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Research Article

A RESEARCH ON THE USE OF MOBILE APPLICATION WITH THE THEORY OF PLANNED BEHAVIOR

Planlı Davranış Teorisi İle Mobil Uygulama Kullanımı Üzerine Bir Araştırma

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ABSTRACT

Mobile applications serve many different areas such as communication, education, entertainment, shopping, travel, health. The aim of this study is to examine the subjective norm and perceived behavioral control of mobile applications, and to determine the relationships between attitudes, intentions and actual behavior in the use of mobile applications. The convenience sampling method was used to select the sample and the sample number is set to 1000. In the literature review, no study on behavioral factors affecting the use of mobile applications of individuals has been found. In this respect, it can be said that the research has an original quality. As a result of the study, it is understood that the companies' knowledge about the demands of their customers on mobile applications and creating applications that will provide them with safe and maximum benefits, have importance in terms of marketing strategies.

Key words: Mobile Applications, Theory of Planned Behavior, Perceived Behavioral Control, Subjective Norm

ÖZET

Mobil uygulamalar iletişim, eğitim, eğlence, alışveriş, seyahat, sağlık gibi birçok farklı alana hizmet vermektedir. Bu çalışmanın amacı, mobil uygulamaların subjektif normunu ve algılanan davranışsal kontrolünü incelemek ve mobil uygulamaların kullanımında tutum, niyet ve gerçekleşen davranış arasındaki ilişkileri belirlemektir. Örneklem seçiminde kolayda örnekleme yöntemi kullanılmış ve örneklem sayısı 1000 olarak belirlenmiştir. Literatür taramasında bireylerin mobil uygulama kullanımlarını etkileyen davranışsal faktörler ile ilgili herhangi bir çalışmaya rastlanmamıştır. Bu açıdan araştırmanın özgün bir niteliğe sahip olduğu söylenebilir. Çalışmanın sonucunda, firmaların müşterilerinin mobil uygulamalara yönelik talepleri hakkında bilgi sahibi olmaları ve onlara güvenli ve maksimum fayda sağlayacak uygulamalar oluşturmalarının pazarlama stratejileri açısından önem arz ettiği anlaşılmıştır.

Anahtar Kelimeler: Mobil Uygulamalar, Planlı Davranış Teorisi, Algılanan Davranışsal Kontrol, Subjektif Norm

1. INTRODUCTION

With the development of technology and the increasing dependence on information technologies, mobile applications have entered the lives of almost everyone. In order to provide easier and unlimited service to their customers, businesses have started to use these applications and have programmed applications so that customers can access them at any time.

Rapid developments in technology have significantly shortened the life cycle of the products. The newest technology products that attract attention when they enter the market are soon outmoded. Recent technological developments such as mobile phones, portable computers and tablets have gone beyond being an ordinary communication and information acquisition device with the technical qualities and mobile applications it has today. This technological and fast-changing market structure is composed of people of all ages, every profession and all cultures.

In the development process of mobile applications, the needs and purpose of users are analyzed and applications are being developed as a result of evaluation of the related issues. It is also known that these applications provide substantial information to firms in terms of obtaining information about consumers' usage characteristics, interests and personal characteristics. It is also possible to use different measures during the investigation of the interests and preferences of mobile applications users. The position in society, perceptions and utilitarian or hedonic approaches to purchasing decisions of individuals can also be examined. In addition, demographic characteristics such as age, gender and occupation of the users are thought to be an important factor in decision making process.

The main purpose of this research is to examine how users perceive mobile applications and their determinants of mobile application usage behavior. In line with this general objective, the study seeks answers to the following questions:

- ✓ How do individuals' attitudes towards mobile applications reflect on their intended use?
- ✓ How do individuals' perceptions of benefit / harm towards mobile applications reflect on their intended use?
- ✓ How do individuals' perceptions of behavioral control of mobile applications affect their use intentions?
- ✓ How do individuals' perceptions of behavioral control of mobile applications reflect on their use?
- ✓ How do individuals' use intentions for mobile applications reflect on their use?

This study is of great importance for businesses and consumers, especially those working in the academic field. The study offers a model proposal for the academic community and is an important resource for mobile application research. When evaluated in terms of transactions, the findings of the study have the feature of being a useful evaluation tool in the mobile application development stage of enterprises. When evaluated in terms of consumers, it can be seen that there are opportunities such as providing feedback to mobile application developers and contributing to the development processes of mobile applications.

This study presents a resourse proposal for both the enterprises and the future academic studies to examine factors that influence users' choice of mobile applications. It is aimed in this study is creating a model, in which consumers can benefit from system development decisions with detailed information about their mobile application preferences and can be used as a resource in academic studies.

2. MOBILE APPLICATIONS AND BEHAVIOR MODELS

2.1. Mobile Applications and Consumer Behaviors

Smart phones, tablets and computers, which have become a big part of the information society in recent years, have almost become indispensable in human life. The use of these devices is increasing day by day because of the flow of information, the search for easier and less costly transportation of information, and especially the faster flow of life in many areas.

Smartphones, tablets or computers are designed as devices that can be used at any desired time and place and provide the desired service to the user (Kenteris, Gavalas and Economou, 2009; Brown and Chalmers, 2003). These devices provide the desired services via mobile applications and, where necessary, with a network connection.

Smartphones offer more advanced computing capability than mobile phones (Charlesworth, 2009) and a more powerful and portable support device with personalized / localized services (Chiu, Sun, Sun and Ju, 2006). In addition, firms such as Apple and Samsung provide an open platform for mobile application developers, helping to develop applications not only for businesses, but also for users (Cusumano, 2010). “Mobile Application World” which consists of countless mobile applications, has been created to provide various information services.

Many firms, including Apple, Samsung, BlackBerry, Nokia etc. try to promote their products and increase their awareness through mobile applications. These companies have designed mobile applications for their products such as computers, smart phones and tablets, which users can personalize, use according to their interests or needs (ASTD, 2013). Mobile applications are not only for companies that are manufacturers of smartphones, tablets or computers, but also for firms that are known as commercial or service businesses in different markets and products. Mobile applications and mobile devices are the basis of mobile marketing.

Mobile applications primarily serve users in areas such as learning, entertainment, shopping and communication. In addition, from a firms point of view, mobile applications help brands build stronger relationships with users. Looking at the categories in any application store to see the diversity of applications, it is seen that there are dozens of different categories of mobile applications, like entertainment, shopping, business, social media, communication, health, sports, eating and drinking, travel etc. (Başyazıcıoğlu & Karamustafa, 2018).

Businesses have aimed to entertain consumers while carrying out marketing communication in order to attract the attention of the consumer. Thus, businesses started to use applications such as mobile games for advertising purposes. The widespread use of social media has attracted businesses to these platforms to carry out their

marketing activities. Businesses inform consumers by creating free pages on these platforms, promoting their businesses, brands and products (Geçti & Gümüş, 2014).

Advances in information technologies have made it easier for consumers to reach and acquire information. The similarity of products and the proliferation of brand alternatives in globalizing markets made it necessary for consumers to access information about products quickly and easily in the decision-making process (Ozmen, 2013).

Changes in the behavior and expectations of consumers with the advances in information technologies also change the role of the consumer in marketing activities (Kotler et al, 2012). New generation digital consumers do not want to connect with businesses in physical and virtual environments, they generally follow the brands and products on social media and share the content of these pages with their friends. The fact that mobile applications support enjoyable, pleasant and interesting aspects that can be used in their leisure time, as well as the ability to benefit users in their daily life or work, are the factors that motivate use.

Thanks to technological innovations, it is seen that the convergence between consumer and producer is gradually increasing. This situation led to the emergence of a new consumer profile. These new consumer behaviors that have developed with information technologies have led to the disappearance of intermediaries who play various roles between producers and consumers in trade. Thus, an environment in which intermediaries disappeared in trade started to come to the fore (Babaoğul & Bener, 2010). This change in consumers causes companies to make radical changes in many marketing activities. In this way, radical changes are observed in marketing activities as well as in technology.

2.2. Theory of Reasoned Action

The Theory of Reasoned Action developed by Ajzen et al. (1980), is one of the theories that explain human behavior and are based on the rationality of human behavior. According to the theory, attitudes with subjective norms can explain the intention of behavior, and the intent affects teh behavior directly (Karimi, transferring from Ajzen et al., 2013).

Theory of Reasoned Action (Fishbein & Ajzen, 1980) was designed to predict the behaviors of individuals and to investigate the psychological factors behind these behaviors (Ajzen, 1988). According to the Theory of Reasoned Action, while individuals perform a behavior, they evaluate the possible results of the behavior they will perform according to all the internal and external information they acquire, and apply the behavior that will give the best result for them (Bang et al.2000).

According to this theory, people evaluate the results of their actions with the knowledge they have and decide whether or not to perform their actions according to the effects. On the basis of the theory, it is found that people's behavior is carried out entirely by their own will, and as a result, the theory is insufficient in the subjects that people do not know (Özata, 2009). Theory of Reasoned Action is shown in Figure 1.

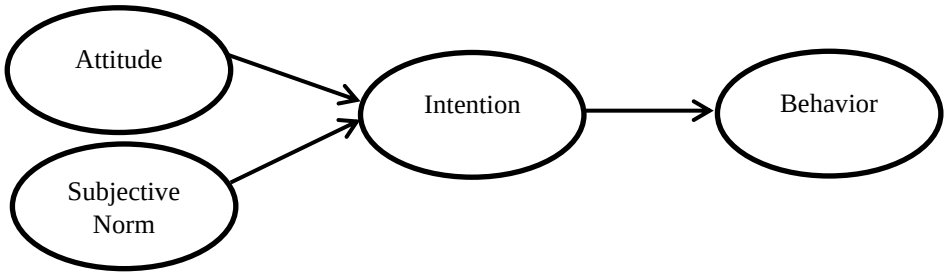

Figure 1. Theory of Reasoned Action

2.3. The Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is a model developed to eliminate the constraints of The Theory of Reasoned Action and to clarify the irrational behavior of people. In the Theory of Planned Behavior, the aim towards the behavior is measured and the possibility of this behavior can be evaluated (Szajna, 1996). Some limitations and deficiencies in the Theory of Reasoned Action caused the theory to be developed over time and transform into Planned Behavior Theory. According to the Theory of Planned Behavior, behaviors do not occur completely under the control of willpower. Intentions and will often differ, influenced by internal and external factors (Madden et al, 1992).According to TPB, social behaviors are affected by certain factors and certain reasons. People need a purpose in order to develop a behavior (Agarwal, Manju, Pamela and Mitch, 1998).

There are three determinants of TPB towards intention: attitudes, subjective norm and perceived behavioral control. The easiness or difficulty that people think or feel about a behavior constitutes the perceived behavioral control over behavior. If all three determinants are high, the person's intention to perform the behavior and the likelihood of realization are increased (Mercan, 2015, transferred by Ajzen, 2002). TPB is shown in Figure 2.

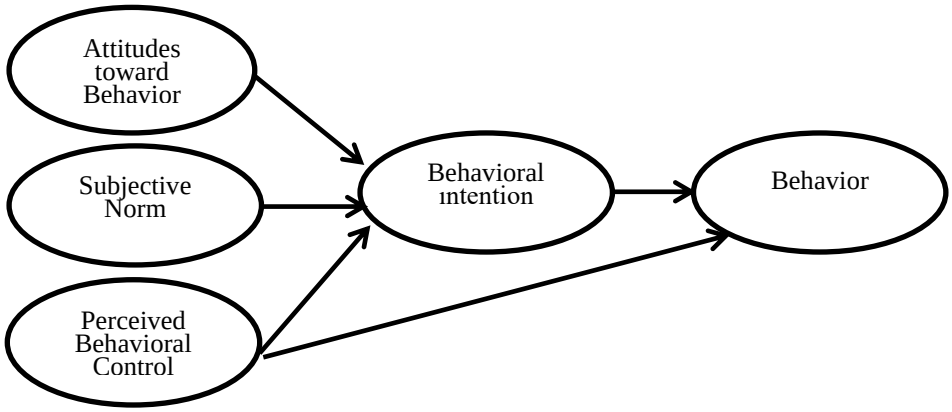

Figure 2. The Theory of Planned Behavior
Resource: Transferred by Ajzen (2002) Mercan, N. (2015). Ajzen'nin Planlanmış Davranış Teorisi Bağlamında Whistleblowing (Bilgi İfşası), Sosyal ve Beşeri Bilimler Dergisi.

As seen in Figure 2, perceived behavioral control affects behavior both directly and indirectly. The basis of direct behavioral control, lies in the fact that the effort and belief have a high impact on the performance of the behavior when there is a constant intention. In addition, the indirect effect of perceived behavioral control on actual behavior is that it considers behavioral intention as a rapid influencer of behavior (Ajzen, 1991).

3. METHODOLOGY OF RESEARCH

3.1 Conceptual Model and Hypotheses

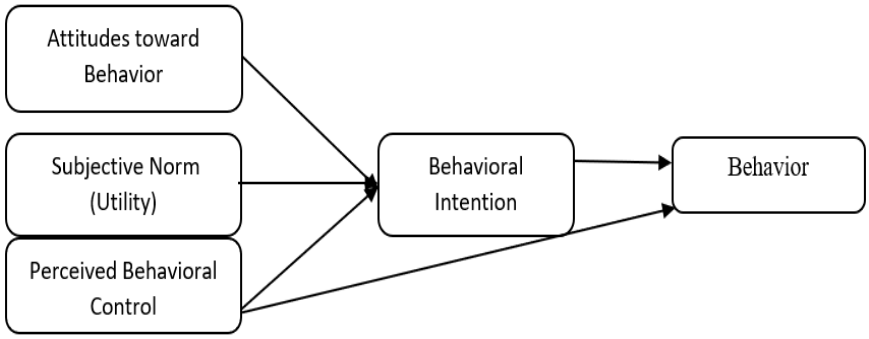

Figure 3. Research Model

The studies and the sub-dimensions of the model are shown in Table 1.

Table 1. Fundamentals of Research

FACTOR	LITERATURE
Attitude toward Behavior	* Ajzen, I., (1991). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes. * Wu, C. S., Cheng, F. F., Yen, D. C. ve Huang, Y. W. (2011). User Acceptance of Wireless Technology in Organizations: a Comparison of Alternative Models, Computer Standards & Interfaces.
Subjective Norm (Utility)	Davis, F. D., (1989). Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology, MIS Quarterly.
Perceived Behavioral Control	Ajzen, I., (1991). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes.
Behavioral Intention	* Mohd, H., Mohammad, S.M.S., (2005). Acceptance Model of Electronic Medical Record, Journal of Advancing Information and Management Studies. * Hansen, T., Jensen, J. M. and Solgaard, H. S. (2004). Predicting Online Grocery Buying Intention: A Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior, International Journal of Information Management.
Behavior	* Ajzen I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and The Theory of Planned Behaviour, J Appl Soc Psychol.

The hypotheses about the relationship between attitude, subjective norm, perceived behavioral control, intention and actual behavior are as follows:

H_1: Attitudes towards mobile applications have a positive effect on behavioral intent.

H_2: The subjective norm for mobile applications has a positive effect on behavioral intent.

H_3: The perceived behavioral control of mobile applications has a positive effect on behavioral intent.

H_4: The perceived behavioral control of mobile applications has a positive effect on actual behavior.

H_5: The behavioral intention towards mobile applications has a positive effect on actual behavior.

In order to test the hypotheses of the study, the data were collected by the "online survey method which prepared in Turkish Language" between 15 May 2018 and 15 November 2018. 38 statements were investigated in 11 (eleven) questions by using the studies in Table 1. The questionnaire prepared in accordance with the purpose of the study consists of three parts. In the first part, questions about demographic variables; in the second part, information on participants' use of mobile applications; in the third chapter, there are questions that measure participants' attitudes towards mobile applications, perceptions of behavioral control, subjective norms, behavior intentions and behaviors towards usage.

3.2. Sample of the Research

The convenience sampling method was used to select the sample. The main mass of the sample, which accounts for mobile users living in Turkey. According to the BTK 2018-2 data, the number of mobile subscribers is 79.538.960 and the number of people who is mobile subscribers in Turkey is 73,888,259 (www.btk.gov.tr, access date: 17.12.2018).

Statisticians argue that structural equation modeling requires large scales. Although there are many factors affecting the number of samples, there is no clear information about the number of samples. In the studies, it is considered that a sample of 10 times the number of observed expressions will be sufficient (Kline, 2011). The presence of 38 statements in the study shows that the target of 1000 samples is sufficient. 1050 questionnaires were distributed for the research, but when the wrong and incomplete ones were removed, it was determined that 1000 questionnaires were suitable for analysis.

3.3. Method of Research

Structural Equation Modeling was applied to test the theory of planned behavior. The data was evaluated by SPSS 23.00 and AMOS 24.00 package programs. SEM was used because all the relationships determined between the variables can be revealed with a single analysis, and the amount of error arising from the measurement in the path analysis can be eliminated. Disabling the error is one of the most important advantages of all analysis methods based on structural equation modeling.

3.4. Descriptive Statistics

Table 2. Demographic Characteristics of Participants

Variable		**Frequency**	**%**
Gender	Female	367	36,7
	Male	634	63,3
Age	25 and below	565	56,5
	26-30	223	22,3
	31-40	169	16,9
	41-50	41	4,1
Marital status	Married	226	22,6
	Single	774	77,4
Education Status	Primary education	19	1,9
	High school	127	12,7
	University	560	56,0
	Postgraduate	294	29,4
Income status	501-1500 TL	208	20,1
	1501-2500 TL	275	26,8
	2501-3500 TL	189	18
	3501-4500 TL	174	16,4
	4500 TL and more	204	18,7

When the demographic characteristics of the participants in Table 2 are examined; participants with 63.3% are male, with 56.5% of participants aged 25 and under, 77.4% of bachelors, 56.0% of university education, and 26.8% of participants with income of 1501-2500 TL are in the majority.

Table 3. Information about the Use of obile Applications

Variable		Frequency	%
Mobile Device Usage Time	0-3 year	59	5,9
	4-6 year	178	17,8
	7-9 year	234	23,4
	10 and more year	529	52,9
Environmental Elements	Friend	401	40,1
	Relatives	136	13,6
	Advertisement	130	13,0
	Consumer	142	14,2
	Complaints	143	14,38
	Neighbor	48	4,8
Average Device Usage Time	0-1 hour	89	8,9
	1-2 hour	161	16,1
	2-3 hour	213	21,3
	3-4 hour	217	21,7
	4 hour and more	320	32,0
Application Download Reason	Boredom	170	17,0
	Need	735	73,5
	Environmental Impact	70	7,0
	New Applications	25	2,5
Communicating with Whom	Family	307	30,7
	Friend	574	57,4
	Colleague	65	6,5
	Other	54	5,4

In Table 3, when the information of the participants about the mobile application use is examined; 52.9% used mobile devices for 10 years or more, 40.1% considered their friends' suggestions, 32% used mobile devices more than 4 hours a day, 73.5% download only needed mobile applications and 57.4% communicate with their friends via mobile applications.

3.5. Reliability Analysis of Research Variables

The Cronbach Alpha value is the most commonly used method in the literature to measure the reliability of the scales. The Cronbach Alpha value for each independent variable and the dependent variable is calculated and presented in Table 4.

Table 4. Reliability Test Results

Scale	Number of Items	Cronbach's Alpha
Attitude toward Behavior (AB)	4	0,784
Subjective Norm (SN)	9	0,897
Perceived Behavioral Control (PBC)	8	0,887
Behavioral Intention (BI)	4	0,731
Behavior (B)	3	0,673

According to Hatcher (1994), alpha values over 0.50 are considered sufficient in social sciences research, 0.70 and above are recommended and 0.80 and above are desired. As it can be seen from Table 4, the reliability values (Cronbach Alpha) of most of the variables were higher than 0.70 and one of them was close to this value.

3.6. Factor Analysis of Research Variables

3.6.1. Exploratory Factor Analysis

Exploratory factor analysis is a method used to determine the relationship between the implicit factors and the variables observed in the research, and the factors under which these variables are located. As a result of

exploratory factor analysis, the minimum factor arises from covariance between observed variables. (Hair et al., 2010).

Factor loads that show the correlations of items with factors are examined to find out which factor a substance is under. Although there is not a strict limitation, the factor loads on the 0.45 are generally sufficient, the values above 0.55 are good, the ones above 0.63 are very good and the ones above 0.71 are considered to be excellent (Moore and Benbasat, 1991).

Table 5. Results of Exploratory Factor Analysis

	SN	PBC	BI	AB	B
SN1	,709				
SN2	,780				
SN 3	,857				
SN 4	,844				
SN 5	,774				
SN 6	,682				
SN 7	,611				
SN 8	,744				
SN 9	,615				
PBC1		,728			
PBC2		,799			
PBC 3		,697			
PBC 4		,848			
PBC 5		,782			
PBC 6		,716			
PBC 7		,627			
PBC 8		,738			
BI1			,751		
BI2			,724		
BI3			,692		
BI4			,540		
AB1				,729	
AB2				,767	
AB3				,747	
AB4				,834	
B1					,871
B2					,420
B3					,858
KMO Test	0,879				
Bartlett Globality Test		χ2: 13157,868	df: 378		P: 0,000

As a result of the analysis, it was observed that 28 scale items were distributed under 5 factors. Due to the fact that there is a more rigorous statistical testing process, confirmatory factor analysis was decided.

3.6.2. Confirmatory Factor Analysis

Confirmatory factor analysis is used when it is known that the items used in the study are collected under the factors and that they are under control by the researcher. Confirmatory factor analysis is performed according to the logic and observed measurements of the established model and hypotheses determined prior to structural equation modeling (Hair et al., 2010).

Confirmatory factor analysis results and model fit indexes are generally tested based on the valeus that χ2 / df, GFI, AGFI, NFI, CFI, IFI and RMSEA. (Al-Gahtani and King 1999; Hong et al., 2002).

Table 6. Fit Statistics for Attitude toward Behavior

Fit Index	Good Fit	Acceptable Value	Resource	Reached Value
RMSEA	<= 0,05	0,06-0,08	Meydan and Şeşen, 2011	0,090
Goodness of Fit Index (GFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,991
Adjusted GFI (AGFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,953
Normed Fit Index (NFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,983
Comperative Fıt Index (CFI)	>= 0,95	>=0,90	Çokluk et al., 2014	0,985
Incremental Fit Index (IFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,985

Table 7. Fit Statistics for Subjective Norm

Fit Index	Good Fit	Acceptable Value	Resource	Reached Value
RMSEA	<= 0,05	0,06-0,08	Meydan and Şeşen, 2011	0,074
Goodness of Fit Index (GFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,981
Adjusted GFI (AGFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,938
Normed Fit Index (NFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,982
Comperative Fıt Index (CFI)	>= 0,95	>=0,90	Çokluk et al., 2014	0,985
Incremental Fit Index (IFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,985

Table 8. Fit Statistics for Perceived Behavioral Control

Fit Index	Good Fit	Acceptable Value	Resource	Reached Value
RMSEA	<= 0,05	0,06-0,08	Meydan and Şeşen, 2011	0,055
Goodness of Fit Index (GFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,988
Adjusted GFI (AGFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,966
Normed Fit Index (NFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,987
Comperative Fıt Index (CFI)	>= 0,95	>=0,90	Çokluk et al., 2014	0,990
Incremental Fit Index (IFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,990

Table 9. Fit Statistics for Behavioral Intention

Fit Index	Good Fit	Acceptable Value	Resource	Reached Value
RMSEA	<= 0,05	0,06-0,08	Meydan and Şeşen, 2011	0,138
Goodness of Fit Index (GFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,990
Adjusted GFI (AGFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,902
Normed Fit Index (NFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,977
Comperative Fıt Index (CFI)	>= 0,95	>=0,90	Çokluk et al., 2014	0,978
Incremental Fit Index (IFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,978

Table 10. Fit Statistics for Research Model

Fit Index	Good Fit	Acceptable Value	Resource	Reached Value
$\chi 2$ /df	<=2	<= 4-5	Meydan and Şeşen, 2011	4,664
RMSEA	<= 0,05	0,06-0,08	Meydan and Şeşen, 2011	0,061
Goodness of Fit Index (GFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,898
Adjusted GFI (AGFI)	>= 0,90	0,85-0,90	Meydan and Şeşen, 2011	0,874
Normed Fit Index (NFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,884
Comperative Fıt Index (CFI)	>= 0,95	>=0,90	Çokluk et al., 2014	0,906
Incremental Fit Index (IFI)	>= 0,95	0,94-0,90	Meydan and Şeşen, 2011	0,906

In order to understand whether the variables discussed and observed in the studies are secretive representatives, the validity of the combination should be considered. Validity of combination is the degree of relationship of latent variables and observed variables (Hair et al., 1998). For validity of the combination, CR (Composite Reliability) value should be over 0.70, AVE (Average Variance Extracted) value should be over 0.50 and MSV (Maximum Shared Variance) should be less than AVE. All CR values were found to be greater than the recommended threshold of 0,70 except BI. CR value of BI is very close to the threshold and it is not considered to be a major problem. Similarly, most of the AVE values of latent factors were found to be greater than the recommended threshold. Two AVE values of the latent factor were very close the recommended thershold and therefore it is not considered to cause any problems in further statistical analysis. The validity of combination values of the model variables are presented in Table 11.

Table 11. The Validity of Combination Values of Model

	CR	**AVE**	**MSV**
AB	0,754	0,441	0,233
SN	0,866	0,518	0,193
PBC	0,896	0,599	0,233
BI	0,687	0,436	0,193
B	0,753	0,520	0,109

Table 12. Results of Confirmatory Factor Analysis

	SN	PBC	BI	AB	B
SN1	,635				
SN2	,716				
SN 3	,831				
SN 4	,758				
SN 5	,737				
SN 6	,701				
SN 7	,541				
SN 8	,725				
SN 9	,668				
PBC1		,655			
PBC 2		,778			
PBC 3		,572			
PBC 4		,840			
PBC 5		,778			
PBC 6		,725			
PBC 7		,540			
PBC 8		,703			
BI1			,592		
BI2			,687		
BI3			,691		
BI4			,675		
AB1				,616	
AB2				,731	
AB3				,736	
AB4				,681	
B1					,880
B2					,351
B3					,771

3.7. Analysis and Findings

Table 13. Model Parameter Estimates and Statistics

Variables					
Subjective Norm	**Estimate**	***t*-value (CR)**	**S.E.**	**R^2**	**P**
SN1	**1,169**	17,968	**0,065**	0,403	***
SN2	**1,180**	19,998	**0,059**	0,513	***
SN 3	**1,318**	22,179	**0,059**	0,691	***
SN 4	1,176	20,650	0,057	0,575	***
SN 5	1,221	20,515	0,060	0,543	***
SN 6	1,095	19,321	0,057	0,491	***
SN 7	1,124	15,375	0,073	0,293	***
SN 8	1,169	20,229	0,058	0,526	***
SN 9	1,000			0,446	
Perceived Behavioral Control	**Estimate**	***t*-value (CR)**	**S.E.**	**R^2**	**P**
PBC1	**,916**	19,136	0,048	0,429	***
PBC 2	**1,053**	22,611	**0,047**	0,605	***
PBC 3	**,816**	16,897	0,048	0,327	***
PBC 4	1,158	24,259	0,048	0,706	***
PBC 5	1,085	22,655	0,048	0,605	***
PBC 6	1,015	21,224	0,048	0,526	***
PBC 7	,731	18,232	**0,040**	0,292	***
PBC 8	1,000			0,494	

Behavioral Intention	Estimate	*t*-value (CR)	S.E.	R^2	P
BI1	1,000			**0,350**	
BI2	1,100	14,212	0,077	**0,472**	***
BI3	1,043	15,988	0,065	**0,477**	***
BI4	1,029	14,045	0,073	**0,456**	***
Attitude toward Behavior	**Estimate**	***t*-value (CR)**	**S.E.**	**R^2**	**P**
AB1	1,000			**0,379**	
AB2	1,093	16,836	0,065	**0,534**	***
AB3	1,111	16,904	0,066	**0,542**	***
AB4	1,024	16,160	0,063	**0,464**	***
Behavior	**Estimate**	***t*-value (CR)**	**S.E.**	**R^2**	**P**
B1	1,000			**0,774**	
B2	0,406	10,000	0,041	**0,123**	***
B3	0,800	17,697	0,045	**0,594**	***

As can be seen from Table 13, the items determining the five factors of the research model (SN, PBC, AB, BI and B) each had a significant level of determinability ($p < 0.001$).

When the subjective norm variable is examined it can be seen that, "Using mobile applications increases work performance" item is explained the much more ($R^2 = 0.691$) and "Using mobile applications increases my productivity" item is explained the less ($R^2 = 0,293$). The standard values for this variable are at the appropriate level and *t* value is also significant.

When the perceived behavioral control variable is examined it can be seen that, the most explained variability item ($R^2 = 0,706$) is "I often need to refer to the user manual when using mobile applications" and the least explained variability item ($R^2 = 0,292$) is "Mobile applications often work in unexpected ways". The standard values for this variable are at the appropriate level and *t* value is also significant.

When the behavioral intention variable is examined it can be seen that, the most explained variability item ($R^2 = 0,477$) is "I recommend the use of mobile applications to all my colleagues" and the least explained variability item ($R^2 = 0,350$) is "I intend to use mobile applications in the future". The standard values for this variable are at the appropriate level and *t* value is also significant.

When the attitude toward behavior variable is examined it can be seen that, the most explained variability item ($R^2 = 0,542$) is "I find mobile applications unnecessary" and the least explained variability item ($R^2 = 0,379$) is "Using mobile apps makes me restless". The standard values for this variable are at the appropriate level and *t* value is also significant.

When the behavior variable is examined it can be seen that, the most explained variability item ($R^2 = 0,774$) is "I often use mobile applications" and the least explained variability item ($R^2 = 0,123$) is "I can't work efficiently without mobile apps". The standard values for this variable are at the appropriate level and *t* value is also significant.

3.8. Testing the Structural Model

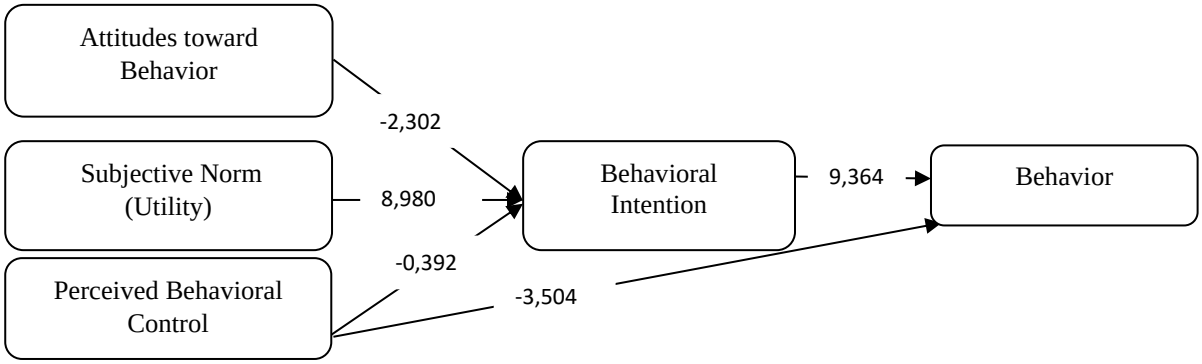

Figure 4. Structural Model *t* Values

As a result of the analysis, the t value between the variables was determined for each status and shown in Figure 4. "t > 1.96 or t < -1.96" that there is a meaningful connection between variables.

Table 14. Structural Equation Model Coefficients

Hypothesis				Estimate	S.E.	P	Acceptence / Rejection
H1	AB	<-->	BI	-,057	,025	,021**	Accepted
H2	SN	<-->	BI	0,236	,026	***	Accepted
H3	PBC	<-->	BI	-,009	,024	,695	Reject
H4	PBC	<-->	B	-,119	,034	***	Accepted
H5	BI	<-->	B	0,376	,040	***	Accepted

*** p<0,01 Statistical Significance

** p<0,05 Statistical Significance

3.9. Findings

Findings from the study reveal the factors that are effective in mobile application usage behaviors of the consumers / users and the relationships between these factors. As a result of the analysis, it was understood that the 1, 2, 4 and 5 hypotheses were accepted and the 3rd hypothesis was rejected. The results of the research can be summarized as follows:

- ✓ There is a significant and positive relationship between attitude towards behavior and behavior intention.
- ✓ There is a significant and positive relationship between subjective norms and behavior intention.
- ✓ There is no statistically significant relationship between perceived dominance and behavior intention.
- ✓ There is a significant and positive relationship between perceived brhavioral control and behavior.
- ✓ There is a significant and positive relationship between behavioral intention and behavior.

4. CONCLUSION

In this study, it is aimed to examine the effects of attitude towards behavior, perceived behavioral control and subjective norm on mobile application use and intention, and behavior intention on mobile application usage behavior. In order to reach this aim, firstly information about mobile applications was given and then the literature on the models and theories related to its use were examined in detail. In the literature review, no study on behavioral factors affecting the use of mobile applications of individuals has been found. In this respect, it can be said that the research has an original quality.

In Ajzen's Theory of Planned Behavior (TPB), which forms the basis of the study model; attitude toward behavior, perceived behavioral control, subjective norm, behavioral intention and behavior factors are present. In this study, the studies based on Ajzen's (1991) Theory of Planned Behavior were studied in detail.

According to the results of the study;

At the relationship between the attitudes towards the behavior of mobile applications and behavioral intentions of the users, it is determined that there is a meaningful relationship between them. When the necessary legal arrangements are made regarding the use of mobile application, it has been revealed that mobile application users will continue to use and recommend to their environment. It is understood that trust in the use of mobile application has a high effect on usage.

It has been found out that mobile application users will continue to use the mobile applications they find useful and recommend it to their environment / colleagues. It has been understood that especially practical and facilitating mobile applications are the preferred reason for both social and professional use. In addition, the results of the study revealed that non-confusing and non-cumbersome mobile applications were effective in users' future use behavior.

In the light of all these results is is understood that, it is important for the mobile application developing companies to know what the users willings and to develop applications that will provide them with safe and maximum benefits. Behavioral factors are also important in terms of reaching the right consumer segment correctly by marketing practitioners.

Since there are not enough studies on the subject, it is evaluated that this study can be used as a reference in the system development decisions by using the information about the mobile application preferences of the consumers and also as a resource in academic studies.

Just the collection of data from people living in turkey and convenience sampling method are the constraints of the study. Investigation of foreign users in future studies may give the opportunity to compare mobile application use between countries and societies.

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