Critical Literature Review of Theory of Planned Behavior in the Information Systems Research

Osden JOKONYA*
North-West University, Mafikeng, Private Bag X2046, Mabatho, South Africa
*Corresponding author

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Abstract. The Theory of Planned Behavior (TPB) has been widely applied in several disciplines to help better understand individual human behavior. For the past two decades, the TPB theory have been used in information systems research for providing the ability to predict a wide range of individual behaviors as they are exposed to different technologies and process in organizations and society. The TPB predictive power has been useful in better understanding issues driving individual human behavior as they interact with information technologies. Despite TPB’s impact to the information systems discipline, other researchers suggested additional elements to the basic model in order to better understand complex human behavior. In addition the TPB theory has seen addition of constructs to come up with new frameworks and models such as Technology Acceptance Model (TAM). Besides some criticisms of TPB and limitations it is still widely applied in several disciplines which include information systems.

Introduction

Several theories have been borrowed from different disciplines to be applied in the information systems discipline such as Theory of Planned Behavior (TPB), Theory of Reasoned Action (TRA) and many others. The information systems discipline is particularly concerned with how information systems are developed and used the real-world [1]. The need to understand complex issues in information systems have resulted in borrowed theories from established disciplines to assist in understanding individuals as they interact with technology and processes in organizations. One of the most popular theories for understanding human behavior in information systems discipline is the theory of planned behavior. This paper therefore discusses the TPB theory in the context of information systems discipline. The rest of the paper is structure as follows: section 2 discusses a brief overview of Theory of Planned Behavior, Section 3 Application of Theory of Planned behavior in information systems, Section 4 competing theories section 5 the criticisms of Theory of Planned Behavior and lastly section 6 discussion and conclusion of the paper.

Brief Overview of Theory of Planned Behavior (TPB)

The TPB theory is premised on the basis that human behavior is guided by three kinds of considerations: beliefs about the likely outcomes of the behavior and the evaluations of these outcomes (behavioral beliefs), beliefs about the normative expectations [2]. The behavioral beliefs in their respective aggregates results in favorable or unfavorable attitude towards behavior, subjective norm (normative beliefs result in perceived social pressure) and control beliefs give rise to perceived behavioral control. In combination the three kinds of considerations lead to the formation of a behavioral intention. The more favorable the attitude and subjective norm and the greater the perceived control, the stronger should be the person’s intention to perform the behavior in question, [2]. In short, given a sufficient degree of actual control over their behavior people are expected to carry out their intentions when the opportunities arise. Some researchers were of the opinion that human behavior is guided by different subjective probabilities that means belief about the
consequences of the behaviour, belief about the normative expectations of other people and beliefs about the presence of factors which may facilitate or impede performance of the behaviour [3].

![Figure 1. The Theory of Reasoned Action (TRA) ([2]).]

The beliefs which are based on background factors have behavioral belief which produce attitude towards behavior, normative beliefs which result in subjective norms and control beliefs that generate perceived behavioral control [4]. The instructions that people give to themselves led to behave in a certain a way which is behavioral intention and represents an individual’s motivation plan to exert effort to perform the behavior [5]. Finally, the assumption is that intention is the immediate antecedent of behavior [6].

**Behavioral Interventions**

Some researchers noted that interventions aimed at changing behavior are targeted at the determinants (attitudes, subjective norms or perceptions of behavioral control [2,4]. Changes in these three factors result in changes in behavioral intentions and given adequate control over the behavior, the new intentions should be carried out under appropriate circumstances. The intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes towards the behavior, subjective norms and perceived behavioral control and these intentions together with perceptions of behavioral control, account for considerable variance in actual behavior [2]. He added that attitudes, subjective norms and perceived behavioral control are shown to be related to appropriate set of salient behavioral, normative and control beliefs about the behavior, but the exact nature of these relations is still uncertain.

![Figure 2. The Theory of planned behavior [4].]

**The Theory of Planned Behavior Constructs**

The TPB theory is based on the three independent constructs of intention which are attitude, subjective norm and perceived behavioral control [4]. The attitude independent determinant (predictor) towards behavior refers to the degree to which an individual person has a favorable or unfavorable evaluation or appraisal of the behavior in question. The subjective norm social factor predictor refers to the perceived social pressure to perform or not to perform the behavior. The perceived behavioral control antecedent of intention refers to the perceived ease or difficult of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles [4].
The Perceived Behavioral Control

The TPB addressed the weakness of its predecessor TRA in permitting prediction behaviors not be entirely under volitional control. To address the weakness of its predecessor, TPB incorporated perceived behavioral control (PBC) an additional determinant of human motivational intention to the TRA. The addition of PBC was based on the fact that individuals might have incomplete control over their intended behavior, especially in unstable and uncontrolled external contexts [4]. Hence the addition of perceived behavioral control enabled TPB to be used to predict and examine human intentions and behavior in situations where individuals might lack control over their own behavior.

The Application of TPB in Information Systems Discipline

The TPB theory has also been applied in several other disciplines ranging from sociology, psychology, management and information systems just to mention a few. However TPB theory has been the dominant theory in information systems research to study factors that influence intentions of individuals to engage in particular behavior [7]. The theory of planned behavior (TPB) is one of the most popular theories used to explain and predict many human behaviors related to information technologies implementation and adoption phenomenon [2]. On that note the behavior is stimulated by intention which is also influenced by underlying beliefs [2]. The human behavior revolves around intention which captures the factors that influences the behavior and backs people’s actions. The ability to be able to identify and understand motivational behavioral factors is important in understanding why an individual performs a behavior in order to change behavioral practices in society [8].

The TPB theory which is an extension of the theory of reason action (TRA) has been used extensively in the information systems discipline to understand individual behavior of technology use, implementation and adoption from an individual and organizational perspective [4]. An individual’s performance of certain behavior according to TPB is determined by intent to perform that behavior. The TPB general theory does not specify the particular beliefs that are associated with any particular behavior as the determination of beliefs is left to the researcher’s preference [8]. The beliefs about how important an individual feels about technology should influence its use by the individual. The perceived behavioral control which is an extension construct from the original TRA is informed by beliefs about the individual’s ability to engage in the behavior [4]. The TPB theory has been useful in information systems discipline to predict and understand individual human behavior.

Some studies in information systems have applied TPB to predict behavioral intention in technology acceptance and use. The perceived behavioral control construct an addition to the original TRA is useful in situations in which individuals do not have complete voluntary control over their behavior such as resources and skills to perform the task [9]. The three determinants of TPB are expected to influence individual intentions on technology use, implementation and adoption. In that regard, TPB study has gained tremendous momentum in information systems research areas such as online communities, internet banking and e-commerce among others.

Some authors recommended information systems researchers to consider going back to the original comprehensive theory of TPB as opposed to TAM which have some limitations despite having become the dominant theory in IT adoption from individual perspective [10]. They argued that since extensions of the belief set are a natural application of TPB, this course of action would open up the left hand side of the model (antecedent) where the salient beliefs are identified and help provide an adequate theoretical grounding that researchers can use to incorporate into their models. Some researchers have already begun to embrace the use TPB instead of TAM to allow new novelty and discovery [11].
Shortcomings of Competing Models in IS Research

There have been several competing models and frameworks which have been extensively applied in studying acceptance behavior in the information systems discipline. Some of the most popular competing models to be applied in understand the individual behaviors in IS discipline are Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) theory. Although TAM has been found, arguably, to be the most influential theory in IT adoption, it has been criticized for diverting the attention of researchers away from other important issues [10,12].

Most TAM studies reiterate the importance of perceived usefulness without investing much effort in trying to investigate what makes a system useful [10,12]. Some researchers have criticized TAM’s dominance as a paradigm for creating a narrow slice of the IT adoption domain [10]. The perceived usefulness of a TAM construct is also subjective since individuals have different perceptions of the utility of technology [13]. The TAM’s over emphasis on usage as the dependent variable prevents researchers from investigating other important user behaviors. The shortcomings of TAM are due to the constantly changing context of IT organisations making it less relevant.

Despite diffusion of innovation theory’s popularity its bias towards the technological component of the adoption process while ignoring other issues has been criticized by many researchers [5]. The criticism of diffusion of innovation theory is that IS discipline goes beyond technical factors but also includes social, economic and political factors. While DOI model is an improvement from an organization’s perspective, it is still deterministic in nature and is more focused on the technology side ignoring the social context of the IS discipline.

The limitation of these competing models is lack of sociological concentration of the TPB which explains the individual human behavior. This sociological aspect of TPB makes it most appropriate and best suitable for studying the social aspects associated with human intentions towards technology usage than other competing models [7].

The Criticisms of Theory of Planned Behavior

Some researchers suggest that TPB is not complete solution since it has challenges such as the exclusions of habits [7] and emotions moderator variables of constructs and lack of knowledge of relationships between determinants predictors [2]. It may be fruitless to investigate TPB’s system and design antecedents before developing theories about the IT artifact in the IS field. It is possible for IS researchers to extend TPB by theorizing about IT artifact in ways that address its shortcomings thereby making some contributions to the IS literature [10].

Some researchers criticized the TPB’s silent regarding independent variables which are useful in understanding the broader perspective of what individual users do with information technologies [10]. The broader perspectives may include users’ adaptation, learning and reinvention of behavior as they interact with the technologies. These individual behaviors have important influence on information technology implementation outcomes [13]. The advantage of the broader view is that it helps to understand some effects of the salient variables such as individual performance and whether it is mandatory or voluntary. Critics have argued that cross sectional studies have challenges in capturing the influence of salient belief variable during IS implementation and use [10]. They suggested that longitudinal studies are likely to provide a better understanding of the relationship that exist between constructs and other users behavior that influence on future users beliefs.

Some researchers note the need to identify beliefs antecedents of adoption models which may benefit practice and influences the outcomes of IT adoption and use [10]. It is important to note that certain mediators (beliefs) are difficult to understand how they influence beliefs. They also suggested considering the perceptual belief based on focus approach from a practical point of view of IT adoption. Some researchers have pointed out that TPB’s weakness is its lack of explanatory power of testing different IS contexts since its original constructs do not fully reflect every context [7]. Several researchers suggested the decomposition and extension of TPB constructs with other competing
theories in the IS discipline to study the different contexts and help to reflect the technological and social related aspects that influence behavior [7].

Discussion and Conclusion

The theory of planned behavior provides a theoretical framework for understanding the complexities of human social behavior in information systems. The importance of the theory is that it incorporates some of the social and behavior sciences central concepts that permits the prediction and understanding of particular behaviors in specific contexts. The theory assumption is that it is possible to predict with a high degree of accuracy behavioral intentions based on the three determinants attitudes, subjective norms and perceived behavioral control.

Besides some criticisms of TPB and limitations it is still widely applied in several disciplines which include information systems. This paper therefore confirms the importance of TPB in the information systems discipline. The paper expands our knowledge on the importance of TPB theory in the IS discipline. The paper also highlight the significance of the need to use theories from the other discipline in IS field. The IS field requires a multi-disciplinary approach to understand the socio-technical, political, economic and legal challenges facing organizations and society. The single discipline theories may have shortcomings understanding the complexities associated with the IS discipline which multi-disciplinary in nature.

References


