SOCIAL, ORGANIZATIONAL, DEMOGRAPHY AND INDIVIDUALS' TECHNOLOGY ACCEPTANCE BEHAVIOUR: A CONCEPTUAL MODEL

Dr. Muhammad Sharif Abbasi
Department of Public Administration,
University of Sindh, Jamshoro, Pakistan
Dr. Ali Tarhini
Researcher, Department of Information Systems and Computing, Brunel University London, Uxbridge, Middlesex, United Kingdom
Dr. Mohammed Hassouna
Computing and Information Systems Department, Faculty of Architecture and Humanities, University of Greenwich, London, United Kingdom
Dr. Farwa Shah
Department of Public Administration,
University of Sindh, Jamshoro, Pakistan

Abstract

The main aim of this paper is to propose a conceptual model of technology acceptance that explains how individual, social, organizational factors affect the users' behavioural intention to use technology by academics for teaching and learning activities. More specifically, the proposed model extends the Technology Acceptance Model (TAM) to include nine constructs namely, peer influence, superior influence, resource facilitation, technology facilitations; self-efficacy, academic tasks, non-academic tasks, government support, and finally, institute support. In addition, seven demographic and situational moderators (age, education level, organisation type, academic position, voluntariness and usage experience) are hypothesized to have a moderating effect on individuals' acceptance behaviour. This model provides valuable insights into the factors that influence the acceptance or resistance of Internet and technology by intended users and offers opportunities for future research in understanding the acceptance of technology.

Keywords: Technology acceptance model, technology adoption, eLearning, individual differences, information technology

Introduction

Over the past couple of decades, there has been a growing demand for information technology (IT) and specifically Internet services in small-medium and large multinational organizations (Tarhini, Hone & Liu, 2013a; Alenezi *et al*, 2015; Orozco *et al*, 2015). Organizations seem to be compelled to invest a significant amount of capital into IT and Internet services. In turn, IT and the Internet enable these organizations to remain connected with their global counterparts and perform daily operations ranging from the routine to the tactical (Shannak *et al*, 2012; Sharma & Chandel, 2013; Mirah *et al*, 2014; El-Masri *et al*, 2015; Mas'deh *et al*, 2015). Realizing its importance, according to the U.S. Department of Commerce's census, 50% of new capital investment is now being allocated to IT research and implementation projects (Straub, Keil & Brenner, 1997). As a result, IT and the Internet are becoming pervasive and are considered to be a key contributor to economic growth (e.g., Morris, Venkatesh & Ackerman, 2005; Alshurideh et el, 2012; Mas'deh *et al*, 2014; 2015a,b). For instance, Jorgenson and Motohashi (2005), in a comparative study between the U.S. and Japan from the years 1973 to 2003, found that investment in IT played an important role in both countries' economic growth. In Japan, the growth in gross domestic product (GDP) increased to 2% in 1995 with a consistent rise of 0.2% annually. At an individual-level, the importance in particular of Internet usage can be seen from the recent survey conducted by the International Telecommunication Union (ITU) in 2009. According to this, currently one in four people is an Internet user around the world (ITU, 2009).

Despite significant investment in IT and its indisputable importance in organizations and everyday life, and efforts to apply new IT innovations, a number of projects are still being reported as failures. Landauer (1995) reported that in the U.S., about half of the IT systems implemented are either underused or have not been used at all. Out of many, one specific example is the Internal Revenue Service (IRS) project, which failed to keep safe thousands of significant documents electronically, and resulted in a loss of about $4 billion of taxpayers' money (Johnston, 1997). Such drastic cases in IT project alarmed organizations to re-think and revise their policies to take decisions in IT investment. Researchers of information system structures and acceptance greatly emphasized the need to understand individuals' inherent perceptual behaviour, which might appear differently across the cultures (ranging from individuals to organization, and organisations to national) (e.g., Srite & Karahanna, 2006; Straub *et al*., 1997) and/or across the personal and demographic characteristics (e.g., Agarwal & Prasad, 1999; Venkatesh & Morris, 2000). Morris *et al*. (2005, p.96) proposed that, for successful IT implementation, project managers must prioritize individuals' needs and expectations over and above the system designers.

Realising the impact of an individual's perceptual behaviour in successful IT implementation, several intention-based theoretical models have been proposed to predict cognitive acceptance behaviour. In this line of research, the technology acceptance model (TAM) (Davis, 1989), TAM2 (Venkatesh & Davis, 2000), theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), the diffusion of innovation theory (DOI) (Rogers, 1995), theory of planned behaviour (TPB) (Ajzen, 1991) and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh *et al*., 2003) are noteworthy theoretical models that, in information system literature, predicted individuals' acceptance behaviour and persuaded them to adopt it. From this stream of theoretical models, the TAM has emerged as a robust theoretical model due to its parsimonious structure and acceptable explanatory fit (Venkatesh & Bala, 2008). The TAM posits that behavioural beliefs, i.e., perceived usefulness (PU) and perceived ease of use (PEOU) affect acceptance intention (BI) and usage behaviour (BU) (Davis, 1989).

However, through extensive replications of the original TAM and TAM's extensions, the literature suggests some limitations of both the TAM and the models based on its conceptualizations (e.g., Venkatesh, 2000; Venkatesh, Davis & Morris, 2007) with one of many being cultural bias (Bagozzi, 2007; Straub *et al*., 1997). For instance, Straub *et al*. (1997) examined the TAM in the context of three countries i.e., Japan, Switzerland and U.S, and found similar variance (R2=10%) explained in behavioural usage in the U.S. and Swiss sample but very different variance in the Japanese sample context i.e., only 1%. The results of Straub *et al*. (1997) were expected because Davis *et al*. (1989), at the time of the TAM development, did not considered cultural bias within the model. It is noted that, generally, studies based on the TAM or its conceptualizations are restricted to North America and Western countries and, more specifically, to a single country such as the U.S. (e.g., Venkatesh & Morris, 2000), which limits their generalizability and reliability across the different cultures.

Moreover, the TAM presupposes that decisions to accept and usage are initiated through the 'individual reactions' (Venkatesh *et al*., 2003, p.427), and hence apparently overlooks the importance of the group, cultural and social aspects when making acceptance decisions. It may be argued that, in a later extension of TAM normative beliefs 'social pressure' was introduced to overcome these limitations and enhance the acceptance with reference to the group influence (e.g., Moore & Benbasat, 1991; Venkatesh & Morris, 2000). However, in reality, examining this limited impact of social group on individuals' interpersonal intentions was not enough to predict the effect of the groups itself (Bagozzi, 2007). This is the reason that most of the studies applying/relaying on the TAM showed mixed results when normative beliefs were examined to predict the acceptance intentions (e.g., Mathieson,

1991; Venkatesh & Davis, 2000; Tarhini *et al*, 2013c).

Partly because of the above limitation, the rationale behind incorporating the significance of the social and organizational factors in the present study is consistent with human behaviour that cannot be best characterised by an individual's isolated actions (Bagozzi, 2007). It is commonly accepted that individuals more often perform some act in response to social pressure that might appear separately/jointly from friends, family members, colleagues or agents of organizations (Bagozzi, 2007). In summary, decisions to accept any technology need an equal consideration of the individual's prerequisites as well as the groups of which one is member. In this paper, beside the normative influence (widely recognized in previous literature), emphasis is specifically given to the influence of organizational factors (management support at different levels). The importance of these factors is imperative (e.g., Lewis *et al*., 2003). For instance, Abbasi *et al* (2010) warned that management information systems (MIS) can and do fail in situations where organizational factors are ignored by the system designer. In a similar line of research, Tan and Toe (1998) found that organizational constructs (technology policies and top management support), technological constructs (relative advantages and compatibility), and environmental constructs (information intensity, competitive pressure and government support) produced a significant impact on individuals' Internet adoption behaviour.

Finally, consistent with the argument at the start of the section which advocates that successful IT implementation decisions need a user-centred approach (individuals' or end-users expectation-based), it is argued that models predicting individuals' acceptance behaviour (specifically the TAM and its extensions) remain futile to examine the effect of external factors in establishing intention. Rationally, the TAM, to keep its parsimony intact, postulates that an effect of external variable(s) on intentions is only possible with the mediated impact of PU and PEOU (Davis *et al*., 1989), and thus overlooks the direct link (predictor) or indirect link (moderator/mediator) between essential external beliefs and intention to establish acceptance behaviour. Despite the fact that parsimony (favouring a simple model), to some extent, is considered to be desirable if the model fails to predict expected substance (Taylor & Todd, 1995b; Venkatesh *et al*., 2003), seemingly it attracted a number of researchers (e.g., Lewis, Agarwal & Sambamurthy, 2003; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000) and models (e.g., TAM2, TAM3, TRA, TPB) to turn a blind eye for examining valuable insights into individuals' user acceptance that may be manipulated or fostered by the inspection of external beliefs. Since the inception of the TAM by introducing output quality as the first external factor, a wide range of external factors are introduced in the technology

acceptance models in an attempt to predict the intention either through PEOU or PU (see meta-analysis, Sun & Zhang, 2006). Sun and Zhang (2006) broadly categorized these variables into three groups as: organizational factors, technological/system factors and individual factors. Overcoming the limitations of previous models, in the present study, only the effect of organizational and individual factors is coherently incorporated with the indirect (moderator) link between beliefs and intention to examine acceptance behaviour.

Therefore, this paper aims to explain and discuss the development of a conceptual model of technology acceptance that shows how individual, social, cultural and organizational factors affect the users' behavioural intention to use internet in learning and teaching activities. More specifically, the proposed model extends the Technology Acceptance Model (TAM) to include nine constructs namely, peer influence, superior influence, resource facilitation, technology facilitations, self-efficacy, academic tasks, non-academic tasks, government support, and finally, institute support. In addition, seven demographic and situational moderators (age, education level, organisation type, academic position, voluntariness and usage experience) are hypothesized to have a moderating effect on individuals' acceptance behaviour. A comprehensive understanding of this model will provide valuable insights into the factors that influence the acceptance or resistance of Internet by intended users and offers opportunities for future research in understanding the acceptance of technology. Further, understanding these variables is helpful for instructors to design meaningful educational activities for promoting student knowledge construction and make learning more effective and appealing.

Theoretical Framework

The conceptual framework developed for the present study (see figure 1) is drawn from the various theoretical models related to technology acceptance and adoption. The framework integrates the determinants from the models: TRA, DTPB, TAM2, task technology fit, and UTAUT into an extended TAM. In addition, the model also incorporates the psychological theory of gender, Bem's Sex Role Inventory (BSRI) (Bem, 1981), to explore the moderating effect of demographic factors on individuals' acceptance behaviour. Creating a model based on a number of prior dominant theoretical models is consistent with the rationales that every model holds some limitations (in terms of parsimony, significance, and explanatory power), therefore, selecting a number of relevant constructs from the various models is the most favoured approach.

The rationale for selecting the TAM as the foundation model for the theoretical framework is based on the TAM's consistency in explanatory

power since its creation, i.e., 40%, and its popularity as one of the most cited model in the social sciences citation index (SSCI) (e.g., Venkatesh & Bala, 2008; Venkatesh & Davis, 2000). In doing so, perceived usefulness (PU), perceived ease of use (PEOU), behavioural intention (BI), and behavioural usage (BU) are incorporated with the conceptualisation of the TAM. Previous literature (e.g., Mathieson, 1991; Taylor & Todd, 1995c; Venkatesh & Davis, 2000; Haque *et al*, 2014) suggests that the TAM limits its ability to predict the influence of volitional, situational and social conditions. In order to overcome such limitations, volitional effect (voluntariness) and usage experience as moderators are incorporated with the conceptualisation of TAM2.

Both TAM and TAM2 theorise that the effect of external variables on intention can only be viewed in terms of the mediating effects of PEOU and PU, and hence, this limits their applicability to examine the direct effect of situational and social conditions on acceptance intention. Based on this limitation, the normative beliefs (peer-influence (PI) and superior-influence (SI)) are incorporated from TRA, and control beliefs (technology facilitation (TF), resource facilitations (RF), and self-efficacy (SE)) are incorporated from DTPB. None of these models explicitly conceptualised the importance of social influence (which can be exerted subject to culture and specific interpersonal agreements (Thompson *et al*., 1991)) on acceptance behaviour. Therefore, using a similar conceptualisation of UTAUT in terms of social influence effect on BI, the effect of management support (government support (GS) and institutional support (IS)) is incorporated in the extended model. Additionally, a set of individual characteristics (age, education level, organisation type, academic position) were integrated as moderators. Finally, specific to the present study's context (educational institutes) and nature of job (teaching and research), external belief of technology utilisation i.e., task characteristics (academic tasks (AT) and non-academic task (NAT)) are incorporated with the theoretical justifications of task-technology-fit (TTF). The hypothetical relationships proposed can be seen in Figure 1.

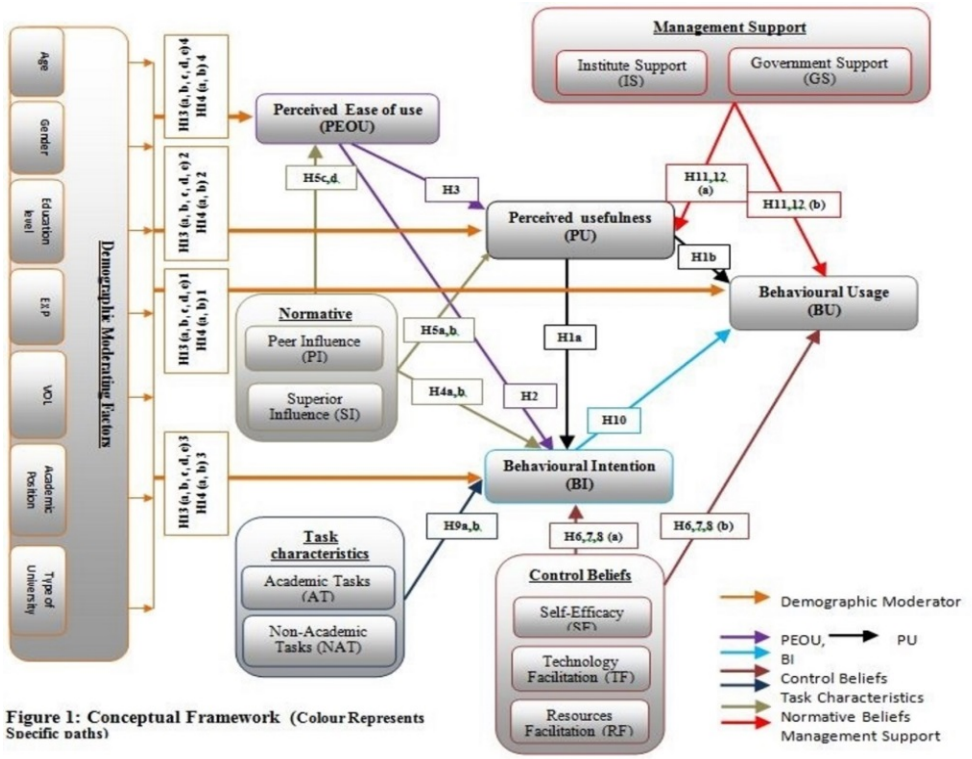

Figure 1: Conceptual Framework (Colour Represents Specific paths)

Figure 1: Theoretical Framework

Direct Relationships

Behavioural Beliefs

Behaviour, which is defined as an observable act, is related to the individuals' persuasive or attitudinal feelings (Ajzen, 1991); whereas attitude/attitudinal feelings are defined as the 'degree to which a person has favourable or unfavourable evaluation or appraisal of the behaviour in question' (Ajzen, 1991, p.188).

Perceived usefulness (PU) is defined as the 'degree to which a person believes that using a particular system would enhance his/her job performance', whilst perceived ease of use (PEOU) is defined as 'the degree to which a person believes that using a particular system would be free of effort' (Davis *et al*., 1989, p.320). In literature, PU, which is a reflection of performance use (Venkatesh & Morris, 2000) has been closely studied as similar to relative advantage in the model DOI, *extrinsic motivation* in motivational model (MM), *outcome expectations* in SCT, and *performance expectancy* in UTAUT (see Venkatesh *et al*., 2003); whereas PEOU has been studied for its similarity to the effort expectancy in UTAUT and opposite to complexity in DOI (see also Venkatesh *et al*., 2003). Davis *et al*. (1989), within the TAM, established the direct relationship of PU and PEOU on BI,

as well as the indirect (mediation) effect of PEOU through PU on BI. Subsequently, similar relationships were also suggested in various other models, such as: TAM2, A-TAM and DTPB. Persistently, relationships suggested in the TAM are empirically supported in a wide range of technology acceptance literature. For instance, the literature supports the direct relationship of PEOU and PU on BI (e.g., Davis, 1989; Davis, Bagozzi & Warshaw, 1989; Mathieson, 1991; Venkatesh & Davis, 2000; Alalwan *et al*, 2013, 2014); PU on BU (e.g., Davis *et al*., 1989; Mathieson, 1991; Hunaiti *et al*., 2009; Chandio *et al*., 2013; Tarhini *et al*., 2014c); and, PEOU as an indirect determinant of BI through PU (e.g., Taylor & Todd, 1995a; Mathieson, 1991; Tarhini *et al*, 2013b; 2015c).

Despite of the fact that the exemption of multiplicative effect of beliefs facilitates the examination of PU and PEOU across the different settings (e.g., Davis *et al*., 1989), in the present context of the study, their relevance is rational. For instance, in the academic context, it is expected that behaviour among the individuals' acceptance does not largely vary from person to person. However, it is expected that individuals' professional and teaching practices will be influenced by their internal perception (through observing the relative advantages of the Internet). Keeping in view the relative advantages of the technology (i.e. the Internet) and, in line with the TAM, TRA, TPB studies, it is expected that if behavioural beliefs are positive towards the acceptance of the Internet then it is more likely to get positive effects on their behavioural intentions and use to accept the Internet technology. Therefore, it is hypothesised:

H1a: Perceptions of the PU of technology have a positive significant influence on the BI to accept the technology (PU→BI).

H1b: Perceptions of the PU of technology have a positive significant influence on the BU of the technology (PU→BU).

H2: Perceptions of the PEOU of technology have a positive significant influence on the BI to accept the technology (PEOU→BI).

H3: Perceptions of the PEOU of technology have a positive significant influence on the perception of the PU of the technology (PEOU→PU).

Normative Beliefs

Normative beliefs, originally introduced in TRA, are defined as individuals' perceptions of particular behaviour as influenced by the judgment of others (Fishbein & Ajzen, 1975). Within TPB, it is a component of subjective norms (SN) which is defined as 'the perceived social pressure to perform or not to perform the behaviour' by the individual (Ajzen, 1991, p.188). The role of normative beliefs (SN in the present study) as a determinant of BI is documented as situational variable, which is influenced

by the opinion of friends, family, colleagues, peers and social referents (e.g., Venkatesh & Davis, 2000, Chandio *et al*., 2013). For instance, individuals working in one organisation may feel reluctant to accept conditions in another due to an unexpected and unfriendly environment or less support from superiors and peers. Keeping the impact of such divergence in perspective, Taylor & Todd (1995a) within DTPB decomposed normative beliefs into two groups: peer influence (PI) and superior influence (SI). Despite this fact, the opinions of these two groups might differ from each other, but they are still considered to be strong determinants of individuals' acceptance behaviour (e.g., Mathieson, 1991; Taylor & Todd, 1995a).

Unlike behavioural beliefs (PU and PEOU), the impact of SN on BI is operationalised as a multiplicative construct in which the extent to which individuals believe that he/she should perform behaviour is weighted by the extent to which he/she wishes to comply with the source of the normative belief (Ajzen & Fishbein, 1980). In simple words, SN is a context and situation-specific construct and cannot be measured independently. Therefore, based on the discussion that highlights the importance of SN, and its ambiguous relationship within information system research, it is hypothesised:

H4a: Perceptions of the PI of technology have a positive significant influence on the BI to accept the technology (PI→BI).

H4b: Perceptions of the SI of technology have a positive significant influence on the BI to accept the technology (SI→BI).

H5a: Perceptions of the PI of technology have a positive significant influence on the perception of the PU of the technology (PI→PU).

H5b: Perceptions of the SI of technology have a positive significant influence on the perception of the PU of the technology (SI→PU).

H5c: Perceptions of the PI of technology have a positive significant influence on the perception of the PEOU of the technology (PI→PEOU).

H5d: Perceptions of the SI of technology have a positive significant influence on the perception of the PEOU of the technology (SI→PEOU).

Control Beliefs

By extending the boundary conditions of violation control in TRA, TPB introduced control beliefs with the additional construct of perceived behavioural control (PBC). PBC is the reflection of an individual's perception regarding the possession of requisite resources and opportunities to perform a given behaviour (Ajzen, 1991). According to Ajzen (1991), PBC reflects the perception of internal and external constraints on behaviour, which is defined as 'perceived ease or difficulty of performing behaviour' (p.188), and 'is assumed to reflect past experience as well as anticipated impediments and consequences' (p.122).

Within information system research PBC has remained an important construct of BI and BU. For instance, using TPB, DTPB, and A-TAM, researchers (e.g., Chau & Hu, 2001; Shih & Fang, 2004) found a significant impact of PBC on BI, whereas using similar models, others (e.g., Mathieson, 1991; Taylor & Todd, 1995b) found a significant impact of PBC on BU. Apart from the IT acceptance research domain, the importance of the PBC on the decision-making process is appreciated in different contexts. For instance, within an academic context, Sharma *et al* (2014) (2014), found that perceived controllability (PBC) showed a significant impact on academics' intention to select elearning systems.

For developing an in-depth understanding, the conceptualisation of construct PBC in the present study is consistent with the model DTPB (Taylor & Todd, 1995a), in which to determine behaviour, PBC is treated in three partly separate beliefs i.e., self-efficacy (SE), resource facilitation (RF) and technology facilitation (TF). Originally, Taylor & Todd (1995a) followed the criteria of Ajzen (1991) to decompose the control beliefs. According to Ajzen (1991), control beliefs can be an individual's internal beliefs i.e., *self-efficacy* can be external, similar to the Triandi's (1971) notion of facilitation conditions. This decomposition of PBC beliefs is also echoed by a number of subsequent studies (e.g., Abbasi *et al*., 2011; Chau & Hu, 2001) and is briefly described next.

The belief SE has been remaining an important predictor of an individual's perceived ability towards task completion, intrinsic motivation in task, and task performance across the versatile domains (Tarhini, Hone & Liu, 2014a). Within the IT domain, studies reported the effect of SE as an important predictor of determining an individual's behaviour and performance using specific technology (Compeau & Higgins, 1995; Moore & Benbasat, 1996). For instance, within PC adoption, the direct impact of SE on BI is reported by a number of researchers (e.g., Compeau & Higgins, 1991; Wu *et al*., 2007). A similar effect within the context of Internet usage was found by other researchers (Shih & Fang, 2004). The strong effect of SE on BU is also reported in IT literature (Compeau & Higgins, 1995; Igbaria *et al*., 1997; Tarhini, Hone & Liu, 2014b). Finally, within studies consistent with TAM conceptualisation (external factors can only affect behaviour through the mediation effects of PEOU and PU), researchers (e.g., Compeau & Higgins, 1995; Lewis *et al*., 2003) found an impact of SE on PU and image, whereas researchers (e.g., Venkatesh & Davis, 1996; Agarwal *et al*., 2000; Lewis *et al*., 2003d) found an impact of SE on PEOU.

As described earlier, within the deconstruction of control beliefs, the second group is related to facilitations conditions (FC) that is further divided into two sub-dimensions. First, resource facilitations (RF) that are related to factors such as time and money; second, technology facilitating (TF) that is

related to the technology compatibility issues that may restrain behavioural intention or usage (Taylor & Todd, 1995a). According to Taylor & Todd (1995a, p.153), BI and BU are expected to be less likely as less time and money are accessible and as technical compatibility decreases. RF and TF, as constructs of FC, were examined together by Venkatesh *et al*. (2003) during the development of UTAUT. They found that FC, neither in voluntary nor in mandatory settings, showed a significant effect on BI. Contrary to this, within the model of PC utilization (MPCU), Thompson *et al*. (1991) found a significant impact of FC on BU. Similarly Venkatesh *et al*. (2003) found that FC produced a significant impact on BU in the presence of some moderating factors including age and experience. Rationally, the different results for FC can be supported by the difference in importance in underlying constructs, i.e., RF and TF. According to Taylor & Todd (1995a, p.153), the absence of RF represents barriers to usage and may inhibit the formation of BI and BU; on the contrary, the presence of RF may not be considered to encourage usage. To validate the argument, Taylor & Todd (1995a), within DTPB, examined the direct impact of TF and RF without the mediation of PBC and found that RF produced a significant effect on both BI and BU but the TF effect was negative and insignificant.

In the present context of the study, consistent with the TAM conceptualisation of parsimony (attitude was excluded due to partial mediation), PBC is omitted. This omission is supported by the results of Taylor & Todd (1995a) where RF presented a direct effect on BI and BU. Consequently, it provides a more parsimonious structure without the uncertain results of FC. Hence, summing up the discussion, it is hypothesised as:

H6a: Perceptions of the SE of technology have a positive significant influence on the BI to accept the technology (SE→BI).

H6b: Perceptions of the SE of technology have a positive significant influence on the BU of the technology (SE→BU).

H7a: Perceptions of the TF of technology have a positive significant influence on the BI to accept the technology (TF→BI).

H7b: Perceptions of the TF of technology have a positive significant influence on the BU of the technology (TF→BU).

H8a: Perceptions of the RF of technology have a positive significant influence on the BI to accept the technology (RF→BI).

H8b: Perceptions of the RF of technology have a positive significant influence on the BU of the technology (RF→BU).

Task Characteristics

In the literature of information systems, the utilisation (in terms of acceptance/adoption) of a technology is mostly studied in the theories of

attitude, beliefs and behaviour (e.g., Bagozzi, 2007; Davis *et al*. 1989; Thompson *et al*., 1991) and characteristics of tasks (internal and external) are found to be the strongest construct of behavioural beliefs towards behaviour intention (i.e., utilisation effect) (e.g., Goodhue & Thompson, 1995; Davis, 1989; Venkatesh, 2000;). Even though, theoretically, characteristics of tasks are found to be effective constructs of motivation, only a very few researchers took them apart to examine as independent determinants of usage behaviour (Goodhue & Thompson, 1995). In most situations, task characteristics are considered to be a sub-part or internal factor of the core constructs. For instance, Davis (1989) examined task characteristics as an implicit factor of PU, that is to say, usefulness means useful for something, and hence, overlooked the explicit effect of the task on BI. The importance of task characteristics as an external factor of technology utilisation was introduced by Goodhue (1995) in a model known as 'task-technology-fit' (TTF). In later studies it was confirmed that explicit inclusion of task characteristics provides a better IT utilisation and performance (e.g., Goodhue & Thompson, 1995; Igbaria *et al*., 1997).

Similar with the normative and control beliefs, the conceptualisation of task characteristics in the present study is also situation-based (vary according to the context). In part, based on the TTF structure (routine and non-routine), the characterisation of tasks is divided into two groups, i.e., academic tasks (AT) and non-academic tasks (NAT). This grouping is consistent with the conceptualisation in literature (Reynolds, 1992) and is supported by a number of studies within the literature of computing in higher education systems. According to this, within teaching, tasks can be pre-active (comprehending, preparing, and adopting content, plans, and material), interactive (performed during instructions), and post-active (includes both teacher's action and student's response, interaction with colleagues, and professional development) (Reynolds, 1992). Similar tasks were divided into six groups by Rosenfeld *et al.* (1992) as: planning and preparing for instructions, managing the classroom, implementing instructions, evaluating student learning and instructional effectiveness, administrative responsibilities, and additional professional responsibilities. Due to the requirements of the teaching job, out of these six, the first four are mostly considered as routine tasks (AT), while the remaining two are considered to be non-routine tasks (NAT) (Kripanont, 2007). Assimilating the discussion above and realising the importance of task characteristics towards BI within a utilisation focus and the TTF research (e.g., Davis *et al*., 1989; Thompson, *et al*., 1991; Goodhue & Thompson, 1995; Igbaria, 1997), it is hypothesised that:

H9a: Task characteristics related to the AT using technology has a positive significant influence on the BI to accept the technology (AT→BI).

H9b: Task characteristics related to the NAT using technology has a positive significant influence on the BI to accept the technology (NAT→BI).

Behavioural Intention towards Behaviour Usage

Ajzen & Fishbein (1980) and Fishbein & Ajzen (1975) were the first to introduce behaviour as a part of the TRA model. TRA played a key role in the development of the TAM. According to TRA, beliefs influence attitudes, and attitude determines the nature of intentions that guide behavioural usage (Ajzen & Fishbein, 1980). In other words, intention is the cognitive process of individuals' readiness to perform specific behaviour and is an immediate antecedent of usage behaviour. In turn, behavioural usage is an observable act performed by an individual based on their experience or mediated by some vicarious observations on a given target/level (Venkatesh *et al*., 2003). The impact of BI on BU received strong support in literature (e.g., Shih & Fang, 2004; Taylor & Todd, 1995a; Venkatesh *et al*., 2003; Tarhini *et al*, 2015a), listed only few. Therefore, based on previous strong and undebatable findings, it is expected that:

H10:The BI to accept technology has a positive significant influence on the BU of the technology (BI→BU).

Management support: institutional-level and governmental-level

For the innovation of IT systems within an organisational context, management support presumably influences which innovations are adopted and used by employees (Igbaria, 1997). Decisions to promote technological changes and improvements are mostly carried out by management. In turn, the employees of an organisation are expected to learn new technological skills and perform tasks effectively. However, innovations and required outcomes are only attainable when individuals within the organisation believe that innovative behaviour is valued sufficiently. Generally, it is observed that, whenever IT innovations are introduced in an organisation, changes in that organisation are inevitable (Abbasi *et al*., 2011; Tarhini *et al*, 2015b).

In this study, it is believed that expected management influence on behaviour is based on the personal characteristics possessed by an individual and may vary according to organisational context and culture. To develop a proposition, researchers followed previous research in information systems (Lewis *et al*., 2003), which conceptualised the influence of management at top level (i.e. government-support (GS) in present study) and at a low level (i.e. institution-support (IS) in the present study) in terms of commitment (future vision and goals, instrumental rewards), general support (funding, cooperation and police discussions) and specific support (resource allocation, facilitation conditions, technology support) towards individuals' PU and BU beliefs. Observing management support at a hierarchal level is also

supported by Leonard-Barton (1987) who warned that, without observing management support at an appropriate level in the organisation, it will not be effective in predicting technology acceptance behaviour. Management support may be demonstrated in different ways. Specifically, for the present study, it is conceptualised that the mechanism through which individuals are influenced by the management is perceived through indirect message passing between the superior and the individual, or through direct physical support from the superior to the individual.

In terms of the message or notification issued by the management authorities to adopt or accept a particular innovation, Peabody (1961) identified four types of influence: legitimacy, position, competence and person. Whereas Orlikowski (1992) categorised management influence on individuals' perception into three types: significance, legitimisation and domination. Between Peabody and Orlikowski's categorisations, the common mechanism of influence is legitimisation, which is a process where a message is passed from higher management to the subordinates in an organisation so they are reassured about the beliefs and actions directed by the authorities. Thus, the process of legitimisation is the intended attitude of top management in the form of a persuasive message that is likely to affect individuals' attitude and intention to accept a particular behaviour. This is also consistent with Triandis' (1971) term of 'social norms', which postulates that an individual's behaviour is influenced by the message received from others and reflects what individuals think they should do.

Unlike the message passing and legitimisation process, the influence of management support can directly impact an individual's perceptions of attitude and behaviour if they are aware of that management commitment and support. A significant number of studies found a positive effect of management support in a vast variety of dimensions, such as innovation of products management and change in innovation and management (Leonard-Barton & Deschamps, 1988). However, evaluating this direct support from management is not as easy as evaluating the perception of the message passing (Leonard-Barton & Deschamps, 1988). The reason for this is obvious as an individual's behaviour is not always similar and may alter by their desire for support in innovations (Fishbein & Ajzen, 1975). In the context of IT and Internet acceptance, it might be predicted that the provision of computers, the Internet and training from management may be the types of facilitation conditions that can influence an individual's perception of system usefulness and acceptance intention.

In the current study, it is intended to observe top-level and low-level management influence in terms of commitment, general support and specific support. It is expected that individuals (academics working in higher educational institutes) will be equally influenced by the attitudes of top-level

(GS) and low-level (IS) management. Indeed, their daily or short-term cognitive behaviour is expected to be influenced by the support from the IS management depending on the provision of computers, training, and Internet access, whilst their long-term sustained cognitive behaviour is expected to be influenced by the GS in terms of funding allocation, encouragement and motivation through normative and instrumental reward. Therefore, consistent with the assertion of Igbaria *et al*. (1997), that management support is relevant with the greater system success and a lack of it is considered to be a barrier, it is hypothesised:

H11a: Perceptions of low-level management i.e. IS, have a positive significant influence on the perception of the PU of the technology (IS→PU).

H11b: Perceptions of low-level management i.e. IS, have a positive significant influence on the BU of the technology (IS→BU).

H12a: Perceptions of top-level management i.e. GS, have a positive significant influence on the perception of the PU of the technology (GS→PU).

H12b: Perceptions of top-level management i.e. GS, have a positive significant influence on the BU of the technology (GS→BU).

Moderating impact

In this research, age, organisational type, academic position, educational level, experience usage and voluntariness are expected to show a significant impact on the direct relationships proposed in the theoretical framework.

Age

Despite the fact that age has been proven to be an important demographic predictor of interest in organizational settings (Venkatesh *et al*., 2003), it has received very little attention in IT acceptance research (Morris & Venkatesh, 2000; Abbasi *et al*, 2013). As a result, a few studies recently started to examine its effect (direct and indirect) on individuals' acceptance and usage behaviour (Chung *et al*., 2010; Tarhini, Hone & Liu, 2014c; Wang, Wu & Wang, 2009).

The prior research on age difference reported that increasing age is correlated with higher computer anxiety (reciprocal to behavioural and control beliefs PEOU and SE respectively) (e.g., Straub *et al*, 1999), unfavorable to PU and lower attitude towards usage (e.g., Igbaria *et al*, 1997), and acceptance behaviour (e.g., Chung *et al*., 2010). The rationale for control beliefs could be that older people are less likely to have computer experience, be less open to change, and consequently, be more susceptible to computer anxiety (Igbaria, 1990). In simple words, age is positively related

to computer anxiety. Igbaria's (1990) argument was confirmed by Morris & Venkatesh (2000) who found that age reduced the impact of PBC over BI and BU due to lower level of SE and cognitive skills.

The rationale for the reciprocal relationship of age and PU (lower age had a positive effect on PU and vice versa) are consistent with the instrumentality effect and extrinsic motivations. According to this, the literature shows that younger people placed a greater importance of extrinsic motivational effects (job-related attitudes, opportunities for promotion) and hence perceived a higher importance of PU (Morris & Venkatesh, 2000). From the perspective of normative beliefs, age increased the positive effect of SN due to greater need of affiliation (e.g., Burton-Jones & Hubona, 2006; Venkatesh & Morris, 2000). For instance, Tarhini *et al*. (2014c) found that the importance of having a friendly supervisor and peers increases with age. Finally, the literature suggests that age is negatively related to the BI and BU due to an increased perception of habit (e.g., Burton-Jones & Hubona, 2005, 2006; Igbaria *et al*, 1997).

Recent literature suggests that age together with gender can exhibit a simultaneous effect on an individual's acceptance behaviour (e.g., Morris *et al*., 2005; Wang *et al*., 2009). Indeed, Venkatesh *et al*. (2003) cautioned that examining either gender or age without referencing each other might mislead the expected outcome. In doing so, Venkatesh *et al*. (2003) examined the combined moderating effect of age and gender in UTAUT. The author, in terms of predicting intention, found that the effect of performance expectancy (similar to PU) was stronger for younger men, and the effect of effort expectancy (similar to PEOU) and social influence (similar to SN) was stronger for older women with limited experience (ibid). In a similar line of research, Morris *et al*. (2005) recently examined the combined effect of both moderators in TPB. Supporting the Venkatesh *et al* (2003) results, the authors found a significant effect of attitude in younger men and PBC in older women towards predicting the intention. Hence, despite clear evidence of the moderating impact of age in IT acceptance literature, it is still hypothesised on an exploratory basis that:

H13a1: The influence of the predictors BI, PU, TF, RF, SE, IS, and GS towards BU is moderated by age, or (BI, PU, TF, RF, SE, IS, GS) X Age→BU

H13a2: The influence of the predictors SN, PEOU, IS, and GS towards PU is moderated by age, or (SN, PEOU, IS, GS) X Age→PU

H13a3: The influence of the predictors PU, PEOU, TF, RF, SE, AT, NAT, and SN towards BI is moderated by age, or (PU, PEOU, TF, RF, SE, AT, NAT, SN)X Age→BI

H13a4: The influence of the predictor SN towards PEOU is moderated by age, or SN X Age→PEOU

Organisational type

The relationship between organisational (ORG) structure and IT cannot be undervalued. The previous research suggests that the innovation of technologies within an organisation affects the organisational structure (e.g., Caudle, Gorr & Newcomer, 1991; Heintze & Bretschneider, 2000; Pinsonneault & Kraemer, 1993), and in reverse, an individual's acceptance of IT innovations is influenced by the organisational structure (e.g., Orlikowski, 2000; Lewis *et al*., 2003). In other words, the effect is reciprocal. For instance, Heintze & Bretschneider (2000) argued that the introduction of IT facilitates change in organisational structure from a hierarchal to a flatter structure by reducing the number of managers and improving communication channels. On the other hand, Orlikowski (2000) suggested that individuals' usage behaviour is deeply influenced by the institutional context where that behaviour is enacted. Similarly, Lewis *et al*. (2003) argued that an individual's beliefs pertaining to the specific technology are formed by the influence emanating from the institutional and social context. Realising its importance, in the present study the effect of organisational type on an individual's acceptance behaviour is incorporated as a moderator.

Organisations are usually categorised into two groups, public and private. The difference between public and private organisations was begun by Rainey *et al*. (1976) in the context of organisational differences within US society. According to the author, the two sectors can be differentiated on the basis of: environmental factors, organisational transactions, and internal structures and processes. Following Rainey's classification, Nutt (2000) reported that private organisations value higher competition, readily available data, flexible autonomy, indirect political influence, clear organisational goals that are open for discussion, and clear and long-term policies are devised; whereas public organisations place greater value on cooperation, data is often limited, autonomy is limited/ mandate, political influence is direct, organisational goals are shifting/complex/ambiguous, and vague and inconstant polices are devised.

Information systems research literature largely examines IT structures and performances with relation only to private sector organisations, and hence, leaves a gap to examine the effect within public sector organisations (Heintze & Bretschneider, 2000). In addition, within a handful of studies, it is observed that acceptance of technology in the private sector is reported to be higher than in the public sector (e.g., Caudle *et al*., 1991; Pinsonneault & Kraemer, 1993). The possible explanation for such results can be understood with relation to the differences suggested by Rainey *et al*. (1976). For instance, structure within public organisations is reported to be more rigid compared with the private sector, which is more flexible (Rainey *et al*., 1976). Technology facilitates more organisational individuals to be involved

in the decision-making process through improved communication, which is difficult for public organisations to accept. Thus, based on above discussion, it is hypothesised as:

H13c1: The influence of the predictors BI, PU, TF, RF, SE, IS, and GS towards BU is moderated by organisational type, or (BI, PU, TF, RF, SE, IS, GS) X ORG→BU

H13c2: The influence of the predictors SN, PEOU, IS, and GS towards PU is moderated by organisational type, or (SN, PEOU, IS, GS) X ORG→PU

H13c3: The influence of the predictors PU, PEOU, TF, RF, SE, AT, NAT, and SN towards BI is moderated by the organisational type, or (PU, PEOU, TF, RF, SE, AT, NAT, SN) X ORG→BI

H13c4: The influence of the predictor SN towards PEOU is moderated by organisational type, or SN X ORG→ PEOU

Academic position

Academic position (AC) in this study is examined differently from the perspective of 'support' in terms of facilitation conditions (top and low-level management support). This section intends to examine an individual's acceptance behaviour on the basis of their job tenure. So far, the effect of job position or tenure in the literature is reported as a surrogate of age and experience (e.g., Agarwal & Prasad, 1999). From the age perspective, it is noticed that senior individuals who have greater job tenure (assumed to be higher on position) showed more resistance towards innovation compared with more junior colleagues (e.g., Agarwal & Prasad, 1998; Majchrzak & Cotton, 1988). For instance, Majchrzak & Cotton (1988), in the context of new production of technologies, found that individuals with higher work experience showed a higher reluctance towards change. Similar results were found by Igbaria (1990) who reported that older individuals, due to less computer exposure and knowledge, were less flexible and more resistant to change and, in turn, perceived a lower importance of behavioural beliefs and attitude.

Another possible explanation behind these results can be understood from the perspective of an individual's cognitive behaviour. For instance, it is noticed that individuals lower in age (possibly lower on job position) are reported to be more interested in learning new behaviour compared with older individuals, who may take extra time to perceive and render the cues and learn the system (Morris & Venkatesh, 2000; Taylor & Todd, 1995a; Porter & Donthu, 2006). Therefore, based on rationales related to age, it is expected that individuals lower on job position will be more open to accepting technology compared with senior individuals.

From the perspective of experience, the effect of job position is

reported as opposite to the conceptualisation of age. For instance, contrary to the previous discussion, the literature suggests that higher in experience has a positive effect on usage behaviour through beliefs (PU and PEOU) and a negative effect through normative beliefs (SN) (e.g., Igbaria *et al.*, 1995; Venkatesh & Davis, 2000). Rationally, it is noticed that computer experience is likely to improve an individual's usage behaviour by increasing their confidence in mastering challenging tasks and erasing fear that may produce reluctance in acceptance behaviour (Igbaria & Iivari, 1995). However, not all experience is necessarily related to age (i.e., older in age will be higher on job position) and increased acceptance behaviour. Morris & Venkatesh (2000) reported that older individuals were less experienced compared with younger individuals. The authors argued that older individuals in their twenties and thirties were less familiar with technology compared with the current younger generation. The reason is obvious in that technology was less common, and individuals were more accustomed to applying traditional methods. Hence, this leads to the perception discussed previously, that individuals in higher job positions will be less open to accept newer technologies in the workplace.

Finally, from the gender perspective, it is assumed that generally higher job positions favour men and masculine individuals and hence, favour higher attitude and lower normative beliefs. A possible explanation is related to the discussion in the gender section. According to this, men and masculine individuals compared with women tend to be assertive and place higher importance on behavioural belief PU, whereas women tend to be nurturing and place higher importance on normative, control, and management support beliefs. Assimilating the discussion, it is noticed that academic position is a situational variable that can provide mixed results according to the context. Therefore, it is hypothesised on an exploratory basis:

H13d1: The influence of the predictors BI, PU, TF, RF, SE, IS, and GS towards BU is moderated by academic position, or (BI, PU, TF, RF, SE, IS, GS) X AC→BU

H13d2: The influence of the predictors SN, PEOU, IS, and GS towards PU is moderated by academic position, or (SN, PEOU, IS, GS) X AC→PU

H13d3: The influence of the predictors PU, PEOU, TF, RF, SE, AT, NAT, and SN towards BI is moderated by academic position, or (PU, PEOU, TF, RF, SE, AT, NAT, SN) X AC→BI

H13d4: The influence of the predictor SN towards PEOU is moderated by academic position, or SN X AC→PEOU.

Educational level

In DOI, Roger (1995) argued that innovators are most likely higher on education, income, and leadership characteristics, and possess more a favourable attitude towards risky decisions to accept new technologies. In addition, the author suggests that an innovation without principle-knowledge might produce a misuse of new technology and results in discontinuance. In relation, the literature shows that educational level (EL) is directly related to knowledge skills, and thus shows a positive effect on beliefs pertaining to behaviour (e.g., Agarwal & Prasad, 1999; Igbaria & Parasuraman, 1995). For instance, Rogers (1995) reported that in the category of 'early adopter', one reason is their higher level of education, which reflects their ability to understand 'how-to-knowledge' more quickly and easily compared those with a lower level of education. In the same line of research, Agarwal & Prasad (1999) found a positive relationship between educational level and belief PEOU, but not with PU. The authors argued that less educated individuals tend to be more sensitive to effort expectancy, and hence this results in a barrier to the adoption process (ibid). Agarwal's findings are consistent with social psychology literature which asserts that low education reflects less sophisticated cognitive structures that impede an individual's ability to learn in new environments. Contrary to Agarwal and Prasad's findings, Burton-Jones and Hubona (2006) recently found a positive effect of education on PU with the argument that education increased PEOU, which in turn reduced anxiety and improved overall attitude in terms of usefulness. In addition, based on the same argument, the authors also reported a diminishing effect of social influence on behaviour with increased experience and educational level. Despite mixed results, the importance of education on an individual's acceptance behaviour is indisputable (see meta-analysis of Mahmood *et al*., 2001 and Sun & Zhang, 2006). Therefore, based on previous research which suggests that education is negatively related to computer anxiety and positively related to the perception of usefulness and attitude towards behaviour intention and usage, it is hypothesised:

H13e1: The influence of the predictors BI, PU, TF, RF, SE, IS, and GS towards BU is moderated by educational level, or (BI, PU, TF, RF, SE, IS, GS) X EL→BU

H13e2: The influence of the predictors SN, PEOU, IS, and GS towards PU is moderated by educational level, or (SN, PEOU, IS, GS) X EL→PU

H13e3: The influence of the predictors PU, PEOU, TF, RF, SE, AT, NAT, and SN towards BI is moderated by educational level, or (PU, PEOU, TF, RF, SE, AT, NAT, SN) X EL→BI

H13e4: The influence of the predictor SN towards PEOU is moderated by educational level, or SN X EL→PEOU

Experience usage

Experience (EXP) was introduced as a moderator in TAM2 and is defined as an individuals' involvement or action in something over a period of time (Venkatesh & Davis, 2000). In the literature, the experience construct seems to have a direct and moderating impact to a significant level on behavioural, normative and control beliefs (e.g., Taylor & Todd, 1995b; Venkatesh & Davis, 2000; Venkatesh *et al*., 2003; Venkatesh & Bala, 2008). It is observed that experience acquired by repeating tasks produced low probability towards individuals' decision to accept new technologies (e.g., Taylor & Todd, 1995a; Fishbein & Ajzen, 1975). The essence of this statement is based on the cognitive preposition, which asserts that when IT usage is extremely enjoyable (higher in usage experience) than behavioural belief, PU might not remain a construct of decision on the BI and BU (e.g., Davis, *et al*. 1989; Davis, 1989; Burton-Jones & Hubona, 2006). Similar criteria can be applied in the case of PEOU towards BI (e.g., Venkatesh *et al*., 2003; Agarwal & Prasad, 1999). In terms of normative beliefs and control beliefs, experience (gained though time and training) also produced a negative effect. For instance, researchers (e.g., Taylor & Todd, 1995a, 1995b; Venkatesh & Davis, 2000; Venkatesh & Morris, 2000; Venkatesh *et al*, 2000) found a decreasing impact of SN on BI and BU, whereas researchers (e.g., Taylor & Todd, 1995b; Venkatesh *et al*., 2000) found a decreasing impact of PBC on BU. Contrary to the negative effect, experience has shown a positive effect (i.e., increase in explanatory power) between BI and BU (e.g., Davis *et al*., 1989; Taylor & Todd, 1995b; Mathieson 1991; Venkatesh & Davis, 2000). For instance, during an examination of A-TAM, Taylor & Todd (1995b) found that the effect of usage was significantly raised from 17% to 21%. Similar results were echoed by Venkatesh & Davis (2000) during the development of TAM2. Thus, despite the evidence in the discussion that experience decreases the impact on behavioural, normative, and control beliefs and will increase intention and usage, still it is hypothesised that:

H14a1: The influence of the predictors BI, PU, TF, RF, SE, IS, and GS towards BU is moderated by experience, or (BI, PU, TF, RF, SE, IS, GS) X EXP→BU

H14a2: The influence of the predictors SN, PEOU, IS, and GS towards PU is moderated by experience, or (SN, PEOU, IS, GS) X EXP→PU.

H14a3: The influence of the predictors PU, PEOU, TF, RF, SE, AT, NAT, and SN towards BI is moderated by experience, or (PU, PEOU, TF, RF, SE, AT, NAT, SN) X EXP→BI

H14a4: The influence of the predictor SN towards PEOU is moderated by experience, or SN X EXP→PEOU

Voluntariness

Voluntariness (VOL) is defined as: 'an extent to which potential adopters perceive the adoption decision to be non-mandatory' (Venkatesh & Davis, 2000 p.188). In other words, this is considered to be an explicit condition that helps to understand individuals' perception when he/she uses a particular system. Voluntariness was initially introduced by Moore & Benbasat (1991) during the extension of Roger's DOI theory. At the time of the TAM development, despite considering voluntariness as an explicit condition, Davis *et al*. (1989) did not include it as part of the model. However, realising its importance, in a later study (TAM2) Davis, along with Venkatesh (2000), included it as a key moderating factor. Since this, moderator VOL, both alone and combined with EXP, is examined by a number of studies in IT acceptance research (e.g., Venkatesh & Davis, 2000; Venkatesh *et al*. 2003; Venkatesh & Bala, 2008).

In most of the research, the effect of VOL is observed on the relationships of SN and BI (Venkatesh *et al*., 2003). Rationally, it is noticed that normative beliefs can influence through two ways: directly through compliance or indirectly through recognising perception of usefulness due to an internalisation and identification process (Karahanna & Straub, 1999). The effect of compliance is closely studied as the level of voluntariness (e.g., Venkatesh & Davis, 2000) in which individuals are instructed to perform specific behaviour without prioritising their own intentions. In simple words, the compliance effect increases the normative beliefs. Initially, the significant effect of SN on BI in only mandatory settings was observed by Venkatesh & Davis (2000) and then retested and confirmed it in TAM2.

In the previous section, it was noticed that the effect of SN on BI subsided over time with increased EXP; therefore, it may be argued that combined VOL and EXP can also exhibit a moderating impact on intention. The argument is well-cited in literature. For instance, Agarwal & Prasad (1997), in the extension of DOI, found that the system used in mandatory conditions enhanced the early system utilisation, but at the same time it also produced pressure on individuals to overcome the difficulties of first-time usage, which in turn produced a lower level in acceptance behaviour. Consistent with Agarwal and Prasad (1997), Venkatesh & Davis (2000) found a strong significant effect of SN on BI in early system utilisation but was weaker on time and increased experience.

In the same line of research, Venkatesh *et al*. (2003) during the development of UTAUT, re-evaluated the combined effect of VOL and EXP together in the models of TRA, TAM/TAM2, TPB/DTPB, and C-TAM-TPB. Venkatesh *et al* (2003) found that the effect of belief PEOU, SN and PBC on PU and BI was only significant in mandatory settings and decreased with increased experience. In addition, the authors in their integrated model

UTAUT, found that social influence (SI) showed a significant impact on BI in the mandatory setting with limited experience. Therefore, we propose the following hypotheses:

H14b1: The influence of the predictors BI, PU, TF, RF, SE, IS, and GS towards BU is moderated by voluntariness, or (BI, PU, TF, RF, SE, IS, GS) X VOL→ BU

H14b2: The influence of the predictors SN, PEOU, IS, and GS towards PU is moderated by voluntariness, or (SN, PEOU, IS, GS) X VOL→ PU

H14b3: The influence of the predictors PU, PEOU, TF, RF, SE, AT, NAT, and SN towards BI is moderated by voluntariness, or (PU, PEOU, TF, RF, SE, AT, NAT, SN) X VOL→BI

H14b4: The influence of the predictor SN towards PEOU is moderated by voluntariness, or SN X VOL→PEOU.

Conclusion

This paper aimed to propose and discuss the development of a conceptual model of technology acceptance that shows how individual, social, cultural and organizational factors affect the users' behavioural intention to use internet in learning and teaching activities. More specifically, the proposed model extends the Technology Acceptance Model (TAM) by integrating nine constructs namely, peer influence, superior influence, resource facilitation, technology facilitations, self-efficacy, academic tasks, non-academic tasks, government support, and finally, institute support. In addition, seven demographic and situational moderators (age, education level, organisation type, academic position, voluntariness and usage experience) were also hypothesized to have a moderating effect on individuals' acceptance behaviour. A comprehensive understanding of this model will provide valuable insights into the factors that influence the acceptance or resistance of Internet by intended users and offers opportunities for future research in understanding the acceptance of technology. Further, understanding these variables is helpful for instructors to design meaningful educational activities to promote student knowledge construction and make learning more effective and appealing.

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