

Investigation of Factors Affecting Internet Purchase Behavior Based on Theory of Planned Behavior (Case study: Visitors of darbdar E-Shop)

Emad Javan Shoja Mofrad¹, Fatemeh Nikfar², Dariush Heshmat³

¹Department of Executive Management, Qazvin Branch, Islamic Azad University, Qazvin, Iran

²Student of ph.D Marketing Management, Qeshm Branch, Islamic Azad University, Qeshm, Iran

³Department of Financial Management, Qeshm Branch, Islamic Azad University, Qeshm, Iran

ABSTRACT

The present research tries to investigate factors affecting internet purchase behavior based on theory of planned behavior in visitors of an e-shop. Questionnaire was used as data gathering tool. Questionnaires were distributed among "darbdar" e-shop visitors and 384 questionnaires were gathered. Structural equations modeling method was used for data analysis. Results showed that 5 hypotheses were verified and 2 hypotheses were rejected. In other words, influence of attitude on internet purchase intention, influence of perceived behavioral controls on internet purchase intention, influence of attitude on mental norms, influence of attitude on perceived behavioral controls and influence of internet purchase intention on behavior were verified and on the other hand, influence of mental norm on internet purchase behavior and influence of perceived behavioral controls on mental norm were not verified.

KEYWORDS: E-commerce, e-shop, consumer behavior, theory of planned behavior (TPB), attitude, mental norm, perceived behavioral control (PBC)

1. INTRODUCTION

In the present era, the world has turned into a small village due to the advancements in technology and modern communication tools. Communications are not limited to a state, province, city or country and all people are engaged in communications. One of these tools is internet which has provided a wide range of applications for e-communications and specially e-commerce. It has changed transactions form from their traditional form into distance commerce through World Wide Web. E-shops are among important parts which benefit from this technology. However, the fact that how much they have been able to benefit from internet should be investigated. In fact, users' community and consumers of these shops must be considered and the factors that influence on their tendency towards internet purchase must be investigated. In the present research, we intend to investigate factors that influence on internet purchase behavior (IPB) of consumers based on TPB in "darbdar" e-shop. In the next part, research problem, questions and hypotheses and goals are dealt with.

2. Theoretical framework

2.1. Internet purchase behavior (IPB)

Consumer purchase behavior refers to all actions and responses of each of society individuals at purchase time. These responses are affected by many factors, and identification of these factors can help producers, tradesmen and stores with attracting customer and increasing products sales. Consumer behavior in internet purchase is affected by a series of cultural, social, individual or psychological factors like traditional purchase behavior model. Many models have been propounded to explain consumer behavior in internet purchase. Two models are discussed in the following part.

2.2. Zmud model

From Zmud point of view, individual characteristics like age, marital status, education, character, values, life style, attitudes, financial resources, psychological and spiritual conditions and experience are factors that influence on consumer purchase behavior (Zmud, 1979).

2.3. Cox and Koelzer model

This model contains several parts. The first part includes independent options and factors like personal characteristics (age, race, personality, values, psychological characteristics, personal knowledge, education, life style) and environmental characteristics (social, cultural, political, technological, legal features and public and organizational standards). The second part includes mediating variables. These variables include e-commerce systems and market features (marketing mix factors and some other factors like quality and so on). The third part of this model is decision-making process and the fourth part includes dependent variables. In this part, customers and consumers specify their purchase item and time. Furthermore, they decide whether to buy something or not (Cox and Koelzer, 2004).

*Corresponding Author: Fatemeh Nikfar, Student of ph.D Marketing Management, Qeshm Branch, Islamic Azad University, Qeshm, Iran. E-mail: F.Nickfar@yahoo.com Tel: (+98)0763-5259152

2.4. TPB and its elements

In 1975, logical behavior theory was introduced by Fishbein and Ajzen. This model is one of the commonest models in the field of investigation of individual behavior and assumes that individuals' behavior is affected by their behavioral tendencies. Behavioral tendencies are also functions of individuals' attitude towards behavior and mental norms that surround it. Attitude towards behavior is referred to positive or negative feeling of people about that particular behavior. Mental norms are resulted from important people's beliefs on musts and prohibitions in an individual's mind. This model considers society influence as an important effective factor (Ajzen and Fishbein, 1972). This theory can be used for justifying each behavior that can be controlled by an individual. In this model, it is assumed that intention is the direct determinant of behavior and other factors that affect behavior are indirect. Measurement of intention must be in direct relation to behavior measurement in the framework of action, goal, situation and time, so that behavior can be predicted in a proper manner. Power of an individual's intention for doing in a particular way is the result of 2 factors function 1- tendency to behavior 2- influence of social environment or general mental norms on behavior. Many ideas and studies have been propounded in relation to the investigation of behavior and factors affecting behavior. One of these studies is theory of planned behavior (TPB). Ajzen and Fishbein argued that firstly, people decide about their behaviors based on rational and logical investigation of accessible information, and secondly, people evaluate results of their performance before decision-making. Logical behavior model was designed in 1975 in order to predict and explain an individual's behavior. Then, Isac Ajzen (1985) introduced TPB model because of the limitations of the logical model in behaviors that are not controllable by individual intention. He introduced his model (TOB) in a paper titled " from intention to action: TPB". His new theory consisted of attitude, mental norm, perceived behavioral control (PBC), intention and behavior and was improved and reformed by Ajzen until 1991 and the paper published in 1991 titled "theory of planned behavior" (Ajzen, 1991) was used as the main reference of this theory. This theory considers an individual as a rational responder so that an individual processes information before a behavior. During this process, the individual's beliefs and consequently his behavior might change. Therefore, the most important predicting factor for a behavior is an individual's intention for doing that behavior. According to this theory, intention is determined by three factors: a) attitude towards behavior (favorable or unfavorable), b) mental norms (social pressures for doing or not doing behavior) and c) perceived behavioral control (PBC) (perceived ease or difficulty). Share of each of these factors in prediction of behavior is not fixed and varies with behavior type and population under study. This theory believes that 3 factors can affect intention and consequently the final behavior: attitude of a potential customer towards behavior-which is called internet purchase behavior (IPB)-, customer's mental norm and perceived behavioral controls (Ajzen, 1991). Furthermore, this theory states that these three factors have relationship with each other and changes in one result in changes in another. In the years after 1991, this theory was investigated in different fields. In commercial fields and especially in purchase behavior many studies were conducted in many countries and 2 of them were referred to in the present research (Athiyaman, 2002). Another research on purchase behavior and internet purchase behavior is the investigation factors affecting this kind of behavior in 2007 among the students of 4 universities in Thailand whose behavior were investigated by means of this theory and different results were obtained in this research in comparison with the first research in Australia due to cultural and temporal differences. In this study, difficulty of internet purchase was observed as the most important effective factor in IPB in Thailand internet users. This factor is related to PBC and after that, mental norm and attitude towards online purchase are effective factors (Laohapensang, 2009). When investigating this theory, we come to a model which was used in definition of variables related to the research and its conceptual framework has been extracted from TPB (Ajzen, 1991).

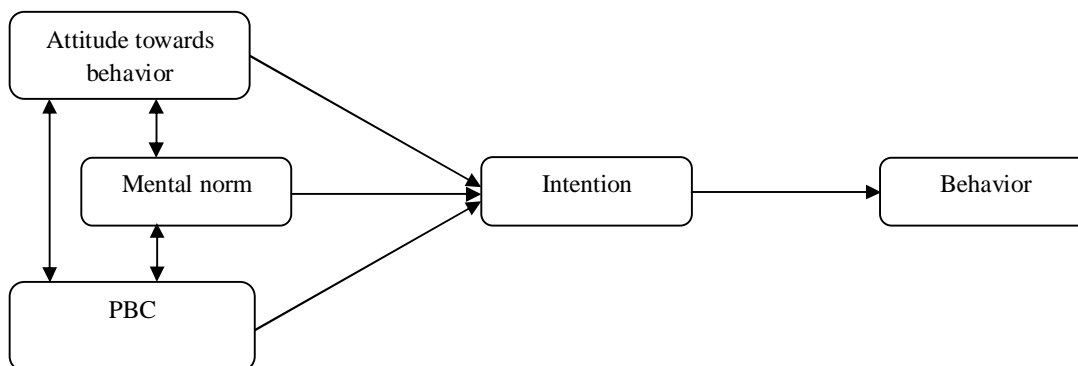


Figure 1. research conceptual model

4. Research hypotheses

- H1: mental norm has positive influence on individuals' intention to purchase over internet.
- H2: attitude towards behavior has positive influence on individuals' intention to purchase over internet.
- H3: PBC has positive influence on individuals' intention to purchase over internet.
- H4: internet purchase intention results in purchase behavior.
- H5: "attitude towards behavior" has relationship with "mental norm".
- H6: "attitude towards behavior" has relationship with "PBC".
- H7: "PBC" has relationship with "mental norm".

5. MATERIALS AND METHODS

5.1. The questionnaire

Questionnaire was used as data gathering tool. Likert 5-point scale from "completely disagree" to "completely agree" was used for questions. This questionnaire consists of two sections. The first part contains five questions which study the demographic characteristics of the respondents and the second section contains 14 questions with 5 answers for each which have been designed to study research hypotheses. After preparation of the questionnaire, 40 questionnaires were distributed among population members as a pre-test. Cronbach's alpha was used to study reliability. Results showed that alpha coefficient for all variables and questionnaire was greater than 0.7. Validity of the questionnaire was also verified by experts. Therefore the questionnaire had necessary validity and reliability for distribution.

The present research is an applied and descriptive research because it involves gathering information for testing hypotheses or answering the questions related to the present conditions. Furthermore, this research is a survey research because its data was gathered from 384 members of darbdar e-shop through on-line questionnaire.

5.2. The sample

Because this research is related to users and visitors of a website, statistical population is mentioned instead of place domain. Considering the fact that "darbdar" e-shop has a various range of products and service and because population of this research includes all visitors of e-shop website and this website had had 400000 visits until research time and considering the fact that each visitor might have visited this website for several times, the population was considered as unlimited and 384 people were selected by means of Morgan table as sample members and answered the questionnaires (Sarmad and Bazargan, 1997).

6. Data analysis and hypotheses test

Structural equations modeling method was used in order to analyze data. This method is a statistical method which contains other methods like multi-variate regression, factor analysis, path analysis and its main concentration is on latent variables which are defined by measurable indices and observable variables. because this method analyzes the relationships among variables simultaneously, it is a reliable method. In this method we try to specify whether the relations among latent variables (involvement in fashion, personal characteristics, positive sense and leisurely purchase), considering data gathered from sample, are verified or not?

Structural equations modeling method has two parts 1-measurement model and 2-structural model. Measurement model links a set of observed variables to latent variables and structural model links latent variables to each other through a set of direct and indirect relations. Lisrel software version 8.54 was used for calculations of structural equations modeling. Fitness of research model is of great importance for investigation of relationships among variables. This can be observed out of fitness indices which are provided at the end of Lisrel software output. In table 1, fitness indices for research model have been provided.

Table 1. difference of X² values in determination of effectiveness of primary model correction for measuring measurable and latent variables

| Fitted models | c ² | c ² Δ | df | RMSEA value | X ² reduction significance |
|----------------------|----------------|------------------|----|-------------|---------------------------------------|
| First model | 440/32 | --- | 51 | 0/152 | --- |
| Second model (start) | 306/31 | above 2/75 | 40 | 0/124 | One percent |
| Third model | 215/64 | above 2/75 | 39 | 0/108 | One percent |
| Fourth model | 186/35 | above 2/75 | 38 | 0/097 | One percent |
| Fifth model | 146/98 | above 2/75 | 37 | 0/086 | One percent |
| Sixth model | 105/94 | above 2/75 | 36 | 0/077 | One percent |
| Seventh model | 103/73 | above 2/75 | 35 | 0/077 | insignificant |

In structural equations modeling methodology, researcher must take action for model correction and progress of steps by means of significance of difference of X-squared value. D² was used for this. It makes decision based on reduction in X-squared and its significance difference. As it can be seen, the primary model reached a suitable condition after 5 steps and in the sixth model. Therefore, correction operation was stopped at

the seventh step which was conducted in order to reach the best matrix of co-variance with releasing co-variances values between indicators.

Table 2. Result of measurement model of latent variables

| research variables | Signal in model | Factor loading | t-Value | p-value |
|------------------------------|-----------------|----------------|---------|---------|
| Attitude | Q1 | 0/57 | 9/24 | 0/01 |
| | Q3 | 0/50 | 8/30 | 0/01 |
| | Q5 | 0/27 | 4/16 | 0/01 |
| Behavior | Q2 | 0/89 | 8/89 | 0/01 |
| | Q4 | 0/20 | 3/43 | 0/01 |
| | Q6 | 0/20 | 3/53 | 0/01 |
| Mental norm | Q7 | 0/20 | 3/70 | 0/01 |
| | Q8 | 0/35 | 6/12 | 0/01 |
| | Q9 | 0/74 | 14/81 | 0/01 |
| | Q10 | 0/72 | 14/29 | 0/01 |
| | Q11 | 0/82 | 16/67 | 0/01 |
| Perceived behavioral control | Q12 | 0/56 | 10/30 | 0/01 |
| | Q13 | 1/00 | --- | 0/01 |
| Internet purchase intension | Q14 | 1/00 | --- | 0/01 |

Table 2 shows that latent variables can be measured with their first-level indicators and researcher's aim for measurement of latent variables was fulfilled.

Structural model

Our hypotheses have been formed based on relationships among latent variables and these relationships can be observed in structural model section. The structural section of the model can be presented in the following form. As it was mentioned, fitting indices show that the research model is of suitable fit.

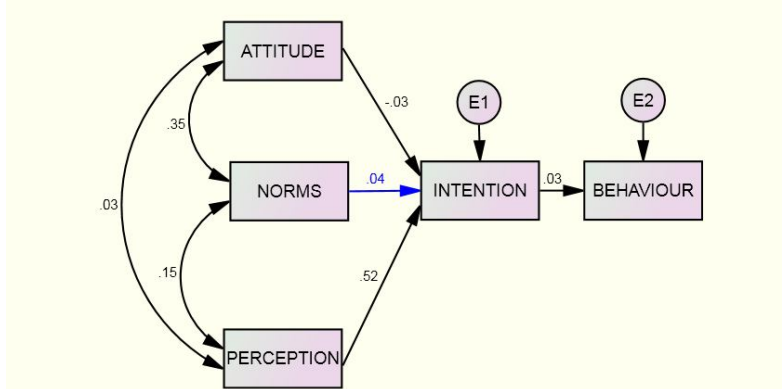
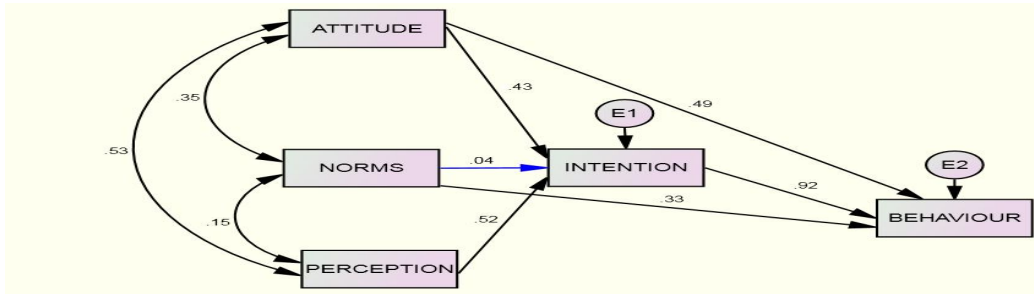


Figure 1. primary model of the research, a path compatible with research conceptual model

Results show that two paths of influence of attitude on internet purchase behavior and also influence of mental norm on internet purchase behavior must be added in order to correct and saturate the model. Kai-squared test was used to test whether the correction made any significant change in the model or not. In view of the sever reduction in Kai-squared value and high level of significance of this reduction, the corrected model which utilized addition of paths for releasing model co-variance error parameters in 5 stages is acceptable.

Table 3. difference of Kai-squared values in estimation of effectiveness of correction of research structural model

| Fitted models | χ^2 | $\Delta\chi^2$ | df | RMSEA value | Significance of Kai-squared reduction |
|---------------|----------|----------------|----|-------------|---------------------------------------|
| First model | 142/91 | ---- | 6 | 0/108 | ---- |
| Second model | 89/15 | above 2/75 | 5 | 0/098 | One percent |
| Third model | 46/95 | above 2/75 | 4 | 0/087 | One percent |
| Fourth model | 20/95 | above 2/75 | 3 | 0/079 | One percent |
| Fifth model | 8/98 | above 2/75 | 2 | 0/068 | One percent |
| Sixth model | 1/84 | above 2/75 | 1 | 0/052 | One percent |



Model 2. Path model in a corrected form (saturated)

Table 4. path coefficients of research variables and significance of estimated parameters

| studied path in the model | Path coefficient (standard estimation) | t-value | result |
|--|--|---------|-----------|
| attitude → internet purchase intention | 0/43 | 7/68 | Supported |
| Mental norm → internet purchase intention | 0/04 | 0/78 | Rejected |
| PBC → internet purchase intention | 0/52 | 10/86 | Supported |
| attitude ↔ mental norm | 0/35 | 5/58 | Supported |
| attitude ↔ PBC | 0/53 | 8/98 | Supported |
| mental norm ↔ PBC | 0/15 | 1/41 | Rejected |
| Internet purchase intention → IPB | 0/92 | 13/95 | Supported |
| attitude → internet purchase behavior (side result) | 0/49 | 7/84 | Supported |
| Mental norm → internet purchase behavior (side result) | 0/33 | 5/21 | Supported |

Significance at 1% error or 99% confidence

7. H1: the first hypothesis of the research states that attitude has positive and significant influence on internet purchase intention.

Test result: according to the research model, the path coefficient of influence of attitude on internet purchase intention was estimated 0.43. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 (t=7.68), therefore H_0 is rejected in 99% of confidence level and because of the significance of this coefficient it can be concluded that attitude has significant influence on internet purchase intention. Therefore, as attitude improves, internet purchase intention will be improved. According to the results, this hypothesis is verified.

H2: the second hypothesis states that mental norm has positive and significant influence on internet purchase intention.

Test result: according to the research model, the path coefficient of influence of mental norm on internet purchase intention was estimated 0.04. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 (t=0.78). therefore, there is not enough evidence for rejecting H_0 . Because of the significance of this coefficient, we can conclude that mental norm does not influence on internet purchase intention and it does not have a significant role in prediction of internet purchase intention and internet purchase intention is not in the path of mental norm. this hypothesis is therefore rejected and internet purchase intention is not a function of mental norm.

H3: this hypothesis states that PBC has positive and significant influence on internet purchase intention.

Test result: according to the research model, the path coefficient of influence of PBC on internet purchase intention was estimated 0.52. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 (t=10.86), therefore H_0 is rejected in 99% of confidence level and because of the significance of this coefficient it can be concluded that PBC has significant influence on internet purchase intention. Therefore, as PBC improves, internet purchase intention will be improved. According to the results, this hypothesis is verified.

H4: the fourth hypothesis states that attitude has significant relationship with mental norm.

Test result: according to the research model, the path coefficient between attitude and mental norm was estimated 0.35. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 (t=5.58), therefore H_0 is rejected in 99% of confidence level and because of the significance of this coefficient it can be concluded that there is significant and positive relationship between attitude and mental norm. Therefore, increase (or decrease) in each variable will lead to increase (or decrease) in the other variable. According to the results, this hypothesis is verified.

H5: the fifth hypothesis states that attitude has significant relationship with PBC.

Test result: according to the research model, the path coefficient between attitude and PBC was estimated 0.53. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 (t=8.98), therefore H_0 is rejected in 99% of confidence level and because of the significance of this coefficient it can be concluded that there is significant and positive

relationship between attitude and PBC. Therefore, increase (or decrease) in each variable will lead to increase (or decrease) in the other variable. According to the results, this hypothesis is verified.

H6: the sixth hypothesis states that PBC has significant relationship with mental norm.

Test result: according to the research model, the path coefficient between mental norm and PBC was estimated 0.15. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 ($t=1.41$), therefore there is not enough reason for rejection of H_0 . because of the significance of this coefficient it can be concluded that there is not significant and positive relationship between mental norm and PBC. Therefore, increase (or decrease) in each variable will not lead to increase (or decrease) in the other variable. According to the results, this hypothesis is rejected.

H7: the seventh hypothesis states that internet purchase intention has positive and significant influence on behavior.

Test result: according to the research model, the path coefficient between internet purchase intention and behavior was estimated 0.92. t value for this parameter (according to the rule of rejection in 1 percent error level for values greater than 1.96 in each parameter of the model), is greater than 1.96 ($t=13.95$), therefore H_0 is rejected in 99% of confidence level and because of the significance of this coefficient it can be concluded that there is significant and positive relationship between internet purchase intention and behavior. Therefore, increase (or decrease) in each variable will lead to increase (or decrease) in the other variable. According to the results, this hypothesis is verified.

8. Applied recommendations

The results of this research show that social factors and influence of friends on purchase intention do not affect an individual's internet purchase. However, an individual's attitude towards doing or not doing a purchase is the effective factor and this shows that investment is important for relationship with all individuals and establishment of a personal experience feeling for their persuasion.

Furthermore, an important point that must be considered by websites managers and designers of online shops is that the websites must be user-friendly and search for a particular product must be facilitated. In the present research, the most powerful preventing factor or obstacle ahead of tendency to e-purchase was difficulty of purchase for website visitors. This research showed that in Iran, most internet users are educated people (which look at internet with an applied view) and because high-speed internet access is expensive in Iran in comparison with other countries, marketers must target at a group of society which have a financial power higher than average and concentrate on this group for advertisement or promotion and target those websites which cover this category more than others. Because attitude has a considerable impact on online purchase, improvement of factors affecting attitude will be useful. Advertisement through different media like reliable websites can have great effects on buyers' attitude especially their confidence feeling.

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