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A MODEL SUGGESTION FOR CUSTOMER SATISFACTION IN THE PROCESS OF USING MOBILE SHOPPING APPLICATIONS: THE ROLE OF PERSONAL INNOVATIVENESS AS A MODERATOR

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Abstract

This study examines the relations: consumers' price sensitivity and perceived ease of use is related to customer satisfaction and also personal innovativeness has some effects on these relations, in purchases made by mobile applications. Research on consumer behavior in the field of electronic commerce is widely discussed in the literature. But, in the field of mobile commerce, there are few studies analyzing the behavior of information systems, especially for shopping with mobile applications. If information systems are successfully managed, ways will be made to achieve the desired goal, marketing strategies and channels, sales and more. Thus, it would be advantageous to make mobile technology easy to use, measuring the price sensitivity that affects purchasing decisions, ensuring the adoption of new information systems to enable users to shop with mobile applications. When the variables reach a satisfactory level, mobile marketing will be considered successful. Taking these variables into consideration, an improved model to this research is proposed. Therewith, (N=612) mobile users were questioned in the survey study and used Structural Equation Modeling (SEM) in AMOS program. In the research results, it is found that personal innovativeness is the most influential variable on customer satisfaction about mobile shopping applications. It has also been observed that in shopping by mobile applications, the perceived ease of use and price sensitivity are moderators of personal innovativeness in customer satisfaction. Personal innovativeness is a moderator variable which has a positive effect and it increases customer satisfaction.

Keywords: Customer Satisfaction, Price Sensitivity, Personal Innovativeness, Perceived Ease of Use, Mobile Shopping Applications

JEL Classification: M00.

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1. INTRODUCTION

When companies come across changes in technology and the market, they need to know their customers' expectations and be able to predict how they will behave, adapt to innovations and follow closely all developments. Moreover, for organizations to maintain continuity it is essential for them to know their customer needs, expectations and behaviors. At the same time, it is emphasized that studies should include measuring variables that affect customer satisfaction in line with the growing interest to mobile shopping applications used with mobile devices (Copeland, 2016, p.34). Therefore, it is necessary to examine the variables to which customer satisfaction is related. Investigations are mostly focused on the field of electronic commerce; however, very limited studies have been conducted in the field of mobile commerce. After extensive review of the literature on mobile commerce that was done for this research, variables and a research model were developed. These variables that are subject of the research are as follows: customer satisfaction that measures customer expectations in order to predict whether individuals will continue to conduct their shopping through technologies; personal innovativeness that measures the speed with which individuals accept technological innovations; price sensitivity that measures the sensitivities of consumers to price changes; the perceived ease of use which measures the degree of belief that using a system does not require much effort. The Technology Acceptance Model (Davis, 1986) and the Theory of Diffusion of Innovations (Rogers, 1971), which form the basis of the research model, are the theories that explain the adoption of new information systems. Various studies by researchers to predict the behavior of mobile commerce users have shown that these models have been proven (Natarajan et al., 2017, p.19).

2. CUSTOMER SATISFACTION

The important variable that needs to be included to add to the cognitive and emotional response that arises after using a mobile shopping application is customer satisfaction. This is the most important variable that directs future purchases using a specific application (Agrebi and Jallais, 2015, pp.16). Before starting this study, other variables related to customer satisfaction variables were searched for in the literature. According to literature findings, there is significant positive effect between personal innovativeness and customer satisfaction (Natarajan et. al., 2017, p.12; Hung et al., 2007, p.409); there is significant positive effect between perceived ease of use and customer satisfaction (Agrebi and Jallais, 2015, pp.18; Natarajan et al., 2017, p.15); in the light of these relations, when the relationship between perceived ease of use and customer satisfaction is affected by personal innovativeness moderator variable, this relationship is expected to support (the first moderator of this research). According to the literature, Fornell et al. (1996) have stated that “through satisfaction there can be increased/decreased price

sensitivity” (Munnukka, 2008, p.189); there is significant negative effect between personal innovativeness and price sensitivity (Goldsmith et al., 2005, p.501; Goldsmith and Ramirez, 2009, p.201); in the light of this information, when the relationship between price sensitivity and customer satisfaction is affected by personal innovativeness moderator variable, this relationship is expected to support (the second moderator of this research).

3. PERSONAL INNOVATIVENESS

Personal innovativeness is an important structure that explains the intended purpose of users of information technologies. It is useful to know their impact in studies on technology use (Goldsmith and Newell, 1997; Park and Noh, 2012; Thakur and Srivastava, 2014). In the light of these evaluations, the influence of personal innovativeness as an independent variable and as well as a moderator variable in mobile shopping applications were measured.

4. PERCEIVED EASE OF USE

With this variable of the research, perceptions of consumers about using a mobile shopping application are examined. According to some investigations, users can perceive products with advanced technology more complicated than traditional products. Therefore, it can be said that perception plays a bigger role while purchasing a technological product compared to traditional consumption products (Başgöze, 2010, p.13).

5. PRICE SENSITIVITY

Pricing a product is one of the most important decisions that markets have to take and is also one of the key success factors that determines the purchasing decision for that said product (Roy et al., 2016, p.17). For this reason, it is very important for companies to know and implement planned pricing strategies in order to reach sales objectives and maximize profits.

6. RESEARCH METHODOLOGY

6.1. RESEARCH MODEL AND HYPOTHESES

In this study, customer satisfaction criterion was predicted using perceived ease of use, individual innovation and price sensitivity variables. In addition, according to the projected model, it was planned to measure the moderator effect of personal innovativeness on customer satisfaction in relation with the independent variables of price sensitivity and perceived ease of use (Figure 1). The moderator effect of personal innovativeness was analyzed by Structural Equation Model (SEM).

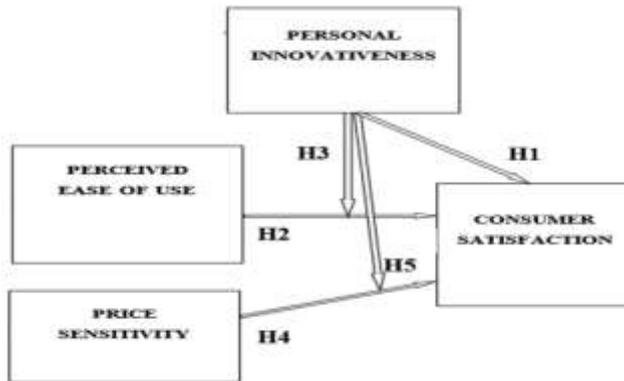


Figure 1. Research Model

Source: Authors

The hypotheses proposed for the research model are presented as follows:

H1: Personal Innovativeness has a significant positive influence on customer satisfaction in using mobile shopping applications.

H2: Perceived ease of use has a significant positive influence on customer satisfaction in using mobile shopping applications.

H3: Personal innovativeness has a moderating role in the influence of Perceived Ease of Use on Customer Satisfaction.

H4: Price sensitivity has a significant negative influence on customer satisfaction in using mobile shopping applications.

H5: Personal innovativeness has a moderator effect in the influence of Price Sensitivity on Customer Satisfaction.

6.2. DATA ANALYSIS

First, descriptive statistics analyses and frequency analyses were performed for the analysis of data. Then, the reliability and validity of the variables in the research data were tested. Structural equation modeling (SEM) technique was used

to test the model. SPSS 23 and AMOS 23 programs were used to perform the analyses. 912 people who are familiar with mobile shopping applications participated in the online survey, conducted in Turkey. The answers of 300 respondents were considered invalid. The questions used to measure the constructs were on a 5 point Likert scale (Collis and Hussey, 2013, p.110). The research questionnaires were taken from the studies: Davis, 1989; Moore and Benbasat, 1991; Goldsmith and Hofacker, 1991; Agarwal and Prasad, 1998; Bhattacharjee, 2001; Goldsmith et al., 2005.

6.3. RELIABILITY OF VARIABLES

The reliability of the dependent, independent, moderator variables of the research model, which is the result of the literature findings, was measured. Cronbach's Alpha reliability test was applied to analyze the reliability and safety coefficients were calculated (Table 1).

Table 1. Reliability Statistics of Variables

Variables	Cronbach's Alpha
Perceived Ease of Use	.851
Personal Innovativeness	.773
Price Sensitivity	.827
Customer Satisfaction	.760

Source: The authors' own calculation based on collected data

Reliability coefficients and factor loadings were evaluated according to the results obtained from the validity and reliability analyses. As a result of the evaluation, the three scales of three different variables were excluded from the evaluation, like in the study of research from which the scales were taken.

6.4. STRUCTURAL VALIDITY TEST - CONFIRMATORY FACTOR ANALYSIS

At this stage, the Confirmatory Factor Analysis (CFA) was applied to determine the structural validity of the scale with the AMOS package program.

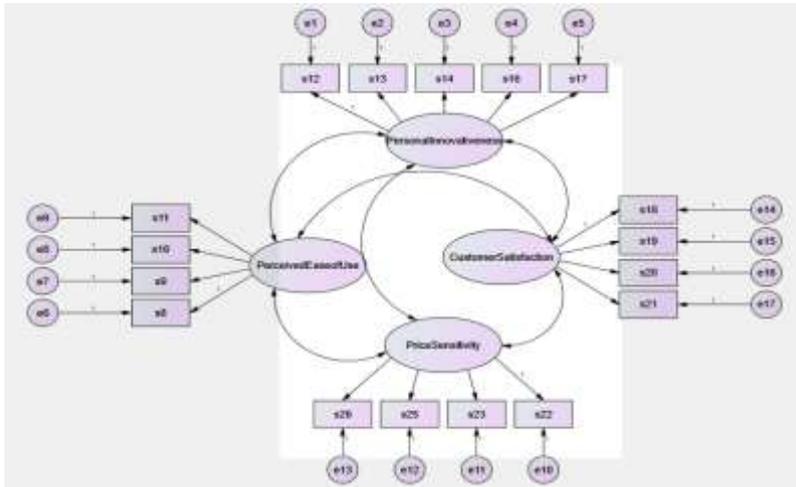


Figure 2. Applying CFA in the AMOS program

Source: Authors

As shown in figure 2, the application of confirmatory factor analysis was established by including covariances and error terms between all variables and scales in the research model. In general, the CFI, GFI, AGFI, NFI, RFI and RMSEA model fit indices were examined for interpretation of results from confirmatory factor analysis (McDonald and Ho, 2002, pp.72). The second row in table 2 shows the required ranges (Bezrgan, 2014, pp.533) and magnitudes of the model fit indices. The third row shows the results of CFA. As it is seen, these values are suitable to the threshold values specified in the second row.

Table 2. The Research Model's CFA - Fit Indices

Model Fit Measures	χ^2	$\chi^2/ (df)$	RMSEA	GFI	AGFI	NFI	CFI	RFI
Model Fit Ranges		≤ 5	< 0.08	≥ 0.90	> 0.80	> 0.90	≥ 0.90	≥ 0.85
CFA Model	319.2	2.90	0.05	0.94	0.92	0.92	0.95	0.90

Source: The authors' own calculation based on collected data

6.5. CONVERGENT AND DISCRIMINANT VALIDITY

Fornell's methodology has been used for convergent and discriminant validity (Fornell and Larcker, 1981, pp.40). According to this methodology for convergent validity, CR (Composite Reliability) values are expected to be greater than the AVE (Average Variance Extracted) values, also it is expected that "AVE ≥ 0.50 ; CR ≥ 0.70 ". And as for discriminant validity, it is expected that the condition "MSV $<$ AVE; ASV $<$ MSV" is met (MSV: Maximum Squared Variance, ASV: Average Shared Square Variance).

Table 3. *Convergent and Discriminant Validity Table*

	Personal Innovativeness	Perceived Ease of Use	Price Sensitivity	Customer Satisfaction
CR	0.84	0.85	0.83	0.79
AVE	0.52	0.60	0.55	0.51
MSV	0.28	0.28	0.17	0.05
ASV	0.16	0.14	0.09	0.03

Source: The authors' own calculation based on collected data

According to the findings obtained from the analysis, as seen in table 3, convergent and discriminant validity of four variables has been ensured.

6.6. PATH ANALYSIS WITH AMOS

AMOS package program and structural equation modeling technique have been used to test hypotheses. In the analysis stage, first of all, all scales have been converted to standard Z scores. Afterwards, the relation of Z scores of each variable with dependent variables was measured. In addition, in order to measure the effect of the moderator variable on the dependent variable, firstly the Z score of the independent variable has been multiplied by the Z score of the moderator variable and then the effect between the multiplied Z score obtained and the dependent variable has been measured (Figure 3). As a result of the path analysis applied with the AMOS program, the multidimensional model has been analyzed with model fit indices to determine whether it was a valid model or not (Table 4).

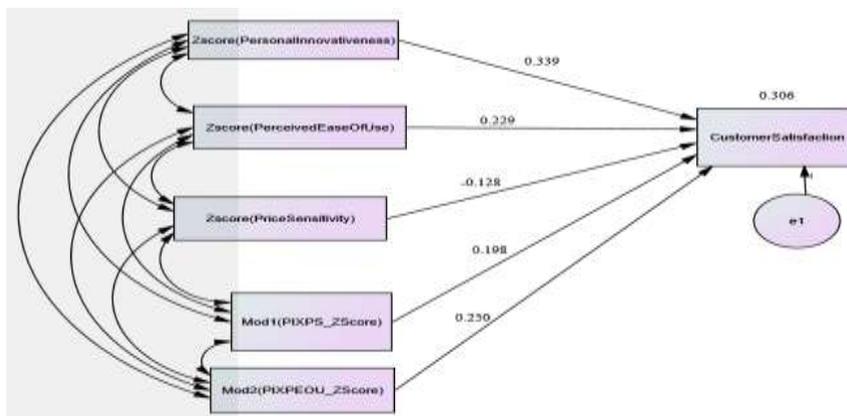


Figure 3. *Path Analyses with AMOS*

Source: Authors

Table 4. *The Research Model's SEM-Model Fit Indices*

Model Fit Measures	χ^2	$\chi^2/(\text{df})$	RMSEA	GFI	AGFI	NFI	CFI	RFI
Model Fit Ranges		≤ 5	< 0.08	≥ 0.90	> 0.80	> 0.90	≥ 0.90	≥ 0.85
SEM Model	306.0	2.78	0.05	0.94	0.91	0.92	0.94	0.90

Source: The authors' own calculation based on collected data

The results show the appropriateness of the modification indices obtained from the analysis of the structural model.

Table 5. *Path Analysis Result - Standardized Regression Weights*

Dependent Var.	H	Variables	P	Estimate
Customer Sat.	H1	Personal Innovativeness	.00	.339
Customer Sat.	H2	Perceived Ease of Use	.00	.229
Customer Sat.	H3	PIXPEOU (Mod2)	.00	.250
Customer Sat.	H4	Price Sensitivity	.00	-.128
Customer Sat.	H5	PIXPS (Mod1)	.00	.198

Source: The authors' own calculation based on collected data

In the next stage, standard regression weights and P significance level were examined to test hypotheses of the research model. The results show that all hypotheses are acceptable at the significance level ($p \leq 0.05$). According to path analysis results (Table 5), firstly, it is seen that personal innovativeness is the most important variable explaining customer satisfaction and the path coefficient is 0.339 (H1). Secondly, the perceived ease of use has a positive affect customer satisfaction (H2). The personal innovativeness was used as moderator variable in this research. When the moderator variable exists the relevant causality strengthens. When the coefficients of the third hypothesis are interpreted, it is seen that personal innovativeness increases the effectiveness between perceived ease of use and customer satisfaction. As a result, it can be said that customer satisfaction positive affect with this moderator 2 effect (Estimate: from 0.229 to 0.250) (H3). According to the fourth hypothesis, price sensitivity affects customer satisfaction negatively. As mentioned before, several studies report significant negative correlations between innovativeness and price sensitivity. When we interpret the fifth hypothesis, we can express that innovative persons who purchase via mobile applications have reduced price sensitivity, hence increased customer satisfaction.

7. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

This study aims to examine the effects of independent and moderator variables that would increase the satisfaction of customers using mobile shopping apps, thus providing an integrated model with these variables and contributing to a better understanding of the dynamics in this area. The basic limitation of this work is limited to Turkey. A similar research was done in India (Natarajan et al., 2017). Researchers can test this model according to cultural characteristics and device characteristics such as screen size, internet speed and processor. In addition, users may use other price comparison apps to compare prices and this can moderate the relationship between the innovators and price sensitivity. Developing innovativeness, segmenting innovators, improving and updating mobile shopping apps will help in retaining users and attracting new customers. In summary, personal innovativeness factor also plays a major role in the adoption of the technology not only among the innovators but also others.

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