffrey, 2013; Major et al., 2017).

However, effective implementation of initiatives such as the Tablet Project relies on many related considerations, such as the adopted educational application, the chosen learning management system, internet quality, and students' and educators' qualifications, experience, and culture (Alenezi, 2018; Hew & Brush, 2007; Nguyen et al., 2015; Polly et al., 2010). In addition, research on tablet PC integration in education has produced mixed results (AlQenaei et al., 2021). While several studies found that the adoption of the tablet PC in education fosters students' learning (e.g., Beal & Rosenblum, 2018; Butcher, 2016; H. Y. Chang et al., 2013; Couse & Chen, 2010; Görhan, 2014; Henderson et al., 2013; Van De Bogart & Wichadee, 2016), other studies concluded that it introduces challenges to students' learning and teachers' instruction (e.g., Alenezi, 2018; Duran & Aytaç, 2016; McEwen & Dubé, 2015; Montrieux et al., 2015; Venkatesh et al., 2003). These findings, however, are not generalizable across participants' contexts (Pirhonen & Rousi, 2018).

In the third year (2017-2018) of the Tablet Project's implementation, growing dispiriting evidence showed that the initiative might not adequately achieve its objectives (Al-Awidi & Aldhafeeri, 2017). Explanations offered for the slow progress of the initiative were that teachers were neither technically nor pedagogically ready to implement a digital curriculum due to time constraints, lack of knowledge and skills, insufficient infrastructure, or technical problems (Al-Awidi & Aldhafeeri, 2017; Aldhafeeri et al., 2016; Alenezi, 2018; Alhashem & Al-jafar, 2015); cultural challenges (e.g., social values, religion, politics, and the use of traditional teaching methods) (Alfelaij, 2015); students' reluctance to use the device within and outside of the classroom; lack of preparation; weak Wi-Fi networks at school; insufficient technical support; and the absence of a clear vision for tablet PC use (Alenezi, 2018). Although teachers play a significant role in achieving the potential benefits of IT (e.g., tablet PC) adoption in education (Byrd Steinweg et al., 2010; Chanlin, 2017; Ching & Roberts, 2020; Montrieux et al., 2015; Teo et al., 2008; Yusup, 2014), empirical evidence on the extent of teachers' adoption of the tablet PC within the first three years of the Tablet Project's implementation was deficient (AlQenaei et al., 2021).

Teachers' IT Adoption

Integrating IT in education hinges on teachers' attitudes and beliefs toward the value of IT, which influence their behavior in integrating IT into their teaching plans (Alenezi, 2018; Nikou & Economides, 2017). Additionally, effectively implementing a blended learning initiative depends largely on the extent of the teachers' adoption of the assigned IT system in their instruction (Alenezi, 2018; Di

Marco et al., 2017; Ertmer et al., 2012; Harrell & Wendt, 2019; Kriek & Stols, 2010; Mac Callum, 2010; O'Byrne & Pytash, 2015; Postholm, 2006; Scherer et al., 2019; Zhu, 2010). Teachers also play a key role in augmenting the learning objectives using their knowledge and skills (i.e., TE) in organizing and structuring blended learning (Postholm, 2006). They, therefore, must be professionally and technically prepared to use time, space, and place to improve instruction methods, learning conditions, active learning, and students' guidance (Di Marco et al., 2017; Harrell & Wendt, 2019; Zhu, 2010).

Nonetheless, the findings of numerous investigations of teachers' adoption of the tablet PC in instruction are inconclusive. While some investigations verify teachers' effective adoption of the tablet PC in instruction across various teaching settings (e.g., Burden et al., 2012; H. Hu & Garimella, 2014; Phiri et al., 2014; Wong et al., 2013), others suggest that some teachers believe that integrating the tablet PC in classroom teaching does not improve instruction and learning, and it could produce unwanted outcomes such as distraction, time mismanagement issues, negative student behaviors, and interruptions (e.g., Al-Awidi & Aldhafeeri, 2017; Alkhezzi & Abdelmagid, 2011; Bauer & Kenton, 2005; Durak & Saritepeci, 2017; Ifenthaler & Schweinbenz, 2013; Kalonde, 2017; Karsenti & Fievez, 2013; Montrieux et al., 2015).

Teachers' adoption, and continuous adoption, of IT in instruction, may face many challenges that may negatively affect the learning experience quality and planned outcomes (Nikou & Economides, 2017; Porter et al., 2016). Illustrations of these challenges include a lack of skills, a shortage of professional technical and pedagogical development and support programs, and insufficient time and preparation before implementation (AlQenaei et al., 2021). Also, teachers could be concerned about the poor quality of online interactions and students' feedback, content preparation, the substantial amount of work, and other crucial environmental, financial, technical, and personal aspects (Ching & Roberts, 2020; Nikou & Economides, 2017). These challenges understandably affect teachers' confidence and readiness to adopt and sustain new teaching methods (Porter et al., 2016).

Likewise, high school teachers in Kuwait faced several challenges in integrating IT into teaching practice at the time of the Tablet Project's implementation (Al-Awidi & Aldhafeeri, 2017; Aldhafeeri et al., 2016; Alenezi, 2018; Alhashem & Al-jafar, 2015). For example, they had to abruptly switch from a traditional to a digital curriculum, carry an extra administrative workload, utilize deficient resources, handle new tasks with limited professional training, interact with students and digital content via unreliable internet connections and with meager technical support, and apply new teaching and assessment methods while lacking the requisite skills and knowledge (Al-Awidi & Aldhafeeri, 2017; Alhashem & Al-jafar, 2015). Moreover, many teachers were hesitant to accept the change, uncertain about implementing new technology, and preferred to continue using their traditional teaching approaches (Alenezi, 2018); at the same time, they were under immense pressure to improve their IT skills to use new tools and create an innovative teaching environment (Alenezi, 2018; Alhashem & Al-jafar, 2015). These challenges likely influenced teachers' abilities and decisions to adopt, and to continue to adopt, the tablet PC in their teaching.

Although teachers are a key to gaining the potential benefits of integrating the tablet PC in education (Chanlin, 2017; Ching & Roberts, 2020; Yusup, 2014), scant empirical evidence exists on the extent of high school teachers' adoption of the tablet PC in teaching practice within the Tablet Project. We carried out an investigation to bridge this research gap and answer two main questions:

(1) To what extent did high school teachers adopt the tablet PC in their teaching practice?
(2) Will these teachers continue to adopt the tablet PC in their future teaching?

Results pertinent to the first research question, reported in AlQenaei et al. (2021), confirm that teachers minimally adopted the tablet PC in their teaching practice. This paper reports the results of a research model designed to answer the second research question.

RESEARCH MODEL AND HYPOTHESES

RESEARCH MODEL

Several theories and models exist in the IT adoption literature which propose factors influencing individuals' decisions to adopt different types of IT systems in various contexts (Saghafi et al., 2017; Venkatesh et al., 2003), especially in work environments where IT is mainly adopted to improve task performance (Abbas et al., 2019; Yu et al., 2017). Examples of IT-specific theories and models that researchers adopted to explain and/or predict IT adoption behavior in educational settings include the technology acceptance model (TAM) (e.g. Chanlin, 2017; L. Hsu, 2016; Joo et al., 2018; Okumuş et al., 2016; Sun & Jiang, 2015; Teo et al., 2008; Wong et al., 2013), UTAUT (e.g., Ifenthaler & Schweinbenz, 2013; Moran et al., 2010), the innovation diffusion theory (e.g., Montrieux et al., 2015; Rogers, 2003), and the TPACK model (Mishra & Koehler, 2006).

Figure 1 depicts the research model adopted in this study, including the research constructs and the hypothesized relationships. The model adapts constructs from the UTAUT and TPACK models. We chose UTAUT as a referent model because of its strength in evaluating individuals' IT adoption decisions (Brown et al., 2021; Lakhal et al., 2013; Mohammad-Salehi et al., 2021; Oye et al., 2014). The UTAUT model (Moran et al., 2010; Venkatesh & Goyal, 2010; Venkatesh et al., 2003, 2016) is an extension of the original TAM model (Davis et al., 1989) and has been thoroughly verified and adopted to explain and predict adoption behavior for IT systems in various domains, such as education (e.g., Brown et al., 2021; Kim & Lee, 2020; Mohammad-Salehi et al., 2021; Moran et al., 2010; Shen et al., 2017; Teo & van Schalk, 2009). UTAUT proposes four exogenous factors (i.e., Effort Expectancy (EE), Performance Expectancy (PE), SI, and FC) that could influence the two endogenous variables of IT adoption intention and IT use; moreover, these relationships could be moderated by gender, experience, and age (Venkatesh et al., 2003, 2016). Researchers can fit these factors into research models to evaluate their impact on the adoption of new IT systems, such as mobile learning (Hamzah, 2018; Nguyen et al., 2015) educational games (Brown et al., 2021), M-payment and M-commerce (Zhao & Bacao, 2020), and tablet PCs (Moran et al., 2010) used in different contexts (e.g., academic organizations and societies, government agencies, and hospitals; Venkatesh et al., 2003).

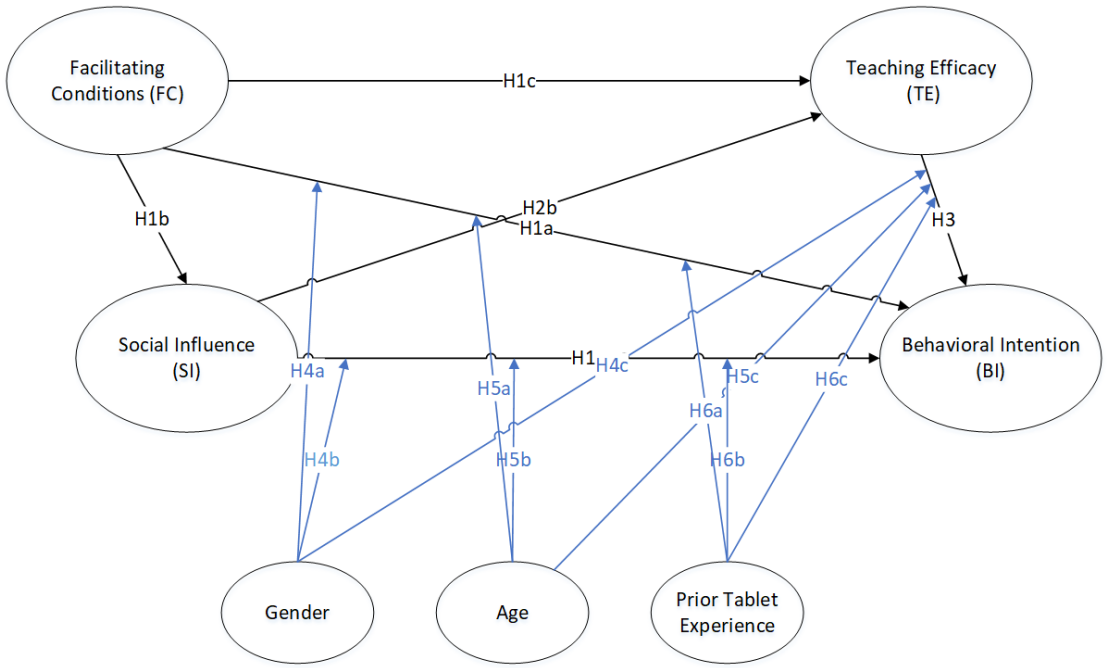


Figure 1: Research model

We adapt FC and SI in our research model since the literature (e.g., Bakar & Razak, 2014; Brata & Amalia, 2018; M. A. Graham et al., 2020; Kim & Lee, 2020; Ma et al., 2020; C. S. Wang et al., 2017) supports a possible significant effect of these two constructs on teachers' BI to continue using the tablet PC in future teaching. BI refers to an individual's intention to adopt and use a particular IT system in the future (Venkatesh et al., 2003). FC signifies the extent to which an individual believes that organizational and technical infrastructures exist to support the use of the system (A. Chang, 2012; Venkatesh et al., 2003). SI refers to the extent to which an individual perceives that significant other (e.g., peer teachers, administrators, students, close friends, and family members) believe that they should use the system in question (Diaz & Loraas, 2010; Venkatesh et al., 2003). Furthermore, the research model adapts gender, age, and tablet PC experience as moderators because teachers could experience the tablet PC in teaching differently depending on their characteristics and use circumstances (Orlikowski, 2000; Schwarz et al., 2004). We excluded voluntariness of use as a moderator because tablet PC adoption in our study was not voluntary.

The research model also adapts TE as a potential driver of teachers' attitudes toward IT and their intentions to continue using the tablet PC in teaching (Al-Awidi & Aldhafeeri, 2017; Chanlin, 2017; Scherer et al., 2019). TE is rooted in the TPACK model (Mishra & Koehler, 2006). TPACK articulates the integrated knowledge that a teacher must possess to successfully integrate IT into classroom learning environments (Abbitt, 2011b). It comprises a complex interaction among the three essential types of TPACK and identifies seven constructs from the interactions among these knowledge domains (Abbitt, 2011a; Koehler et al., 2007; Mishra & Koehler, 2006). To effectively transform teaching practice by integrating IT, content, and pedagogical knowledge, teachers should be empowered with essential IT and pedagogical skills (Alenezi, 2018; Koehler et al., 2007; Koehler & Mishra, 2008; Voogt & McKenney, 2017).

Even though TPACK is criticized for not providing precise definitions of its components (e.g., Alenezi, 2018; C. R. Graham et al., 2019), researchers have adopted relevant TPACK constructs to investigate IT adoption in education. Also, several knowledge domains in the TPACK model are found to correlate positively with measures of self-efficacy beliefs about IT integration (Abbitt, 2011a). Therefore, TPACK offers a lens that researchers can use to understand whether and why teachers adopt IT (e.g., the tablet PC) in their teaching practice (Alenezi, 2018; AlQenaei et al., 2021; Polly et al., 2010). Drawing on the tenets of TPACK (Chanlin, 2017), TE in this study refers to the teacher's beliefs about their ability to fit IT (e.g., tablet PC) into content and teaching methods (Alenezi, 2018; AlQenaei et al., 2021; Chanlin, 2017).

In addition, teachers may experience the tablet PC in teaching differently depending on their characteristics and use circumstances (S. Hu et al., 2020; Lin et al., 2013; Orlikowski, 2000; Schwarz et al., 2004). Following the extended UTAUT model (Venkatesh et al., 2012), our research model examines the moderating effects of gender, age, and tablet PC experience on the relationships between FC, SI, and TE and teachers' continuous intention (BI) to adopt the tablet PC in teaching practice.

Research Hypotheses

The effect of facilitating conditions

FC denotes conditions (i.e., technical and organizational factors) in an environment that make an act, such as adopting or continuing to adopt a system, easy to accomplish (Teo & van Schalk, 2009; Thompson et al., 1991; Venkatesh et al., 2003). These conditions may comprise the availability of both hardware and software support systems, such as technical infrastructure, technology training courses, technical and logistical support, and educational policy on technology use (Teo et al., 2019). We propose that FC influences teachers' intentions (BI) to continue using the tablet PC in future teaching; likewise, we expect that FC influences SI and TE, both of which may influence BI.

The UTAUT model postulates that FC influences an individual's decision to adopt a particular IT system (Venkatesh et al., 2003). In our research model, we further propose that FC is a significant predictor of a teacher's decision to continue using the tablet PC in future teaching practice (M. A. Graham et al., 2020; Kim & Lee, 2020; Ma et al., 2020). The results of numerous earlier studies also suggest that FC likely influences teachers' intentions to continue using the tablet PC in their teaching practice. For instance, Groves and Zemel (2000) find that FC influences the use of instructional technologies in teaching. Venkatesh et al. (2003) observe that FC is a significant predictor of IT usage behavior. Teo and van Schalk (2009) conclude that FC affects pre-service teachers' perceived ease of use of IT and indirectly affects the intention to continue using IT in future teaching. Maita et al. (2018) find that FC influences the intention to adopt computer-assisted language learning 2.0. Kim and Lee (2020) find that FC affects the use of ICTs for instruction. In addition, Shen et al. (2017) find that FC has a positive effect on students' intention to use virtual reality in learning. C. S. Wang et al. (2017) find that FC influences perceived ease of use, which in turn influences teachers' continued use of cloud services. Teo (2011) concludes that FC has a significant effect on teachers' intention to adopt IT, and Teo et al. (2019) find that FC influences pre-service teachers' intention to use Web 2.0 technologies in their future teaching. Mohammad-Salehi et al. (2021) find a positive and direct effect of FC on Iranian English as a Foreign Language teachers' use of Web 2.0 technologies. Sung and Shin (2017) find that self-efficacy positively influences FC, which in turn influences mobile learning enhancement intention. Bakar and Razak (2014) find FC to be positively related to continuance intention to use e-learning among Malaysian public higher education students. Yeop et al. (2019) note that FC affects teachers' intention to use IT in blended learning. Also, Ting and Abdul Aziz (2021) find FC to be a positive predictor of teachers' BI to use online tools. Anderson et al. (2006), however, find FC to have no significant effect on using tablet PCs.

Drawing on the UTAUT assumptions and the results of relevant studies, we predict that teachers continue using the tablet PC in teaching when they have access to the required resources, knowledge, and technical and organizational support. This prediction is formulated in the following hypothesis:

> *H1a: Facilitating conditions (FC) have a positive effect on the behavioral intention (BI) to continue using the tablet PC in teaching.*

Accessibility to effective FC likely improves a teacher's self-efficacy (Sung & Shin, 2017), enhances their capability to easily use the system (the tablet PC), and helps them to positively perceive the usefulness of using the system in instruction. Arguably, having sufficient access to necessary technological and organizational resources increases teachers' perceived behavioral control and boosts their favorable attitudes toward IT adoption (Ajzen, 1985; Teo, 2011). Additionally, significant others (e.g., peer teachers, administrators, close friends, and family members) expect teachers who have access to supportive technological and organizational resources to continue using the system in their teaching. In this case, teachers may not have socially accepted excuses for not adopting (or continuing to use) the system in their teaching. We, therefore, predict that the better the FC accessibility, the higher the social pressure the teachers feel to continue using the system (e.g., the tablet PC). Since no prior studies have investigated the influence that FC could have on SI, we evaluate the predicted relationship between FC and SI by testing the following hypothesis:

> *H1b: Facilitating conditions (FC) have a positive effect on the social influence (SI) to continue using the tablet PC in teaching.*

While TPACK studies mostly characterize and investigate TPACK constructs, they rarely pay attention to their contextual influences (Koh et al., 2014). In one of the few studies that address the interaction between TPACK development and its environment, Koh et al. (2014) investigate the four contextual factors of physical/technological, cultural/institutional, interpersonal, and intrapersonal, and their influence on teachers' design of IT lessons. They conclude, among other points, that when pedagogical development teams are facilitated by experienced educational technologists, the occurrences of TPACK in teachers' performance rise. In another study, Koh et al. (2013) find that IT training

influences pre-service teachers' perceived TPACK. Jang (2010) concludes that integrating IT (i.e., interactive whiteboard) and peer coaching can develop science teachers' TPACK. Roussinos and Jimoyiannis (2019) find that teachers' training on using IT in their instruction positively affects their perceptions of their TPACK. Also, Kabakci Yurdakul and Çoklar (2014) note that the extent of the Turkish pre-service teachers' IT usage predicts TPACK competencies. Since prior studies have rarely investigated the influence that FC could have on TE, we evaluate the predicted relationship between FC and TE by testing the following hypothesis:

H1c: Facilitating conditions (FC) have a positive effect on teaching efficacy (TE).

The effect of social influence

Fishbein et al. (1975) define SI as an individual's perception that most people who are important to them think that they should or should not perform the behavior in question. In this study, SI refers to the extent to which an individual perceives others who are important to them (e.g., peer teachers, administrators, students, close friends, and family members) believe that they should adopt the system in question (Diaz & Loraas, 2010; Venkatesh et al., 2003). SI influence on an individual's behavior most likely occurs when the use of IT involves social interactions (e.g., social networks or collaborative applications; Davis et al., 1989), and when the individual's response to social norms is essential to establish or maintain a favorable image within a reference group (Venkatesh & Davis, 2000). Also, Park et al. (2011) view SI as an organizational attribute that could have both main and moderation effects in the UTAUT model.

T. S. Chang et al. (2011) observe that teachers' performance reciprocally affects and is affected by personal factors, as well as by their perceptions of the factors in the environments in which they teach. SI, which is considered an environmental factor, is a key concept in the social cognitive theory (Bandura, 1986) and in UTAUT (Venkatesh et al., 2003). Bakar and Razak (2014) report that SI positively relates to the continuance intention to use e-learning among Malaysian public higher education students. Brata and Amalia (2018) find that SI has a positive impact on teachers' motivation to use free blogs in teaching. C. S. Wang et al. (2017) conclude that SI influences perceived usefulness, which in turn influences teachers' continued use of cloud services. Sung and Shin (2017) report that self-efficacy positively influences SI, which in turn influences mobile learning enhancement intentions.

Teo et al. (2019) find that SI influences pre-service teachers' intention to use Web 2.0 technologies in future teaching. In the Philippines, Kim and Lee (2020) find a significant effect of SI on high school teachers' BI to use IT in teaching. In addition, Shen et al. (2017) find a positive and significant effect of SI on students' intention to use virtual reality in learning. Roussinos and Jimoyiannis (2019) show that the appreciation of teachers' professional work with IT by students, superiors, and peer teachers (i.e., SI) has positive effects on teachers' perceptions of IT integration. Yeop et al. (2019) find SI to be a determinant of teachers' intention to use IT in blended learning. Teo and van Schalk (2009), however, conclude that SI has no effect on pre-service teachers' perceived usefulness of IT in future teaching, and Teo (2011) finds that SI has no significant effects on teachers' intentions to adopt IT. As such, we propose that SI positively influences BI; this expectation will be evaluated by the following hypothesis:

H2a: Social influence (SI) has a positive effect on the behavioral intention (BI) to continue using the tablet PC in teaching.

The social environment of an individual is a valuable source of information to reduce uncertainty and determine whether a behavior is within the established rules and acceptable (Hwang, 2005; Srite & Karahanna, 2006). Teachers may consider reducing uncertainties by discerning occupationally significant others (e.g., peer teachers) who inform them of their personal experiences and perceptions regarding the integration of IT in teaching. In addition, the processes designed to develop and change TPACK knowledge and skills should consider the socially mediated context that influences how teachers proclaim this knowledge and skills (Phillips, 2014). Since acquiring and enacting

TPACK knowledge and skills is mainly a social process, the socially accepted norms in a community could influence teachers' TPACK levels and changes. In addition, the effect of social norms on behavior, such as TPACK development and enactment, is expected to be significant in collectivist communities (e.g., Kuwait) where teachers prefer working together in collective styles and where cooperation and synergy are more prominent (Hofstede & Bond, 1988). Arguably, when an important co-teacher thinks that the IT system is useful, a teacher will likely have the same idea (Venkatesh & Davis, 2000). Yet, the extent of the social pressure that a teacher receives from significant others depends on the perceived value of IT knowledge and skills and the assumed self-efficacy of the teacher.

Since the possible effect of SI on TE was not previously investigated, we predict that teachers in a particular community will be socially pressured by significant others in their community to develop and use TPACK knowledge and skills (i.e., TE) to integrate the tablet PC in teaching. This prediction is formulated in the following hypothesis:

H2b: Social influence (SI) has a positive effect on teaching efficacy (TE).

The effect of teaching efficacy (TE)

Self-efficacy signifies an individual's belief in their ability to perform a given task (Bandura, 1997), which could expand IT-assisted learning and professional development (Bandura, 1986; Yang et al., 2019). Self-efficacy could therefore predict an individual's attitude and behavior (Ajzen & Fishbein, 1977; Bandura, 1986). Additionally, Hoy (2004) views TE as an individual's perception of their capabilities to influence student engagement and learning. Bandura (1997) also suggests that teachers' self-efficacy beliefs regarding their capabilities influence their pedagogical decisions. In this study, we adapt TE from the TPACK model to denote a teacher's confidence and belief in their ability to fit IT into content and delivery methods (Alenezi, 2018; Batiibwe & Bakkabulindi, 2016; Moran et al., 2010).

TE could foster a teacher's intention to continue using the tablet PC in teaching (Alenezi, 2018; AlQenaei et al., 2021; Ertmer & Ottenbreit-Leftwich, 2010). Scherer et al. (2019) conclude that pre-service teachers' TPACK (i.e., TE) correlates with their attitudes toward IT integration in education. In Kuwait, Al-Awidi and Aldhafeeri (2017) find that high school teachers' perceived effectiveness of digital technology affects their integration of IT in teaching, and AlQenaei et al. (2021) demonstrate that TE influences high school teachers' adoption of the tablet PC in instruction. Chanlin (2017) notes that teachers' TPACK skills are crucial to tablet PC adoption in Japanese schools. Kimmerl (2020) determined that teachers' self-perceptions influence the intention to adopt learning management systems. Mailizar et al. (2021) report that TPACK influences teachers' acceptance of online professional development. In addition, L. Hsu (2016) observes that teachers' TPACK correlates with perceived usefulness and ease of use of mobile-assisted language learning. Joo et al. (2018) find that Korean pre-service teachers' TPACK influences self-efficacy and the usefulness of IT in classroom teaching but does not influence the intention to use IT. Yang et al. (2019) find TPACK to affect Chinese primary and secondary school teachers' acceptance of e-Schoolbag. Teo et al. (2019) note that TPACK influences pre-service teachers' intention to use Web 2.0 technologies in their future teaching. Similarly, Yeop et al. (2019) note that TE influences teachers' intention to adopt IT in blended learning. However, Mayer and Girwidz (2019) find that TPACK has no influence on physics teachers' perceptions of the usefulness of multimedia applications in teaching, and Mohammad-Salehi et al. (2021) find that TPACK has no effect on teachers' intentions to adopt Web 2.0 technologies.

Based on the assumptions of the TPACK model and the results of the previous studies, we predict that TE influences teachers' intentions to continue using the tablet PC in teaching practice (BI). This prediction is formalized in the following hypothesis:

H3: Teaching efficacy (TE) has a positive effect on the behavioral intention (BI) to continue using the tablet PC in teaching.

The moderating effect of gender

S. Hu et al. (2020) find that gender has a moderating effect on the relationship between FC and the BI to adopt mobile technologies in teaching. Brown et al. (2021) find that gender has a significant moderating effect on the BI to adopt avatars for educational games. Anderson et al. (2006) conclude that female faculty members are less likely to adopt new technology. In addition, female teachers generally perceive themselves as having lower self-confidence in TPACK knowledge than males (Roussinos & Jimoyiannis, 2019). Male teachers tend to have higher technological knowledge than female teachers (Lin et al., 2013; Luik et al., 2018; Roussinos & Jimoyiannis, 2019), and female teachers tend to have higher pedagogical knowledge than males (Koh et al., 2014; Roig-Vila et al., 2015). Male teachers are more confident in content knowledge, while female teachers are more confident in pedagogical knowledge (Jang & Chang, 2016; Liu et al., 2015). Furthermore, Sung and Shin (2017) find that gender has a moderating effect on the relationships between self-efficacy and the intention to enhance mobile learning. Morris et al. (2005) show that the effect of gender on the relationship between FC and BI becomes more significant as age increases. Based on the UTAUT assumptions and the results of relevant studies, we propose the following three hypotheses:

H4a: Moderated by gender, the effect of facilitating conditions (FC) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for female teachers.

H4b: Moderated by gender, the effect of social influence (SI) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for female teachers.

H4c: Moderated by gender, the effect of teaching efficacy (TE) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for male teachers.

The moderating effect of age

The strength of the relationship between predictors and the intention to continue using IT may vary with age depending on the adoption environment (Teo, 2011). S. Hu et al. (2020) find that age has a moderating effect on the relationships between FC and SI, and the BI to adopt mobile technologies in academics' teaching. Maita et al. (2018) find that age has a moderating effect on FC's influence on the intention to use an academic information system. Also, the findings of extant studies suggest that older teachers tend to have lower self-efficacy of TPACK (Roussinos & Jimoyiannis, 2019) as well as its technological knowledge dimension (C.-Y. Hsu et al., 2017; Lin et al., 2013; Luik et al., 2018). In addition, teachers with more teaching experience, which correlates with age, perceive lower self-efficacy in their overall TPACK knowledge (C.-Y. Hsu et al., 2017; Koh et al., 2014), especially in its technological knowledge (C.-Y. Hsu et al., 2017; Liu et al., 2015; Luik et al., 2018; Roussinos & Jimoyiannis, 2019). Based on the assumption of UTAUT and the findings of previous research, we propose the following three hypotheses:

H5a: Moderated by age, the effect of facilitating conditions (FC) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for younger teachers.

H5b: Moderated by age, the effect of social influence (SI) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for younger teachers.

H5c: Moderated by age, the effect of teaching efficacy (TE) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for younger teachers.

The moderating effect of experience using tablet PCs

According to UTAUT postulations, FC is expected to have a stronger effect on IT continuous adoption for IT experienced teachers than for inexperienced teachers (Venkatesh et al., 2003). S. Hu et al. (2020) find that the effects of FC and SI on the BI to adopt mobile technology in teaching are stronger for academics who are more experienced with mobile technologies. Teo (2011) concludes that prior experience of teachers may build a sense of professional duty or personal interest in using

technology in teaching. Also, L. Wang et al. (2004) find that vicarious IT learning experiences of pre-service teachers have a significant positive effect on self-efficacy beliefs toward IT integration, and the effect is higher for more experienced pre-service teachers. Based on the assumptions of UTAUT and the findings of previous research, we propose the following three hypotheses:

H6a: Moderated by prior tablet PC experience, the effect of facilitating conditions (FC) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for more experienced teachers.

H6b: Moderated by prior tablet PC experience, the effect of social influence (SI) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for more experienced teachers.

H6c: Moderated by prior tablet PC experience, the effect of teaching efficacy (TE) on the behavioral intention (BI) to continue using the tablet PC in teaching is stronger for more experienced teachers.

RESEARCH METHOD

We adapted items that have been developed and validated in previous studies to measure the research constructs. The items measuring the UTAUT original constructs (FC, SI, and BI) have been adapted from Im et al. (2011), Handoko (2019), Teo (2011), and Venkatesh et al. (2003, 2012, 2016). The items measuring TE were originally adapted from Sahin's (2011) TPACK measurement scale and were validated by AlQenaei et al. (2021) as a proxy for TE. Five items were used to measure each of the four constructs, and the items were rephrased to fit the context of this study (see Appendix A).

The data collection instrument has two main sections. The first section is designed to gather demographic information (e.g., gender, nationality, age, education, teaching experience, and prior experience with the tablet PC). The second section is designed to collect the respondents' views on, among other topics, the four research variables (FC, SI, TE, and BI) using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Upon the approval of the MOE in Kuwait, copies of the survey were sent to high school administrators who were asked to solicit teachers' participation in our survey. The process produced a total of 206 completed surveys across the six governorates in Kuwait.

We started the data-collection process at the end of the third year of the Tablet Project and prior to the COVID-19 pandemic. We sent paper copies of the data collection instrument to high schools in the six governorates in Kuwait, and we asked school administrators to volunteer teachers (the informants) to participate in this study. Only fifty responses were received before a series of partial and full lockdowns were imposed due to the COVID-19 pandemic. Next, we continued the data-collection process online using social medial groups of public school teachers. The link to the e-copy of the data collection instrument was sent to high school teachers and administrators who were asked to encourage teachers to participate in the survey. The process produced a total of 206 complete responses (50 of which were paper-based). To test the homogeneity of our convenience sample, we conducted a t-test comparing the paper-based and online responses, and the results confirm insignificant differences between the two groups.

Approximately 80% of the respondents are female, and 62% are Kuwaiti nationals. As to age, 49% of the respondents are at least 30 years old. Most of the respondents have more than 15 years of teaching experience, most (82%) hold a bachelor's degree (or equivalent), and 18% hold a post-graduate degree (AlQenaei et al., 2021). As to prior tablet PC experience, 68% of the respondents are less experienced (i.e., no, or modest experience) and 32% are more experienced (i.e., extensive experience).

ANALYSIS AND RESULTS

We first performed a preliminary evaluation of the measurement model via a confirmatory factor analysis to describe relationships between hidden variables of the model (Wu et al., 2016), and to verify the reliability and convergent validity of the constructs. Table 1 summarizes the resultant

measurement model. Reliability is estimated by Cronbach's alpha (α), and convergent validity is estimated by factor loadings and average variance explained (AVE). Notably, some items have been excluded (see Appendix A) to enhance the reliability of the measurement model. The overall AVE produced by the constructs (factors) is 0.793, with a strong reliability coefficient (α = 0.936). FC comprises four of the original five items (AVE = 0.725, α = 0.872). SI includes four of the original five items (AVE = 0.719, α = 0.870). TE consists of the original five items (AVE = 0.885, α = 0.967). Lastly, BI includes four of the original five items (AVE = 0.778, α = 0.903). These results suggest that all constructs in the model have adequate reliability (α ≥ 0.70), convergent validity (AVE ≥ 0.50), and factor loadings (≥ 0.60) (Chin et al., 1997; Hair et al., 2010).

Table 1. The confirmatory factor analysis results

Dimensions	Factor Loading	Reliability Coefficient (A)	Average Variance Explained (Ave)
Behavioral Intention (BI)		0.903	77.753
BI1	0.865		
BI3	0.883		
BI4	0.772		
BI5	0.787		
Teaching Efficacy (TE)		0.967	88.501
TPC1	0.885		
TPC2	0.873		
TPC3	0.899		
TPC4	0.847		
TPC5	0.890		
Facilitating Condition (FC)		0.872	72.538
FC1	0.825		
FC2	0.811		
FC4	0.787		
FC5	0.737		
Social Influence (SI)		0.870	71.899
SI1	0.692		
SI2	0.788		
SI3	0.702		
SI5	0.732		
Overall Model		0.936	79.275

Table 2 provides the descriptive statistics for the research variables. Overall, and based on the means and the related p-values, the respondents report modest agreement regarding TE (mean = 3.508, $p < 0.001$), perceived SI (mean = 3.304, $p < 0.001$), and BI to continue using the tablet PC in teaching

(mean = 3.622, $p < 0.001$). Yet, their perceptions regarding FC are neutral (mean = 3.049, $p = 0.515$).

Table 2. Descriptive statistics

Variables	N	Min	Max	Mean	Std. Dev.	T-Value	P-Value (2-Tailed)
TE	199	1	5	3.508	1.032	6.946	0.001
BI	201	1	5	3.622	0.915	9.635	0.001
FC	200	1	5	3.049	1.052	0.652	0.515
SI	197	1	5	3.304	0.884	4.821	0.001

Note: The difference from 3 (the midpoint of the scale) is significant at $p \leq 0.05$.

We then used the Partial Least Squares Sequential Structural Modeling (PLS-SEM) method to further verify the measurement model fit, evaluate a predictive model for the data set, and test the research hypotheses. Instead of using the covariance-based structural equation modeling (CB-SEM) approach, we chose the PLS-SEM method because it: (1) does not require the applicability of the restrictive assumption of normality to analyze a data set, build a model, and test hypotheses (Hair et al., 2014); (2) provides higher levels of statistical power and demonstrates much better convergence behavior with smaller samples (Hair et al., 2011; Henseler, 2010; Marcoulides & Saunders, 2006; Sarstedt et al., 2016); (3) is an appropriate approach for both exploratory and confirmatory research (Sarstedt et al., 2021); and (4) has been widely used in a variety of fields, including information systems (Hair et al., 2014, 2019; Ringle et al., 2012). Consequently, we used the Smart PLS 3.0 software (Ringle et al., 2015) and the bootstrapping method run by 5,000 subsamples (Sarstedt et al., 2016) to assess both the measurement and structural models.

Assessment of the Measurement Model

The measurement model assessment further verifies the reliability and validity of the constructs. The assessment entails examining the internal consistency reliability, convergent validity, and discriminant validity of the adapted measures (Marcoulides & Saunders, 2006). Reliability was first assessed by examining the indicator loadings (see Appendix B); with the exception of FC2 (0.552), all loadings are well above the recommended level (≥ 0.708; Hair et al., 2019). We also assessed the internal consistency of the reflective measurement model using Cronbach's alpha (Ringle et al., 2015) as the lower bound of internal consistency reliability and composite reliability as the higher bound (Hair et al., 2019). Except for TE ($\alpha = 0.967$), all alpha coefficients in Table 3 fall within the recommended range (0.70–0.95; Hair et al., 2019). The out-of-range Cronbach's alpha for TE suggests that some items in the measuring scale are redundant (i.e., they evaluate the same question in different ways), which could compromise the content validity of the TE measures (Hair et al., 2019). The results, however, suggest that each construct explains greater than 50% of the indicator's variance, thus providing acceptable item reliability (Hair et al., 2019; Sarstedt et al., 2021).

Table 3. Construct reliability and validity

Constructs	Cronbach's Alpha (A)	Composite Reliability	Average Variance Extracted (Ave)
BI	0.903	0.903	0.700
FC	0.872	0.872	0.638
SI	0.867	0.867	0.621
TE	0.965	0.965	0.847

In addition, all composite reliability coefficients in Table 3, which are a more appropriate measure of internal consistency reliability (Hair et al., 2014; Sarstedt et al., 2021), are well above the recommended threshold of ≥ 0.50 (Hair et al., 2019). These results demonstrate the reliability of the adapted measures. We also assessed the convergence validity of the measurement model by examining the AVE values. All AVEs in Table 3 are well above the recommended threshold of ≥ 0.50 (Fornell & Larcker, 1981; Hair et al., 2019), which therefore indicates strong convergent validity.

We finally assessed the discriminant validity of the measures, following Fornell and Larcker's (1981) criterion. For discriminant validity to exist, the square root of the latent variables' AVEs should be greater than the correlation that each construct has with the other constructs. The results depicted in Table 4 demonstrate that discriminant validity exists. The heterotrait–monotrait ratio of correlations (HTMT) was also used to evaluate the discriminant validity of the measurement model; all ratios fall well below the recommended threshold of < 0.90 (Henseler et al., 2015). This result further verifies the discriminant validity of the adapted measures. As such, the reliability and validity results collectively support the adequacy of the measurement model.

Table 4. Discriminant validity

	BI	FC	SI	TE
BI	0.836			
FC	0.476 (HTMT = 0.463)	0.799		
SI	0.645 (HTMT = 0.494)	0.614 (HTMT = 0.613)	0.788	
TE	0.496 (HTMT = 0.494)	0.545 (HTMT = 0.542)	0.591 (HTMT = 0.592)	0.920

Assessment of the Structural Model

We adopted procedures that have been specifically designed to assess the adequacy of the prediction-oriented PLS-SEM models (Shmueli et al., 2016) since the CB-SEM-based model fit measures are inappropriate for evaluating the PLS-SEM-based structural models (Hair et al., 2019; Sarstedt et al., 2021). To evaluate the fitness of the consequential model results (Figure 2), we used R^2 (coefficient of determination) as a standard assessment criterion that measures the predictive accuracy of the model. R^2 values of 0.19–0.33, 0.33–0.67, and greater than 0.67 indicate weak, moderate, and strong explanatory powers, respectively (Hair et al., 2010; Wu et al., 2016). The R^2 values for the three endogenous variables in the model (SI, TE, and BI) are 0.377, 0.402, and 0.495, respectively. These results suggest that the model has moderate predictive power.

The blindfolding-based cross-validated redundancy measure, Q^2, was also used to evaluate the predictive relevance of the model (Hair et al., 2019; Shmueli et al., 2016). Q^2 measures the difference between the predicted and the original values, and the greater the Q^2 value, the greater the model's predictive accuracy (Chin, 1998). As a rule, Q^2 values greater than 0, 0.25, and 0.50 indicate small, medium, and large predictive relevance, respectively (Hair et al., 2019). The blindfolding procedure with an omission distance of eight produced a Q^2 value of 0.305, which suggests a modest predictive relevance of the fitted model.

Although they have yet to be well documented in SmartPLS bootstrapping final results (Sarstedt et al., 2016), SRMR (the standardized root mean square residual) and NFI (normed fit index) are two indices that could be used to assess the goodness of fit of the model (Henseler et al., 2015). SRMR estimates the average degree of the discrepancy in the observed and expected correlations, and a small SRMR value (< 0.08) indicates a good model fit (Henseler et al., 2015). Since the reported SRMR index is 0.043, the model is adequately fitted. In addition, the closer the NFI value is to one, the better the model fit. The reported NFI index (0.880) is close to the recommended threshold (≥ 0.90) (Henseler et al., 2016), a result that further substantiates the adequacy of the fitted model.

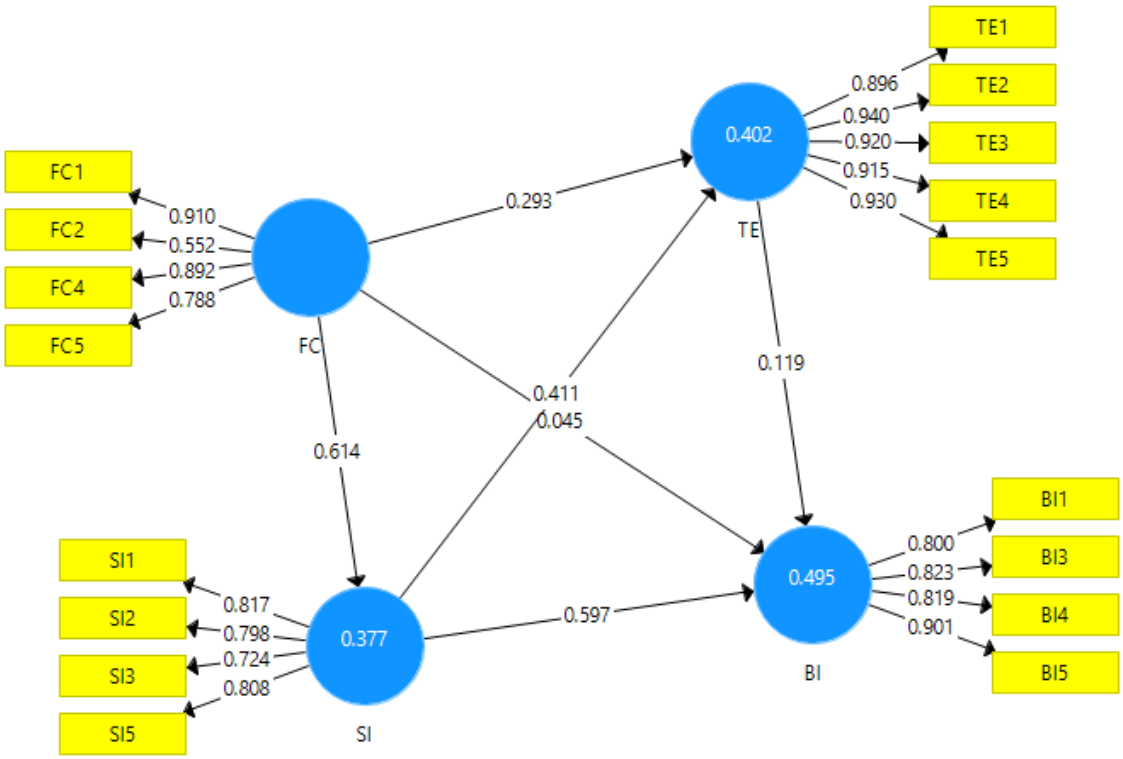


Figure 2. The Consequential Model

Testing the Research Hypotheses

Table 5 depicts the causal relationships (paths) between the exogenous and endogenous variables in the structural model. It also shows the direct, indirect, and total path coefficients, t-values, and p-values. Direct effects are the influences of the exogenous variables on the outcome variables that are not mediated by any other variable in the model, while indirect effects are the influences that are mediated by intervening variables. The total path coefficients, which determine the magnitude of the direct and indirect effects that the exogenous variables have on the endogenous variables (Albers, 2010), are used to test H1a, H1b, H1c, H2a, H2b, and H3.

Table 5. Path coefficients

Paths	Path Coefficients	T-Value	P-Value	Sig.*	Hypothesis
Direct Effects					
FC ➡ BI	0.045	0.460	0.646	NS	
FC ➡ SI	0.614	8.959	0.000	S	
FC ➡ TE	0.293	3.404	0.001	S	
SI ➡ BI	0.597	5.494	0.000	S	
SI ➡ TE	0.411	4.573	0.000	S	
TE ➡ BI	0.119	1.169	0.243	NS	

Paths	Path Coefficients	T-Value	P-Value	Sig.*	Hypothesis
Total Indirect Effects					
FC ➡ BI	0.431	5.703	0.000	S	
FC ➡ TE	0.252	4.480	0.000	S	
SI ➡ BI	0.049	1.095	0.273	NS	
Total Effects					
FC ➡ BI	0.476	6.763	0.000	S	H1a
FC ➡ SI	0.614	8.959	0.000	S	H1b
FC ➡ TE	0.545	8.616	0.000	S	H1c
SI ➡ BI	0.646	7.126	0.000	S	H2a
SI ➡ TE	0.411	4.573	0.000	S	H2b
TE ➡ BI	0.119	1.169	0.243	NS	H3

* S = Significant, NS = Not Significant

FC has significant positive effects on BI (PC = 0.476, $p < 0.001$), SI (PC = 0.614, $p < 0.001$), and TE (PC = 0.545, $p < 0.001$). These results support H1a, H1b, and H1c. Also, SI has significant positive effects on BI (PC = 0.646, $p < 0.001$) and TE (PC = 0.411, $p < 0.001$). These results support H2a and H2b. TE has a non-significant positive effect on BI (PC = −0.119, $p = 0.243$), a result that supports the rejection of H3. Although FC has a non-significant direct effect on BI (PC = 0.045, $p = 0.646$), its significant indirect positive effect on BI (PC = 0.431, $p < 0.001$) makes its total effect on BI significant. Moreover, although FC has a significant effect on TE (PC = 0.252, $p < 0.001$), this effect is not enough to change the non-significant total effect of TE on BI to one that is significant.

In addition, we performed the Multigroup Analysis (MGA) bootstrapping technique to test the moderating effects of the individual differences of gender, age, and prior tablet PC experience on the paths from FC, SI, and TE to BI. This analysis evaluates whether the path coefficients of the estimated model vary significantly across groups in the data set (Hair et al., 2014; Matthews, 2017). As such, we used the results of the non-parametric Welch–Satterthwait test (Moser & Stevens, 1992) to evaluate whether each group has the same mean, assuming they do not have the same variance.

The results in Table 6 suggest the existence of non-significant effects (p-values > 0.05) of gender (male vs. female), age (older vs. younger), and prior tablet PC experience (less experienced vs. more experienced) on total path coefficients from FC, SI, and TE to BI. These results, therefore, support the rejection of H4a, H4b, H4c, H5a, H5b, H5c, H6a, H6b, and H6c. The results, however, suggest that the heterogeneity in the data set is inconsequential, and the model produced from the entire data set is robust.

Table 6. The moderating effects of gender, age, and prior tablet PC experience

Path	Total Path Coefficient Difference	T-Value	P-Value	Sig.*	Hypothesis
Gender: Female (n= 164) vs. Male (n = 41)					
FC ➡ BI	−0.090	0.336	0.739	NS	H4a
SI ➡ BI	0.417	0.829	0.412	NS	H4b
TE ➡ BI	−0.406	0.889	0.379	NS	H4c

Path	Total Path Coefficient Difference	T-Value	P-Value	Sig.*	Hypothesis
Age: Older (n= 100) vs. Younger (n = 105)					
FC ➡ BI	−0.049	0.366	0.715	NS	H5a
SI ➡ BI	−0.029	0.190	0.850	NS	H5b
TE ➡ BI	−0.024	0.129	0.898	NS	H5c
Prior tablet PC Experience: More Experienced (n = 65) vs. Less Experienced (n = 140)					
FC ➡ BI	0.012	0.088	0.930	NS	H6a
SI ➡ BI	0.072	0.454	0.651	NS	H6b
TE ➡ BI	−0.086	0.390	0.698	NS	H6c

* S = Significant (hypothesis is accepted), NS = Not Significant (hypothesis is rejected)

DISCUSSION

Drawing on the UTAUT and TPACK models, we adapted a research model to study the effects of FC, SI, and TE on high school teachers' BI to continue using the tablet PC in teaching as well as to examine the moderating effects of gender, age, and prior tablet PC experience on these effects. The analysis reveals that while the effects of FC and SI on BI are significant, the effects of TE as well as the three moderators are not. In addition, the consequential model explains approximately 50% of the teachers' continuous intentions to adopt the tablet PC in teaching, a result that implies a moderate predictive power for the model. These results, in part, confirm that UTAUT can be aptly used to understand and predict teachers' intentions to integrate IT in teaching in various education systems (Anderson et al., 2006; Demissie & Alemu, 2017).

Teachers in our sample partially intend to continue using the tablet PC, as only 50% of them expected to do so. In addition, although teachers hold prudent perceptions of the existing FCs, experience SI to adopt the system in teaching, and have modest TPACK knowledge and skills (i.e., TE), their intention to continue using the tablet PC in future teaching is, at best, modest. This partial intention comprises continuously using the tablet PC in instructional activities (e.g., online testing and evaluation of students' performance, outfitting teaching methods to students' learning needs, interacting with students all the time, and preparing and presenting online learning modules and information).

The intention to continue using the tablet PC is expected to translate into actual adoption in future instruction (M. A. Graham et al., 2020; Kim & Lee, 2020; Ma et al., 2020; Mohammad-Salehi et al., 2021; Venkatesh et al., 2016). As teachers believe more in using the tablet PC in instruction, the potential of actually using it will increase. This intention, however, may not necessarily be followed by actual behavior, nor is it necessarily plausible that such behavior, if undertaken, will be successful (Ouellette & Wood, 1998).

In addition, teachers in our sample believe they are discreetly pressured by individuals considered significant to them (e.g., peer teachers, administrators, students, and family members) to continue using the tablet PC in teaching activities (e.g., interacting with students, preparing and presenting teaching material, and testing and grading). We hypothesized SI to have a positive effect on BI, and the analysis revealed that SI has the strongest total effect on BI, with a significant (PC = 0.597, $p < 0.001$) direct effect and non-significant indirect effect (PC = 0.049, $p = 0.273$) via TE. The non-significant indirect effect of SI suggests that the social pressure on teachers to continue using tablet PCs in teaching does not reinforce their TE enough to significantly influence their intention to continue using the system. Yet, the higher the social pressure from significant referents to continue using the tablet PC in teaching, the stronger the teachers' intention to continue using the system. This result supports the

findings of several previous studies (e.g., Bakar & Razak, 2014; Brata & Amalia, 2018; Kim & Lee, 2020; Sung & Shin, 2017; Teo et al., 2019; C. S. Wang et al., 2017). Kuwait is a collectivist society where strong emphasis is placed on belonging to the group (Almutairi et al., 2020; Hofstede & Bond, 1988), and SI appears to be a significant conduit through which culture manifests and impacts teachers' continuous intention to adopt the tablet PC in teaching. This finding supports those of several earlier studies (e.g., Brata & Amalia, 2018).

FC also has a significant total effect on BI, although its direct effect on BI is non-significant. This non-significant direct effect of FC on BI is inconsistent with the UTAUT postulations and is contrary to the results of several previous studies (e.g., Groves & Zemel, 2000; Kim & Lee, 2020; Ma et al., 2020; Mohammad-Salehi et al., 2021; Salloum & Shaalan, 2018; Teo, 2011; Venkatesh et al., 2003). In this study, FC influences BI indirectly through its effect on both SI and TE. This indirect FC influence on BI confirms the findings of a few previous studies (e.g., Teo & van Schalk, 2009; C. S. Wang et al., 2017). As such, having access to sufficient classroom technical resources (e.g., internet accessibility, computer, interactive whiteboard, projection system, etc.), tablet PC resources (e.g., hardware, applications, user interface, internet connectivity, etc.), adequate technical support from IT personnel, and a supportive managerial and organizational atmosphere enhances teachers' efficacy and capability to integrate and use IT in teaching practice and to increase the recognized social pressure of significant others to continue using the system in their teaching.

Evidently, FC can boost teachers' intentions to continue using the tablet PC in teaching because it reinforces their beliefs that the system is easy to use and useful, they possess the requisite knowledge and skills (i.e., TE) to adopt the system, and they are socially compelled to continue using the system in their teaching. Since teachers in the sample are impartial about the adequacy of the FCs in their schools, they should have access to better technical support and various hardware and software resources to continue using tablet PCs in teaching. This result corroborates the findings of other studies (e.g., Alenezi, 2018; Mohammad, 2014), which were conducted in similar Kuwaiti educational systems.

Furthermore, teachers in our sample perceive their TE to be only fair. They hold sensible beliefs that they can use their professional and technological knowledge and skills to properly integrate instructional means into their courses, apply instructional approaches and IT applications to effectively teach their content, and play a leading role in integrating IT into the curriculum (AlQenaei et al., 2021). While we found TE to have a significant total (direct and indirect) effect on the teachers' adoption of the tablet PC in teaching (AlQenaei et al., 2021), it has a non-significant direct effect on their BI to continue using the system in their teaching. This result, which supports the findings of a few previous studies (e.g., Joo et al., 2018; Mohammad-Salehi et al., 2021), is mystifying. While teachers' beliefs about their IT knowledge and skills influence their use behavior of the system, they do not influence their intentions to continue using the system in teaching. This result implies that teachers' knowledge and skills of technology, pedagogy, and content (i.e., TPACK) are not sufficient to drive them to continue using the system.

It is also plausible that the teachers in the sample have had unpleasant experiences using the system and encountered technical and managerial difficulties that nullified the effect of TE on their intention to continue using it in future teaching. In other words, teachers' beliefs about their ability to use IT in teaching are only one of the multiple factors that influence effective and meaningful IT integration in a teaching/learning setting (Bandura, 1997). This result of a non-significant effect of TE on BI is in line with the findings of several previous studies (e.g., Joo et al., 2018; Koehler et al., 2014; Mohammad-Salehi et al., 2021; Roussinos & Jimoyiannis, 2019).

Moreover, gender, age, and tablet PC experience unexpectedly have non-significant effects on the paths from FC, SI, and TE to BI. These results are inconsistent with the postulations of the UTAUT model and the findings of several previous studies (e.g., Brown et al., 2021; S. Hu et al., 2020; Morris et al., 2005; Sung & Shin, 2017; L. Wang et al., 2004). It appears that teachers in the sample

experience similar intentions regarding their continuous adoption of the tablet PC in teaching regardless of their individual characteristics and previous technology use circumstances. Alternatively, our measures may have not captured enough individual differences among the investigated subgroups (male vs female, older vs younger, and less tablet PC experience vs more tablet PC experience). For instance, male respondents compose only 20% of the sample, and the subgroups for age and tablet PC experience were arbitrarily identified. Future research should verify these moderating effects and examine the influence of the moderators' interaction effect on BI.

IMPLICATIONS

The results of the study benefit both researchers and practitioners. For researchers, the results add to the ongoing research aimed to understand the intention to continue using IT in instruction and its influential factors, especially since most earlier TPACK studies were carried out in Asian countries and the US (Roussinos & Jimoyiannis, 2019). Our results also confirm the value of UTAUT constructs (i.e., SI and FC) in predicting the intention to continue using tablet PCs by high school teachers in Arabian culture. In addition, our results validate the adapted research model, which explains approximately 50% of the variance in the teachers' intentions to continue using IT in education.

For practitioners, since this study is directly connected to the reality of IT adoption in teaching in the Kuwaiti high school system, the findings should be of value for the Kuwaiti educational system and future teachers' professional development initiatives. Our results should inform actions and strategies aimed at successfully integrating IT into high school education in Kuwait and other similar countries. As reported by AlQenaei et al. (2021), a few months after collecting the data set for this study, the Kuwaiti government decided to prematurely stop the Tablet Project without clearly stating pedagogical, educational, or technical reasons. Nevertheless, our results could guide future initiatives to integrate IT into pre-college education in Kuwait.

Our results imply that FC and SI are important predictors of teachers' intention to continue using IT in teaching activities. Teachers, however, are uncertain about the sufficiency of the received technical and organizational support (i.e., FC), and assert in their remarks that it is difficult to continue using the tablet PC in teaching mainly because of weak preparation for the initiative, a poor internet connection, lack of technical and managerial support, and inadequate training. Teachers' attitudes toward FC could be amended by providing them with sufficient technical and organizational infrastructures, augmenting their skills and knowledge through professional and technical programs, and providing them with adequate time to effectively prepare their content and teaching strategies. As such, it is essential to develop effective policies for adopting IT in learning in precollege education in Kuwait, establish a solid IT infrastructure, and provide teachers with adequate IT training (Javier, 2020). In addition, high schools managers should frequently assess the compatibility of the adopted IT with the learning objectives, assess IT proficiency requirements for teachers and students, and ensure IT meets the identified educational needs (Talosa et al., 2021)

Nevertheless, providing technical and organizational ecosystems that are conducive to sustainable IT integration in the Kuwaiti education system must be part of a more comprehensive initiative to digitize the entire network. As such, stakeholders (e.g., MOE officials, high school managers, teachers, and students) in the education system should embrace a digital mindset to adopt IT and transform the teaching, learning, and managerial processes (AlQenaei et al., 2021). This mindset must be a growth mindset which assumes that skills and abilities could be developed (Kooskora, 2021). IT integration initiatives should be adequately planned and documented to include the processes of content and pedagogical transformation, acquisition of requisite IT infrastructure, and readying teachers for the transformed teaching responsibilities. In addition, responsible administrators should undergo special development and training so that they can successfully lead the digitization process and support future initiatives to integrate IT into the educational processes.

In addition, TE has no effect on teachers' BI, a result that could be attributed to the reported low TE of the teachers. Therefore, future initiatives aimed to integrate IT in education in Kuwait should include technical and professional training programs to enhance in-service teachers' TPACK knowledge and boost favorable attitudes and beliefs toward IT's role in education. In addition, pre-service teachers' preparation programs should be frequently evaluated and amended to include coursework focused on developing TPACK knowledge and skills (Roussinos & Jimoyiannis, 2019).

Lastly, SI emerges as a strong predictor of teachers' intentions to continue using IT in teaching. Therefore, along with planning adequate technical and organizational infrastructures in support of future initiatives designed to integrate IT in education, officials in the MOE and high school system in Kuwait should leverage the culturally rooted SI to increase the likelihood of teachers' acceptance and adoption of IT in their teaching activities. They should plan and execute awareness plans targeting all groups of SI (e.g., peer teachers, administrators, students, and family members). These plans should inform these pressure groups about the benefits of adopting IT in education so that they can encourage teachers to take part in future initiatives designed to harness IT integration in teaching and learning.

LIMITATIONS AND FUTURE RESEARCH

This study has several limitations, and our results should therefore be cautiously interpreted. First, these results are derived solely from perceptual data collected from Kuwait and were quantitatively analyzed. These inherent constraints likely raise concerns about the validity of the results (Creswell, 2012). To further validate our results, future studies should employ different research methods, such as focus-group discussions and observations, to investigate teachers' IT adoption in various educational contexts.

Second, TE emerged as a non-significant predictor of BI. One plausible reason for this result is that our five-item measure of TE, adapted from TPACK measurement scales, may not sufficiently capture teachers' willingness and abilities to continue using IT in teaching. In addition, there is no TPACK scale that is considered appropriate across educational contexts, and the results on the demographic factors' effects on teachers' perceived TPACK knowledge are controversial. Future research may therefore adopt TE measures that focus mainly on the IT dimension of TPACK knowledge and skills (Roussinos & Jimoyiannis, 2019) to further investigate this factor and verify its significance as a predictor of teachers' intentions to continue using IT in instruction.

Third, BI is the dependent variable in this study, and teachers reportedly underrate their intention to continue using the system in their future teaching. Moreover, the predictive power of our research model is only moderate. Teachers could have underestimated their intentions to continue using the system because of different technical, organizational, and pedagogical issues that they encountered during the implementation phase of the Tablet Project. Therefore, similar future research designed to develop a better understanding of BI and the reasons behind suspending the project should adapt research models that include other exogenous factors (e.g., EE, PE, voluntariness, espoused culture) and adopt, when possible, more objective measures for these factors.

Fourth, the generalizability of our results suffers since they are drawn from a data set that was collected from public high schools in Kuwait. However, private schools in Kuwait operate under dissimilar technical, organizational, managerial, and regulatory conditions. To enhance the external validity of our results, future research should consider replicating this study and investigating teachers' intentions to continue using IT in teaching and compare the results with those reported in the study (AlQenaei et al., 2021).

Finally, this research informs only on the teachers' perspective on the intention to continue using the tablet PC in high schools in Kuwait. Yet, the successful integration of IT in education depends on IT adoption not only by teachers but also by students. To gain a better understanding of the reasons behind the botched Tablet Project imitative, future research should investigate and produce results on

students' perspectives regarding their initial and continuous adoption of the tablet PC within the Tablet Project.

CONCLUSION

Teachers' decisions to adopt IT in teaching activities are paramount to the effective implementation of initiatives aimed to integrate IT into education (e.g., Alenezi, 2018; AlQenaei et al., 2021). This paper reports partial results of a research project designed to investigate the extent of high school teachers' adoption of IT in teaching, and the intention to continue its use in future teaching within the context of the Tablet Project initiative launched by the MOE in Kuwait during the 2015–2016 academic year. The initiative sought to engage teachers and students in a blended learning environment that combines face-to-face classroom instruction with online instruction. Three years later, however, it was unclear whether the project was sufficiently progressing. Subsequently, we launched a two-part research project to: (1) assess the extent to which public high school teachers adopted the tablet PC in teaching, and (2) estimate the teachers' intentions to continue using the tablet PC in their future teaching. While the results of the first part were reported by AlQenaei et al. (2021), this paper reports the results of the second part.

We adapted a research model and tested hypotheses to evaluate the teachers' BI to continue using the tablet PC in their future teaching and to estimate the influence of FC, SI, and TE on the teachers' BI. We also explored the moderating effects of gender, age, and prior tablet PC experience on the relationships between the exogenous variables (FC, SI, and TE) and BI. SI emerges as the strongest predictor of BI. Also, although teachers are indecisive about the sufficiency of the available technical and organizational infrastructures (FC), FC arises as a significant predictor of BI. Unexpectedly, however, TE and the three individual moderators turn out to have non-significant effects on BI. The consequential research model has moderate predictive power, as it explains approximately 50% of the variance in BI. Nevertheless, the teachers' reported low intention to continue using the tablet PC in future teaching corroborates scant information at the time of investigation claiming that the Tablet Project was not progressing sufficiently or achieving its objectives (AlQenaei et al., 2021). A few months later, the Kuwaiti government decided to halt the project.

Regardless of its constraints, these results extend our understanding of teachers' role in IT integration in education. They also benefit future initiatives aimed to successfully integrate IT into high school education in Kuwait and similar countries. Yet, effective integration of IT in education requires a comprehensive redesign and digitization of the entire educational system (AlQenaei et al., 2021). The digitization process should accentuate the founding of suitable organizational and technical infrastructures, deliver the required resources, supply the needed knowledge, and provide the proper support for future initiatives aimed to integrate IT into pre-college education. The process should also leverage Kuwait's collectivist culture and rich social capital to influence teachers' attitudes and beliefs toward augmenting IT in teaching and learning.

REFERENCES

Abbas, H., Khalil, O., & Hamdy, H. (2019). Determinants of the behavioral intention to adopt tablet computers in an Arabian milieu. *International Journal of Mobile Human Computer Interaction*, *11*(1), 16-39. https://doi.org/10.4018/IJMHCI.2019010102

Abbitt, J. T. (2011a). An investigation of the relationship between self-efficacy beliefs about technology integration and technological pedagogical content knowledge (TPACK) among preservice teachers. *Journal of Digital Learning in Teacher Education*, *27*(4), 134-143. https://doi.org/10.1080/21532974.2011.10784670

Abbitt, J. T. (2011b). Measuring technological pedagogical content knowledge in preservice teacher education: A review of current methods and instruments. *Journal of Research on Technology in Education*, *43*(4), 281-300. https://doi.org/10.1080/15391523.2011.10782573

Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. Springer. https://doi.org/10.1007/978-3-642-69746-3_2

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, *84*(5), 888-918. https://doi.org/10.1037/0033-2909.84.5.888

Al-Awidi, H., & Aldhafeeri, F. (2017). Teachers' readiness to implement digital curriculum in Kuwaiti schools. *Journal of Information Technology Education: Research*, *16*(1), 105-126. https://doi.org/10.28945/3685

Alayyar, G. M., Fisser, P., & Voogt, J. (2012). Developing technological pedagogical content knowledge in pre-service science teachers: Support from blended learning. *Australasian Journal of Educational Technology*, *28*(8), 1298-1316. https://doi.org/10.14742/ajet.773

Albers, S. (2010). PLS and success factor studies in marketing. In V. Esposito Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares* (Vol. II). Springer. https://doi.org/10.1007/978-3-540-32827-8_19

Aldhafeeri, F., Palaiologou, I., & Folorunsho, A. (2016). Integration of digital technologies into play-based pedagogy in Kuwaiti early childhood education: Teachers' views, attitudes and aptitudes. *International Journal of Early Years Education*, *24*(3), 342-360. https://doi.org/10.1080/09669760.2016.1172477

Alenezi, E. G. (2018). *An investigation of teacher's beliefs and attitudes regarding the use of tablet computers as a pedagogical tool in teaching practical studies (Electricity and Electronics) in Kuwait* [Unpublished doctoral dissertation. University of Southampton.]

Alfelaij, B. (2015). *The pedagogical affordances of smartphone applications for collaborative learning (CL) amongst pre-service teachers in Kuwait*. [Unpublished doctoral dissertation. University of Exeter.]

Alhashem, F., & Al-jafar, A. (2015). Assessing teacher's integration of technology and literacy in elementary science classrooms in Kuwait. *Asian Social Science*, *11*(18), 71-81. https://doi.org/10.5539/ass.v11n18p71

Alkhezzi, F., & Abdelmagid, R. F. (2011). Technology integration: The use of computers by elementary school Kuwaiti teachers. *Journal of the International Society for Teacher Education*, *15*(2), 1-18.

Almutairi, S., Heller, M., & Yen, D. (2020). Reclaiming the heterogeneity of the Arab states. *Cross Cultural & Strategic Management*, *28*(1), 158-176. https://doi.org/10.1108/CCSM-09-2019-0170

AlQenaei, Z. M., Khalil, O., & Aldekheel, A. Y. (2021). Integrating information technology in pre-college education in Kuwait: Teachers' perspectives on a botched initiative. *Journal of Information Technology Education: Research*, *20*, 529-558. https://doi.org/10.28945/4890

Anderson, J. E., Schwager, P. H., & Kerns, R. L. (2006). The drivers for acceptance of tablet PCs by faculty in a college of business. *Journal of Information Systems Education*, *17*(4), 429-440.

Arispe, K., & Blake, R. J. (2012). Individual factors and successful learning in a hybrid course. *System*, *40*(4), 449-465. https://doi.org/10.1016/j.system.2012.10.013

Auster, C. J. (2016). Blended learning as a potentially winning combination of face-to-face and online learning: An exploratory study. *Teaching Sociology*, *44*(1), 39-48. https://doi.org/10.1177/0092055X15619217

Bakar, A. A., & Razak, F. Z. (2014). The role of facilitating condition and social influence towards continuance intention to use e-learning. *International Journal of Technical Research and Applications*, *2*(1), 12-14.

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, *4*(3), 359-373. https://doi.org/10.1521/jscp.1986.4.3.359

Bandura, A. (1997). *Self-efficacy: the exercise of control*. W. H. Freeman.

Batiibwe, M. S., & Bakkabulindi, F. E. (2016). Technological Pedagogical Content Knowledge (TPACK) as a theory on factors of the use of IT in pedagogy: A review of literature. *International Journal of Education and Research, 4(11), 123-138*. http://www.ijern.com/journal/2016/November-2016/11.pdf

Bauer, J., & Kenton, J. (2005). Toward technology integration in the schools: Why it isn't happening. *Journal of Technology & Teacher Education*, *13*(4), 519-546. https://www.learntechlib.org/primary/p/4728/

Beal, C. R., & Rosenblum, L. P. (2018). Evaluation of the effectiveness of a tablet computer application (app) in helping students with visual impairments solve mathematics problems. *Journal of Visual Impairment and Blindness*, *112*(1), 5-19. https://doi.org/10.1177/0145482x1811200102

Brata, A. H., & Amalia, F. (2018). Impact analysis of social influence factor on using free blogs as learning media for driving teaching motivational factor. *Proceedings of the 4th International Conference on Frontiers of Educational Technologies, Moscow, Russian Federation*, 29-33. https://doi.org/10.1145/3233347.3233360

Brown, A., Bailey, J., Blackmore, K., Boogaard, S., & Nesbitt, K. (2021). Gender differences when adopting avatars for educational games. *Australasian Computer Science Week Multiconference, Dunedin, New Zealand.* https://doi.org/10.1145/3437378.3442691

Burden, K., Hopkins, P., Male, T., Martin, S., & Trala, C. (2012). *iPad Scotland evaluation (final evaluation report).* Faculty of Education, The University of Hull.

Butcher, J. (2016). Can tablet computers enhance learning in further education? *Journal of Further and Higher Education*, *40*(2), 207-226. https://doi.org/10.1080/0309877X.2014.938267

Byrd Steinweg, S., Carver Williams, S., & Stapleton, N. J. (2010). Faculty use of tablet PCs in teacher education and K-12 Settings. *TechTrends*, *54*(3), 54-61.

Chang, A. (2012). UTAUT and UTAUT 2: A review and agenda for future research. *The Winners*, *13*(2), 106-114. https://doi.org/10.21512/tw.v13i2.656

Chang, H. Y., Wu, H. K., & Hsu, Y. S. (2013). Integrating a mobile augmented reality activity to contextualize student learning of a socioscientific issue. *British Journal of Educational Technology*, *44*(3), 95-100. https://doi.org/10.1111/j.1467-8535.2012.01379.x

Chang, T. S., Lin, H. H., & Song, M. M. (2011). University faculty members' perceptions of their teaching efficacy. *Innovations in Education and Teaching International*, *48*(1), 49-60. https://doi.org/10.1080/14703297.2010.543770

Chanlin, L. J. (2017). Analysis of teachers' tablet teaching adoption process. *Kuram ve Uygulamada Egitim Bilimleri*, *17*(6), 1935-1958. https://doi.org/10.12738/estp.2017.6.0436

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research*. Erlbaum.

Chin, W. W., Gopal, A., & Salisbury, W. D. (1997). Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation. *Information Systems Research*, *8*(4), 342-367. https://doi.org/10.1287/isre.8.4.342

Ching, G. S., & Roberts, A. (2020). Evaluating the pedagogy of technology integrated teaching and learning: An overview. *International Journal of Research*, *9*(6), 37-50. https://doi.org/10.2307/1503216

Clark, W., & Luckin, R. (2013). *What the research says: iPads in the classroom*. London Knowledge Lab. https://digitalteachingandlearning.files.wordpress.com/2013/03/ipads-in-the-classroom-report-lkl.pdf

Couse, L. J., & Chen, W. (2010). A tablet computer for young children? *Journal of Research on Technology in Education*, *43*(1), 75-98. https://doi.org/10.1080/15391523.2010.10782562

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson Education.

Dang, M. Y., Zhang, G. Y., & Amer, B. (2019). Social networks among students, peer TAs, and instructors and their impacts on student learning in the blended environment: A model development and testing. *Communications of the Association for Information Systems*, *44*(1), 764-782. https://doi.org/10.17705/1CAIS.04436

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, *35*(8), 982-1003. https://doi.org/10.1287/mnsc.35.8.982

Delialioglu, O., & Yildirim, Z. (2007). Students' perceptions on effective dimensions of interactive learning in a blended learning environment. *Educational Technology and Society*, *10*(2), 133-146.

Demissie, D., & Alemu, D. (2017). An investigation into user adoption of personal safety devices in higher education using the Unified Theory of Acceptance and Use of Technology (UTAUT). *NERA Conference Proceedings*. http://opencommons.uconn.edu/nera-2017/3

Denison, A., Bate, E., & Thompson, J. (2016). Tablet versus paper marking in assessment: Feedback matters. *Perspectives on Medical Education*, *5*(2), 108-113. https://doi.org/10.1007/s40037-016-0262-8

Dhir, A., Gahwaji, N. M., & Nyman, G. (2013). The role of the iPad in the hands of the learner. *Journal of Universal Computer Science*, *19*(5), 706-727.

Di Marco, L., Venot, A., & Gillois, P. (2017). Does the acceptance of hybrid learning affect learning approaches in France? *Journal of Educational Evaluation for Health Professions*, *14*, 24. https://doi.org/10.3352/jeehp.2017.14.24

Diaz, M. C., & Loraas, T. (2010). Learning new uses of technology while on an audit engagement: Contextualizing general models to advance pragmatic understanding. *International Journal of Accounting Information Systems*, *11*(1), 61-77. https://doi.org/10.1016/j.accinf.2009.05.001

Doering, A., & Veletsianos, G. (2008). Hybrid online education: Identifying integration models using adventure learning. *Journal of Research on Technology in Education*, *41*(1), 23-41. https://doi.org/10.1080/15391523.2008.10782521

Durak, H., & Saritepeci, M. (2017). Investigating the effect of technology use in education on classroom management within the scope of the FATIH Project. *Cukurova University Faculty of Education Journal*, *46*(2), 441-457. https://doi.org/10.14812/cuefd.303511

Duran, M., & Aytaç, T. (2016). Students' opinions on the use of tablet computers in education. *European Journal of Contemporary Education*, *15*(1), 65-75. https://doi.org/10.13187/ejced.2016.15.65

Engelbertink, M. M. J., Kelders, S. M., Woudt-Mittendorff, K. M., & Westerhof, G. J. (2020). Participatory design of persuasive technology in a blended learning course: A qualitative study. *Education and Information Technologies*, 4115-4138. https://doi.org/10.1007/s10639-020-10147-x

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, *42*(3), 255-284. https://doi.org/10.1080/15391523.2010.10782551

Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, *59*(2), 423-435. https://doi.org/10.1016/j.compedu.2012.02.001

Falloon, G., & Khoo, E. (2014). Exploring young students' talk in iPad-supported collaborative learning environments. *Computers and Education*, *77*(August), 13-28. https://doi.org/10.1016/j.compedu.2014.04.008

Fishbein, M., Ajzen, I., & Belief, A. (1975). *Intention and behavior: An introduction to theory and research*. Addison-Wesley.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50. https://doi.org/10.1177/002224378101800104

Gerbic, P. (2011). Teaching using a blended approach - What does the literature tell us? *Educational Media International*, *48*(3), 221-234. https://doi.org/10.1080/09523987.2011.615159

Görhan, M. F. (2014). Tablets in education: Outcome expectancy and anxiety of middle school students. *Educational Sciences: Theory & Practice*, *14*(6), 2259-2272. https://doi.org/10.12738/estp.2014.6.2230

Graham, C. R., Borup, J., Pulham, E., & Larsen, R. (2019). K-12 blended teaching readiness: Model and instrument development. *Journal of Research on Technology in Education*, *51*(3), 239-258. https://doi.org/10.1080/15391523.2019.1586601

Graham, M. A., Stols, G., & Kapp, R. (2020). Teacher practice and integration of ICT: Why are or aren't South African teachers using ICTs in their classrooms. *International Journal of Instruction*, *13*(2), 749-766. https://doi.org/10.29333/iji.2020.13251a

Groves, M. M., & Zemel, P. C. (2000). Instructional technology adoption in higher education: An action research case study. *International Journal of Instructional Media*, *27*(1), 57.

Hair, J. F., Barry, J. B., Rolph, E. A., & Rolph, E. A. (2010). *Multivariate data analysis* (7th ed.). Prentice Hall.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139-151. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review, 5*(1), 105-115. https://doi.org/10.1016/j.jfbs.2014.01.002

Hamzah, A. (2018, November). Mapping the determining factors of mobile learning adoption in high school. *Proceedings of the 2nd International Conference on Education and e-Learning*, *Bali, Indonesia,* 136-139. https://doi.org/10.1145/3291078.3291082

Handoko, B. L. (2019). Application of UTAUT theory in higher education online learning. *Proceedings of the 10th International Conference on E-Business, Management and Economics*, 259-264. https://doi.org/10.1145/3345035.3345047

Harrell, K. B., & Wendt, J. L. (2019). The impact of blended learning on community of inquiry and perceived learning among high school learners enrolled in a public charter school. *Journal of Research on Technology in Education*, *51*(3), 259-272. https://doi.org/10.1080/15391523.2019.1590167

Henderson, K., Gibson, C., & Gibb, F. (2013). The impact of tablet computers on students with disabilities in a Higher Education setting. *Technology and Disability*, *25*(2), 61-76. https://doi.org/10.3233/TAD-130365

Henseler, J. (2010). On the convergence of the partial least squares path modeling algorithm. *Computational Statistics*, *25*(1), 107-120. https://doi.org/10.1007/s00180-009-0164-x

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management and Data Systems*, *116*(1), 2-20. https://doi.org/10.1108/IMDS-09-2015-0382

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*, 115-135. https://doi.org/10.1007/s11747-014-0403-8

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, *55*(3), 223-252. https://doi.org/10.1007/s11423-006-9022-5

Hockly, N. (2018). Blended learning. *ELT Journal*, *72*(1), 97-101. https://doi.org/10.24919/2308-4634.2018.155505

Hofstede, G., & Bond, M. H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, *16*(4), 5-21. https://doi.org/10.1016/0090-2616(88)90009-5

Hoy, A. W. (2004). Self-efficacy in college teaching. *Essays on Teaching Excellence: Toward the Best in the Academy*, *15*(7), 8-11.

Hsu, C.-Y., & Tsai, M.-J., Chang, Y.-H., & Liang, J.-C. (2017). Surveying in-service teachers' beliefs about game-based learning and perceptions of technological pedagogical and content knowledge of games. *Journal of Educational Technology & Society*, *20*(1), 134-143.

Hsu, L. (2016). Examining EFL teachers' technological pedagogical content knowledge and the adoption of mobile-assisted language learning: A partial least square approach. *Computer Assisted Language Learning*, *29*(8), 1287-1297. https://doi.org/10.1080/09588221.2016.1278024

Hu, H., & Garimella, U. (2014). iPads for STEM teachers: A case study on perceived usefulness, perceived proficiency, intention to adopt, and integration in K-12 instruction. *Journal of Educational Technology Development and Exchange*, *7*(1). https://doi.org/10.18785/jetde.0701.04

Hu, S., Laxman, K., & Lee, K. (2020). Exploring factors affecting academics' adoption of emerging mobile technologies – An extended UTAUT perspective. *Education and Information Technologies*, *25*(5), 4615-4635. https://doi.org/10.1007/s10639-020-10171-x

Hwang, Y. (2005). Investigating enterprise systems adoption: Uncertainty avoidance, intrinsic motivation, and the technology acceptance model. *European Journal of Information Systems*, *14*(2), 150-161. https://doi.org/10.1057/palgrave.ejis.3000532

Ifenthaler, D., & Schweinbenz, V. (2013). The acceptance of Tablet-PCs in classroom instruction: The teachers' perspectives. *Computers in Human Behavior*, *29*(3), 525-534. https://doi.org/10.1016/j.chb.2012.11.004

Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption: Testing the UTAUT model. *Information & Management*, *48*(1), 1-8. https://doi.org/10.1016/j.im.2010.09.001

Jang, S.-J. (2010). Integrating the interactive whiteboard and peer coaching to develop the TPACK of secondary science teachers. *Computers & Education*, *55*(4), 1744-1751. https://doi.org/10.1016/j.compedu.2010.07.020

Jang, S.-J., & Chang, Y. (2016). Exploring the technical pedagogical and content knowledge (TPACK) of Taiwanese university physics instructors. *Australasian Journal of Educational Technology*, *32*(1), 107-122. https://doi.org/10.14742/ajet.2289

Javier, B. S. (2020). Organizational e-learning readiness in a state university in Northern Philippines: Inputs for refining instructional quality. *International Journal of Innovative Technology and Exploring Engineering*, *82*, 5560-5569.

Joo, Y. J., Park, S., & Lim, E. (2018). Factors influencing preservice teachers' intention to use technology: TPACK, teacher self-efficacy, and technology acceptance model. *Educational Technology & Society*, *21*(3), 48-59.

Kabakci Yurdakul, I., & Çoklar, A. N. (2014). Modeling preservice teachers' TPACK competencies based on ICT usage. *Journal of Computer Assisted Learning*, *30*(4), 363-376. https://doi.org/10.1111/jcal.12049

Kalogiannakis, M., & Papadakis, S. (2017, August). Pre-service kindergarten teachers acceptance of "ScratchJr" as a tool for learning and teaching computational thinking and science education. *Proceedings of the 12th Conference of the European Science Education Research Association*, *Dublin, Ireland,* 21-25.

Kalogiannakis, M., & Papadakis, S. (2020). The use of developmentally mobile applications for preparing preservice teachers to promote STEM activities in preschool classrooms. In S. Papadakis & M. Kalogiannakis (Eds.), *Mobile learning applications in early childhood education* (pp. 82-100). IGI Global.

Kalonde, G. (2017). Technology use in rural schools: A study of a rural high school trying to use iPads in the classroom. *Rural Educator*, *38*(3), 27-38. https://doi.org/10.35608/ruraled.v38i3.218

Karsenti, T., & Fievez, A. (2013). *The iPad in education: Uses, benefits, and challenges - A survey of 6,057 students and 302 teachers in Quebec, Canada.* CRIFPE.

Kim, J., & Lee, K. S.-S. (2020). Conceptual model to predict Filipino teachers' adoption of ICT-based instruction in class: Using the UTAUT model. *Asia Pacific Journal of Education*, 1-15. https://doi.org/10.1080/02188791.2020.1776213

Kimmerl, J. (2020, December). Does who am I as a teacher matter? Exploring determinants of teachers' learning management system adoption in education style. *Proceedings of the Forty-First International Conference on Information Systems, India.*

Koehler, M. J., & Mishra, P. (2008). Introducing TPCK. In AACTE Committee on Innovation and Technology (Ed.), *The handbook of technological pedagogical content knowledge (TPCK) for educators* (pp. 3-29). Routledge.

Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S., & Graham, C. R. (2014). The technological pedagogical content knowledge framework. In J. Spector, M. Merrill, J. Elen, & M. Bishop (Eds.) *Handbook of research on educational communications and technology* (pp. 101-111). Springer. https://doi.org/10.1007/978-1-4614-3185-5_9

Koehler, M. J., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher knowledge in a design seminar: Integrating content, pedagogy and technology. *Computers & Education*, *49*, 740-762. https://doi.org/10.1016/j.compedu.2005.11.012

Koh, J. H. L., Chai, C. S., & Tay, L. Y. (2014). TPACK-in-Action: Unpacking the contextual influences of teachers' construction of technological pedagogical content knowledge (TPACK). *Computers & Education*, *78*, 20-29. https://doi.org/10.1016/j.compedu.2014.04.022

Koh, J. H. L., Woo, H.-L., & Lim, W.-Y. (2013). Understanding the relationship between Singapore preservice teachers' ICT course experiences and technological pedagogical content knowledge (TPACK) through ICT course evaluation. *Educational Assessment, Evaluation and Accountability*, *25*(4), 321-339. https://doi.org/10.1007/s11092-013-9165-y

Kooskora, M. (2021). The role of an entrepreneurial mindset in digital transformation – Case study of the Estonian Business School. In M. Soltanifar, M. Hughes, & L. Göcke, L. (Eds.) *Digital entrepreneurship. Future of Business and Finance* (p. 143-164). Springer. https://doi.org/10.1163/17932548-12341445

Kriek, J., & Stols, G. (2010). Teachers' beliefs and their intention to use interactive simulations in their classrooms. *South African Journal of Education*, *30*(3), 439-456. https://doi.org/10.15700/saje.v30n3a284

Lakhal, S., Khechine, H., & Pascot, D. (2013). Student behavioural intentions to use desktop video conferencing in a distance course: Integration of autonomy to the UTAUT model. *Journal of Computing in Higher Education*, *25*(2), 93-121. https://doi.org/10.1007/s12528-013-9069-3

Lapitan, L. D., Tiangco, C. E., Sumalinog, D. A. G., Sabarillo, N. S., & Diaz, J. M. (2021). An effective blended online teaching and learning strategy during the COVID-19 pandemic. *Education for Chemical Engineers*, *35*, 116-131. https://doi.org/10.1016/j.ece.2021.01.012

Leinonen, T., Keune, A., Veermans, M., & Toikkanen, T. (2014). Mobile apps for reflection in learning: A design research in K-12 education. *British Journal of Educational Technology*, *47*(1), 184-202. https://doi.org/10.1111/bjet.12224

Lin, P. C., Lu, H. K., & Liu, S. C. (2013). Towards an education behavioral intention model for e-learning systems: An extension of UTAUT. *Journal of Theoretical and Applied Information Technology*, *47*(3), 1200-1207.

Liu, Q., Zhang, S., & Wang, Q. (2015). Surveying Chinese in-service K12 teachers' technology, pedagogy, and content knowledge. *Journal of Educational Computing Research*, *53*(1), 55-74. https://doi.org/10.1177/0735633115585929

Luik, P., Taimalu, M., & Suviste, R. (2018). Perceptions of technological, pedagogical and content knowledge (TPACK) among pre-service teachers in Estonia. *Education and Information Technologies*, *23*(2), 741-755. https://doi.org/10.1007/s10639-017-9633-y

Ma, M., Chen, J., Zheng, P., & Wu, Y. (2020). Factors affecting EFL teachers' affordance transfer of ICT resources in China. *Interactive Learning Environments*, *30*(6), 1044-1059. https://doi.org/10.1080/10494820.2019.1709210

Mac Callum, K. (2010, July). Attitudes of educators to the introduction of mobile technology. *Proceedings of the 1st Annual Conference of Computing and Information Technology Research and Education New Zealand, Dunedin, New Zealand,* 139-150. https://www.citrenz.ac.nz/conferences/2010/papers10/139.pdf

Mac Callum, K., & Jeffrey, L. (2013). The influence of students' ICT skills and their adoption of mobile learning. *Australasian Journal of Educational Technology*, *29*(3), 303-314. https://doi.org/10.14742/ajet.298

Mailizar, M., Hidayat, M., & Al-Manthari, A. (2021). Examining the impact of mathematics teachers' TPACK on their acceptance of online professional development. *Journal of Digital Learning in Teacher Education*, *37*(3), 196-212. https://doi.org/10.1080/21532974.2021.1934613

Maita, I., Saide, Indrajit, R. E., & Irmayani, A. (2018). User behavior analysis in academic information system using unified theory of acceptance and use of technology (UTAUT). *Proceedings of the 1st International Conference on Internet and E-Business, Singapore,* 223-228. https://doi.org/10.1145/3230348.3230351

Major, L., Haßler, B., & Hennessy, S. (2017). Tablet use in schools: Impact, affordances and considerations. In A. Marcus-Quinn, & T. Hourigan (Eds.) *Handbook on digital learning for K-12 schools* (pp. 115-128). Springer. https://doi.org/10.1007/978-3-319-33808-8

Marcoulides, G. A., & Saunders, C. (2006). PLS: A silver bullet? *Management Information Systems Quarterly*, *30*(2), 1-8. https://doi.org/10.2307/25148727

Matthews, L. (2017). Applying multigroup analysis in PLS-SEM: A step-by-step process. In H. Latan, & R. Noonan (Eds.), *Partial least squares path modeling* (pp. 219-243). Springer. https://doi.org/10.1007/978-3-319-64069-3_10

Mayer, P., & Girwidz, R. (2019). Physics teachers' acceptance of multimedia applications – Adaptation of the technology acceptance model to investigate the influence of TPACK on physics teachers' acceptance behavior of multimedia applications. *Frontiers in Education*, *4*, 73. https://doi.org/10.3389/feduc.2019.00073

McEwen, R. N., & Dubé, A. K. (2015). Engaging or distracting: Children's tablet computer use in education. *Educational Technology and Society*, *18*(4), 9-23.

McGuire, M. (2016). Open courses, informal, social learning and mobile photography. *International Journal of Mobile Human Computer Interaction*, *8*(4), 17-33. https://doi.org/10.4018/IJMBL.2016100102

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108*(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Mohammad, H. (2014). *Understanding the impact of a reflective practice-based continuing professional development programme on Kuwaiti primary teacher's integration of ICT* [Unpublished Doctoral Thesis. University of Exeter, UK.]

Mohammad-Salehi, B., Vaez-Dalili, M., & Heidari Tabrizi, H. (2021). Investigating factors that influence EFL teachers' adoption of Web 2.0 technologies: Evidence from applying the UTAUT and TPACK. *TESL-EJ*, *25*(1), 1-21.

Montrieux, H., Schellens, T., Van Landeghem, J., & Mouton, T. (2016). Introducing tablet devices during mathematics education: 'Is it really a magical learning tool?' *PONTE: Multidisciplinary Journal of Science and Research*, *72*(7), 393-410.

Montrieux, H., Vanderlinde, R., Schellens, T., & de Marez, L. (2015). Teaching and learning with mobile technology: A qualitative explorative study about the introduction of tablet devices in secondary education. *PLoS ONE*, *10*(12), 1-18. https://doi.org/10.1371/journal.pone.0144008

Moran, M., Hawkes, M., & el Gayar, O. (2010). Tablet personal computer integration in higher education: Applying the unified theory of acceptance and use technology model to understand supporting factors. *Journal of Educational Computing Research*, *42*(1), 79-101. https://doi.org/10.2190/EC.42.1.d

Morris, M. G., Venkatesh, V., & Ackerman, P. L. (2005). Gender and age differences in employee decisions about new technology: An extension to the theory of planned behavior. *IEEE Transactions on Engineering Management*, *52*(1), 69-84. https://doi.org/10.1109/TEM.2004.839967

Moser, B. K., & Stevens, G. R. (1992). Homogeneity of variance in the two-sample means test. *The American Statistician*, *46*(1), 19-21. https://doi.org/10.1080/00031305.1992.10475839

Napier, N. P., & Smith, S. (2009). Assessing blended learning: Student outcomes and perceptions. *Proceedings of the 15th Americas Conference on Information Systems,* 1925-1931.

Nguyen, L., Barton, S. M., & Nguyen, L. T. (2015). iPads in higher education - Hype and hope. *British Journal of Educational Technology*, *46*(1), 190-203. https://doi.org/10.1111/bjet.12137

Nikou, S. A., & Economides, A. A. (2017). Mobile-based assessment: Investigating the factors that influence behavioral intention to use. *Computers & Education*, *109*, 56-73. https://doi.org/10.1016/j.compedu.2017.02.005

O'Byrne, W. I., & Pytash, K. E. (2015). Hybrid and blended learning: Modifying pedagogy across path, pace, time, and place. *Journal of Adolescent and Adult Literacy*, *59*(2), 137-140. https://doi.org/10.1002/jaal.463

O'Connell, S. D., & Lang, G. (2018). Can personalized nudges improve learning in hybrid classes? Experimental evidence from an introductory undergraduate course. *Journal of Research on Technology in Education*, *50*(2), 105-119. https://doi.org/10.1080/15391523.2017.1408438

Okumuş, S., Lewis, L., Wiebe, E., & Hollebrands, K. (2016). Utility and usability as factors influencing teacher decisions about software integration. *Educational Technology Research and Development*, *64*(6), 1227-1249. https://doi.org/10.1007/s11423-016-9455-4

Olapiriyakul, K., & Scher, J. M. (2006). A guide to establishing hybrid learning courses: Employing information technology to create a new learning experience, and a case study. *Internet and Higher Education*, *9*(4), 287-301. https://doi.org/10.1016/j.iheduc.2006.08.001

Orlikowski, W. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science*, *11*(4), 404-428. https://doi.org/10.1287/orsc.11.4.404.14600

Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, *124*(1), 54-74. https://doi.org/10.1037/0033-2909.124.1.54

Oye, N. D., A.Iahad, N., & Ab.Rahim, N. (2014). The history of UTAUT model and its impact on ICT acceptance and usage by academicians. *Education and Information Technologies*, *19*(1), 251-270. https://doi.org/10.1007/s10639-012-9189-9

Pamuk, S., Ergun, M., Çakir, R., Yilmaz, H. B., & Ayas, C. (2013). The use of tablet PC and interactive board from the perspectives of teachers and students: Evaluation of the FATIH project. *Kuramve Uygulamada Egitim Bilimleri*, *13*(3), 1815-1822. https://files.eric.ed.gov/fulltext/EJ1017725.pdf

Papadakis, S., & Kalogiannakis, M. (2022). Exploring preservice teachers' attitudes about the usage of educational robotics in preschool education. In Information Resources Management Association (Eds). *Research Anthology on Computational Thinking, Programming, and Robotics in the Classroom* (pp. 807-823). IGI Global. https://doi.org/10.4018/978-1-6684-2411-7.ch035

Papadakis, S., Vaiopoulou, J., Sifaki, E., Stamovlasis, D., & Kalogiannakis, M. (2021). Attitudes towards the use of educational robotics: Exploring pre-service and in-service early childhood teacher profiles. *Education Sciences*, *11*(5), 204. https://doi.org/10.3390/educsci11050204

Park, S.-H., Lee, L., & Yi, M. Y. (2011). Group-level effects of facilitating conditions on individual acceptance of information systems. *Information Technology and Management*, *12*(4), 315-334. https://doi.org/10.1007/s10799-011-0097-2

Phillips, M. D. (2014). *Teachers' TPACK enactment in a Community of Practice* [Doctoral dissertation, Monash University, Australia].

Phiri, A. C., Foko, T., & Mahwai, N. (2014). Evaluation of a pilot project on information and communication technology for rural education development: A Cofimvaba case study on the educational use of tablets. *International Journal of Education & Development Using Information & Communication Technology*, *10*(4), 60-79.

Pirhonen, A., & Rousi, R. (2018). Educational technology goes mobile: Why? A case study of Finland. *International Journal of Mobile Human Computer Interaction*, *10*(2), 65-73. https://doi.org/10.4018/IJMHCI.2018040104

Polly, D., McGee, F. R., & Sullivan, C. (2010). Employing technology-rich mathematical tasks to develop teachers' technological, pedagogical, and content knowledge (TPACK). *Journal of Computers in Mathematics and Science Teaching*, *29*(4), 455-472.

Porter, W. W., Graham, C. R., Bodily, R. G., & Sandberg, D. S. (2016). A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education. *Internet and Higher Education*, *28*, 17-27. https://doi.org/10.1016/j.iheduc.2015.08.003

Postholm, M. B. (2006). The teacher's role when pupils work on task using ICT in project work. *Educational Research*, *48*(2), 155-175. https://doi.org/10.1080/00131880600732256

Ranganathan, S., Negash, S., & Wilcox, M. (2007). Hybrid learning: Balancing face-to-face and online class sessions. *Proceeding of the 2007 Southern Association for Information Systems Conference,* 178–182.

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). A critical look at the use of PLS-SEM. *MIS Quarterly*, *36*(1), 3-14. https://doi.org/10.2307/41410402

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). *SmartPLS 3*. SmartPLS GmbH.

Roig-Vila, R., Mengual-Andres, S., & Quinto-Medrano, P. (2015). *Primary teachers' technological, pedagogical and content knowledge* (Vol. 45). Grupo Comunicar. https://doi.org/10.3916/C45-2015-1 6

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.

Roussinos, D., & Jimoyiannis, A. (2019). Examining primary education teachers' perceptions of TPACK and the related educational context factors. *Journal of Research on Technology in Education*, *51*(4), 377-397. https://doi.org/10.1080/15391523.2019.1666323

Saghafi, F., Moghaddam, E. N., & Aslani, A. (2017). Examining effective factors in initial acceptance of high-tech localized technologies: Xamin, Iranian localized operating system. *Technological Forecasting and Social Change*, *122*, 275-288. https://doi.org/10.1016/j.techfore.2016.04.010

Sahin, I. (2011). Development of survey of technological pedagogical and content knowledge (TPACK). *Turkish Online Journal of Educational Technology*, *10*(1), 97-105.

Salloum, S. A., & Shaalan, K. (2018). Factors affecting students' acceptance of e-learning system in higher education using UTAUT and structural equation modeling approaches. In A. Hassanien, M. Tolba, K. Shaalan, & A. Azar (Eds.), *Proceedings of the International Conference on Advanced Intelligent Systems and Informatics: Vol. 845*. Springer. https://doi.org/10.1007/978-3-319-99010-1_43

Sangeeta, & Tandon, U. (2020). Factors influencing adoption of online teaching by school teachers: A study during COVID-19 pandemic. *Journal of Public Affairs*, *21,* e2503. https://doi.org/10.1002/pa.2503

Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, *69*(10), 3998-4010. https://doi.org/10.1016/j.jbusres.2016.06.007

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann, & A. Vomberg (Eds.), *Handbook of market research* (pp. 587-632). Springer. https://doi.org/10.1007/978-3-319-57413-4_15

Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers and Education*, *128*, 13-35. https://doi.org/10.1016/j.compedu.2018.09.009

Schwarz, A., Junglas, I., & Krotov, V. (2004). An experimental study on the role of experience and compatibility in adapting mobile technologies. *Information Systems and e-Business Management*, *2*, 337-356. https://doi.org/10.1007/s10257-004-0046-2

Shen, C. W., Ho, J. T., Luong, T. H., & Kuo, T. C. (2017, April). Behavioral intention of using virtual reality in learning. *Proceedings of the 26th International Conference on World Wide Web Companion, Perth, Australia,* 129-137. https://doi.org/10.1145/3041021.3054152

Shmueli, G., Ray, S., Velasquez Estrada, J. M., & Shatla, S. B. (2016). The elephant in the room: Evaluating the predictive performance of PLS models. *Journal of Business Research*, *69*(10), 4552-4564. https://doi.org/10.1016/j.jbusres.2016.03.049

Srite, M., & Karahanna, E. (2006). The role of espoused national cultural values in technology acceptance. *MIS Quarterly*, *30*(3), 679-704. https://doi.org/10.2307/25148745

Sun, Z., & Jiang, Y. (2015). How the young generation uses digital textbooks via mobile learning terminals: Measurement of elementary school students in China. *British Journal of Educational Technology*, *46*(5), 961-964. https://doi.org/10.1111/bjet.12299

Sung, H., & Shin, J.-I. (2017). The effect of self-efficacy on behavioral intention through expectancy, social influence, and facilitating conditions in mobile learning: The moderating effect of gender. 인터넷전자상거래연구 [*Internet E-Commerce Research*], *17*(2), 39-52.

Talosa, A. D., Javier, B. S., & Dirain, E. L. (2021). The flexible-learning journey: Phenomenological investigation of self-efficacy influencing factors among higher education students. *Linguistics and Culture Review*, *5*(S3), 422-434. https://doi.org/10.21744/lingcure.v5nS3.1590

Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers and Education*, *57*(4), 2432-2440. https://doi.org/10.1016/j.compedu.2011.06.008

Teo, T., Lee, C. B., & Chai, C. S. (2008). Understanding pre-service teachers' computer attitudes: Applying and extending the technology acceptance model. *Journal of Computer Assisted Learning*, *24*(2), 128-143. https://doi.org/10.1111/j.1365-2729.2007.00247.x

Teo, T., Sang, G., Mei, B., & Hoi, C. K. W. (2019). Investigating pre-service teachers' acceptance of Web 2.0 technologies in their future teaching: A Chinese perspective. *Interactive Learning Environments*, *27*(4), 530-546. https://doi.org/10.1080/10494820.2018.1489290

Teo, T., & van Schalk, P. (2009). Understanding technology acceptance in pre-service teachers: A structural-equation modeling approach. *Asia-Pacific Education Researcher*, *18*(1), 47-66. https://doi.org/10.3860/taper.v18i1.1035

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, *15*(1), 125-143. https://doi.org/10.2307/249443

Ting, Y. Y., & Abdul Aziz, A. (2021). TESL teachers' online teaching during COVID-19: Preferences of online tools and factors affecting behavioural intention. *Malaysian Journal of Social Sciences and Humanities*, *6*(4), 161–177. https://doi.org/10.47405/mjssh.v6i4.739

Tzagkaraki, E., Papadakis, S., & Kalogiannakis, M. (2021). Exploring the use of educational robotics in primary school and its possible place in the curricula. In M. Malvezzi, D. Alimisis, & M. Moro (Eds.), *Education in & with robotics to foster 21st-century skills* (pp. 216-229). Springer. https://doi.org/10.1007/978-3-030-77022-8_19

Van De Bogart, W., & Wichadee, S. (2016). Students' perceived effectiveness of educational technologies and motivation in smart classroom. *TEM Journal*, *5*(4), 566-574. https://doi.org/10.18421/TEM54-22

Van Doorn, J. R., & Van Doorn, J. D. (2014). The quest for knowledge transfer efficacy: Blended teaching, online and in-class, with consideration of learning typologies for non-traditional and traditional students. *Frontiers in Psychology*, *5*, 324. https://doi.org/10.3389/fpsyg.2014.00324

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, *46*(2), 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., & Goyal, S. (2010). Expectation disconfirmation and technology adoption: Polynomial modeling and response surface analysis. *MIS Quarterly*, *34*(2), 281. https://doi.org/10.2307/20721428

Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 457-478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 157-178. https://doi.org/10.2307/41410412

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, *17*(5), 328-376. https://doi.org/10.17705/1jais.00428

Voogt, J., & McKenney, S. (2017). TPACK in teacher education: Are we preparing teachers to use technology for early literacy? *Technology, Pedagogy and Education*, *26*(1), 69-83. https://doi.org/10.1080/1475939X.2016.1174730

Wang, C. S., Jeng, Y. L., & Huang, Y. M. (2017). What influences teachers to continue using cloud services? The role of facilitating conditions and social influence. *The Electronic Library*, 35(3), 520-533. https://doi.org/10.1108/el-02-2016-0046

Wang, L., Ertmer, P. A., & Newby, T. J. (2004). Increasing preservice teachers' self-efficacy beliefs for technology integration. *Journal of Research on Technology in Education*, *36*(3), 231-250. https://doi.org/10.1080/15391523.2004.10782414

Wong, K. T., Osman, R., Goh, P. S. C., & Rahmat, M. K. (2013). Understanding student teachers' behavioural intention to use technology: Technology acceptance model (TAM) validation and testing. *International Journal of Instruction*, *6*(1), 89-104.

Wu, J. H., Li, S. H., & Sung, W. Y. (2016). The study of perceived environment and its relation to senior citizen's physical activity behavior intention. *Journal of Business Research*, *69*(6), 2259-2264. https://doi.org/10.1016/j.jbusres.2015.12.039

Yang, J., Wang, Q., Wang, J., Huang, M., & Ma, Y. (2019). A study of K-12 teachers' TPACK on the technology acceptance of E-Schoolbag. *Interactive Learning Environments*, *29*(7), 1062-1075. https://doi.org/10.1080/10494820.2019.1627560

Yeop, M. A., Yaakob, M. F. M., Wong, K. T., Don, Y., & Zain, F. M. (2019). Implementation of ICT policy (Blended Learning Approach): Investigating factors of behavioural intention and use behaviour. *International Journal of Instruction*, *12*(1), 767-782. https://doi.org/10.29333/iji.2019.12149a

Yu, J., Lee, H., Ha, I., & Zo, H. (2017). User acceptance of media tablets: An empirical examination of perceived value. *Telematics and Informatics*, *34*(4), 206-223. https://doi.org/10.1016/j.tele.2015.11.004

Yusup, Y. (2014). Preliminary study on teachers' use of the iPad in bachelor of education program at a private university in Malaysia. *Techtrends, 58*, 14-19. https://doi.org/10.1007/s11528-014-0732-y

Zhao, Y., & Bacao, F. (2020, September). A comprehensive model integrating UTAUT and ECM with espoused cultural values for investigating users' continuance intention of using mobile payment. *Proceedings of the 2020 3rd International Conference on Big Data Technologies, Qingdao, China,* 155-161. https://doi.org/10.1145/3422713.3422754

Zhou, N., Nguyen, H., Fischer, C., Richardson, D., & Warschauer, M. (2020). High school teachers' self-efficacy in teaching computer science. *ACM Transactions on Computing Education*, *20*(3), 1-18. https://doi.org/10.1145/3410631

Zhu, C. (2010). Teacher roles and adoption of educational technology in the Chinese context. *Journal Für Bildungsforschung Online*, *2*(2), 72-86

APPENDICES

APPENDIX A

Teaching Efficacy (TE)	
TE1	Integrating appropriate instructional methods into courses.
TE2	Selecting strategies and technologies to help teaching content effectively.
TE3	Teaching successfully by combining technology knowledge.
TE4	Taking a leadership role in the integration of technology knowledge.
TE5	Teaching a subject with different instructional strategies and computer applications.
Facilitating Conditions (FC)	
FC1	The school's resources and technical support enable me to conveniently use the tablet PC in teaching.
FC2	The classroom technical resources (e. g. Internet accessibility, computer, interactive whiteboard, projection system, etc.) are sufficient to-use the tablet PC in teaching.
FC3*	My tablet PC resources (e. g. hardware, applications, user interface, Internet connectivity, etc.) are adequate for in-class and off-class instruction.
FC4	I have received adequate training on using the tablet PC and other technical resources in teaching.
FC5	The technical support staff in my school are always available and ready to solve any technical problems with using the tablet in instruction.

Social Influence (SI)	
SI1	My family members think I should continue using the tablet PC in my teaching.
SI2	My friends believe I should continue using the tablet PC to interact with my students.
SI3	My school administrators expect me to continue using the tablet PC in preparing and presenting online teaching material to students.
SI4*	My students think I should continue using the tablet PC for online testing and grading.
SI5	My students expect me to continue using the tablet PC in teaching my courses.
Behavioral Intention (BI)	
BI1	I intend to continue using the tablet PC it in my teaching activities.
BI2*	I plan to continue using the tablet PC in online testing and evaluation of students' performance.
BI3	I intend to continue using the tablet PC in outfitting my teaching methods to students' learning needs.
BI4	I intend to continue using the tablet PC to interact with my students all the time.
BI5	I plan to continue using the tablet PC in preparing and presenting online learning modules and information.

* Items excluded from the measurement model

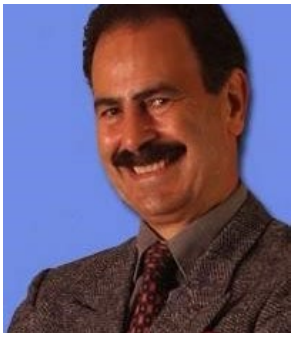
APPENDIX B

The Outer Loadings

	BI	TE	FC	SI
BI1	0.800			
BI3	0.823			
BI4	0.819			
BI5	0.901			
TE1		0.896		
TE2		0.940		
TE3		0.920		
TE4		0.915		
TE5		0.933		
FC1			0.910	
FC2			0.552	
FC4			0.892	
FC5			0.788	
SI1				0.817
SI2				0.798
SI3				0.724
SI5				0.808

AUTHORS

Abrar Y. Aldekheel is a specialist computer trainer at the Higher Institutes of Telecommunications & Navigation (HITN), The Public Authority for Applied Education and Training (PAAET). She received her bachelor's in computer engineering from Kuwait University. She is a member of the PAAET Training Association, Kuwait Society of Engineers, UK-GCC women in Cyber Security Fellowship, and a co-founder of a local IT awareness campaign Be Smart and Safe. She also had an experience as a computer engineer at the Kuwait Fund of Arabic Economic Development and as a head section of the Networking and Technical support Department at the Distance Learning Center (DLC) at Kuwait University. She also holds professional certificates in different academic, educational, and computer fields.



Omar Khalil is a Professor Emeritus at the University of Massachusetts, USA, and currently, he is a Professor of Information Systems at Kuwait University. He has a Ph.D. in Information Systems with a minor in Computer Science from the University of North Texas, USA. Before his current tenure with Kuwait University, he held different academic and administrative appointments with several Egyptian and American universities. Has been professionally active as an officer, member, and participant in a number of international and regional professional associations. He has more than a hundred publications and his publications have appeared in numerous information systems and management journals. His research interest includes, among others, information systems effectiveness, global information systems, information quality, e-government, information ethics, and knowledge management.

Zainab M. AlQenaei is an Assistant Professor of Information Systems at the College of Business Administration, Kuwait University. Her current research interests include text mining and business analytics. She received a Ph.D. in Business Administration from the University of Colorado, a Master of Business Administration from the University of Pittsburgh, and a Bachelor in Computer Engineering from Kuwait University. She is a member of the Chief Science Officer steering committee at the Kuwait Foundation for the Advancement of Sciences and a co-founder of a local IT awareness campaign Be Smart and Safe. She serves as the vice chair of the digital transformation committee at the National Bureau for Academic Accreditation and Education Quality Assurance at the Ministry of Higher Education in Kuwait.