

## Chapter 23

# An Empirical Study to Validate the Technology Acceptance Model in Explaining the Intention to Use Technology among Educational Users

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### ABSTRACT

*This study examines a sample (N=239) of pre-service teachers' self-reported intention to use technology. The Technology Acceptance Model (TAM) was used as a research framework in which findings contribute to technology acceptance research by demonstrating the suitability of the TAM to explain the intention to use technology among educational users. Using the structural equation modelling for data analysis, a good fit was found for both the measurement and structural models. Overall, the results of this study offer evidence that the TAM is effective in predicting pre-service teachers' intention to use technology. This paper concludes with a discussion of the limitations and recommendations for further study.*

### INTRODUCTION

Despite evidence showing technology to having an impact on educational practices and policies and subsequently have the potential to alter traditional definitions of education, the use of the computer in classrooms often remains peripheral and minimal and teachers do not appear to make effective use of technology for teaching (Zhao & Cziko, 2001). In many education systems, the teacher is a key influence to the effective use of technology in the

educational system (Zhao, Tan, & Mishra, 2001) and plays a decisive role in determining computer use among their students (Teo, 2006). Hence, it is important to understand the factors that influence teachers' ability to cope with the pressures presented by the rapid advancements in educational technology and changes in educational policies.

While stakeholders in education expect teachers to engage technology in accordance with the belief that technology has an impact on students' learning, it must be borne in mind that teachers

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are affected by many variables that interact with each other that either facilitate or act as barriers to their use of technology. These include personal factors, such as computer self-efficacy (Gong, Xu, & Yu, 2004; Teo, 2008), technical factors, such as technological complexity (Teo, 2009; Thong, Hong, & Tam, 2002), and environmental factor, such as facilitating conditions (Ngai, Poon, & Chan, 2007; Teo, Lee, & Chai, 2008). The fact remains, that fostering technology acceptance among individual teachers is a big challenge for school administrators, technology advocates, and governmental agencies.

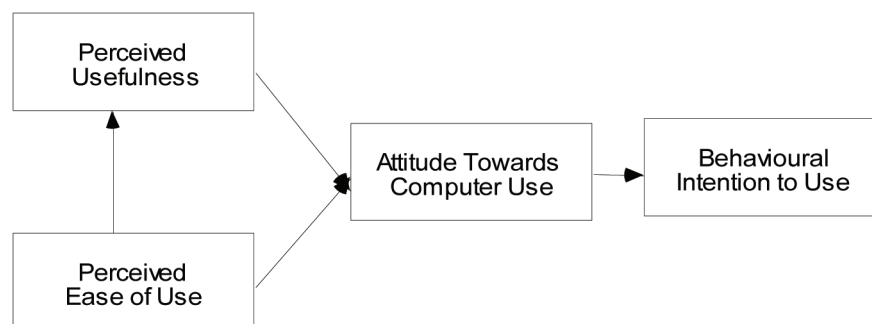
User acceptance refers to a willingness to adopt information technology for the tasks it is designed to support. For some long time, developers and procurers of technology could only rely on organizational authority to ensure that technology was used, in the case of many industrial/organizational contexts. However, the changing working practices in recent years among many organizations have enabled greater discretion among technology users. As such there is a need for these organizations to consider the dynamics of user acceptance and how this impacts on technology adoption and usage in their work environments. For this reason, technology acceptance has become an important topic and one of the most researched areas in the information science literature in recent years (Smarkola, 2007).

### 1.1. Technology Acceptance Model

In the last few decades, researchers have investigated how users' beliefs and attitudes affect their technology usage behaviours (e.g., Davis, 1989; Davis, Bagozzi, & Warshaw, 1989; Dishaw & Strong, 1998; Lederer et al., 2000; Moore & Bembasat, 1995; Straub, Keil, & Brenner, 1997; Taylor & Todd, 1995; Venakatesh, 2000; Venkatesh & Davis, 2000). Arising from these efforts, various theories and models emerged to explain technology acceptance. Of these models, the Technology Acceptance Model (TAM) by Davis (1989) is among the most popular. To a large extent, the TAM has been found to be a parsimonious model to explain technology adoption and usage in a variety of organizational contexts. In over two decades, the TAM has become a widely-used and tested model in technology acceptance research (Adams, Nelson, & Todd, 1992; Davis, Bagozzi, & Warshaw, 1989; Lederer et al., 2000; Teo, Wong, & Chai, 2008; Venakatesh, 2000; Venkatesh & Davis, 2000; Venkatesh & Morris, 2000). Figure 1 shows the TAM.

The TAM contains two user beliefs that determine acceptance; perceived ease of use and perceived usefulness. Between these constructs, TAM suggests that perceived usefulness will be influenced by perceived ease of use, since users are more likely to use a technology when they perceive it to be easy to use. According to Davis

*Figure 1. Technology acceptance model (Adapted from Davis et al., 1989)*



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