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THE EFFECTS OF PERSONALITY, USABILITY AND TECHNOLOGICAL FACTORS TO M-SHOPPING USE

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ABSTRACT

Nowadays mobile devices such as smartphones and tablets become widespread and this led mobile shopping to be conducted anytime and anywhere and increased the attention to m-shopping. In this paper we studied the factors effecting the use of m-shopping value from Personalization, Self-Efficacy, Intimacy, Simplicity, Mobility, Connectivity perspectives. The m-shopping value that users experience during m-shopping can be divided into utilitarian value and hedonic value. The results show that personalization, self-efficacy, intimacy, simplicity, mobility, and connectivity variables have effect on m-shopping value.

In this study sample consists of 342 people above 18 years of age living in Istanbul. A public survey is used as data collecting method and a factor analysis, T-tests, an ANOVA/Welch test and a reliability analysis are performed for the acquired data by using the SPSS package program. Moreover, the model structured for the study is tested through a LISREL structural equation model.

KİŞİLİK, KULLANILABİLİRLİK VE TEKNOLOJİK FAKTÖRLERİN MOBİL ALIŞVERİŞE OLAN ETKİSİ

ÖZ

Günümüzde akıllı telefonlar ve tabletler gibi taşınabilir cihazların yaygınlaşması bu cihazlarla her zaman ve her yerde alışveriş yapılmasına imkan vermiş ve yapılan alışverişin artmasına neden olmuştur. Bu makalede mobil alışverişi etkileyen faktörler "kişiselleştirme",

“öz yeterlilik”, “mahremiyet”, “sadelik”, “mobilite” ve “bağlanılabilirlik” gibi değişkenler üzerinden incelenmiştir. Kullanıcıların mobil alışveriş sırasında tecrübe ettikleri mobil alışveriş değeri faydacı ve hazcı olmak üzere iki unsurdan oluşmaktadır. Sonuçlar “kişiselleştirme”, “öz yeterlilik”, “samimiyet”, “sadelik”, “mobilite” ve “bağlantı” gibi değişkenlerin mobil alışveriş değeri üzerinde etkileri olduğunu göstermektedir.

Bu çalışmanın örneklemi İstanbul ilinde yaşayan 18 yaş ve üzeri 342 kişiden oluşmaktadır. Veri toplamak maksadıyla anket yöntemi kullanılmış ve elde edilen veriler SPSS istatistiksel paket programı kullanılarak faktör analizi, t-testi, Anova/Welch testleri ve güvenilirlik analizi testlerine tabi tutulmuştur. Ayrıca kurulan model LISREL yapısal eşitlik modellemesi vasıtasıyla test edilmiştir.

Keywords: *Mobile shopping, utilitarian value, hedonic value.*

Anahtar Kelimeler: *Mobil alışveriş, Faydacı değer, Hoşlanma değeri.*

Literature Review

Worldwide mobile phone sales to end users totaled 417 million units in the third quarter of 2010, a 35 percent increase from the third quarter of 2009, according to Gartner, Inc. Smartphone sales grew 96 percent from the third quarter last year, and smartphones accounted for 19.3 percent of overall mobile phone sales in the third quarter of 2010 [1]. Worldwide mobile voice and data revenue will exceed one trillion dollars a year by 2014, according to Gartner, Inc. Mobile will generate revenue from a wide range of additional services such as context, advertising, application and service sales, and so on. Each of these will be a significant business worth several tens of billions of dollars per year [2].

Smartphone technology is exponentially evolving and significantly impacting consumers’ behavior, marketing and business activities, education and mobile industry. As a consequence, studying and understanding key factors that affect adoption of smartphone technology has become more important in business and marketing activities, improving product, and meeting consumers’ expectations. Besides, scholars from different fields and interests mostly agreed on the importance of smartphone technology as critical evolutions in the information technology. Smartphone technology’ importance and popularity is

increasing and showing more promising futures. According to Gartner Inc. as of third quarter of the year 2011, Smartphone represented 26% of mobile phone sale and that represent an increase of about 42% of the third quarter of year 2010. Also, Smartphone' sales are expected to sharply increase in the next 3 years [3]. According to an eMarketer forecast global mobile app audience is expected to pass 2 billion this year, according to September 2014 estimates from 451 research. The research firm predicted that the number of active mobile app users worldwide would rise from 1.81 billion to 2.17 billion between 2014 and 2015. By 2018, it expected this total to pass 3 billion [4]. According to IDC (International Data Center) research data, smartphone sales increased by 6.8% in 3rd quarter of 2015 comparing to the same quarter of 2014 [5].

Table 1: Top Five Smartphone Vendors, Shipments, Market Share and Year-Over-Year Growth, (Units in Millions)

Vendor	3Q15 Shipment Volumes	3Q15 Market Share	3Q14 Shipment Volumes	3Q14 Market Share	Year-Over-Year Change
Samsung	84.5	23.8%	79.6	23.9%	6.1%
Apple	48.0	13.5%	39.3	11.8%	22.2%
Huawei	26.5	7.5%	16.5	5.0%	60.9%
Lenovo	18.8	5.3%	16.9	5.1%	11.1%
Xiaomi	18.3	5.2%	17.3	5.2%	5.6%
Others	159.1	44.8%	163.0	49.0%	-2.4%
Total	355.2	100.0%	332.6	100.0%	6.8%

Source: http://www.idc.com/getdoc.jsp?containerId=prUS25988815, (06.03.2016)

Scholars have done significant effort in studying various aspects related to Smartphone technology to explore and better understand users' adoption of Smartphone technology. Smartphone technology evolves fast, and its popularity increased grasping more attention among scholars in both industry and academia. As it appears in figure 1, publication on research in subject

related to adoption of Smartphone technology is increasing continuously specially in the last five years which indicates importance of understanding and studying the adoption of Smartphone technology among scholars in various field [3].

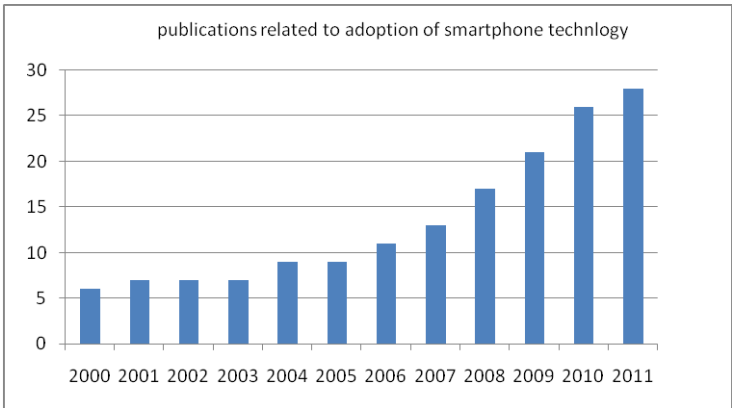

Figure 1: Publications Related to Smartphone Technology
Source: Aldhaban, 2012, p.2759

With the rapid changing atmosphere of mobile devices consumer preferences are also changing and this transforms the way of consumers' shopping experience. Technology force consumers to use their mobile devices to make purchases and to buy anything which they possibly need and want immediately from anywhere and accessed at anytime [6,7,8,9]. This new type of shopping mode, named in different ways such as; Internet shopping, e-shopping, net shopping, web-based shopping, online shopping, or mobile shopping. In this type of shopping customers are free from having to personally visit physical stores [10].

M-shopping can be defined as a popular approach for modern consumers to order or pay for goods using mobile devices [11]. Yang and Kim [12] describes m-shopping as an influential medium for connecting customers with retailers and ultimately in generating sales.

Mobile business (m-business) applications have also grown exponentially even though they have been slow to catch on implementing mobile applications for consumers. M-business applications have created tremendous business opportunities and provided benefits such as lowered operational costs, improved productivity and created fast shopping [13].

With the rapid growth of the mobile internet, shopping becomes extremely flexible in terms of space, time and channels. Mobile devices have a number of characteristics, such as ultra-portability, location sensitivity and personal nature which enable consumers to use these devices for a number of shopping activities: creating shopping lists, query, search, comparison, purchase, and post-purchase. Consumers use their mobile devices for numerous pre-purchase activities, such as finding store locations, finding promotions, consulting opening hours, making price comparisons, finding retailers of particular products, browsing for product information and product reviews, checking product availability in-store and purchasing. With m-commerce, consumers can access retailers' offers and product information anywhere and anytime while shopping becomes extremely flexible in terms of time and space. Consumers can visit a retail website via a mobile device even in a competing retail store, and even purchase at a competitor's on-line shop without leaving your brick-and-mortar store! In 2014, three-quarters of American smartphone owners believed they would be more likely to shop at a store offering services via a mobile application [14].

The popularity of smartphone usage has resulted in increased mobile shopping (m-shopping). Mobile devices especially phones facilitate the use of mobile shopping anytime and anyplace; this has heightened people's expectations and interest in this new shopping type. Unlike in the case of PC-based business, mobile devices play a critical role in m-shopping. Previous studies have showed that as a value-added service within m-commerce, m-shopping appears to be a new opportunity for increasing revenue through the use of mobile devices anytime and anywhere. This indicates a need for a better understanding of the reason behind the rapid growth of shopping that is done with smartphones [15].

However, despite the industry's conviction that the mobile Internet is the next "killer application," the reactions of actual users are quite negative in terms of usability. Their disappointing experiences with the mobile Internet result from the limitations that distinguish mobile devices from conventional desktop PCs [16]. Smaller screen sizes on mobile phones increase the cost to the user of browsing for information. In addition, a wider range of offline locations for mobile Internet usage suggests that local activities are particularly important. It is found that ranking effects are higher on mobile phones suggesting higher search costs links that appear at the top of the screen are especially likely to be clicked on mobile phones and the benefit of browsing for geographically close matches is higher on mobile phones: stores located in close proximity to a user's home are much more likely to be clicked on mobile phones. Thus, the mobile Internet is somewhat less "Internet-like": search costs are higher and distance matters more. [17].

The tendency of shopping behavior happening today is related to consumers' underlying motivations to shop. Shopping activity is initially done by the consumers with rational motives regarding with the benefits of products. Another value influencing consumers' shopping activity is emotional value known as hedonic. Moreover, consumers will take extra aspects into their consideration covering pleasure and joy aspects (hedonism) that can be gained apart from the product profits that can be enjoyed through shopping activities. Today, consumers are more recreation-oriented that accentuates pleasure, joy, and entertainment aspects when shopping [18].

Hedonism comes from the Greek word 'hedone', meaning pleasure. The central theory of hedonism is that the natural objective of human life is to attain pleasure, considered as the highest good, and to refrain pain. There are many different views of pleasure some involving a hierarchy of different pleasures. In British philosophy, the hedonistic current is linked to utilitarianism which is descibed as the greatest happiness principle [19]. Hedonic shopping value can be defined as shopping's potential entertainment and emotional worth, whereas utilitarian value reflects shopping with a work mentality [20].

Consumers are influenced by both hedonic and utilitarian shopping value when they make the decision to buy. They prefer some products to meet their

utilitarian expectations and some to satisfy their hedonic desires. These two shopping motives are considered as the opposite of each other. However, consumers are influenced by both types of shopping value together when shopping for most products. Consumers' purpose to satisfy hedonic desires and acquire utilitarian expectations may happen at the same time or different times. For example, a tooth paste provides utilitarian value by preventing caries and hedonic value with its nice taste. It means that utilitarian and hedonic reasons or motivations don't necessarily exclude each other for consumption [21].

Utilitarian shopping is a consumer behaviour, which based on acting rationally and effectively to look for solutions to problems, realizes a specific purpose, and finally acquires the optimal value [20, 22]. The decision making processes of a consumer in utilitarian shopping go through rational processes. This approach is related to utilitarian benefit, and the consumer focuses of the functional features of a product. For hedonic shopping, it is first needed to understand hedonism which is a philosophical current. Hedonism is defined as a life style dedicated to pleasure. While it is a rare behaviour that an individual devotes oneself completely to pleasure, the search for hedonic experiences is very common. Hedonic shopping value describes the value which is acquired from the multisensory, fantasy, and affective aspects of the shopping experience [20, 23]. According to this definition, hedonic shopping value not tangible as in pragmatic shopping value, it is rather experimental and affective. Shopping is not just a boring task that needs to be completed by consumers; but an activity providing pleasure.

Hedonic shopping motivation is a person's motive to buy something based on sensory pleasures, emotional responses and dreams. Kusuma et al. [18] mentions six hedonic shopping motivations: Gratification shopping motivation is when consumers shop to relieve stress, alleviate negative mood, and forget about present problems; Adventure shopping motivation that occurs when consumers shop for stimulation, adventure, and the feeling of being in their own world; Role shopping motivation that happens when consumers feel enjoyment from shopping for others rather than for their own selves; Value shopping motivation is when consumers assume shopping as a bargaining game, hence they seek stores that offer discounts, sales or bargains; Social

shopping motivation that occurs when consumers feel enjoyment and gain a lot of information on potential product by shopping with family and friends, and view shopping as a social activity with other consumers or workers at the mall; idea shopping motivation that happens when consumers shop to keep up with the latest fashion trends and see new products and innovations.

2. Research

Research Model

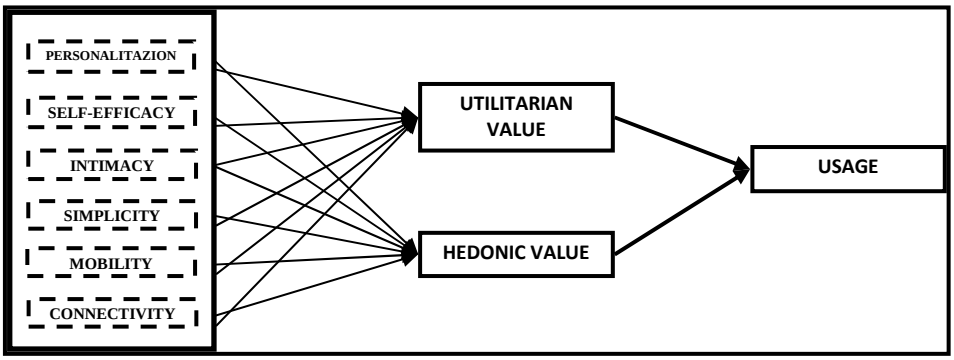

Fig. 1.1: Research Model

Source: [15]

2.1. Research Objective

The aim of this study is to investigate the factors influencing the use (Usage) of mobile shopping (m-shopping) value from Personalization, Self-Efficacy, Intimacy, Simplicity, Mobility, Connectivity perspectives. The m-shopping value that users experience during m-shopping can be divided into utilitarian value and hedonic value.

2.2. Sample Size and Sampling Technique

In this study, a total of 342 people above 18 years old chosen, and are surveyed between 16 January- 10 February 2016. Using three indicators for each latent variable and sample size of above 200 is enough for a research [24].

2.3. Research Instrument

Research data are obtained through a two-part survey conducted to the sample given above. In the first part of the survey there are 36 statements measured on five point Likert scale (1=Strongly agree, 2=Agree, 3=Neither agree nor disagree, 4=Disagree, 5=Strongly disagree). The second part of the survey contains demographic characteristics such as gender, marital status, age, education, profession and income level.

2.4. Data Analysis

SPSS (Statistical Package for Social Sciences) statistics package has been used in the analysis of interpretation of data, while LISREL structural equation model has been chosen for testing the validity and reliability of the developed model to see if the model is valid for Turkey. Statistical analyses have been performed and survey results have been examined through SPSS program. Statistical analyses and tests used in research data analysis are as follows: Frequency Analysis, Factor Analysis, Reliability Analysis, t-Tests and ANOVA/Welch tests.

Demographic features of survey participants have been tested by frequency analysis and then the service quality dimensions tested by factor analysis. Following the factor analysis, reliability of dependent and independent variables have been tested by Cronbach's Alfa method. The result of that analysis shows that answers given to survey questions have had a high rate of internal consistency.

In order to test the significance and reliability of research model, a second-order confirmatory factor analysis has been performed, following which goodness of fit statistics, t value and standardized solution results have been

examined. Consequently, the model has been found to be significant and reliable, along with being tested as acceptable.

2.4.1. Demographic Characteristics

Demographic characteristics of respondents are presented in Table 2.1.

Table 2.1. Demographic Characteristics of Respondents.

		Frequency	**Percentage**
Gender	Female	142	41,5
	Male	200	58,5
	Total	342	100
Marital Status	Single	184	53,8
	Married	158	46,2
	Total	342	100
Age	18-29	159	46,5
	30-39	143	41,8
	40-49	26	7,6
	50+	14	4,1
	Total	342	100
Education	Primary school	9	2,6
	High school	83	24,3
	Associate degree	86	25,1
	University	120	35,1
	Postgraduate	44	12,9
	Total	342	100
Profession	Public employee	121	35,4
	Private sector employee	115	33,6
	Student	85	24,9
	Retired	15	4,4
	Unemployed	6	1,8
	Total	342	100
Income level	0-1500	98	28,7
	1501-3000	166	48,5
	3001-4500	65	19,0
	>4501	13	3,8
	Total	342	100

The data in Table 2.1. show that;

a. Of the total 342 survey participants, %41.5 (142 people) is female and %58.5 (200 people) is male,

b. Of the total 342 survey participants, %53,8 (184 people) is single and %46.2 (158 people) is married,

c. Of the total 342 survey participants, %46,5 (159 people) is between the age of 18-29, %41,8 (143 people) is between 29-39, %7,6 (26 people) is between 39-49, %4,1 (14 people) is above 50,

d. Of the total 342 survey participants, %2,6 (9 people) is primary school graduate, %24,3 (83 people) is high school graduate, %25.1 (86 people) has associate degree, %35,1 (120 people) is university graduate and %12,9 (44 people) is postgraduate,

e. Of the total 342 survey participants, %35,4 (121 people) is public employee, %33.6 (115 people) private sector employee, %24,9 (85 people) is student, %4,4 (15 people) is retired and %1,8 (6 people) is unemployed,

f. Of the total 342 survey participants, %28,7 (98 people)' income is under 1500 tl, %48,5 (166 people)' income is between 1501-3000 tl, %19,0 (65 people)' income is between 3001-4500 tl and %3,8 (13 people)' income is above 4501 tl.

2.4.2. General Findings

The statistical data of the responses of survey participants to statements are shown in Table 2.2.

Table 2.2.: The mean values of the participants' responses to questions.

STATEMENTS	**Min**	**Max**	**Mean**	**St. Dev.**
Mobile shopping provides information/services that are tailored to my needs.	1	4	1,76	0,782
I can order products that fit my needs through mobile shopping.	1	4	1,80	0,798
Mobile shopping provides me with personalized information.	1	4	1,81	0,798

STATEMENTS	**Min**	**Max**	**Mean**	**St. Dev.**
Mobile shopping provides me with personalized services.	1	4	1,75	0,776
I have no great difficulty using mobile shopping.	1	5	3,88	0,897
I do not need help from other people in using mobile shopping.	1	5	3,83	0,906
I am better able to use mobile shopping than my friends.	1	5	4,01	0,881
I can respond effectively to unexpected events that may occur during mobile shopping.	1	5	3,90	0,907
I have experienced mobile shopping.	1	5	3,75	1,386
I experience easy communication during mobile shopping.	1	5	3,79	1,369
I feel an affinity toward mobile shopping.	1	5	3,76	1,383
Mobile shopping is convenient.	1	5	3,80	1,365
It's easy to learn the process of using mobile shopping.	1	3	1,58	0,670
Mobile shopping is very easy.	1	3	1,58	0,675
For me, mobile shopping is a simple and easy-to-learn service.	1	3	1,53	0,634
I can find what I need quickly through mobile shopping.	1	3	1,58	0,691
I can do other things while mobile shopping.	1	3	1,53	0,725
Wherever I am, I can obtain the service I want thorough mobile shopping.	1	3	1,57	0,742
It is possible to use mobile shopping anytime, anywhere.	1	3	1,55	0,724
I can access products or services that I need while moving through mobile shopping.	1	3	1,53	0,729
Mobile shopping can be used anytime, anywhere.	1	5	3,22	1,286
Mobile shopping can be used regardless of the location.	1	5	3,23	1,283
Mobile shopping can provide the real-time information that I am interested in.	1	5	3,23	1,286
Mobile shopping is avaliable without time constraints.	1	5	3,23	1,290
I can browse a wide range of products in a short time.	1	5	1,67	0,877
Mobile shopping enables economical shopping.	1	5	1,78	0,909
Mobile shopping can provides me with important	1	5	1,70	0,895

STATEMENTS	Min	Max	Mean	St. Dev.
and valuable information.				
Mobile shopping is convenient and practical because it requires less time and effort.	1	5	1,74	0,894
I use mobile shopping more having fun than for purchasing products.	1	5	1,96	1,048
I enjoy mobile shopping.	1	5	2,02	1,054
I feel pleasure during mobile shopping.	1	5	1,98	1,048
I can feel the exciting shopping atmosphere thorugh mobile shopping.	1	5	2,01	1,064
I frequently purchase products through mobile shopping.	1	5	2,45	0,874
I always use mobile shopping.	1	5	2,48	0,859
I use mobile shopping very often.	1	5	2,46	0,875
I use mobile shopping periodically.	1	5	2,46	0,868

(1: Strongly Agree; 5: Strongly Disagree)

2.4.3. Reliability And Factor Analysis

The internal consistency of the study was calculated using the statistical Cronbach's Alpha coefficient. Cronbach's Alpha values of 0.854, 0.911 and 0,974 in the presence of the research question show that it has a high internal consistency.

To measure the number of sub-dimensions, a factor analysis is applied to survey statements. Factor analysis is generally used to analyze the correlation level of variables with each other. As a result of factor analysis, by means of summarizing data consisting large number of variables, less factor groups are generated with minimum level of data loss [25]. Kaiser-Meyer-Olkin (KMO) sample adequacy criteria is an index that compares observed correlation coefficients to size of partial correlation coefficients for the variables in factor analysis. KMO rate is required to be greater than 0,5. The greater this rate is, the better it is to perform a data set factor analysis [26]. As a result of KMO test applied to survey data, KMO value is found as 0,821. This demonstrates that suitability of variables to the factor analysis is at very good level. Furthermore, provided that p value of Bartlett test is less than 0,05 significance

level, one can say that there is enough level of relationship between variables to perform a factor analysis [27]. As the results of both Kaiser-Meyer-Olkin (KMO) sample adequacy test and Bartlett sphericity test are meaningful, data set is found acceptable for factor analysis (KMO=0,821, χ^2Bartlett Test (630)= 17411,178, p=0.000).

Table 2.3. Factors with Regard to Survey Statements

Factors	Items	Loadings	Explanation of Factor (%)	Cronbach's Alpha
Personalization	Mobile shopping provides information/services that are tailored to my needs.	0,910	9,747	0,943
	I can order products that fit my needs through mobile shopping.	0,881		
	Mobile shopping provides me with personalized information.	0,893		
	Mobile shopping provides me with personalized services.	0,912		
Self-Efficacy	I have no great difficulty using mobile shopping.	0,896	9,325	0,933
	I do not need help from other people in using mobile shopping.	0,896		
	I am better able to use mobile shopping than my friends.	0,768		
	I can respond effectively to unexpected events that may occur during mobile shopping.	0,882		
Intimacy	I have experienced mobile shopping.	0,898	10,116	0,984
	I experience easy communication during mobile shopping.	0,863		
	I feel an affinity toward mobile shopping.	0,889		
	Mobile shopping is convenient.	0,885		

Factors	Items	Loadings	Explanation of Factor (%)	Cronbach's Alpha
Simplicity	It's easy to learn the process of using mobile shopping.	0,793	8,653	0,896
	Mobile shopping is very easy.	0,839		
	For me, mobile shopping is a simple and easy-to-learn service.	0,896		
	I can find what I need quickly through mobile shopping.	0,853		
Mobility	I can do other things while mobile shopping.	0,950	10,272	0,971
	Wherever I am, I can obtain the service I want thorough mobile shopping.	0,928		
	It is possible to use mobile shopping anytime, anywhere.	0,939		
	I can access products or services that I need while moving through mobile shopping.	0,936		
Connectivity	Mobile shopping can be used anytime, anywhere.	0,947	11,097	0,993
	Mobile shopping can be used regardless of the location.	0,950		
	Mobile shopping can provide the real-time information that I am interested in.	0,945		
	Mobile shopping is avaliable without time constraints.	0,948		
Utilitarian Value	I can browse a wide range of products in a short time.	0,885	8,870	0,916
	Mobile shopping enables economical shopping.	0,806		
	Mobile shopping can provides me with important and valuable information.	0,840		
	Mobile shopping is convenient and practical because it requires less time and effort.	0,841		

Factors	Items	Loadings	Explanation of Factor (%)	Cronbach's Alpha
Hedonic Value	I use mobile shopping more having fun than for purchasing products.	0,911	10,127	0,965
	I enjoy mobile shopping.	0,906		
	I feel pleasure during mobile shopping.	0,882		
	I can feel the exciting shopping atmosphere thorugh mobile shopping.	0,920		
Usage	I frequently purchase products through mobile shopping.	0,962	10,393	0,974
	I always use mobile shopping.	0,953		
	I use mobile shopping very often.	0,948		
	I use mobile shopping periodically.	0,948		

In social sciences, factor analysis is used to test construct validity. However it is required to calculate numerically the reliability of factors obtained via factor analysis and this calculation can be made by using Alpha model. Factors and the statements under them are reliable provided that Cronbach's Alpha value regarding each factor is 0,70 and above [27]. As a result of factor analysis applied to survey data, minimum Cronbach Alpha value is determined as 0.896 and we can say that the factors are reliable.

Table 2.4. Results of Correlation Analysis

	St. Dev.	PER	SEL	INT	SIM	MOB	CON	UTI	HED	USA
PER	0,729	0,808*								
SEL	0,819	-0,353**	0,743*							
INT	1,344	-0,281**	0,517**	0,780*						
SIM	0,582	0,259**	-0,217	-0,217**	0,715*					
MOB	0,699	0,167**	-0,033	-0,122	0,356**	0,880*				
CON	1,272	-0,005	0,273**	0,519**	0,069	0,147**	0,897*			
UTI	0,798	0,192**	0,183**	0,120	0,258**	0,226**	0,100	0,711*		
HED	1,00	0,068	0,206**	0,101	0,058	0,092	-0,236**	0,441**	0,818*	
USA	0,836	-0,038	-0,012	0,160**	0,002	-0,023	0,073	0,193**	0,189**	0,907*

* Square root mean of AVE values are diagonally.
** Correlations statistically significant at 0.01 levels. (2-tailed)

2.4.4. Testing the Developed Model and Hypotheses with the Structural Equation Model

A confirmatory factor analysis has been made via LISREL structural equation model. The goodness of fit statistics are as follows: chi-square (χ^2) value=1891.15, p=0,00; Degrees of Freedom= 565; χ^2/sd= 3,34; Root Mean Square Error of Approximation-(RMSEA)=0.08; Goodness of Fit Index (GFI)=0.76; Adjusted Goodness of Fit Index (AGFI)=0.72; Comparative Fit Index (CFI)=0.93; Normed Fit Index (NFI)=0.90; Root Mean Square Residual (RMR)=0.05 and Standardized Root Mean Square Residual (SRMR)=0.05. Values derived from the structural equation model and the acceptability criteria of the goodness of fit statistics [24] are shown in below.

Table 2.5. Values Derived from the Structural Equation Model and the Acceptability Criteria of the Goodness of Fit Statistics

Goodness of fit Index	**Values Derived from the Model**	**Acceptability Criteria**
Chi-Square (χ^2)/ sd	3,34	≤ 3 perfect fit
GFI	0,76	Acceptable fit
RMSEA	0,08	≤ 0,08 Good fit
RMR	0,05	≤ 0,05 perfect fit
SRMR	0,05	≤ 0,05 perfect fit
CFI	0,93	≥ 0,90 Good fit
NFI	0,90	≥ 0,90 Good fit

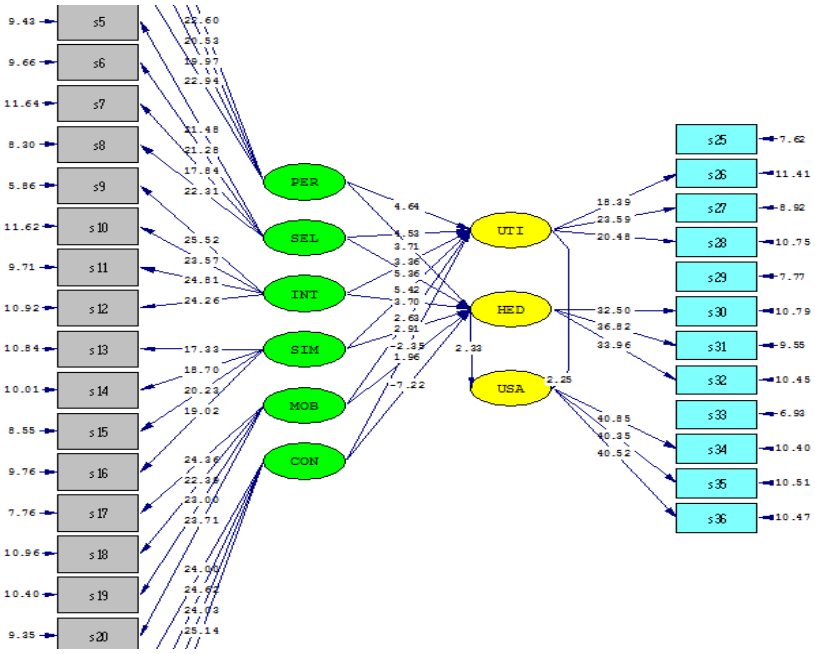

Fig. 2.1. The Results of Measurement Model

Table 2.6 Results of the Structural Equation Analysis

Dependent Variable	Independent Variable	Path Coefficients	t Values
(UTI)	(PER)	0,27	4,64
	(SEL)	0,29	4,53
	(INT)	0,23	3,36
	(SIM)	0,33	5,42
	(MOB)	0,15	2,63
	(CON)	-0,14	-2,35
(HED)	(PER)	0,21	3,71
	(SEL)	0,34	5,36
	(INT)	0,25	3,70
	(SIM)	0,17	2,91
	(MOB)	0,11	1,96
	(CON)	-0,44	-7,22
(USA)	(UTI)	0,13	2,25
	(HED)	0,13	2,33

When both the path diagram derived from the second-order confirmatory factor analysis and t values are examined, t values and standardized solution values are seen to be meaningful with 0,05 reliability level. The T values and path coefficients from the measurement model are shown in Figure 2.1.

When the goodness of fit statistics in Table 2.5 and the results of the structural equation analysis in Table 2.6 are taken into consideration, the model, which is used for investigating the relationship between personalization, self-efficacy, intimacy, simplicity, mobility, connectivity factors and m-shopping use (Usage) through the mediating effect of m-shopping value (Hedonic, Utilitarian), which is tested by LISREL structural equation model, is found satisfying in terms of significance and reliability, through which the fact that this model is acceptable has been tested.

2.4.5. Results of T-tests and ANOVA/Welch tests

Research model dimensions are tested through independent t-test and one way ANOVA/Welch tests. First, the dimensions were tested by independent samples t–test according to the participants' gender. The test results show that there is significant difference in the variables Intimacy and Usage according to the participants'gender.

Table 2.7 T-Test Results According to Gender

Variables/ dimensions	Gender	N	Mean	Std. Dev.	p value (Sig.)
Personalization	Female	142	1,737	0,745	0,367
	Male	200	1,810	0,717	
Self-Efficacy	Female	142	3,93	0,798	0,613
	Male	200	3,88	0,835	
Intimacy	Female	142	3,51	1,536	0,040
	Male	200	3,96	1,158	
Simplicity	Female	142	1,56	0,613	0,924
	Male	200	1,57	0,561	

Mobility	Female	142	1,54	0,696	0,953
	Male	200	1,54	0,703	
Connectivity	Female	142	3,00	1,299	0,060
	Male	200	3,38	1,231	
Utilitarian Value	Female	142	1,65	0,760	0,196
	Male	200	1,77	0,823	
Hedonic Value	Female	142	1,95	0,969	0,577
	Male	200	2,01	1,026	
Usage	Female	142	2,34	0,896	0,030
	Male	200	2,54	0,782	

The difference in variables is tested through One Way Variance Test (ANOVA/Welch) according to participants' age. In the first step of One Way Variance Test, the equation of variances has to be tested. If the variances are homogene the ANOVA test should be used, and if the variances are not homogene the Welch test should be used [27]. The homogeneity and One Way Variance Analysis Tests show that; there is significant difference in the variables named as Self-Efficacy, Intimacy, Mobility, Utilitarian and Hedonic Value according to the participants' age.

Table 2.8 One Way Variance (Anova / Welch) Test results According to Age

Variables/ Dımensıons	Homogeneity test P value (sig.)	p value (Sig.)		Result
		Anova	Welch	
Personalization	0,411	0,059	-	H_o accepted
Self-Efficacy	0,000	-	0,000	H_o rejected
Intımacy	0,000	-	0,000	H_o rejected
Simplicity	0,681	0,686	-	H_o accepted
Mobility	0,000	-	0,025	H_o rejected
Connectivity	0,000	-	0,480	H_o accepted

Utilitarian Value	0,516	0,007	-	H_o rejected
Hedonic Value	0,004	-	0,000	H_o rejected
Usage	0,009	-	0,560	H_o accepted

3. Conclusion

With the advance in mobile devices, customers had the advantage of shopping anywhere and anytime. Mobile devices enables customers to shop anytime, anywhere, thereby providing them with new value. This study provides an empirical analysis of the relations between m-shopping characteristics and use through the mediating effect of m-shopping value, and the results have important theoretical and practical implications.

In this study we analysed the relationships between personality (personalization and self-efficacy), usability (intimacy and simplicity) and technological (mobility and connectivity) factors and m-shopping use through the mediating effect of m-shopping value. The results show that m-shopping has relations with factors such as personalization, self-efficacy, intimacy, simplicity, mobility, and connectivity. The shopping value which customers have while m-shopping was both utilitarian and hedonic.

First, in contrary to other researches about m-shopping, this study not only focuses on the characteristics of m-shopping but also provides the literature by verifying the factors influencing m-shopping value and use. Because of this the study could be a basis for future research. In this study we also examined the moderating effect of user tendencies. The results show that user tendencies had moderating effects on the relationships between personalization, self-efficacy, intimacy, simplicity, mobility, connectivity and hedonic value/utilitarian value. The results also have important practical implications for m-shopping service providers. As seen in structural equation analysis personalization, self-efficacy, intimacy, simplicity and mobility had significant positive effects on both utilitarian value and hedonic value. Because of this m-shopping service providers should;

- concentrate on consumers' ability to personalize their m-shopping experience,
- use new methods for promoting consumers' self-efficacy to improve their m-shopping value,
- focus on the intimacy of customers while shopping to increase the m-shopping value,
- maximize the simplicity of m-shopping because the simpler the m-shopping experience, the greater the m-shopping value is,
- enhance the mobility of m-shopping to promote the m-shopping value,

In this study the results also show that connectivity had significant negative effects on both utilitarian value and hedonic value. This suggests that if customers can't get high-quality connectivity, their m-shopping value will be effected negatively. The results show that utilitarian value and hedonic value had significant positive relationships with m-shopping use. This means that one of the main tasks of m-shopping providers should be to increase both of utilitarian value and hedonic value.

In the literature there are a few researches studying the relations of personality, usability and technological factors with m-shopping value and use and this study was made only in Istanbul province. These are the limitations for our research. There may be other factors in relation with m-shopping value and use. With the research of literature new factors may be found and included in further researches.

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