RECENT RELATED RESEARCH IN TECHNOLOGY ACCEPTANCE MODEL: A LITERATURE REVIEW

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ABSTRACT

Technology Acceptance Model is widely applied to access users' usage in various information system/information technology areas. Learning the critical role of Technology Acceptance Model can guide researchers to design different users' interface for different online customers, and consequently achieve high user usage in different application areas. This study reviewed 24 studies to understand the past, now and future of Technology Acceptance Model. We discussed the related studies to clarify the extension of Technology Acceptance Model. Besides, the application areas are elaborated including electronic service, mobile data service, self-service technology, electronic learning and so on. Finally, the article concluded the conclusions and future research direction.

Keywords: *Technology Acceptance Model, Perceived Ease of Use, Perceived Usefulness, Attitude, Behavioral Intention*

1. INTRODUCTION

Technology Acceptance Model proposed by Davis (1989) in the MIS Quarterly. With thousands of studies testing Technology Acceptance Model in the information system area, Technology Acceptance Model is increasingly applied as a fitting theory for the information management context.

Technology Acceptance Model is differed from Theory of Reasoned Action in two aspects. First, Technology Acceptance Model introduced two new constructs, perceived usefulness (the belief that using an application will increase one's performance) and perceived ease of use (the belief that one's use of an application will be free of effort). In Technology Acceptance Model, both perceived usefulness and perceived ease of use could predict an individual's attitude concerning the use of an application. Second, Technology Acceptance Model did not include subjective norm as a determinant of intention. Since its introduction by Davis (1989) and Davis et al. (1989), Technology Acceptance Model has been widely used for predicting the acceptance, adoption, and use of information technologies. As suggested by Legris et al. (2003) and Serenko et al. (2008), the power of prediction and explanation of TAM should be ameliorated through the integration of other situation or technology-specific constructs. Therefore, the article mainly presented the past research of Technology Acceptance Model.

The rest of this study proceeds as follows. The next section introduces Technology Acceptance Model. The third section describes the related research about Technology Acceptance Model. The final section proposes the conclusions as well as the future research direction of this study.

2. TECHNOLOGY ACCEPTANCE MODEL

Technology Acceptance Model, developed by Davis (1989), is one of the most influential research models in studies of the determinants of information systems and information technology acceptance to predict intention to use and acceptance of information systems and information technology by individuals. Technology Acceptance Model has received considerable attention of researchers in the information system field over the past decade.

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In the Technology Acceptance Model, there are two determinants including perceived ease of use and perceived usefulness. Perceived usefulness is the degree to which an individual believes that using a particular information system or information technology would enhance his or her job or life performance. Perceived ease of use is the degree to which a person believes that using a particular information system or information technology would be free of effort.

Perceived ease of use and perceived usefulness positively affect the attitudes toward an information system; and further, positively affect the individuals' intentions to use and the acceptance of the information system. In addition, perceived ease of use positively affects the perceived usefulness, and both of perceived ease of use and perceived usefulness are influenced by external variable.

The measurement items of technology acceptance model are proposed as follows. Perceived ease of use was usually at least measured including three items; a sample item: It is easy for me to use the [Name of information system or information technology]. Perceived usefulness was usually at least measured including three items; a sample item: Using [Name of information system or information technology] would enhance my effectiveness for your work/study/life tasks. Attitude was usually at least measured including three items; a sample item: Using [Name of information system or information technology] is a wise idea. Behavioral intention was usually at least measured including three items; a sample item: I intend to use [Name of information system or information technology] as often as needed.

While Theory of Reasoned Action and Theory of Planned Behavior have the capability to explore the system usage by incorporating subjective norms and perceived behavioral controls with attitudes toward using technology, Technology Acceptance Model is more appropriate to be applied in online contexts for several advantages. First, Technology Acceptance Model is specific on information system usage for applying the concepts of ease of use and usefulness. Besides, Technology Acceptance Model is more parsimonious. Furthermore, Technology Acceptance Model is more robust in various information system applications.

As the discussion in the previous paragraphs, since the modified or specific models are valuable in that it provides specific guidance for influencing intention or its determinants. Specific models would be of particular interest to applied researchers (Taylor and Todd, 1995) so that lots of studies have added different variables to modify their model in order to get the effectiveness results.
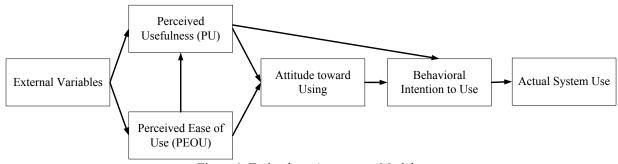

Figure 1. Technology Acceptance Model

3. RELATED RESEARCH OF TECHNOLOGY ACCEPTANCE MODEL
Technology Acceptance Model is a robust but parsimonious theory and it is useful to explain a particular information system or technology. So, lots of studies have proposed extended models for revising Technology Acceptance Model. Taylor and Todd (1995) proposed the integrated model of TAM and TPB (named Combined TAM-TPB). Venkatesh and Davis (2000) proposed TAM2 as a new version of Technology Acceptance Model. Venkatesh et al. (2003) proposed the Unified Theory of Acceptance and Use of Technology. Lin et al. (2007) proposed the TRAM (i.e. integration of technology readiness and Technology Acceptance Model). Chang (2008) proposed a combined model of Task-technology fit and Technology Acceptance Model.

Up to date, many researchers added new variables based on the Technology Acceptance Model. Agarwal and Prasad (1998a, 1998b) added the construct of compatibility in the Technology Acceptance Model. Dishaw and Strong (1999) integrated Technology Acceptance Model with Task-technology Fit. Agarwal and Karahanna (2000) added cognitive absorption, playfulness and self-efficacy based on Technology Acceptance Model. Venkatesh and Davis (2000) added subjective norms with Technology Acceptance Model. Chau and Hu (2002) integrated peer Influence with Technology Acceptance Model. Chiu et al. (2005) added personal innovativeness

with Technology Acceptance Model. Gefen et al. (2003) and Wu and Chen (2005) added the construct named trust with Technology Acceptance Model. Walczuch et al. (2007) and Lin et al. (2007) integrated technology readiness with Technology Acceptance Model. Chen et al. (2009) synthesized the essence of technology readiness, Technology Acceptance Model, and Theory of Planned Behavior to propose an integrated model for understanding customers' continued use of self-service technologies. Lee (2009) united the Technology Acceptance Model with Theory of Planned Behavior, perceived risk and perceived benefit to understand the adoption of internet banking.

Technology Acceptance Model has been applied in various information technology and information system areas. Moon and Kin (2001) extended the Technology Acceptance Model to explain the users' acceptance of World-Wide-Web context. Lin et al. (2007) extended Technology Acceptance Model to clarity the e-stock users' behavioral intention. Chen and Chen (2009) reexamined the Technology Acceptance Model to understand the automotive telematics users' usage intention. Stern et al. (2008) proposed a revised Technology Acceptance Model to investigate the consumers' acceptance of online auctions. Serenko et al. (2007) modified Technology Acceptance Model to assess user acceptance of interface agents in daily work applications. Chen et al. (2009) proposed an integrated model including Technology Acceptance Model, Theory of Planned Behavior, and Technology Readiness to explain the users' adoption of self-service technologies. Muller-Seitz et al. (2009) use the Technology Acceptance Model with security concern to understand customer acceptance of Radio Frequency Identification (RFID).

4. DISCUSSION

TAM has proven to be a useful theoretical model in helping to understand and explain use behavior in the information system implementation. It has been tested in many empirical researches and the tools used with the model have proven to be of quality and to yield statistically reliable results. The article introduced the Technology Acceptance Model. In the section 3, we discussed the related research with Technology Acceptance Model.

Learning the critical role of Technology Acceptance Model can guide researchers to design different users' interface for different online customers, and consequently achieve high user usage in different application areas. This study reviewed 24 studies to understand the past, now and future of Technology Acceptance Model. We discussed the related studies to clarify the extension of Technology Acceptance Model. Besides, the application areas are elaborated including electronic service, mobile data service, self-service technology, electronic learning and so on.

The future research direction is defined as follows. First, keep going with the extension of Technology Acceptance Model. Second, use the extension model of technology acceptance to assess the state-of-the-art technologies contexts including mobile service, cloud computing applications, ubiquitous computing applications and so on.

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