



Theoretical and Practical Implications of Applying Theory of Reasoned Action in an Information Systems Study

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Abstract

Theory of Reasoned Action was formulated by social psychologist [1]. The theory resulted from attitude research using the Expectancy Value Models. Even though this theory can be applied in studying a number of research cases in Information Systems discourse, it has not been extensively used, and in cases where it has been used, it has mainly set the stage for other theories such as Technology Acceptance Model, Unified Theory of Acceptance and Utilization of Technology and Innovation Diffusion Theory among others. This has there positioned Theory of Reasoned Action as underutilized even though it is a very strong theory to support Information Systems studies.

Keywords

Information Systems, Mobile phones, TAM, Theory of Reasoned Action, TRA

Subject Areas: Applications of Communication Systems

1. Introduction

Ajzen and Fishbein formulated the Theory of Reasoned Action (TRA), by 1980. This resulted from attitude research using the Expectancy Value Models [2]. They did this formulation of TRA after trying to estimate the discrepancy that existed between attitude and behavior. The fundamentals of the TRA come from the field of social psychology. Social psychologists attempt, among other things, to explain how and why attitude affects behavior, which is equally very important in mirroring Information Systems study. That is, how and why people's beliefs change the way they act. Behavior can either be verbal or non-verbal such as body language,

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signals, signs, or vocally expressed. Psychologists argued about what should make up the term attitude. Social psychologists suggest that attitude includes behavior and cognition, and that attitude and behavior are positively correlated. This is the reason why Information Systems study should adopt Theory of Reasoned Action. Mobile phone payment technology utilization, for example, is a matter of attitude towards its adoption. The users only adopt and engage only that technology they perceive to have value to them.

2. Theory of Reasoned Action

Theory of Reasoned Action (TRA) is a series of related concepts and hypotheses postulated by social psychologists to understand and to predict human behavior [3]. TRA has developed from the long standing collaborative research conducted by renowned psychologists [1]. From the onset of TRA in behavioral research, it has been applied to study a wide variety of situations and is now regarded as one of the most influential theories about volitional human behavior [4]. It is based on the assumption that human beings usually behave in a sensible manner, as the name of the theory implies; that is, they take account of available information and consider the implications of their actions. The theory postulates that a person's intention to perform or not to perform a behavior is the immediate determinant of that action; barring unforeseen events, people are expected to act in accordance with their intentions. Intention to adopt mobile phone payment technology in the rural communities can also be seen to depend on the users' volitional behavior. The rural communities; therefore, take account on the available information about mobile phone payment technology and considers implications of adopting or not adopting. The information considered may be the cost implications, availability of support services, technical knowledge required to be able to adopt the technology, alternative ways of achieving the services offered by mobile phone payment technology.

"The stronger the intention to adopt mobile phone payment technology, the more the person is expected to try applying this technology, and therefore the greater the possibility that the behavior will actually be performed, and thus the primary concern is with identifying the factors underlying the formation and change of behavioral intent" [5]. A person's intention to behave in a certain way is based on: their "attitude" toward the behavior in question and their perception of the social pressures on them to behave in that way, that is, "subjective norms". The relative contribution of attitudes and subjective norms varies according to the behavioral context and individual involved. Attitudes are determined by the beliefs about the outcomes of performing the behavior and the evaluation of these expected outcomes. The subjective norm is dependent on beliefs about how others feel the individual should behave and their motivation to comply with these expectations from others [1]. In most of the rural communities many people embrace social coexistence. Because of this, for every action they do, they consider or evaluate how such actions will affect their colleagues. They look at how positively or negatively, their actions will affect other community members. This social pressure may have a bearing on the adoption of mobile phone payment technology. The subjective norm can be seen to play a key role in the decision to adopt a particular new technology or not in any given community.

Since the theory of Reasoned Action can also be used in technology adoption and general research as a fundamental theoretical framework, some researchers have used it alongside other theories and models in technology, especially when attitudes and perceptions are involved. Attitude and subjective norm have been found to be important determinants of peoples' intentions to perform an action such adopting and using new technology [6]. Attitude is having a significant influence on the intention to adopt and continue to use technology [7]. These relationships are summarized in **Figure 1**.

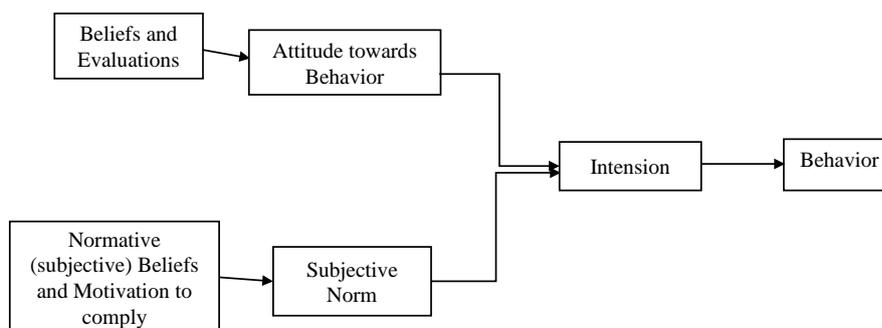


Figure 1. Theory of reasoned action. Source: Fishbein, & Ajzen [8].

3. Literature Review

Information technology adoption and utilization in the workplace and our society in general remains a central concern of information systems research and practice. For instance, understanding and creating the conditions under which information systems are embraced by the human organizations, remains a high-priority research issue. Ajzen and Fishbein formulated the Theory of Reasoned Action (TRA), by 1980. This resulted from attitude research using the Expectancy Value Models [2]. They did this formulation of TRA after trying to estimate the discrepancy that existed between attitude and behavior. The fundamentals of the TRA come from the field of social psychology. Social psychologists attempt, among other things, to explain how and why attitude affects behavior, which is equally very important in mirroring this study. That is, how and why people's beliefs change the way they act. Behavior can either be verbal or non-verbal such as body language, signals, signs, or vocally expressed.

TRA therefore, put forth three general constructs namely: (1) behavioral intention, (2) attitude, and (3) subjective norm. Behavior is determined by the person's intention to perform that behavior [1], and that; this intention is, in turn, a function of the person's attitude toward the behavior. One of the potential reflectors of possible behavioral outcome is intention. Intention is the cognitive representation of a person's readiness to perform an intended behavior, and is considered an immediate indicator of behavior. Behavioral intention measures the relative strength of a person's likelihood to perform an anticipated behavior. This includes motivational or attitudinal factors that capture how individuals are engaging to perform the intended behavior [9]. Subjective norm on the other hand is regarded as a combination of perceived expectations from relevant individuals along with the intention to comply with such expectations [10]. A person's attitude, combined with subjective norms, forms the person's behavioral intention. Thus, behavioral intention is a function of both attitudes toward a behavior and subjective norms toward that behavior, which can then predict the actual behavior. This is capable of predicting the users' behaviour especially when it comes to adopting new technologies and Information Systems, as well as the continual use of technologies.

Theory of Reasoned Action has been tested in numerous studies across many disciplines and cases including dieting, using condoms, consuming genetically engineered foods and limiting sun exposure as indicated in the study by [11]. This theory can be extended to conceptualize the human behavioral pattern in the decision-making strategy on the utilization of a new innovation or technology. This theory is capable of explaining whether individual behavior such as utilization of new innovation is driven by behavioral intentions, where behavioral intentions is a function of an individual's attitude toward the behavior, the subjective norms surrounding the performance of the behavior, and the individual's perceptions of the ease with which the behavior can be performed (behavioral control). The theory has not extensively been utilized in evaluating studies such as technology adoption and diffusion. In the Information Systems literature, this theory has only been used to the extent where, it identify users' behaviors and attitudes in issues relating to Internet use, online purchase, household computer use, and online privacy, security, and trust [9] and only as a supportive theory along other main theories.

Psychologists argued about what should make up the term attitude. Social psychologists suggest that attitude includes behavior and cognition, and that attitude and behavior is positively correlated; a reason why studies in Information System, especially on innovation or technology adoption should apply Theory of Reasoned Action. One such example is mobile phone payment technology utilization, which is a matter of attitude towards its adoption. The users only adopt and engage only that technology they perceive to have value to them. Further, from the review of relevant literature, Most of the existing research on the subject of consumer adoption of mobile phone payment technology, are based on Technology Acceptance Model (TAM). Studies that have used Theory of Reasoned Action and Theory of Planned Behaviour (TPB) are very few, and have only been used to an extent where they set up the stage for other theories such as TAM, Extended TAM, and Unified Theory of Acceptance and Use of Technology (UTAUT). However, TRA in our view is sufficient in guiding studies on consumers' utilization and adoption of new innovations and technology. This further give ground for using purely TRA in this study, to bring forth the strength of this theory in understanding and Information Systems discourse. Also, the majority of the factors that most studies have taken into consideration, have been adoptive factors and characteristics of mobile commerce service providers, mobile commerce merchants, mobile commerce consumers, and the environment as well as consumer perception features of mobile commerce [12]. This leave out important factors such as users' beliefs, social pressure, age, gender, level of education as well as economic factors, which can only be well, addressed using TRA.

A study by [12] to review prior literature on mobile commerce, analyse the various adoptive factors, and suggest future research direction. Their study followed a method where they conducted an exhaustive and systematic electronic search of 59 articles, 23 Chinese and 36 English. Their study was further, based upon Research subjects; research theory; and adoptive factors. They established that most of the existing researches were on the subject of consumer adoption; and TAM was the most-used theory in consumer adoption. They also established that, the majority of adoptive factors are characteristics of mobile commerce service providers, mobile commerce merchants, mobile commerce consumers, and the environment; consumer perception features of mobile commerce. It was established further that very few studies have used social psychology based theories such as Theory of Reasoned Action or Theory of Planned Behavior. The two theories have been used sparingly in Information Systems studies even though they do have a better platform in studying adoption of new innovations and technology based on behavioral intentions as well as subjective norms and social influence.

This paper developed and tested a model based on the TRA in order to understand the challenges posed by expert systems on management [13]. The model was tested using a cross-sectional design based on a self-administered questionnaire completed by a sample of 94 users and non-users from two of the largest accounting firms in the U.S. The outcome measures were attitudes toward the system and intentions to use the system in the future (or continue to use it among existing users). The results supported several hypotheses. Intentions to use the system were influenced by social norms encouraging system use and by perceptions of the impacts of system use on valued skills, controlling for the effect of attitudes. Attitudes toward use of the system were affected by the perceived usefulness of the system and its impacts on valued skills. Attitudes were also strongly related to ease of system use, an unanticipated finding. The most surprising result was that general attitudes were not found to predict intentions to use the system. The data show no evidence of fearful reactions of employees to Expert Systems in this particular context. The study discussed the implications for user acceptance of expert systems, and how results compare to those of other information technologies.

This paper examined the factors influencing the adoption of Wireless Application Protocol (WAP)-enabled mobile phones among Internet users [14]. Their study used theory of reasoned action, theory of planned behaviour, technology acceptance model, and innovation diffusion theory as a theoretical basis, since it attempted to explain intention of certain behaviour and adoption of certain technology. The study established that, it is attitudinal factors and subjective norms, rather than perceived behavioral control that influence intention to use a WAP-enabled mobile phone. To be specific, perception of relative advantage, risk and image were found to influence adoption intentions. The paper also examined the effect of compatibility on the usage intentions when forum sample and e-mail sample was used [14]. They found out that compatibility for e-mail sample had a significant effect on the usage intention indirectly through attitude. Their study also confirmed that theory of reasoned action has been used in support of other theories. Many researchers who apply theory of reasoned action in studying technology adoption related studies, have constantly used it to support other theories such as TAM, TPB, and Innovation Diffusion Theory.

4. Summary and Conclusion

TRA was formulated by [1], as a result of attitude research using the Expectancy Value Models [2]. The formulation of TRA was after trying to estimate the discrepancy that existed between attitude and behavior. The fundamentals of the TRA come from the field of social psychology. Social psychologists attempt, among other things, to explain how and why attitude affects behavior, which is equally very important in mirroring this study. That is, how and why people's beliefs change the way they act. The study will be looking at how attitude and beliefs affect the utilization of mobile phone payment technology. Behavior can either be verbal or non-verbal such as body language, signals, signs, or vocally expressed. TRA put forth three general constructs namely: (1) behavioral intention, (2) attitude, and (3) subjective norm.

TRA has been tested in numerous studies across many disciplines and cases including dieting, using condoms, consuming genetically engineered foods and limiting sun [11]. The theory can be extended to conceptualize the human behavioral pattern in the decision-making strategy on the utilization of a new innovation or technology. It is capable of explaining whether individual behavior such as utilization of new innovation is driven by behavioral intentions, where behavioral intentions is a function of an individual's attitude toward the behavior, the subjective norms surrounding the performance of the behavior, and the individual's perceptions of the ease with which the behavior can be performed. The theory has not extensively been utilized in evaluating studies such as

technology adoption and diffusion. In the Information Systems literature, this theory has only been used in identifying users' behaviors and attitudes in issues relating to Internet use, online purchase, household computer use, and online privacy, security, and trust [9]. Social psychologists suggest that attitude includes behavior and cognition, and that attitude and behavior is positively correlated, giving the reason for applying TRA in understanding mobile phone payment technology utilization. From the review of relevant literature, most of the existing research on the subject of consumer adoption of mobile phone payment technology is based on TAM. Studies that have used TRA and TPB are very few, and have only been used to an extent where they set up the stage for other theories such as TAM, Extended TAM, and UTAUT. TRA is sufficient in guiding consumers' utilization of new innovations and technology, leading to its adoption for this study, to bring forth the strength of this theory in understanding and Information Systems discourse.

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