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Bridging the divide: Using UTAUT to predict multigenerational tablet adoption practices

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ABSTRACT

This study examined the "Unified Theory of Acceptance and Use of Technology" (UTAUT) in the context of tablet devices across multiple generations. We tested the four UTAUT determinants, performance expectancy, effort expectancy, social influence, and facilitating conditions, to determine their contributions for predicting behavioral intention to use tablets with age, gender, and user experience as moderators. 899 respondents aged 19–99 completed the survey. We found consistent generational differences in UTAUT determinants, most frequently between the oldest and youngest generations. Effort expectancy and facilitating conditions were the only determinants that positively predicted tablet use intentions after controlling for age, gender, and tablet use. We also discuss the implications of ageism and gender discrimination of technology adoption. Finally, we argue that our findings can be extended to create effective training programs for the teaching, learning, and adoption of new technologies in a variety of organizational settings.

1. Introduction

Over its history, Information and Communication Technology (ICT) steadily extended its societal reach and became an integral part of the lives of people who used them. Based on individuals' needs, selectively adopting and using ICTs purposefully became one of the critical activities for improving their quality of life. Thus, technology is an increasingly relevant topic to study given its infinite accessibility and the fact that it is being used by a majority of people for fulfillment of various purposes such as information, entertainment, social support, leisure, work, and relationship maintenance (Volkom, Stapley, & Malter, 2013).

Uses of ICTs are not limited to any particular user group or certain professional field but rather, have expanded their reach to a wide variety of user groups including teenagers and both younger and older adults (Wilkowska & Ziefle, 2009). That said, there are important variances in the ways that each of the user groups uses technology. A considerable number of recent studies revealed that as the age differs, so does the possibility of making different choices on the adoption and use of technology (e.g., Arning & Ziefle, 2007; Chen & Chan, 2011; Hawthorn, 2000). When it comes to usage rates of technologies such as computers and mobile phones, generational differences emerge in the form of what is referred to as the "digital divide" (Chen & Chan, 2011). In general, digital divide refers to the gap of the level of accessibility and usability to new information and communication technologies between those who are more and less aware of their existence, and experienced in their use (Morrisett, 2001).

Recent research of tablet users indicated the possibility of an existing digital divide among generations in the U.S. population. According to one report, older adults (aged 75 and older) are less likely to own a tablet than younger adults. Yet, tablets have been extremely popular among U.S. adults aged 65 and younger (Zickuhr, 2011). Related research has focused on the physiological and cognitive factors regarding the digital divide among generations. These studies revealed that unlike the younger generation, concerns such as the perceived requirements for adopting and using technologies impacted the older generation's use of information technology to a much greater degree (e.g., Alvseike & Brønnick, 2012; Barnard, Bradley, Hodgson, & Lloyd, 2013; Hawthorn, 2000).

Due to rapidly changing technology trends, questions concerning the digital divide among generations need further investigation, particularly with respect to new technologies. Recent developments of new communication technologies are creating sophisticated communication environments. For example, given their increasingly integrated and mobile platforms, smartphones

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and other devices are supplementing computers by helping people access the Internet anytime and anywhere (Blank & Dutton, 2013). Similarly, powerful and highly mobile tablets continue to gain ground within the tech-consumer sector, and offer much promise for improving the quality of life of those who use them. Despite this, only a limited number of studies have explored digital divide issues within the context of tablet adoption and use. This line of inquiry is important as it can serve as a model for the development of other training programs designed to facilitate the teaching, learning, and adoption of new technologies within diverse organizational settings, and for diverse populations.

Thus, the main goal of this study was twofold: First, we explored variables from the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh & Morris, 2000; Venkatesh, Morris, Davis, & Davis, 2003) to better understand generational differences related to tablet use. Second, we tested UTAUT's ability to predict individuals' behavioral intention to use tablet devices in the context of multiple moderators.

1.1. Generational differences in technology adoption and its use

Technology use is one of the most important behaviors for increasing the quality of life for people of all ages (Park & Jayaraman, 2003). Scholars also proposed that technology could considerably increase independence for older adults (Chumbler, Mann, Wu, Schmid, & Kobb, 2004). Despite the increase in the amount of exposure to a wide variety of technologies for older adults, they are less likely to adopt new technology than younger generations (Blackler, Mahar, & Popovic, 2009). While ease of use increased for older adults, a digital divide still remains (Chen & Chan, 2011). This suggests that the above demographic still encounters obstacles to effectively using new technology (Alvseike & Brønnick, 2012).

Moreover, because different age groups may think differently when it comes to making a decision about technology use and adoption (Venkatesh & Morris, 2000), there even are differences within generational groups of older adults in terms of technology adoption. As per Smith (2014), in the Pew Research Center report, around 68% of adult Americans in their early 70s go online, and approximately 50% have broadband at home. The adoption and use of Internet falls to 47% and broadband adoption reduces to 34% among 75–79 year old adults. In the context of a general increase in tablet usage in the US, older adults in the age group of 75 and above were less likely to own a tablet device as compared to younger adults (Zickuhr, 2011).

Attitudes toward technology and its use are the most commonly studied elements of research regarding the relationship between aging and technology adoption. The relationship between age and attitudes toward technology is predominantly negative, meaning that as the age of individuals' increases, their negative attitudes toward technology increase (Wagner, Hassanein, & Head, 2010). In general, it is thought that cost is a major prohibitive factor in adoption or use of digital technology per se (Morrell, Mayhorn, & Bennett, 2000). However, researchers found that older adults are doubtful about the benefits that they will have from technology use, and that lack of perceived benefit outweighs cost as a key factor for less use of technology by older adults (Melenhorst, Rogers, & Bouwhuis, 2006; Wagner et al., 2010).

Another factor affecting the use of technology is the comfort level of each generation. Prior research revealed that older adults expressed less comfort or ease in using technology and less confidence in their ability to successfully use new technology (e.g., Adler, 2006; Chen & Chan, 2011; Smith, 2010). Consequently, older adults did not have a great interest in adopting new technology and were much less willing to use technology than younger adults (Chen & Chan, 2011). This compared to younger adults who grew up in the age of computers and technologies, and seem to understand ICTs easily, illustrates that younger adults are more comfortable with the Internet (Volkom et al., 2013). All of these findings suggest that perceived easiness or understandability has emerged as one of the major factors predicting the use of technology for older generations (Chen & Chan, 2011).

Prior research revealed that there are generational differences on actual performances while using technology (e.g., Thayer & Ray, 2006; Volkom et al., 2013). In terms of the function of technology for older adults, communication with family and loved ones, and access to social support were the most common motivators for computer and Internet use (Thayer & Ray, 2006). On the contrary, younger adults were more likely to view technology as a useful tool for entertainment, especially for spending time on social networking sites and downloading songs (Volkom et al., 2013). It can be said then that each generation of technology users have their own purpose and expected values from new technologies. Additionally, researchers have identified age related variables among different generations as a major factor in users' intentions to adopt and use technology. Hence, it is appropriate to conclude that there are prevalent generational differences when it comes to attitudes about technology, ease of use, and actual performance while using technology. Our overarching research question seeks to determine if there are generational differences for UTAUT variables, and more broadly, how age moderates UTAUT.

1.2. Theoretical framework and hypothesis development

The rapidly increasing evolution and demands in ICTs because of its attractive nature and efforts to provide nearly endless opportunities, particularly mobile technology, signifies a widespread use of wireless technology such as tablets (Volkom et al., 2013). However, only a limited number of studies have thus far actually focused on each generation's acceptances and uses of tablets as compared to other digital devices, such as computers or mobile phones. Therefore, the aim of this study is to focus on testing the predictive power of UTAUT on each generation's intention to use tablet devices.

1.2.1. Unified Theory of Acceptance and Use of Technology (UTAUT)

Unified Theory of Acceptance and Use of Technology (UTAUT) was designed to unify the multiple existing theories about how users accept technology (Venkatesh & Morris, 2000; Venkatesh et al., 2003). UTAUT is created from the following eight notable theories: Theory of Reasoned Action (TRA) from Davis, Bagozzi, and Warshaw (1989); Technology Acceptance Model (TAM) from Davis (1989), Davis et al. (1989), Venkatesh and Davis (2000); Motivation Model (MM) from Davis, Bagozzi, and Warshaw (1992); Theory of Planned Behavior (TPB) from Taylor and Todd (1995); Combined TAM and TPB (C-TAM-TPB) from Taylor and Todd (1995); Model of PC Utilization (MPCU) from Thompson, Higgins, and Howell (1991); Innovation Diffusion Theory (IDT) from Moore and Benbasat (1991); and Social Cognitive Theory (SCT) from Compeau and Higgins (1995) and Compeau, Higgins, and Huff (1999).

1.2.2. Moderators and determinants of technology use intention

Based on a combination of eight theories, UTAUT explains behavioral intention to use or adopt technology by proposing four predictive determinants (Venkatesh et al., 2003): performance expectancy, effort expectancy, social influence, and facilitating conditions. Venkatesh et al. (2003) identified four key moderators believed to affect the relationship between key determinants and intention: gender, age, voluntariness, and experience. We first discuss moderators and determinants broadly, then narrow to discuss determinants individually and present our hypotheses.