



AN EXAMINATION OF TRA, TAM, TPB, IDT, ADOPTION MODELS IN INFORMATION TECHNOLOGY

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Abstract

According to Alawahdi and Morris (2008), there are many adoption research models for information technology. Few of them are: (Fishbein and Ajzen, 1977), Technology Acceptance Model (TAM) (Davis et al., 1989), Theory of Reasoned Action (TRA) Social Cognitive Theory (SCT) (Bandura, 1989), Combined TAM and TPB (C-TAM-TPB) Model (Taylor and Todd, 1995), Theory of Planned Behaviour (TPB) (Armitage and Conner, 2001), Innovation Diffusion Theory (IDT) (Rogers, 2002). The adoption models for information technology (TRA, TAM, TPB, IDT) are examined in this study.

Keywords: *TRA, TAM, TPB, IDT, Adoption, Models, Information Technology, IT.*

Introduction and Review of Literature

Theory of Reasoned Action (TRA)

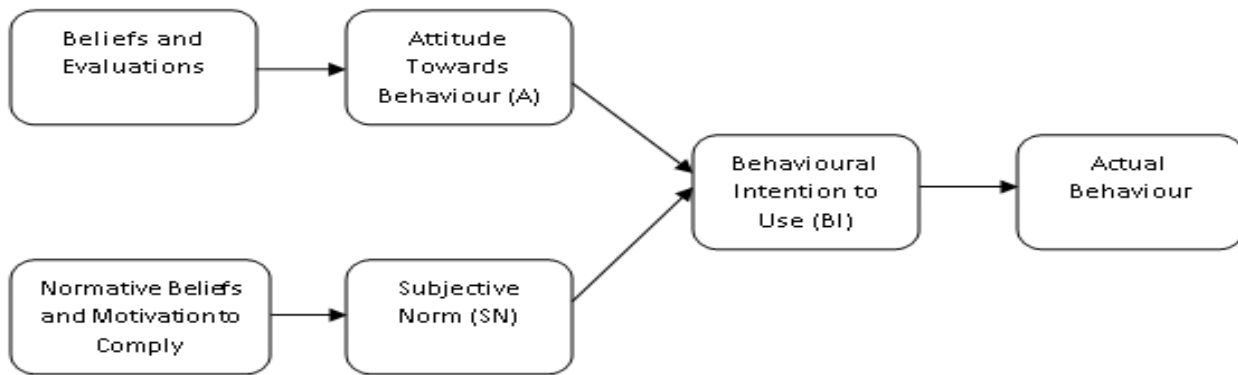
A social psychology model is known as TRA (Davis et al., 1989; Foroughi et al., 2019) predicts actual behavior and intention with regard to using technology. According to the Theory of Reasoned Action, imposed norms and attitudes have an impact on a person's behavioral intent, which changes their actual action. As a result, a person's thinking will have an impact on his or her attitude.

The three main constructs proposed by Davis et al. (1989) are attitude (A), which is a way of thinking when constructing a framework for behavior, behavioral intention (BI), which is the intention to carry out this behavior, and subjective norm (SN), which is the influence of society, which in turn influences consumers. The behavioral intention to use will be determined by attitude and subjective norms (Yu et al., 2005; Kwateng et al., 2019). The values and inspirations are there to observe and ultimately act on the constructs, but these components also have an indirect impact on the intention to behave (Davis et al., 1989). According to TRA, an individual's behavioral purpose is determined by their subjective norms and attitudes, while their actual action is determined by their actual beliefs.

According to (Fishbein and Ajzen, 1977), an individual is expected to behave in a certain way or not, depending on the opinions of others who are close to them. This influence on conduct is referred to as the subjective norm. By attitude producing a specific sort of conduct, some prominent opinions on behavior can be elucidated.



Figure 1: Theory of Reasoned Action model diagram.



Source: (Davis et al., 1989)

Knowing the elements that affect the rate at which mobile devices are adopted as well as the functions that people desire these devices to perform—such as fundamental two-way communication, marketing and advertising of goods and services, etc.—is important. The Theory of Reasoned Action (TRA) was applied for it by (Bauer et al., 2005; Foroughi et al., 2019; Kwateng et al., 2019). The findings show that people's intentions to use mobile marketing services were impacted and influenced by their attitudes toward these services and by social expectations to use them.

Technology Acceptance Model (TAM)

(Davis et al., 1989) put forth a hypothetical model TAM for the enhancement of user sanction of a New Technology in the adoption of Theory of Reasoned Action (TRA). Perceived utility and ease of use are dependent on the causality of TRA, according to (Davis et al., 1989), and TAM employs them as a way to explain how consumers react to technology.

(Venkatesh, 1999) provided evidence that perceived usefulness is related to effectiveness and perceived usability is related to perceived simplicity of use. However, according to (Davis et al., 1989), these two have an impact on a person's mindset, which changes their behavioral intent and influences how they actually use technology. As a result, perceived ease of use affects perceived utility since the easier a technology is to use, the more valuable it will be.

According to (Moon and Kim, 2001), the justification for the approval of new technology varies and is unusual from each system due to circumstances, technology, and target customers. Finding the factors that influence the input constructs is the primary goal of the initial phase of TAM research, and the main focus of this phase is on computers or application software.

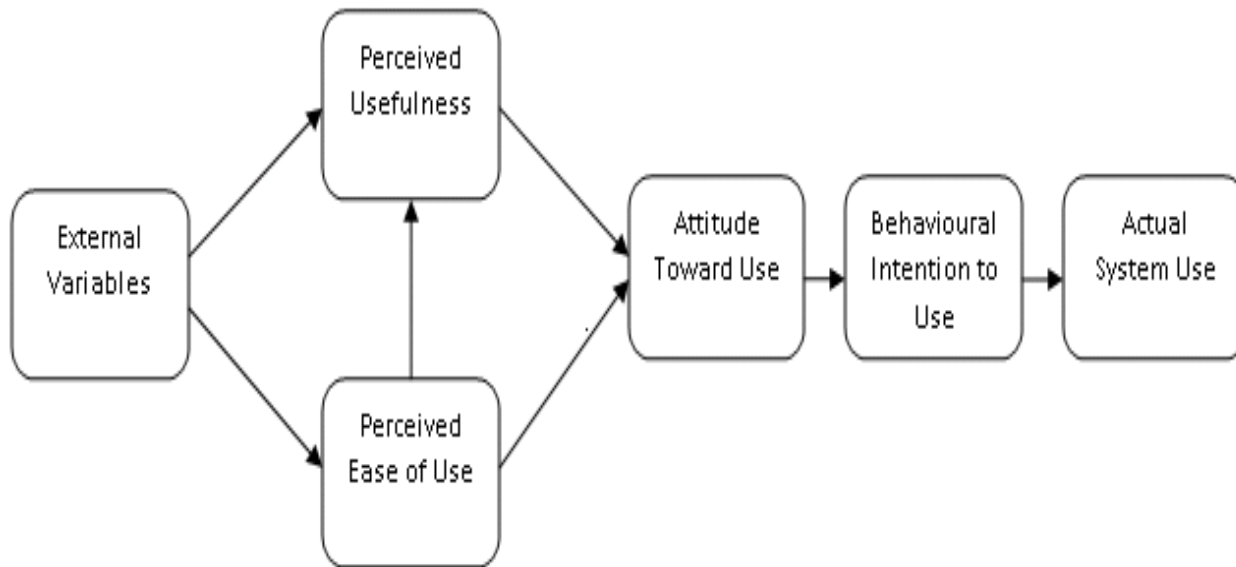
(Davis et al., 1989) explains that TAM uses the perceived usefulness and perceived ease of use as input determinants as well as depended upon the causality of TRA as input determinants to clarify the users' approval of Technology. According to preliminary TAM study and the subjective norm provided by Davis et al. (1989), perceived utility and behavioral intent were discovered to influence TAM improvement.

It was determined (Venkatesh and Davis, 2000; Kwateng et al., 2019) that the prejudiced norm in operating systems has an effect on perceived usefulness either directly or indirectly. According to



(Venkatesh, 1999), perceived usefulness which is associated to efficiency, but perceived ease of use is connected to efforts. Two values eventually affect a person's attitude, which in turn affects behavioral intention and, ultimately, affects how honestly that person uses technology (Davis, 1989). Figure 2 displays the TAM's primary constructs.

Figure 2 : Technology Acceptance Model



Source: (Davis et al., 1989)

According to (Vijayasathy, 2004), TAM has been heavily adapted in many different fields of study for advanced inspection of a variety of issue statements. TAM assessed consumer intent to shop online, taking into account variables including usability, security, compatibility, and usefulness. The original TAM contained a number of variables, including as privacy, compatibility, normative viewpoint, self-efficacy, safety, and others.

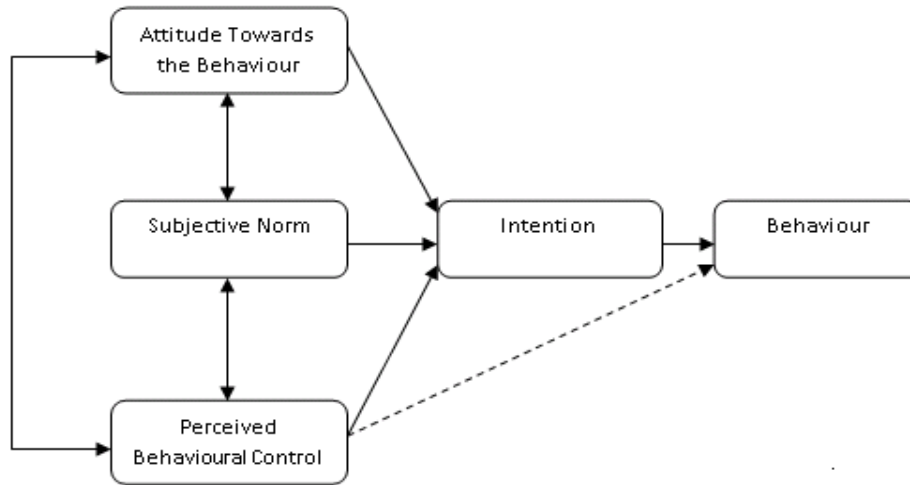
Theory of Planned Behaviour (TPB)

The Theory of Reasoned Action included two constructs—attitude and subjective norm/influence—that appeared to be connected to perceived behavioral control; TPB is the development of the new TRA model (Armitage and Conner, 2001; Foroughi et al., 2019). The TRA model has a number of drawbacks, which is why the TPB model was developed. The Theory of Planned Behavior (TPB), a psychological social model, is used to provide details on how people behave when carrying out certain acts that are biased by design.

The three categories of foundational assumptions upon which it rests are normative belief, behavioral faith, and conviction of control. Behavioral faith refers to the likely outcomes of conduct that support an optimistic or pessimistic attitude about the behavior. Normative belief refers to the personal standards and societal pressure that influence a person's decision to accept or reject a given idea. The conviction of control is the last alleged element that facilitates or hinders behavior (Ajzen, 1991).



Figure 3: Theory of Planned Behaviour



Source: (Ajzen, 1991)

There has been greater importance of the TPB model while accessing the behavioral objective in the supposed control variable of behavior.

Motivational Model (MM)

Two types of motivation, which are known as extrinsic and intrinsic motives, as shown by (Vallerand, 2000). These two motivational factors—intrinsic and extrinsic—can act jointly, and as a result, they have a significant impact on users' intentions to use (Venkatesh, 1999; Foroughi et al., 2019; Alonso-Dos-Santos et. al., 2020; Kwateng et al., 2019).

IM = Intrinsic Motivation, EM = Extrinsic Motivation

Vallerand investigated his theory and the hierarchical model he had proposed in 1997, using the dropout achievement element from goal theory as support throughout (Sarrazin et. al., 2002; Karjaluoto et al., 2010; Kwateng et. al., 2019).

Innovation Diffusion Theory (IDT)

They also confirmed that behavioral intention was directly changed by social influence from a controlled standpoint. Venkatesh et al. (2003) redefined social influence from representation in Innovation Diffusion Theory (IDT) and prejudiced norm in TRA. The basic principles of the Innovation Diffusion Theory are innovation and diffusion, and the four characteristics of dissemination are time, innovation, social system, and communication (Rogers, 2002; Alonso-Dos-Santos et al., 2020; Karjaluoto et al., 2010).

Innovation process in the diffusion of technology is as follows:

Knowledge – It means accepting the way that how a particular technology executes a task.

Persuasion – It means a factor that influences and decides the attitude towards technology.

Decision – It means whether to adopt a technology or having the option to reject it.

Implementation – It means creating the use of technology.

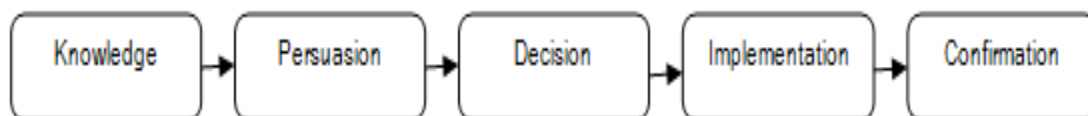


Confirmation – It means evaluating the product or outcome of using a technology (Rogers, 2003).

The core dimensions' self-efficacy and facilitating conditions are determined by factors like behavioral control in TPB. Self-efficacy, facilitating conditions and internal control, or external control, were shown to be the two variables in which behavioral control is divided by (Venkatesh, 2000). During the early phases, customers encounter it and play a significant role with a framework. Facilitating conditions refer to temporal and physical situations while engaging in demanding behavior.

It directly affects perceived usability in electronic stores, and it influences behavioral intention in financial services. Self-efficacy which is the belief that one has the capacities to complete the demanding behavior. Which serves as a precursor for perceived user friendliness in an operating system to use (Venkatesh and Davis, 2000), the WWW (Agarwal and Karahanna, 2000), and online shopping (Vijayarathy, 2004). Figure 4 displays them.

Figure 4: Innovation Diffusion Process.



Source: (Rogers, 2003)

The decision of an individual to embrace an innovation is influenced by five basic characteristics of innovation spread. The characteristics influencing adoption are compatibility, complexity, relative advantage, trial ability, and observability (Clarke, 1999; Alonso-Dos-Santos et. al., 2020; Karjaluo et al., 2010).

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