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UNDERSTANDING E-COMMERCE ADOPTION. LITERATURE REVIEW OF COMPETING MODELS

Review
Article

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Abstract

The present paper reviews the theory of planned behaviour (Ajzen, 1991), the theory of reasoned action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) and the theory of technology acceptance model (Davis, 1989) in order to better perceive their possible future application in the marketing field, namely in the process of using electronic commerce at the organizational level.

While previous empirical studies have focused primarily on one of the theories, in an attempt to rule the advantages and / or disadvantages which would support the findings and hypothesis presented, it is the authors' belief that all three theories greatly contribute, each one in a unique way. However, several pitfalls in methodology may be encountered, therefore further empirical research is required.

INTRODUCTION

The impact of technology in today's market has gradually increased during the 1990s and following the internet bubble episode in 2006 it has changed the way society reacts to technology. Both individuals and organizations had to adapt to the ongoing changes and the way they interacted. As a result, the widely spread and ever-changing technology has placed a mark on their day to day activities.

Therefore, it is useful to review the three main theories developed during the 1980s and at the beginning of the 1990s, explaining consumer behaviour. By extension, some of the elements described by the authors can be later on taken into consideration when undertaking empirical studies in various aspects of the daily life.

With regard to the electronic commerce adoption, from the literature studied and discovered so far, very few studies have been identified. As it would be expected, the theory of planned behaviour dominates the thinking of the researchers. Examples include its application in the cross-cultural aspects (Pavlou and Chai, 2002), a case study of the Thai community (Maichum, Parichatnon and Peng, 2016), a gender and age comparison in a developing country (Baker, Al-Gahtani and Hubona, 2007).

At the same time, very few have attempted to compare Ajzen's (1991) theory of planned behaviour and Fishbein's (Ajzen and Fishbein, 1975; Ajzen and Fishbein, 1980) theory of reasoned action and, furthermore, no study comparing the above mentioned theories and the theory of technology acceptance has been yet undertaken.

THE THEORY OF PLANNED BEHAVIOUR (TPB)

The initial theory of reasoned action (TRA), was later on continued by the theory of planned behaviour (TPB) (Ajzen, 1991). The former states that the individual's intention to act in a specific manner is a key determinant of behaviour. From here derives also the idea that the component of the behavioural intention is made up of the attitude towards a specific behaviour and the so-called "subjective norm" (namely the way in which the individual perceives the society's pressure with regards to the adopted behaviour). The attitude is then seen as the reflection of both the individual's own beliefs and his/her analysis of the positive/negative aspects which are expected to result from adopting a behaviour.

The model takes into consideration only the rational behaviours, namely the ones for which the

individual is fully responsible, and that has been a source of criticism (Hansen et al., 2004) because it was believed that also the behaviours outside the individual's direct control need to be taken into consideration.

Though the model has been applied to online purchasing behaviour, the cases encountered reveal the physical consumer needs and not the organisational aspect. Examples of studies involving the former category of online acquisition include Kim and Kim (2004) and Yoh et al. (2003). If the TRA presented the model in which the individual had full control over his/her behaviour, the TPB went further by including the element of perceived behavioural control, which was defined as the individual's perception with regard to the ease of adopting a specific behaviour.

As shown in Figure 1, according to the TPB, the behaviour adopted by the individual is seen as a blend of two factors, namely the behavioural intention and the perceived behavioural control. The former one can be seen as a reflection of the subjective norm, attitude towards the behaviour and the perceived behavioural control.

THE DECOMPOSED THEORY OF PLANNED BEHAVIOUR (DTPB)

As mentioned earlier, this model was seen as very useful in terms of explaining the online shopping experience (George, 2004, Hansen et al., 2004). Hansen et al. (2004) were able to make a comparison between TRA and TPB, concluding that the former was the most adequate theoretical model.

As it was expected, extensions to the models were proposed in order to better explain the consumer online behaviour (see Cheung et al., 2005). One of the most relevant studies on the subject was that of Pavlou and Fygenson (2006), who considered two key aspects, namely the process of obtaining the information and the actual acquisition of goods. The major findings reveal that the factors affecting the technology adoption (i.e. perceived usefulness and perceived ease of use) in the process of understanding the e-commerce adoption are not to be neglected.

An important development in the evolution of the theory of planned behaviour is represented by the proposal of Taylor and Todd (1995) to explain the way in which the model could be made up of specific components. The result is known as the decomposed theory of planned behaviour (DTPB) and it was argued that "the decomposed TPB model had advantages similar to TAM in that it identifies specific salient beliefs that may influence IT usage" (Taylor and Todd, 1995, p. 147).

In terms of application in the field of e-commerce, and most specifically, in the case of online acquisition undertaken by a company (i.e. judicial person), this theory has several implications worthy of study and application in empirical studies. Because the decision-makers within the judicial entity remain physical persons, their actions could be better understood through the implementation of detailed questionnaires and/or lengthy inquests (i.e. interviews).

Methodologically speaking, the latter form would provide more adequate information, since it would investigate not only the culture embedded in the company, but also the way of thinking and perceiving social and moral norms of the individual in charge with the acquisition decisions.

Some of the key variables worthy of in-depth investigation refer to the normative (social) beliefs (i.e. expectations of the outside “business” world) and the subjective norm (i.e. the individual’s perception related to a specific behaviour), which, sometimes, unexpectedly, might not coincide.

Furthermore, we add the control beliefs, those elements which are expected either to support or place barriers in the adoption of a specific behaviour, and the perceived behavioural control (i.e. the degree to which the individual perceives that a certain task can be achieved).

To conclude, we add the aspect of the behavioural intention and the actual behaviour. The former relates to the degree to which an individual is willing to undertake a specific behaviour (in our case, the online purchasing), while the latter relates to a practical variable in the form of the individual’s answer to a given situation.

In the case of e-commerce, it would be worth studying how the manager adjusts to the fact that, in a given business environment, the direct/indirect competitors and/or suppliers have already adopted the online purchasing behaviour (whatever the reason, financial, time-saving, updating to the technology etc.).

As shown in Figure 2, beliefs are perceived to have various natures, namely attitudinal, normative and control. Moreover, when going into further details about the components and their influence, Taylor and Todd claimed that there are striking similarities between TAM and the innovation theory constructed by Rogers (1995). Examples include the perceived usefulness which was found to be the synonym of relative advantage and perceived ease of use that of complexity construct.

Another attempt at decomposition was proposed with regard to the subjective norm, which was seen as being made of interpersonal influence and external influence (Bhattacharjee, 2000, Hsu and Chiu, 2004, Lin, 2007). The first concept takes into consideration the informal influence assumed by the persons with which the individual interacts surrounding the individual in everyday life (i.e.

acquaintances, friends and family members). The second concept refers to the information captured in third-party environments, which are expected to be at least partially neutral (i.e. television and radio, professionals and anything of remotely impersonal character).

In the initial version of the theory provided by Ajzen (1991), the author himself stated that the perceived behavioural control element was constructed based on two factors, namely the self-efficacy and the facilitating conditions. Self-efficacy was explained as the way in which the individual was perceiving his/her abilities, and, when extending to the context of the online purchasing process, it would ultimately refer to the personal assessment with regard to the ability to shop in the online environment. On the other hand, the facilitating conditions encompass the external aspects which directly influence the process of undertaking or assuming a specific behaviour. Examples include financial, time and technology resources (mainly the internet infrastructure), with the latter being of crucial importance in the applicability of the online purchasing procedure (Ajzen, 1991, Ajzen, 2002, Lin, 2007).

THE TECHNOLOGY ACCEPTANCE MODEL (TAM)

The model was created by Davis (1989) and was an attempt to explain the way in which individuals would adapt themselves to the information technology. Once again we see that it derived important elements from the previous TRA model, but it extended them in order to explain the cause and effect in the way in which individuals adopt computer-based technologies in order to perform their tasks better.

The hypothesis of the model was that the individual’s intention to actually make use of a new technology will ultimately determine the usage of that specific technology. The behavioural intention is seen as being directly linked to the way in which the individual perceives the new technology and, interestingly enough, two major factors are able to produce the desired effect, namely the perceived usefulness and the perceived ease of use.

The perceived usefulness has been explained as “the degree to which a person believes that using a particular system would enhance his or her job performance”, while the perceived ease of use has been defined as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320).

Later on, the same author (Davis, 1993) reaches the conclusion that the perceived usefulness is able to apply a considerable impact on the perceived ease of use, but this relationship is not reciprocal (see Figure 3). Since it was argued that easy-to-use

technology presented more benefits and advantages than the hard-to-use technology, at the same time, the technology believed to have brought about the best outcome was not always able to provide also the easiest method of implementation.

In terms of its applicability, TAM has known a wide application both theoretical, i.e. an attempt to provide a theoretical framework able to predict online purchasing behaviour (Chen and Tan, 2004, Hernández et al., 2010, Pavlou, 2003, Vijayasathy, 2004), but also an empirical, more practical, aspect in the online purchasing behaviour of regular individuals, with items varying from books (Gefen et al., 2003, Lin, 2007), clothing (Ha and Stoel, 2009, Tong, 2010) and even financial services (Suh and Han, 2003).

Critics to the initial model have proposed adaptations which would include the notion of subjective norm (Venkatesh and Davis, 2000), which was proven to be of significant impact on the perceived usefulness and behavioural intention.

Coming to the practical aspect of this theory, in the case of the online purchasing process, this theory is highly useful since using it might help researchers quantify, to some degree, the willingness of the manager to adjust to the ever changing technology. Moreover, it would not only emphasize the behavioural aspect in adopting new technology, but it might help marketing researchers understand what instruments would be better suited to promote e-commerce and online purchasing B2B.

COMPARISON TAM-TPB-DTPB

At this stage it is necessary to emphasize that the contribution of the three theories have shaped the way sociologists, psychologists and economists have adapted their thinking in terms of the online purchasing behaviour.

A proper comparison would start by identifying the elements which TAM and TPB preserved from the TRA, while at the same time, explained the ways in which they have improved the theory on which they have developed the hypothesis.

On the other hand, a simple theoretical debate between the ways of formulating and defining the key components of the model would be insufficient. Thus, though there are yet but few empirical tests dedicated to the comparison, the key finding shows that, overall, the theories present similar results without crucial differences. Depending on the subject taken into consideration and the area in which it was implemented, it can be seen that the elements of subjective norm and PBC are ahead in explaining and even predicting the behaviour of the individual.

With regard to the explanatory component, some results have revealed that DTPB was more capable than TPB and TAM, as long as the component of

the behavioural intention was taken into consideration. Lin (2007) even claimed that TAM was better than its predecessor, TPB, when it came to explaining and understanding. However, it should not be neglected that DTPB provides extensive views on the factors which shape the behavioural intention and the actual behaviour.

The conclusion would be that the three major theories should represent the starting point of developing the researcher's understanding with regard to the online purchasing behaviour, both for the individual and the organisations.

That is why, it is highly recommended, upon embarking on an empirical and/or theoretical study, to take into consideration also the numerous variations in the factors proposed in the initial models. Hybrids of the models have been encountered in the literature, with authors picking and choosing which elements to keep, and an example can be seen in Wen et al. (2011), when the author preserved the TAM framework and enriched it with elements from the expectation-confirmation theory in an attempt to understand to what extent the individuals were willing to preserve the online acquisition tendency.

Presently, the major drawback of the literature is represented by the apparent willingness of the researchers to focus mostly on the individual (physical consumer) and/or the technology-embedded aspect of the empirical studies. While it is of considerable effort to embark on a journey exploring the major factors affecting either one of them (i.e. financial, social and/or demographic background of the subjects, personality traits – with trust and risk being the key players - , brand effect, previous and current technology/internet/website/online shopping experience etc.), it would be recommended to attempt the same from the organisational side as well.

The major challenge would be not only to include as many explanatory factors as possible (which, in a theoretical model, would be impossible), but to draw upon the knowledge already gathered in the case of the physical individual, which ultimately may or may not reflect the organisational habits of spending in the online environment.

CONCLUSIONS

Previous research has focused mainly on applying one or the other theory in order to seek the advantages and disadvantages of using it in the empirical studies in various countries (including SME in Chile). However, we believe that future research should focus on understanding the application of all three theories in order to provide an adequate comparison.

Moreover, in order to attempt to better understand the process through which online acquisition takes place, the case of the SMEs, research should focus on the main factors with the prediction capacity. In other words, it is not sufficient to simply determine which theory best applies in various circumstances, but also, what are the key elements in explaining the behaviour involved in online purchasing.

With regard to the environment in which the SME undertake their activity, it would be worth investigating not only various industries, but also try to differentiate between the products and services in order to obtain a more in-depth picture. Also, geographical and cultural aspects could be taken into consideration, a parallel between the European, American, Asian and Australian comparison being worthy of notice.

The risk, however, is that, from the methodological point of view, the researcher might tend to adapt the theories mentioned above in order to better explain the facts, thus the risk of deviating from the initial hypothesis enumerated ending up in a hybrid form, affecting the ultimate results.

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ANNEXES

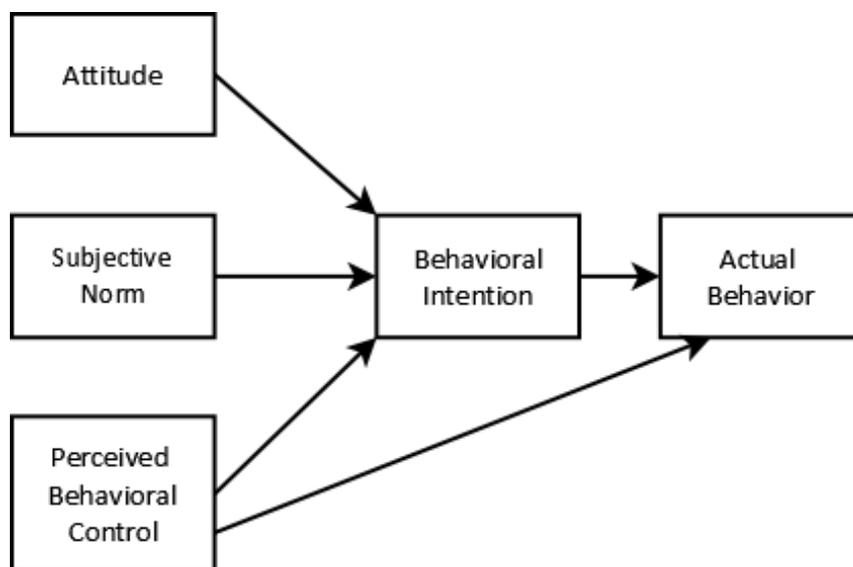


Figure 1. Theory of Planned Behaviour
Source: Ajzen, 1991.

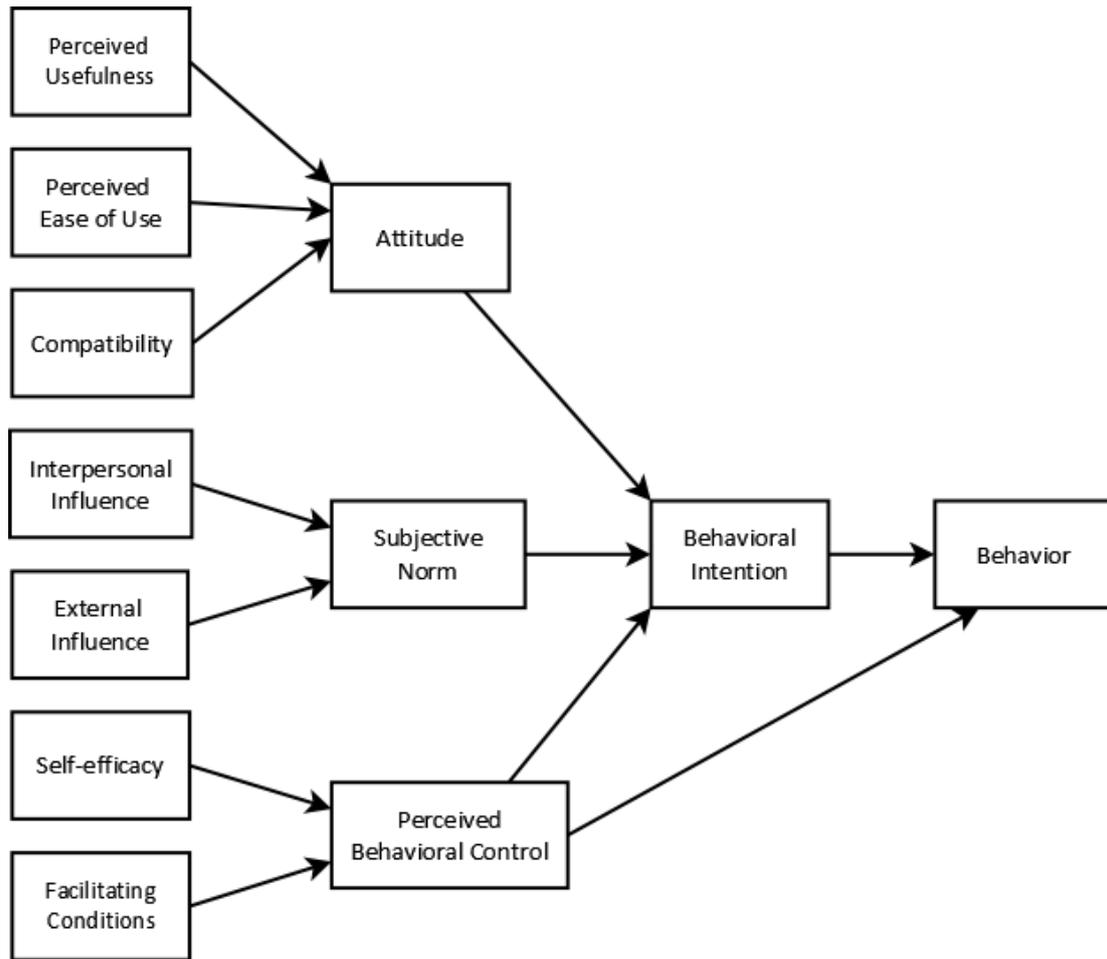


Figure 2. The Decomposed Theory of Planned Behaviour
Source: Lin, 2007; Taylor and Todd, 1995.

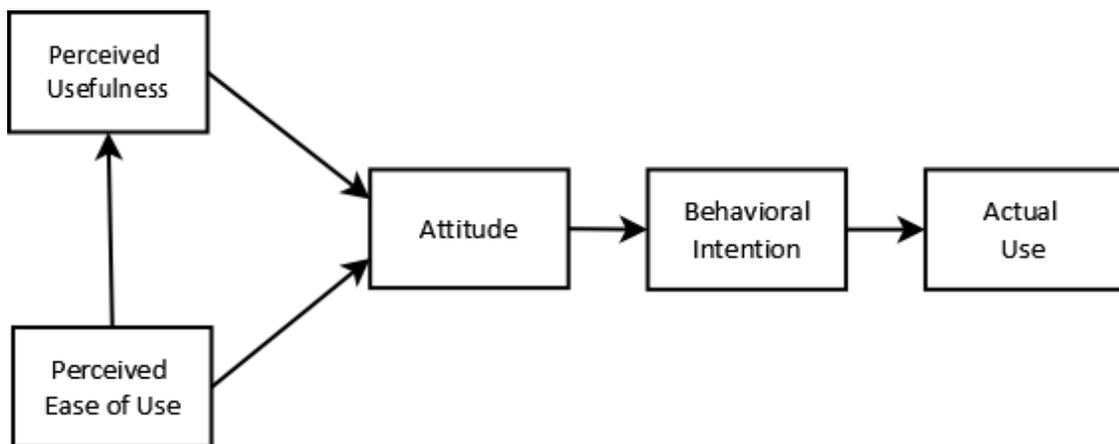


Figure 3. Updated version of the Technology Acceptance Model
Source: Davis, 1993