Effects of Brand Credibility on Technology Acceptance Model: Adaption of the Model to the Purchase Intention

Pınar Başgöze, Phd

Leyla Özer (Assoc.Prof.)

Hacettepe University
Department of Business Administration
Beytepe-Ankara, Turkey

Abstract

The purpose of this paper is to adapt Technology Acceptance Model into technological product purchase behavior, as well as to add brand credibility, into the model. In order to test the relations included in the model, Linear Regression and Mediation Test were conducted. As a result it was determined that Brand Credibility affects both purchase intention shown towards technological products and the perceived usefulness and the perceived ease of use of the products in a positive and significant way. Besides the determined direct effects, according to the results of mediation test, as the brand credibility, which affects perceived usefulness, increases also the purchase intention shown towards the given technological product.

Keywords: Technology Acceptance Model, Brand Credibility, High Technology Product, Purchase Intention

Introduction

In our day, consumers as well as producers come up against high technologies in all areas of life. Examining the literature focused on the adoption of high technology and/or products with high technology, it is seen that the consumers' behaviors of adopting high technology is tried to be explained by setting forth various theories and models. One of these mentioned models is Technology Acceptance Model (TAM). Therefore, in this study the Technology Acceptance Model (TAM), which is tried to be improved and updated with the ongoing studies, is approached as the principal model in explaining the adoption behaviors of consumers shown towards technological products.

In general terms, TAM is a model that explains the variables effective on adopting computer use and also the actions of the end users of information technologies (Davis et al, 1989). According to the model, individuals' adoption of information system is determined by means of two main variables as the perceived usefulness (PU) and the perceived ease of use (PEU) (Davis et al, 1989). In many studies (Rafat and Bahli, 2005; Ma, Anderson and Streith, 2005; Park, Yang and Lehto, 2007; Colesca and Liliana, 2008; Martinez-Torres, Toral Marin, Garcia, Vazquez, Oliva and Torres, 2008; Schaik, Bettany-Saltikov and Warren, 2002) TAM is used in order to explain how consumers adopt an information system or the way they use a technological product. However, besides explaining how consumers use a given system or product, the Technology Acceptance Model also explains the *purchasing intentions* (Wang, Lo and Fang, 2008). Therefore, it is important in terms of the richness of the literature to adapt Technology Acceptance Model to the purchasing behavior of the consumer. Technological products provide many benefits, yet some of the consumers reject buying and using these products (Mick and Fournier, 1998). Due to this, examining in detail the variables that are effective on the consumers' purchasing behavior for a technological product became a point of interest for researchers. In this sense, it is useful to add the variables that influence consumers' behaviors of purchasing technological products but that was not previously included in the literature into the model, such as brand credibility.

Although it is influential on purchasing behaviors, brand credibility was not examined before as part of the TAM. In marketing literature, producer's prestige perceived by the consumer is described as credibility (Goldberg and Hartwick, 1990).

In this way credibility can be considered as one of the important characteristics of the brand (Maathuis, Rodenburg and Sikkel, 2004) and brand credibility affects the way how the consumer positions a product (Erdem and Swait, 1998). In this way brand credibility plays an important role in the consumer's brand choices or purchasing behaviors. However, examining the relative literature showed that brand credibility is not included within the Technology Acceptance Model that explains the consumer's behavior to buy a technological product yet.

Theoretical Approaches Concerning Technology Acceptance Model and Brand Credibility

In general sense, Technology Acceptance Model explains the variables effective on accepting (adopting) computer use and also the actions of the end users of information technologies (Davis et al, 1989). According to the model, individuals' adoption of information system is determined by means of two main variables as the perceived usefulness (PU) and the perceived ease of use (PEU) (Davis et al, 1989). Perceived usefulness (PU) is defined as the individual's belief on the level of improvement it can achieve in its work performance by using the information technologies. On the other hand, perceived ease of use (PEU) is defined as the belief of the individual that it will be less challenged while using information technologies (Davis, 1989).

Brand Credibility is a concept that combines brand with the perceived risk. The effect of brand on consumer preferences comes forth due to its capability of removing the uncertainties concerning the products. Particularly, when there is asymmetric information in the market[1], brands come up as one of the important sources from which the consumers can obtain information on the product. Companies have more information than the consumers regarding the quality of the product they are selling (asymmetric information) and therefore consumers are not able to easily asses the quality of the product in terms of experience and trust (imperfect information). Accordingly, companies need a mechanism for informing consumers on the quality of their products and thereby ensuring that the quality of their products are perceived high by consumers (Erdem and Swait, 1998). Brand credibility is a concept that can affect the perceived quality of the product and is defined as "the cogency of the information contained by a brand" (Vacino and Oppewal, 2006; Erdem and Swait, 1998; Erdem and Swait, 2004; Erdem et al, 2002; Kim, Morris and Swait, 2008; Erdem et al, 2006). It also has a narrower definition as "consumers' perception of the brand as being willing (reliability) and capable (experience) of fulfilling what it promises" (Erdem et al, 2002). While reliability is the willingness of a brand to fulfill a promise it makes (Erdem and Swait, 1998), experience indicates the availability of related knowledge (Goldsmith et al, 2000).

As the credibility of a given brand increases, the perceived quality of the related product also increases and in turn information gathering costs decrease and the perceived risk reduces (Farquhar, 1990). In this context, credibility is one of the effective sources of the standing of the product according to the consumers' point of view and plays an important role in the purchase of the brand by the consumers (Wernerfelt, 1988; Erdem and Swait, 1998; Maathuis et al, 2004). Therefore, brand credibility influences consumers' brand preferences by reducing product uncertainties (Erdem et al, 2002; Erdem and Swait, 2004). According to Laferty and Goldsmith (2004), brand credibility has positive influences on the consumers' choice of brand. In addition to this, it was also found out that brand credibility has a significant effect on the *purchasing behavior* of consumers through its effects on perceived quality, information cost and perceived risk (Baek et al, 2008). However, in consequence of the researches made, it was found out that brand credibility, which considerably decreases the perceived risk, was not included in the TAM in any study. Keeping this in mind, it was considered that including Brand Credibility that incorporates brand and perceived risk into the model will be useful, because these two concepts affect consumers' behavior of purchasing technological products. In this direction, the first hypothesis of the study intended to measure the linear effect of brand credibility on the purchase intention of technological products was established as follows:

Hypothesis 1: Brand credibility positively affects consumers' intention to purchase a technological product.
In the previously conducted studies (McKnight and Kacmar, 2007; Hallegatte and Nantel, 2006), the relations between credibility and perceived ease of use and perceived usefulness were theoretically set forth through the Technology Acceptance Model. In conclusion of these researches, it was determined that credibility has positive effects on both perceived ease of use and the perceived usefulness (McKnight and Kacmar, 2007; Hallegatte and Nantel, 2006).

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[1] The case where consumers do not have the same level of information and experience on the product, available to the companies (Erdem and Swait, 1998).

However, no study that exhibits the relation of brand credibility with Technology Acceptance Model was found and inadequacies in terms of empirical examinations were detected. Due to this reason, in this section inferences will be made from the studies that focus on the relation between credibility and the variables of Technology Acceptance Model. However, examining the effects of brand credibility on perceived ease of use and perceived usefulness manifests the fact that there is deficiency on this matter. According to this,

Hypothesis 2a: Brand credibility positively affects the usefulness perceived by the consumer.
**Hypothesis 2b:** Brand credibility positively affects the ease of use perceived by the consumer.

In the literature, the mediator effects of different variables on the relation between brand credibility and purchasing were determined. Baek et al., (2008) determined that, within the relation between brand credibility and purchase behavior, perceived quality, information cost and perceived risk have mediation effects. With another study (Erdem et al, 2006) it was determined that the same variables (perceived quality, information cost and perceived risk) mediate the relation between brand credibility and consumer preference. Perceived quality, information cost and perceived risk are factors that affect perceived usefulness (Erdem and Swait, 1998). Consequently, also perceived usefulness may have a mediator effect between brand credibility and purchase intention. Also, in the study of Gefen et al., (2003), it was determined that "familiarity", as a variable that reduces uncertainty, affects consumer's trust in a positive way. Mediator effects of the perceived ease of use on the relation between familiarity and trust were also found. The effects of credibility on the variables of the Technology Acceptance Model, as the perceived ease of use and perceived usefulness, were also set forth in the studies conducted before (McKnight and Kacmar, 2007; Hallegatte and Nantel, 2006), and the positive effects of the perceived ease of use and perceived usefulness on the intention to use technological products were also determined (Amin, 2007). Due to this reason, it is believed that between credibility and purchase intention, the mediator effects of perceived usefulness and perceived ease of use may be present. According to this;

Hypothesis 3a: Perceived usefulness has a mediator effect between brand credibility and purchase intention.
Hypothesis 3b: Perceived ease of use has a mediator effect between brand credibility and purchase intention.

According to this, Figure 1 displays the conceptual model, which was established by adding new variables to the Technology Acceptance Model and which will be measured in this present study.
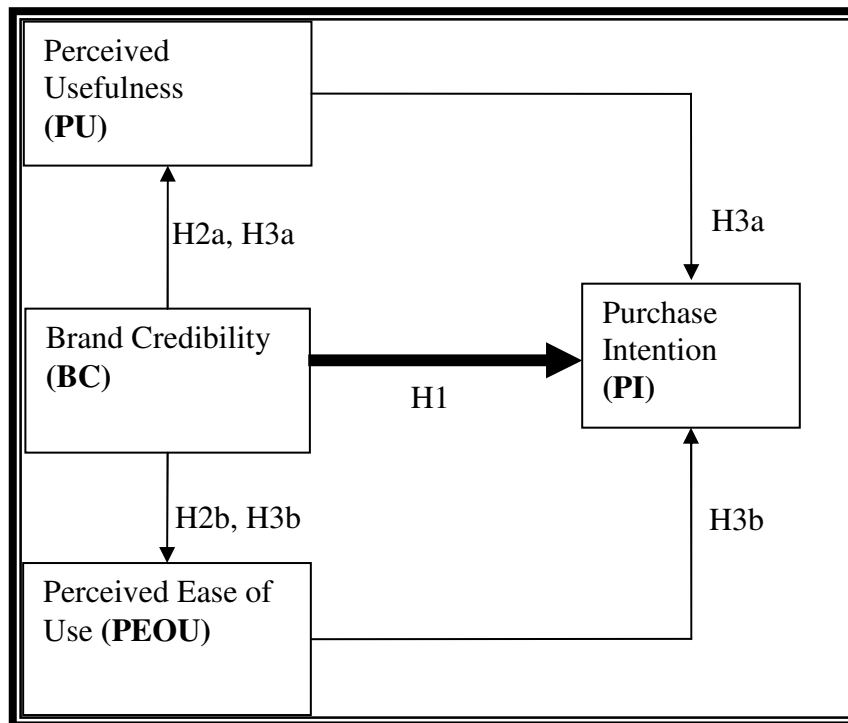
H: Hypotheses
Figure 1. Proposed Research Model.

Sample and Measurement

The sample of the study consists of the laptop users living in Turkey. Considering that there will be also a certain rate of unanswered questions and unreliable data, 575 consumers were dealt with the questionnaire through convenience sampling. The analyses of the study were conducted through the 404 questionnaires answered by the consumers using laptop computers. According to the obtained data, 49,3% of the participants were females while 50,7% were males. Also while most of the participants (71,9%) had used laptop computers for 0-5 years, 25,4% of the participants had used them for 6-10 years and 2,7% of them used laptop computers for more than 10 years. As for the income levels, 65,6% of the participants had medium and, 25,2% had high levels of income.

In the first section of the questionnaire, seven questions intended to determine the demographical characteristics of the answerers were asked. The second section of the questionnaire consists of the questions taken from the study of Sweeney and Swait (2008), in order to measure brand credibility. Also, in order to measure perceived usefulness and perceived ease of use Technology Acceptance Model was employed (Davis et al., 1989). Lastly, purchase intention was adapted to the study in line with the study conducted by Goldsmith, Lafferty and Newell (2000).

Findings

The **1st hypothesis** of the study (H1) proposes that brand credibility has a positive effect on purchase intention. In order to test this hypothesis linear regression analysis was conducted. According to analysis results it was found out that $R^2 = .286$, $F(0,383) = 35.77$, $p < .001$. In other words, brand credibility affects the purchase intention of a technological product in a positive (0,383) and significant (0.000; P<0,05) way. According to this, **H1 hypothesis of the study was confirmed.**

The 2nd hypothesis of the study was divided into two sections in order to measure the effect of brand credibility on the perceived usefulness (H2a) and the perceived ease of use (H2b). According to this, at first linear regression analysis was conducted by taking brand credibility as the independent variable and the perceived usefulness as the dependent variable. Analysis results exhibited that $R^2 = .336$, $F(0,345) = 51.16$, $p < .001$. According to this result one unit of increase in brand credibility will increase the usefulness perceived by the consumer by 0,345 units. After this finding, linear regression analysis was conducted by taking brand credibility as the independent variable and perceived ease of use as the dependent variable and it was determined that $R^2 = .374$, $F(0,392) = 65.57$, $p < .001$. In other words, an increase of one unit in brand credibility will increase perceived ease of use by 0,392 units. Consequently **H2a and H2b hypothesis of the study were confirmed.**

Testing of Mediator Effect

The 3rd hypothesis was divided into two sections in order to measure the mediator effects of the perceived usefulness (H3a) and perceived ease of use (H3b) between brand credibility and purchase intention. In order to measure mediator effect, the suggestions taking place in the study of Baron and Kenny (1986) were followed.
The three linear regressions established in order to examine the mediator effect of perceived usefulness resulted in a significance at a 95% reliability level. The correlation strengths (Beta coefficients) between the independent variable (Brand Credibility) and the dependent variable (Purchase Intention) in the second and third equitation were analyzed. Examining Table 1 shows that the beta coefficient of the third equitation (0,344) is smaller than that of the second equitation (0,383). According to this, perceived usefulness has a significant mediator effect at 90% reliability range between brand credibility and purchase intention. In other words, for the brand credibility to increase purchase intention, it has to increase the perceived usefulness, and thus **H3a was confirmed**.

Table 1. Results of Regression Analysis Concerning the Effect of Perceived Usefulness between Brand Credibility and Purchase Intention

	Model 1-1	*Model 1-2*	*Model 1-3*
	Dependent Variable		
	PU	PI	PI
BC	0.345*(51.164)	0.383*(35.76)	0.344*(19.43)
PI	-----	-----	0.113*(19.43)

Note: values within brackets are *t*- values; * significant at *p* , 0.1 level.

The second mediator effect measured in the study was the mediator effect of perceived ease of use between brand credibility and purchase intention shown towards a technological product (H3b). However no significant mediator effect of perceived ease of use was determined between brand credibility and purchase intention. Thus, **H3b was not confirmed**.

Discussion and Conclusion

The purpose of this study was set as expanding the Technology Acceptance Model, which explains the adoption of technological services or systems by the consumers, by including brand credibility and adapting this expanded model to purchase intention of technological products. In this direction, a model was proposed and the relations included in the proposed model were tested.

In order to rectify the determined deficiencies, the variable of **brand credibility** was added to the Technology Acceptance Model and the model was expanded in this direction. For the purpose of testing the model for **purchase intention**, purchase intention was used as the dependent variable instead of the usage intention. In this way, also the mediator effects of the variables of the Technology Acceptance Model were examined between brand credibility and purchase intention.

According to the findings obtained in the study, it was determined that brand credibility affects the intention to purchase a technological product in a way that is both positive and significant. *In other words, as the brand credibility perceived by the consumers increases, also their intention to purchase the product that belongs to the said brand increases.* Determination of this relation will provide a contribution to the literature since, although it was previously mentioned in the literature by using mediator variables (Baek et al., 2008), there was no study in which this effect was directly dealt with.

In addition to this finding, it was also determined that brand credibility also positively affects the perceived usefulness and the perceived ease of use attributed to a technological product. These findings are in the line of supporting the available literature. Previously conducted researches (Wang et al., 2003; Hallegatte and Nantel, 2006) found the positive effects of the perceived credibility that contains "trust", on the perceived usefulness and perceived ease of use. Consequently, it is expected that also brand credibility, the definition of which was previously made through the dimensions of "trust" and "experience" (Erdem et al., 2002), will have a positive and significant effect on the perceived usefulness and the perceived ease of use. *In other words, according to the findings of this study, as the brand credibility in consumers' mind increases, also the usefulness and ease of use they perceive in relation with a technological product of that brand can increase.*

Also within the relation between brand credibility and purchasing, Erdem et al. (2006) determined the mediator effects of the reduction of the perceived risk, increase in information gathering costs and increase in the perceived quality. Reduction of the perceived risks enables a decrease in information gathering costs, and this in turn means an increase in the perceived quality. According to Erdem and Swait (1998) all these relations are factors that enhances the perceived usefulness. Therefore, perceived usefulness is expected to have a mediator effect on the relation between brand credibility and purchase intention and the hypothesis developed in this line within the study was confirmed. *According to this obtained finding, as the brand credibility of a technological product can directly affect the consumer's purchase intention, it can also have an effect on it through the usefulness the consumer perceive in relation with the product.* Despite the fact that it was proposed in the study that also the perceived ease of use will increase the effect of brand credibility on the purchase intention, significant results for this variable could not be achieved. The fact that brand credibility affects the perceived quality of the product can be shown as the reason for this. As the credibility of the brand increases also the perceived quality of the product increases and in turn consumer's information gathering cost decreases and the perceived risk reduces (Farquhar, 1990). This situation mostly affects the perceived usefulness. As a matter of fact, also the findings of the study exhibit that the perceived ease of use will not increase the effect of brand credibility on the consumer's purchase intention.

In order to summarize the conclusions, the brand credibility in the mind of the consumer linearly affects the purchase intentions, perceived usefulness and perceived ease of use. In addition, brand credibility also affects the purchase intention of the consumer through perceived usefulness.

Restrictions and Suggestions

As all studies do, also the present study has some restrictions. First of all, the number of the sample can be increased in the future. Also, this study does not include the attitudes of individuals to the model. Yet, in many studies included in the literature, carried out by implementing the Technology Acceptance Model, the effects of attitudes on the intentions were determined. It is suggested for the future studies that the model can be retested by also including attitudes in it. Furthermore, despite the fact that laptop computer is a technological product, testing the model with much newer technologies may produce different results. It should be also kept in mind that, in terms of purchasing technological products, the levels of income of the consumers and the prices of the products (financial variables) have a significant role.

In our day, consumers come up against high technologies in all areas of life. Due to this reason, focusing on the behavior of purchasing technological products today, such as consumer purchase behavior or industrial purchase behavior, and developing models in this matter will be useful.

For instance, in the study it was determined that the brand credibility has effects on the purchase intention of technological products. Due to this reason, for companies that produce technological products, it is important to create a credibility concerning their brands in the minds of the consumers. In addition to the fact that it affects consumer's purchase intentions directly, creating the brand credibility concerning the products will be also helpful because it affects consumers' perceptions (usefulness and ease of use) that are important in purchasing. Other than this, by increasing the usefulness perceived by their consumers, companies can further increase the effect of their brand credibility on the purchase intention. For this reason, it will be also useful for the managers to develop strategies concerning different variables (such as reduction of the perceived risk, reduction of information gathering costs and increase in the perceived quality) for increasing the usefulness perceived by the consumers. In addition to all these, all variables that effect perceived usefulness and perceived ease of use, and the important effects of which on the purchase intention are determined, are variables that the managers can turn into opportunities for their companies. Strengthening of this relation will mean that, at the same level of brand credibility, the usefulness and ease of use perceived by the consumers will be higher.

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