

EVALUATION OF EFFECTIVE FACTORS ON INTERNET BUYING INTENTION OF TRAIN TICKET BASED ON DTPB MODEL

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Abstract

In today's competitive environment, with growth of buying from internet sites, identify and attention to customer needs for companies is consider important. Hence, organizations are trying to create appropriate field in competition including the Islamic Republic of Iran Railways that by given internet tickets has provided faster and easier access of their customers. This research is applied and the nature of it is the descriptive correlation and its is purpose explanation of effective factors on internet buying intention of train ticket based on DTPB model and it examine impact of attitude factors with subset- compatibility, complexity, relative advantage- and subjective norm with subset- subjective influences- and perceived behavioral control with subsets- facilitating, self-efficacy- on behavioral intention . Questionnaire is used to collect data that its validity is approved by supervisors and advisor professors and its reliability is confirmed by doing pre-test from 21 train tickets online shoppers and calculating Cronbach's alpha coefficient. After distribution of questionnaires as field in railway station of Tehran, analysis of data was performed by Liserl software. The results confirmed positive effect of all factors except compatibility factor.

Keywords: Internet Buying Train Tickets, Attitudes, Subjective Norms, Perceived Behavioral Control

1. Introduction

Raja passenger trains company started to work in the field of passenger transport from November 1996 and have a huge contribution in society welfare of human and development of the country's rail transport industry. This company began planning and designing new ticket sales system (Online2) from 2009. However after three years of on-site system establishment to buy train tickets online in this company, still the current populations of people who buy internet tickets between 10 and 20 percent of all tickets that are sold (www.raja.ir). While in developed countries this figure is much higher. For example, according to statistics from Malaysia in 2005, about 30 percent of all tickets that has been sold, as was Internet (Sulaiman, 2008). In Iran e-commerce volume in 2007 was totaled 100 Milliard rails and has been ranked 70th in the global e-commerce (Among the 75 countries) that is much lower than the global average (www.hamshahrionline.ir)

It should also be noted that according to global statistics using electronic communications rather than traditional paper-based methods lead to saving 21-70% of the cost of commercial activities (Sulaiman, 2008) and also income of some countries in this field is equal to 2times Iran income (www.raja.ir) Meanwhile, in 2009 approximately% 2/5 the total of sales volume of goods and services has been the Internet (Jafarpour, 2009) and also growth rate of internet banking services in 2009 has been equal to% 23/9 (Niloufari, 2009).

Now according to the world statistics in year 2011, Internet users are 36/5 million from 72/5 million people in Iran (www.farsnews.com). Such statistics in field of Internet ticket buying

looks weak in the country and because key point to being successful in any business is focus on customers and use of the new opportunities arising from the rapid changes in technology and has been relatively good investment in this field but not achieved a lot of success, it seems that only investment was not enough but acceptance by customers is also required. So the scientific study of factors affecting the acceptance of internet buying train tickets from customers is essential. There are many factors that effect on decision to purchase and acceptance intention of web services; Todd&Taylor found in their research in 1995 that each of the factors influencing that intention acceptance of an innovation that have exist in models were known now, have a multi-dimensional concepts and multi-dimensional concepts compared to one-dimensional have more practical power in understanding range of behaviors and in fact, this model analyze each of effective factors in previous mentioned models to their sub-sets and the relationships between them conveys more clearly and can hide some deficiencies and shortcomings of the previous models and thus it will have power of behavior prediction better than other models . They called this model as Decomposed Theory of Planned Behavior (DTPB) and in this sense, this model also focuses on specific ideas is related to the management conditions and may reveal certain factors that may influence on adoption of innovation (Todd&Taylor,1995).

To adapt to the current situation in our country, in this study DTPB model are used to explain effective factors on the intention of internet tickets acceptance. Based on this model external factors such as perceived behavioral control with subset- facilitating conditions , self-efficacy- and internal factors such as attitude with subsets compatibility, perceived ease of use (complexity) and perceived usefulness (relative advantage)- and subjective norm – with subsets superior & peer influences - has effect on buying behavioral intention (Jafarpour,2009; Maditinos,2009; Beiginia, 2011). Thus, the aim of this study was the presence or absence of relationship and effect between factors such as attitude, subjective norm and behavioral control factors and their subsets to internet buying intention of train ticket.

2. Theoretical Framework

Scientific study of factors influencing Internet buying train tickets from customers is essential. These factors are many and have been proposed in several theories. Summary of the most famous of these theories are presented in Table 1.

Table1: a brief description of the known theories in the field of internet Innovations acceptance

Variables	Designer of model and year of its design	Name of model and its abbreviation
Individuals attitude (include 2 subset of behavioral beliefs and behavioral outcomes) + Subjective Norm (include 2 subset of subjective beliefs and motivations that must be answered) Behavioral intention	Ajzen &Fishbein,1967	Theory of reasoned Action (TRA)
Perceived usefulness + perceived ease of use attitude of behavioral intention	Davis,1989	Technology Acceptance Model(TAM)

Compatibility + complexity + Relative Advantage + usability testing + visibility intention to perform the behavior	Rogers,1983	Diffusion of Innovation (DOI)
Attitude (behavioral beliefs) + Subjective Norm (subjective beliefs) + Behavioral Control (control beliefs) intention	Ajzen,1985	Theory of Planned Behavior (TPB)
Decomposition of Attitudinal Belief Structures (Compatibility+perceived ease of use+ Percieved usefulness)+Decomposition of subjective Belief Structures (past experience of individual + effects of reference group types) + Decomposition of control Belief Structures (Self-Efficacy and Facilitating conditions behavioral intention	Todd&Taylor,1995	Decomposed Theory Of Planned Behavior (DTPB)

Todd & Taylor in DTPB model were analyzed each factors Theory of Planned Behavior According to

Diffusion of Innovation theory and Technology Acceptance Model to smaller components and divided to Decomposition of Attitudinal Belief Structures, Decomposition of subjective Belief Structures, Decomposition of control Belief Structures. Components of this model are defined below.

intention of behavior: it refers to amount possibility of using system by individual (Davis, 1989). It is motivation and feeling that individual conscious effort to perform a behavior (Yaghoubi, 2011).

Decomposition of Attitudinal Belief Structures: it is including compatibility, perceived ease of use (Similar to complexity in DOI) and Perceived usefulness (Similar to Relative Advantage in DOI) (Todd & Taylor, 1995).

Attitude: it is positive and negative evaluation of individual based on sets of his/her standards and criteria . In other words, it is individual feeling of favorable or unfavorable of behavior in question (Beiginia, 2011; Fishbein & Ajzen, 1975; Tan & Teo, 2000; Maditinos, 2009). If anyone thinks the outcome of behavior is a positive, will behave positive attitude to it (Fishbein & Ajzen, 1975). This concept leads to the following hypothesis:

Attitude is effect on buying intention.

Relative Advantage: it is degree that use of technology innovation has more advantages (Including satisfaction, enhance image and comfort and convenience and economic benefits) compared to past experiences (Beiginia, 2011). Actually it is amount of customer understands about different and better a new product or service than its substitute. Whatever benefits of innovation be more in result it will accept easily (Rogers, 1995). This concept leads to the following hypothesis:

Perceived Relative Advantage from internet buying of train tickets has effect on person's attitude.

Compatibility: Compatibility refers to ability an innovation to meet the needs of people (Gerrard, Cunningham, 2003). If the innovation is consistent with existing values, current needs, and job skills and their life style potential adopter thus it be accepted easily (Beiginia, 2011; Tan & Teo, 2000). This concept leads to the following hypothesis:

Compatibility of internet buying of train tickets has effect with Values, job skills and needs of the individual, on individual's attitude

Complexity: Complexity is similar to Perceived Ease of Use. According to past researches, innovation with much complexity requires technical skills, more practice of operational and executive to increase chance of innovation adaption (Beiginia, 2011). Because internet behaves user friendly and it is just interaction of click and attention, potential customers think that internet innovation has less complexity and therefore more willing to use it. The researchers found that those who are educated and those who have experience working with the internet, internet technology acceptance shouldn't know difficult (Tan & Teo, 2000). This concept is lead to the following hypothesis:

Less perceived complexity from internet buying of train tickets has effect on person's attitude.

Decomposition of Normative Belief Structures: As may be not agree reference group together and have a different view towards a particular behavior, decomposition of normative beliefs is done regarding the identification of the reference group and are consists of two components, individual past experiences and influences partners / colleagues and acquaintances, and family and friends. Components of past experiences doesn't evaluate in this study.

Subjective Norm: it is effect of social environment on person's behavior and individual understanding from the important people ideas about does and doesn't behave or confirm or not confirm a task that is asked of him (Beiginia, 2011; Ajzen & Fishbein, 1975; Tan & Teo, 2000; Maditinos, 2009).

If user acceptance is a limited attitude of their reference groups, subjective norm is the most important and leading role in the innovation acceptance (Todd & Taylor, 1995). This concept is lead to the following hypothesis:

Subjective Norm has effect on Buying Intention

Subjective Influences: Depending on the type of service offered to customers, groups of proposed customers around individual, such as friends, family, colleagues / peers have an impact on his/her potential acceptance (Meditinos, 2009). This concept is lead to the following hypothesis:

Subjective Influences has effect on Subjective Norm.

Decomposition of Control Belief Structures: Ajzen in 1991 and 1989 has divided Control Belief to Two components Self-Efficacy and Resource constraints. Nowadays control beliefs are divided into two categories self-efficacy and facilitating conditions.

Perceived behavioral control (PBC): control factors are involving the internal control factors (information, skills, and abilities of the individual) and external control factors (opportunities, resources and facilities) that may facilitate, hidden, prevent a behavior or delay to do behavior. These factors have a positive effect on intention to innovation acceptance (Conner & Armitage, 1989; Beiginia, 2011). PBC include two component of Self-Efficacy and facilitating conditions. This concept is lead to the following hypothesis:

Behavioral control has effect on Buying Intention

Self-Efficacy: it is confidence of individuals to their ability to perform a behavior. Individuals with skills in use of computer and internet are more willing to accept innovation (Tan & Teo, 2000). This concept is lead to the following hypothesis:

Self-Efficacy has effect on Perceived Behavioral Control

Facilitating Conditions: it is refers to easy access to technological structures and resources to support of behavior, such as time, money, experience, hardware and software, network connectivity and etc (Tan & Teo,2000;karami,2006; Baraghani,2007). As supporting technological infrastructure become easily and ready available, e-commerce applications became feasible and it would be expected that users to be more inclined to adopt internet technology service (Tan & Teo, 2000). This concept is lead to the following hypothesis:

Facilitating has effect on Perceived Behavioral Control

3. Background of Research

A summary of the results of research conducted in different countries with the same basis are shown in table 2:

Table2: summary of similar researches result

Authors	Tan & Teo, 2000	Todd & Taylor, 1995	Beiginia, 2011	yaghoobi, 2011	Hoppe, (2001)	Naeimi barghani, 2007	Maditinos, 2009	Karami, 2006	Rouiba, 2009	Dehbash, 2009
Hypothesis										
Impact of relative advantage on attitude	+	+	+		+		+			
Impact of less perceived complexity on attitude	+	+	+		+					
Impact of compatibility on attitude	+	+	-		+		-			
Impact of effecting subjective influence on subjective norm		+	+				+			
Impact of self efficacy on percieved	+	+	-		+		+			

behavioral control										
Impact of facilitating conditions on behavioral control		+	+				+			
Impact of attitude on intention to adoption	+	+	+	+		+	+	+	+	+
Impact of subjective norms on intention to adoption	-	+	-	+	-	-	+	+	+	+
Impact of behavioral control on intention to adoption	+	+	+	-		+	+	+	+	-

Based on context presented and hypotheses, the research model is as follows:

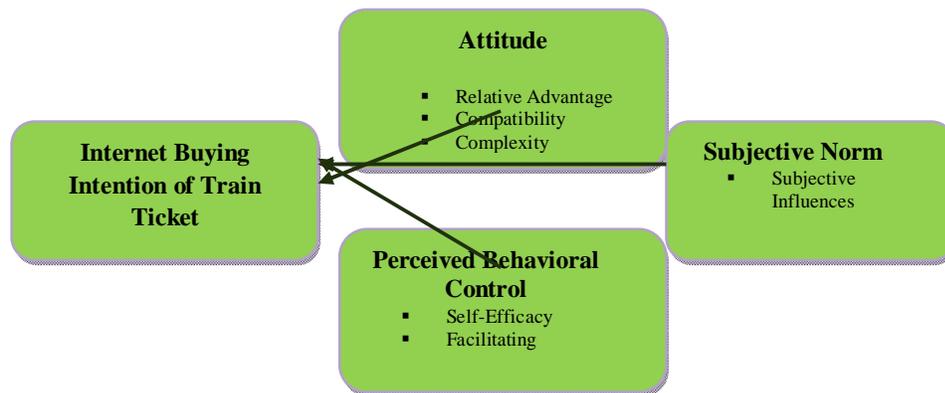


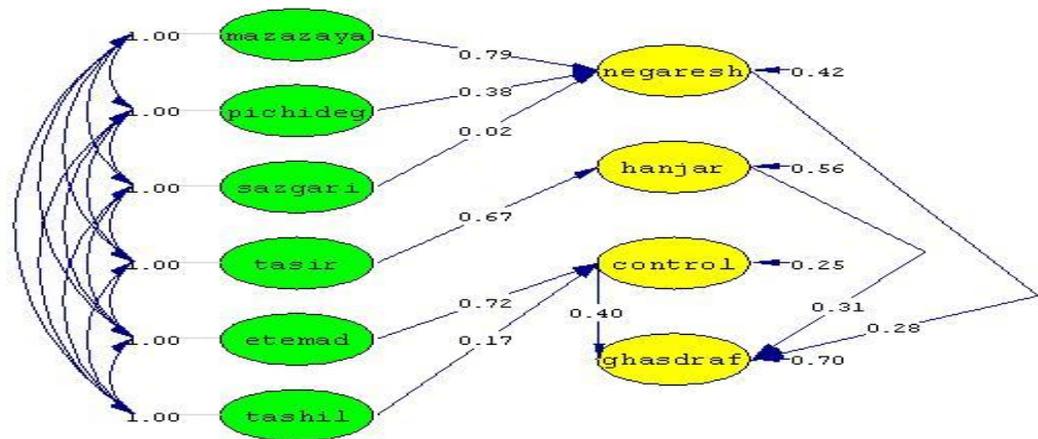
Figure 1: Conceptual model of research based on DTPB (Todd&Taylor, 1995)

4. Research Methodology

Present study method was applied development. Also it had the nature of applied descriptive and because it survey relationship between variables thus it was descriptive correlation. Present study sample was consisted of some passenger trains of Raja Company in Tehran railway. Data Collected method was field research. Research sampling method was convenience non-random method .To determine the sample size was used formula of mean interval estimation and 384 questionnaires with 29 questions were distributed. The validity of the questionnaire was approved by professors of supervisor and advisor. To determine reliability was distributed 21questionnaire as pre-test and then by software SPSS 19 was calculated cronbach’s alpha and reliability questionnaire confirmed with 87/14 percent.

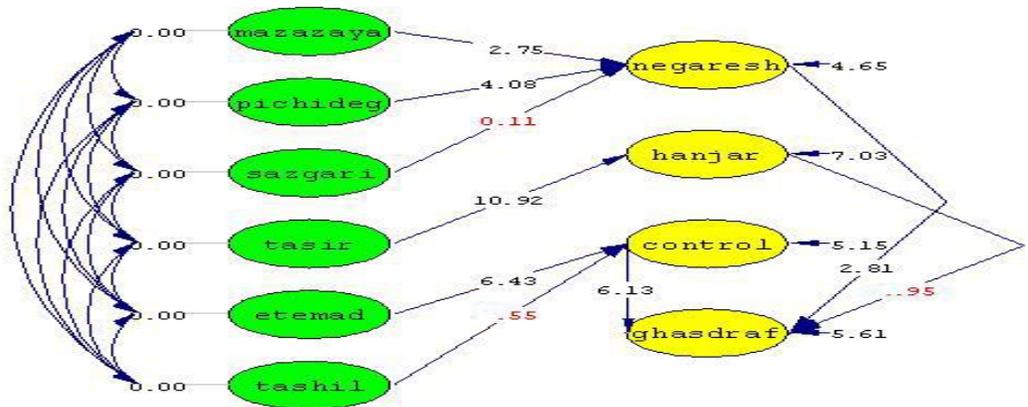
5. Data analysis

For hypothesis testing and data analysis were used software LISREL (structural equation modeling). Result models of lisrel is shown in diagram 1 &2. Summary of results is shown in Table 3.



Chi-Square=1017.78, df=353, P-value=0.00000, RMSEA=0.064

Diagram1: Result models of lisrel in estimate mode



Chi-Square=1017.78, df=353, P-value=0.00000, RMSEA=0.064

Diagram2: Result models of lisrel in mode

Table3: summary of result obtained from data analysis

Path	Path (β) coefficient	t	Result
Relative Advantage to Attitude	0/79	2/75	Confirmed
Complexity to Attitude	0/39	4/08	Confirmed
Compatibility to Attitude	0/02	0/11	Rejected
Subjective Influences to Subjective Norm	0/67	10/92	Confirmed
Self-Efficacy to Perceived Behavioral Control	0/72	6/43	Confirmed
Facilitating conditions to Perceived Behavioral Control	0/17	3/55	Confirmed
Attitude to buying intention	0/28	2/81	Confirmed
Subjective Norm to buying intention	0/31	2/95	Confirmed
Perceived Behavioral Control to buying intention	0/40	6/13	Confirmed

Beta coefficient indicate the intensity of relationship between variables and the t-statistic indicate the presence or absence of relationship and how it and another important result obtained with the help of the software Lisrel is the amount of raised indexes for determining model fitting. If index value “chi-square on df” be less thus it is better. Index confidence limit "RMSEA" if be less than 0/5 in result is very good and less than 0/08 good and higher than 0/09 is bad. If confidence limit of other indexes be higher 0/9 thus they are good. For determining model fitting, values obtained are estimated from all indexes and according to results; model of the present study has had a good fitting. The results are given in Table 4.

Table 4: The Obtained amount of raised indexes for determining model fitting

Name of index	permitted limit	Obtained amount
Chi-square to df	<3	2/88
GFI (Goodness of Fit Index)	0/9<	0/93
RMSEA (root mean square error of approximation)	<0/09	0/064
CFI (Comparative Fit Index)	0/9<	0/94

AGFI(Adjusted Goodness of Fit Index)	0/9<	0/84
NFI (normed fit index)	0/9<	0/92
NNFI (non-normed fit index)	0/9<	0/93

6. Discussion and Conclusion

This research is first study in the field of internet buying train ticket that is done based on most complete model that do not have the defects and weaknesses of older models. The objective of this study is evolution of effective factors on Internet Buying Intention of Train Ticket based on DTPB Model and all factors were effect except effect of compatibility on attitude. This result can have different reasons including:

- Mismatch buying internet tickets with lifestyle, values and skills and jobs. Although the majority Iran people are familiar with the internet but important affairs of their life don't use online, and this is not very common.
- On the other hand, internet train ticket sales system is established only 3 years in Iran, so most people are not aware of its existence or are not familiar with its use method and not familiar with the advantages and benefits of buying of this approach.
- Another reason could be : this sentences ""knowing half of the Iranian nation with the internet"" cannot mean that these people certainly in their life or work have access to necessary resources (computers, networks, and ADSL, ...) to use systems , so it can be concluded that these system still does not match with people lifestyle.
- Another reason to buy an internet train ticket is necessary that people have account in Saman bank and also have card acceleration, because a lot of people do not have membership in this bank, thus these method can also be incompatible with their lifestyle.
- Another reason relatively important is defined that most respondents answered the questions with haste and impatience and weak measurement tool can also be other reasons of these result.
- Based on the results is recommended to Raja company:
- more advertising with aim:
 - Recognizing the advantages of this method compared to traditional, training system and do it easily and even training computer, showing compatibility it with today's busy lifestyle, showing use of this system of reference people through public media, preparation of training packages and print advertising brochure and distribute them among the passengers of Raja train, holding short-term training meetings.
- Having Discount for the Internet customers or to do monthly lottery.
- use of any acceleration card for buying.
- Internet kiosk selling tickets be established at various locations from the country railway station and its easy and free access for customers.
- While working to prevent disruption and provide accurate codes to people

7. Suggestions for future researchers

- Given that only 30 percent of research dependent variable Internet Buying Intention of Train Ticket is described based on DTPB Model, It is recommended:

- Perceived risk and trust models, models of reason action, technology acceptance model, extended technology acceptance model, model of planned behavior, innovation diffusion model, a model triandis, and other factors could be study in future research.
- in the field of the research model or in any of mentioned models in terms of acceptance any other innovation including internet purchase of goods or services, and in other organizations such as banks or other organizations that provide their services for take advantage of specific innovation could be study in future research.
- Effective factors on the behavior of train tickets internet buying explain in other research.

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