APPLICATION OF THE DECOMPOSED THEORY OF PLANNED BEHAVIOUR IN TECHNOLOGY ADOPTION: A REVIEW

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ABSTRACT: The adoption of technology by people in various means has generated interests among researchers. Mobile technology in is growing at constant and faster pace in the past few years paving way for ease and comfortability in the personal and professional lives of many people. Though many theories and models have proposed to address the technology adoption by consumers, an interesting theoretical framework used in Information Systems (IS) that gets attention of the researchers is the Decomposed Theory of Planned Behaviour (DTPB). This research paper will provide insight by offering a comprehensive review of literature in DTPB context and its applications. This study contributes to the existing literature which will be beneficial for future researchers interested in DTPB model.

Key Words: Technology adoption, Decomposed Theory of Planned Behaviour, DTPB, Mobile services

1. INTRODUCTION

Information technology is consistently rising which draws the mobile industry to contribute to the immense growth of information technology in different perspectives. Mobile users extend their communication through several media, applications and supporting gadgets in their personal, professional and academic pursuits. The adoption of technology by people in various means has generated interests among researchers. Mobile technology is growing at constant and faster pace in the past few years paving way for ease and comfortability in the personal and professional lives of many people. One of the interesting theoretical frameworks used in Information Systems (IS) that gets attention of the researchers is the Decomposed Theory of Planned Behaviour (DTPB).

Taylor & Todd (1995) conducted a study in Computer Resource Center among 786 potential users over a 12-week period which identified decomposing the belief structures provided a moderate increase in the explanation of behavioural intention and provided a fuller understanding of behavioural intention by focusing on the factors that were likely to influence systems usage by applying design and implementation strategies. The theoretical frameworks such as Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), and Technology Acceptance Model (TAM) serve as the foundation for technology adoption studies in various contexts including the extension of decomposed variables in the Decomposed Theory of Planned Behaviour for a better and thorough understanding to consumer behaviour.

The Decomposed Theory of Planned Behaviour (DTPB) is widely applicable in studying behaviours in various contexts such as health, education, e-commerce, m-commerce, etc. DTPB theory serves in predicting and explaining the performance of behavioural intention and hence considered as the framework for the studies on technology adoption (Sundar & Kanimozhi, 2018). DTPB has been used to test factors influencing the adoption of technology (Abadi, Kabiry & Forghani, 2013). The purpose of this study is to help understand the underlying framework of decomposed theory of planned behaviour and its applications in technology adoption in varied contexts.

2. DECOMPOSED THEORY OF PLANNED BEHAVIOUR

The Decomposed Theory of Planned Behaviour (DTPB) as in Table 5.1 is adapted from Taylor & Todd (1995) using constructs of Roger’s (1983) Innovation Diffusion Theory (IDT) such as relative advantage, complexity, compatibility along with Perceived Behavioural Control. DTPB attempted to prove that relationships between the belief structures and antecedents of adoption intention require a better understanding of it and the decomposition of attitudinal beliefs. Belief structures representing a variety of dimensions will be consistently related to the antecedents of intention (Bagozzi, 1981). Those relationships should be clear, readily understood and applicable across a variety of settings.
Taylor & Todd (1995) considered intention-based research which used Behavioural intention (BI) to identify the determinants of intention and innovation-based research originated from IDT that used the attitudinal beliefs viz. relative advantage (perceived usefulness), complexity (perceived ease of use) and compatibility (Rogers, 1983). TPB was decomposed into corresponding antecedents by integrating Innovation Diffusion characteristics (Rogers, 2003), Self-efficacy (Bandura, 1977) and Facilitating Conditions (Triandis, 1979).

Attitude was decomposed into Relative Advantage, Compatibility and Complexity as described by Rogers. Relative Advantage is the degree to which an innovation provides benefits to the users in comparison to its predecessors. Perceived Usefulness refers to the degree to which an innovation offers benefits more than expected. Perceived Ease of Use refers to the degree to which an innovation is perceived to be difficult to understand and use. Compatibility is the degree to which an innovation fits with the potential user’s existing values, previous experience and current needs (Rogers, 1983). The antecedents of Subjective Norms are believed to be Normative Beliefs. Taylor & Todd (1995) also decomposed the normative belief structure into influence by peers and superiors. Subjective Norms is referred to as the perceived social pressure to perform or not to perform the behaviour.

The control belief structure, Perceived Behaviour Control was decomposed into self-efficacy, technology facilitating conditions and resource facilitating conditions. The Perceived Behavioural Control reflects control belief regarding access to the resources and opportunities required to affect behaviour. The facilitating conditions reflect the availability of technology and resources needed to perform a particular behaviour (Triandis, 1979). Self-efficacy states that being confident of the ability to behave successfully in the situation (Bandura, 1982).

Attitude is the general feeling of people about the desirability or undesirability of a particular behaviour (Ajzen, 1991). The perceptions related to opinions about doing or not doing the behaviour by an
individual is the Subjective Norm (Taylor & Tadd, 1995). Perceived Behavioural Control is referred to as the individual’s perception about ease or difficulty of doing behaviour and their perceptions about skills, resources and opportunities required in performing the behaviour (Ajzen, 1991).

According to DTPB, the actual behaviour is determined by Intention to use, which, in turn is determined by the Attitude toward behaviour, Subjective Norms and Perceived Behavioural Control. Taylor & Todd (1995) developed the Theory of planned behaviour by breaking down structures of Attitude, Subjective Norm and Perceived Behavioural Control (Luarn & Lin, 2005) which derived increased power in explaining and accurate understanding of behavioural intentions (Pedersen, 2005). DTPB as an extension of TPB decomposes beliefs toward the antecedents of behavioural intention. The decomposition of beliefs into multidimensional constructs represents a variety of dimensions, which is consistently related to the antecedents of intention as well as clarify the relationship among the antecedents of the behaviour. DTPB also provides a set of beliefs that can be applied across a variety of contexts.

3. DTPB APPLICATIONS

Several studies on technology adoption using DTPB framework proved that the DTPB model gives a more satisfactory explanation of intention to adopt newer technology than pure TPB (Puschel et al., 2010; Shih & Fang, 2004). DTPB offers greater insights into what lies behind the intention to adopt an innovation and acts as an impetus to significant researches from various contexts. Al-Majali & Mat (2011) investigated twelve factors that influence internet banking adoption in Jordan among 517 employees of Jordanian public universities. The results suggested that the formation of positive attitude about Internet banking services should take place before the technology adoption.

<table>
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<tr>
<th>Author/s</th>
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<td>Taylor and Todd (1995b)</td>
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<td>Tan and Teo (2000)</td>
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Kazemi et al. (2013) used DTPB framework including trust and perceived risk to study the intention to adopt mobile banking in Isfahan city among 315 bank customers. The results indicated that attitude and perceived behavioural control influenced mobile banking adoption. However, social norms was insignificant in explain the intention to adopting mobile banking. Hong et al. (2008) studied on identifying and empirically assessing the factors that drive consumers’ acceptance of mobile data services among 811 consumers of using DTPB. The results revealed that attitude, social influence, media influence, perceived mobility, perceived ease of use and perceived usefulness influenced continued usage of mobile data services. Fogelgren-Pedersen et al. (2003) used DTPB to address the drivers and inhibitors for end-consumer use of the mobile Internet among 15 adopters. Hsu et al. (2006) analysed attitude and behavioural intention of consumers towards m-coupons using DTPB to understand the validity of each construct. The results discovered that the decisive or crucial factors influencing the intention and behaviour of the consumers were attitude and perceived behavioural control.

Sundar & Kanimozhi (2018) conducted a study on the intention to adopt 4G mobile services in
Indian context among 218 4G mobile users and the results generally indicated that the DTPB provides an improved approach of explaining the behavioural intention to use 4G mobile services by mobile users. The results also indicated that the DTPB theory provides a good explanation for the behavioural intention to use 4G mobile services by mobile users. Yu (2014) investigated the factors influencing consumers to make a transition from online to mobile banking and the empirical study showed that relative attitude and relative subjective norm positively motivated the respondents to switch from Internet to mobile banking in contrary with perceived behavioural control. Khalil MdNor (2005) conducted an empirical study of Internet banking acceptance in Malaysia using DTPB in extended form. The study revealed that Decomposition of main beliefs provided more specific factors that influence the behaviour. The following table depicts the contributions made by several researchers in the field of technology and its application using DTPB over years.

Teo & Pok (2003) studied on WAP-enabled mobile phone adoption and the results showed that attitudinal and normative factors influenced the same whereas perceived behavioural control factors did not associate well. The study also elucidated that decomposed TPB faced fewer problems in operationalization as decomposition had provided a stable set of beliefs that can be applied across a variety of settings. DTPB became more managerially relevant which pointed out specific factors that may influence adoption and usage. The factor that represented the influence of significant others in DTPB model was found to be an important determinant of behaviour. Kanimozhi & Sundar (2017) conducted a study on explaining the adoption intention of 4G mobile services through the DTPB model among 233 mobile users in India. The study findings indicated that Attitude was found to be an important factor influencing 4G mobile usage whereas Subjective norm and perceived behavioural control also positively influenced behavioural intention.

4. DISCUSSION

The DTPB model was achieved by the combination of TPB and TAM which presented a thorough understanding of behavioural intention and enhanced explanatory power than the Theory of Planned Behaviour (Taylor & Todd, 1995a; Taylor & Todd, 1995b). DTPB offers distinct understanding of both the design aspects and the factors related to the implementation of new technology under study. The DTPB studies highlight added values to the body of knowledge and suggest implications for the researchers and marketing practitioners. Though limited researches have used DTPB model which accounts for the greater understanding of the antecedents of the variables of Theory of planned behaviour, there is scope for extensive researches in varied contexts. Several studies conducted using DTPB framework implied that the research findings offer knowledge and understanding about intentions to adopt a technology.

5. CONCLUSION

TAM specified two specific beliefs - Perceived ease of use and perceived usefulness which determine one’s behavioural intention. In order to develop a better understanding of the relationships and the antecedents of intention requires decomposing attitudinal beliefs. DTPB is indeed a very popular model for explaining and predicting system use. It has better explanatory power than the pure TPB and TRA models (Taylor and Todd, 1995a). Learning the critical role of DTPB can guide researchers to design different users’ interface for different respondents, and consequently achieve high response rate in different application areas. Innovation adoption researches face the challenge with respect to the scarcity of related studies and innovation experience of consumers (Cooper, 1998). With the consistent rise in technological dependence in human lives, academicians, industry professionals and researchers have in actively involved in adoption intention of various technologies by consumers. DTPB have been found to have a better predictive power of the antecedents of behaviour and this theory has been widely used to evaluate the adoption of different technologies, from the individuals’ perspectives rather than an organisational perspective. Future research could further explore comparing not only the intention but also the actual behaviour of the respondents of the study on adopting technology. Future researches may also include different objectives to develop proper models for understanding the adoption of different technologies.

REFERENCES