A Critical Review of Theories and Models of Technology Adoption and Acceptance in Information System Research

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ABSTRACT

Previous research shows that selecting an appropriate theory or model has always remained a critical task for IS researchers. To the best of the authors’ knowledge, there are few papers that review and compare the acceptance theories and models at the individual level. Hence, this article aims to overcome this problem by providing a critical review of eight of the most influential theories that have been used to predict and explain human behaviour towards adoption of various technologies at the individual level. This article also summarizes their evolution; highlight the key constructs, extensions, strengths, and criticisms from a selective list of published articles appeared in the literature related to IS. This review provides a holistic picture for future researchers in selecting appropriate single/multiple theoretical models/constructs based on their strengths and weaknesses and in terms of predictive power and path significance. It is concluded that a well-established theory should consider the personal, social, cultural, technological, organizational and environmental factors.

Keywords: Acceptance, Behavioral Theories, Diffusion of Innovations, Information Systems, TAM, Technology Adoption, TPB, TRA

1. INTRODUCTION

The decision of how and why people adopt or reject a particular technology has been a prominent topic in the field of information system (IS), marketing and social science (Tarhini, Hone, & Liu, 2013; Venkatesh, Thong & Xu, 2012; Benbasat & Barki, 2007). For the last three decades, researchers have aimed to understand, predict and explain the factors that influence the adoption of technology at individual as well as organizational levels (Abbasi et al, 2015; Abu Tair &
Abu-Shanab, 2014; Venkatesh & Zhang, 2010). Other behaviour theories move away from the individual to focus either on behaviour itself, or relationships between behaviour, individuals and the social and physical environments in which they occur. As a result, numerous technology acceptance theories and models have been developed and used to exploit the determinants and mechanisms of users’ adoption decisions and behaviours. These models include: The Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (Ajzen, 1991), the Technology Acceptance Model (Davis, 1989; Davis, Bagozzi & Warshaw, 1989) and the extended TAM (Venkatesh & Davis, 2000), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), the Motivational Model (Davis, Bagozzi & Warshaw, 1992), the model combining TAM and the Theory of Planned Behavior (Taylor & Todd, 1995c), the Innovation Diffusion Theory (Rogers, 1995) and the Social Cognitive Theory (Bandura, 1986).

However, selecting the best model or constructs from a multiple models that can fulfil the case study requirements is considered a difficult decision to make (Venkatesh et al., 2003). According to Bagozzi (1992), the model which have good parsimonious as well as fewest constructs is preferable. On the other hand, Venkatesh et al. (2003) mentioned that detailed understanding of the phenomena under investigation is more important than parsimony. While Taylor and Todd (1995b) argued that the balance between parsimony and their contribution to understanding should be thought of when evaluating the models. For instance, selecting a specific model may produce overflow which means that some of the constructs are not required or necessary, and may also produce overflow conditions which means that more constructs are needed to understand the phenomenon under investigation. Therefore, it becomes imperative to have a clear comparison of these models in terms of their theoretical underpinnings. By doing so, researchers and practitioners will effectively manage to understand the issues related to individuals’ behaviour and so can get a coherent and updated state-of-the-art picture of the research in order to position their ongoing studies. Additionally, without understanding the origins, developments, and modifications along with the limitations of these models, there can be no comprehensive and methodical research in the field. Furthermore, while most of these models and theories enjoyed widespread use and related literature has grown tremendously, to the best of our knowledge, there are not many reviews of literature about the comparison of IT adoption models at the individual level. This review will fill this gap. Hence, in this article, we provide a comparative, critical and comprehensive review of the most influential models and theories in the field of IS, examining their theoretical bases, identify their developments, key components, and strengths and weaknesses, extensions, limitations and their component constructs. Ultimately, our contributions are (a) to build solid knowledge about the various theoretical models and theories in the field of IS, (b) to analyse their extensions, modifications, strength(s) and weaknesses, and (c) to compare these models including their explanatory power and path significance in order to recommend which model is more powerful and hence more suitable for future studies.

This article is organized as follows: the next section propose the research methodology. Section 3 reviews and discusses the original work and the theoretical background of these theories and models including their key constructs, extensions, strengths and weaknesses. It is then followed by a thorough comparison among these theories in section 4. Finally, section 5 concludes the paper and discusses possible directions of future research.
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