

CONSUMERS' MOBILE APPLICATION USAGE IN TURKEY

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CONSUMERS' MOBILE APPLICATION USAGE IN TURKEY

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DECLARATION OF ORIGINALITY

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ABSTRACT

Consumers' Mobile Application Usage in Turkey

Mobile applications have emerged with the help of mobile technology and they became popular all over the world. New generations born into mobile internet based world and they reach knowledge from everywhere and every time by using their fingers over smart devices and mobile applications. Mobile operating systems' variety brings the need of mobile applications and new mobile internet technologies help mobile applications' penetration. In this study, consumers' mobile application usage in Turkey is investigated. The purpose of study is to determine the factors that effect satisfaction from loyalty level of mobile application users in Turkey. In order to present findings, mobile application satisfaction factors are identified with the help of literature and hypotheses are tested by using data gathered via online questionnaire. Full answers of 845 respondents are used for analysis.

As a result, it is found that, successful mobile applications must have following features: A mobile application must be useful, a mobile application must be easily customizable according to user's preferences and personality, a mobile application must have an aesthetic design and work fast, a mobile application must use network operator's potential, a mobile application must be trustworthy and should care about users' information security and privacy, a mobile application must have a good image and give prestige to its users, a mobile application must be easily accessible and simply usable at every time, a mobile application must offer trial opportunities to its users, a mobile application must have a good brand impact.

ÖZET

Türkiye’deki Tüketicilerin Mobil Uygulama Kullanımı

Mobil uygulamalar, mobil teknolojinin yardımıyla ortaya çıktı ve tüm Dünya’da popülarite kazandı. Yeni nesiller mobil internet tabanlı bir dünyada gözlerini açıyorlar ve zaman ve mekan kısıtı gözetmeksizin parmaklarını kullanarak akıllı cihazlar ve mobil uygulamaları kullanarak bilgiye erişebiliyorlar. Mobil işletim sistemlerinin çeşitliliği mobil uygulamalara olan ihtiyacı ortaya çıkartıyor ve yeni mobil internet teknolojileri mobil uygulamaların yaygınlaşmasına yardım ediyor. Bu çalışmada, Türkiye’deki tüketicilerin mobil uygulama kullanımı araştırılmaktadır. Çalışmanın amacı, Türkiye’deki mobil uygulama memnuniyeti ve uzun dönemli mobil uygulama kullanımına yol açan davranışları genel olarak saptamaktır. Bulguları ortaya çıkartmak için mobil uygulama memnuniyetine yol açan faktörler literatürün yardımı ile tanımlanmış ve anket yardımı ile toplanan veriler kullanılarak hipotezler test edilmiştir. 845 katılımcının soruların tamamına verdikleri yanıtlar analizlerde kullanılmıştır.

Sonuç olarak başarılı mobil uygulamaların özellikleri aşağıdaki gibi sıralanmıştır: Bir mobil uygulama kullanışlı olmalıdır, kullanıcıların tercih ve ihtiyacına göre kolaylıkla değiştirilebilmelidir, estetik tasarıma sahip olmalıdır ve hızlı çalışmalıdır, mobil servis sağlayısının potansiyelini kullanmalıdır, güvenilir olmalıdır ve kullanıcılarının bilgilerini farklı amaçlar için kullanmamalıdır, iyi bir imajı olmalıdır ve kullanıcılarına prestij kazandırmalıdır, kolaylıkla erişilebilir olmalıdır ve her zaman kolaylıkla kullanılabilmelidir, kullanıcılarına deneme imkanları sunmalıdır, iyi bir marka imajı sunmalıdır.

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CHAPTER 1

INTRODUCTION

Communication methods diversify year by year. Generation Z came into the digital world. They met not only classic Internet, but also mobile internet. Even internet changes world fast, mobile internet does the same faster. In today's world, people have lots of tools which make life easier. Mobile applications are very common tools for people from booking a ticket to getting e-mails, face to face communicating to playing games.

1.1 Situation for marketplaces of mobile applications

Native mobile applications are designed and are developed to specifically work on pre-chosen operating systems. According to this, there are plenty of mobile operating systems are available. However, to understand people's behaviors, analyzing most popular operating systems and their tongues as application markets is necessary. Therefore, further investigation will continue on App Store, Google Play, Windows Phone Marketplace and Black Berry World. The statistics are taken from Statista.com and they are summarized in Table 1. Real sources of statistical information are popular websites related with mobile technology such as The Verge, ZdNet, AppWorldReport.com, and intomobile.com, WhaTech, Mashable.com and Gartner.com.

As it can be seen from Table 1 the leading mobile application platform provider is Google Play. Android has 86.1% market share of mobile operating system market and Google Play has 2,800,000 available applications in its

marketplace. Google Play also has more than 65 billion total mobile application downloads as of May 2016.

After Google Play, App Store is also another strong player for mobile application platform provider environment. App Store has 2,200,000 available applications in its platform as of March 2017. iOS owns 13.7% market share of mobile operating system market. App Store's total number of downloaded mobile applications is 140 billion according to statistic which is from September 2016.

Windows Phone is a challenger for this competitive environment, and it has over 669,000 available applications at Windows Phone Store. In addition to this, as of December 2016, the 0.03% of mobile operating system market share belongs to Windows Phone. Windows Phone placed third place also according to total number of downloaded mobile applications by mobile device users and it has 9 billion downloads as of March 2015.

Blackberry's statistics are also placed in Table 1, however its popularity is getting lower and lower over time. There are only 4 billion of total number of downloaded mobile applications are available for Blackberry while this statistic is very weak against its rivals as of January 2014. Blackberry World has more than 234,500 mobile applications and the market share of Blackberry World is only 0.01% as of December 2016.

Table 1. “Most Popular Application Markets and Their Statistics” (Statista 2017)

| Name | Owner | Number of Available Apps | Total Number of Downloaded Mobile Applications | Global Market Share Held By The Leading Smartphone Operating Systems | Device Platform |
|---------------------|------------|--------------------------|--|--|--|
| App Store | Apple | 2,200,000 (March 2017) | 140 billion (September 2016) | 13.7% (March 2017) | iOS |
| BlackBerry World | BlackBerry | 234,500 (March 2017) | 4 billion (January 2014) | 0.01% (December 2016) | BlackBerry OS, BlackBerry Tablet, BlackBerry 10 OS |
| Google Play | Google | 2,800,000 (March 2017) | 65 billion (May 2016) | 86.1% (March 2017) | Android |
| Windows Phone Store | Microsoft | 669,000 (March 2017) | 9 billion (March 2015) | 0.03% (December 2016) | Windows Phone |

Source: <https://www.statista.com/topics/1002/mobile-app-usage/> Accessed Date: 11.06.2017

After brief information about top native mobile application marketplaces, it will be good for looking their development history in order to understand market in Figure 1.

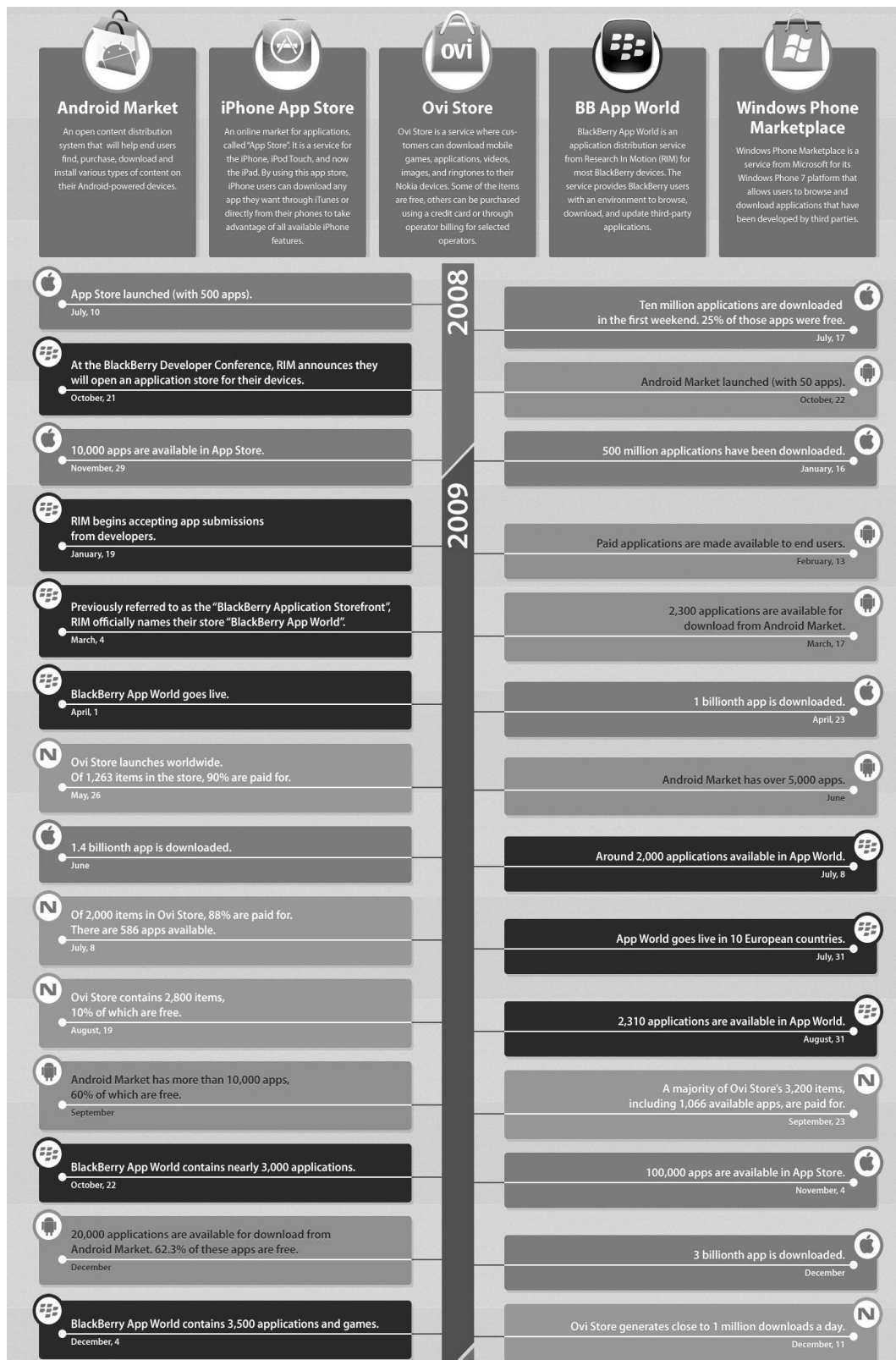


Fig. 1 "The history of mobile application stores" (Shoutem Inc, 2017)

Source: <http://blog.shoutem.com/2012/02/07/infographic-the-history-of-mobile-app-stores/> Accessed Date: 11.06.2017

1.2 Situation for consumers of mobile applications

After summarized mobile application marketplaces, a need was born which is analyzing the other side, consumers. Portio Research took a snapshot for today and made estimation for future about number of people who are using mobile applications. According to this analysis, by the end of 2017, Asia market will grow increasingly according to other regions. Because of this, it is expected that even the total number of users will reach to 4.4 billion, European mobile application users' percentage will decrease. Results are shown in the Table 2 below.

Table 2. Worldwide Mobile Application Users and Future Estimation by Region
(Portio Research, 2013)

| | 2012 | 2013 | 2017 |
|----------------------|-------------|------|-------------|
| App users worldwide | 1.2 billion | N/A | 4.4 billion |
| Asia Pacific | 30% | 32% | 47% |
| Europe | 29% | 28% | 21% |
| North America | 18% | 17% | 10% |
| Middle East & Africa | 14% | 13% | 12% |
| Latin America | 9% | 10% | 10% |

Source: <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/e>
Accessed Date: 18.06.2014

Nielsen also made an analysis for understanding country based smartphone user activities and summarized their findings. In this report, only smartphone users are considered. According to their estimations, if analysis includes feature phones, apps usage would be much lower. In the Table 3 below, apps may include other activities which are different from social networking, instant messaging, video/mobile TV. Because the question was “What do we do with our smartphones?” and it did not focus on mobile applications specifically.

Table 3. Activities Performed by Smartphone Users at Least Once a Month (Portio Research, 2013)

| | SMS | Web Browsing | E-mail | Social Networking | Apps | Streaming music | Instant messaging | Video/ Mobile TV |
|-------------|-----|--------------|--------|-------------------|------|-----------------|-------------------|------------------|
| Australia | 94% | 60% | 55% | 58% | 59% | 21% | 33% | 19% |
| Brazil | 85% | 69% | 66% | 75% | 74% | 39% | 57% | 43% |
| China | 84% | 75% | 58% | 62% | 71% | 59% | 67% | 39% |
| India | 45% | 15% | 17% | 26% | 13% | 11% | 15% | 8% |
| Italy | 89% | 37% | 51% | 47% | 49% | 26% | 35% | 17% |
| Russia | 95% | 68% | 55% | 59% | 64% | 41% | 34% | 36% |
| South Korea | 93% | 80% | 52% | 55% | 81% | 40% | 70% | 44% |
| Turkey | 78% | 37% | 33% | 69% | 38% | 22% | 50% | 9% |
| UK | 92% | 66% | 68% | 63% | 56% | 20% | 37% | 19% |
| US | 86% | 82% | 75% | 63% | 62% | 38% | 28% | 28% |

Source: <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/e>
 Accessed Date: 18.06.2014

Figure 2 displays mobile application user base growth rate according to the regions of the world and it is estimated that Asia - Pacific Region will show the highest growth rate. The estimations which are shown as Figure 4 below is parallel with the table above, the most emerging region about mobile application usage will be Asia in the near future. The more detailed estimation is also available for Europe as Figure 3. According to forecasts nearly 1 billion mobile application users will be available in Europe until the end of 2017.

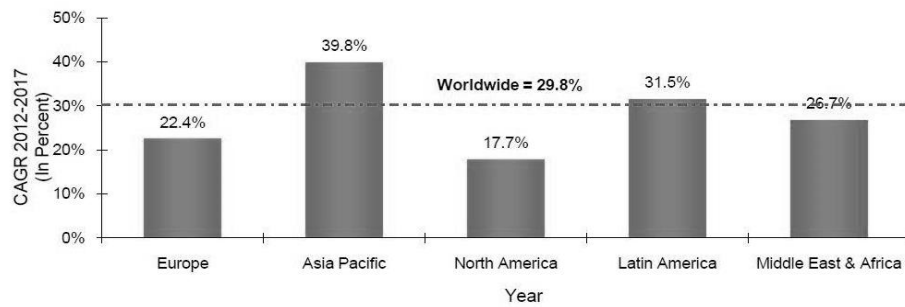


Fig. 2 “Mobile applications’ user base growth rate – regional & worldwide” (Portio Research, 2013)

Source: <http://www.portioresearch.com/media/3895/MAF%202013%202017%20-%20SAMPLE%20PAGES.pdf> Accessed Date: 18.06.2014

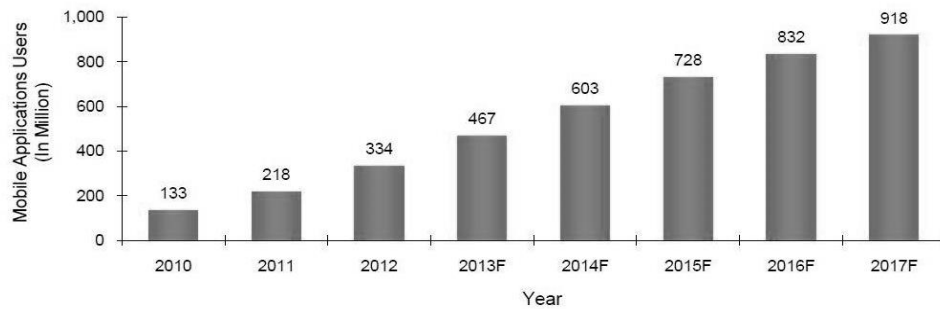


Fig. 3 “Mobile applications’ users – Europe” (Portio Research, 2013)

Source: <http://www.portioresearch.com/media/3895/MAF%202013%202017%20-%20SAMPLE%20PAGES.pdf> Accessed Date: 18.06.2014

The economic perspective for mobile applications and their revenue streams also very important. Economical sustainability is one of the major factors for mobile applications’ life cycle like every product or service. According to estimations, the importance of revenue generating methods will change. While advertisement revenues and in-app purchase revenues’ share are increasing, application download revenues’ share is decreasing year by year. The figure 4 below is for Latin America region, hence the trends are very clear, and it can be considered as worldwide behavior.

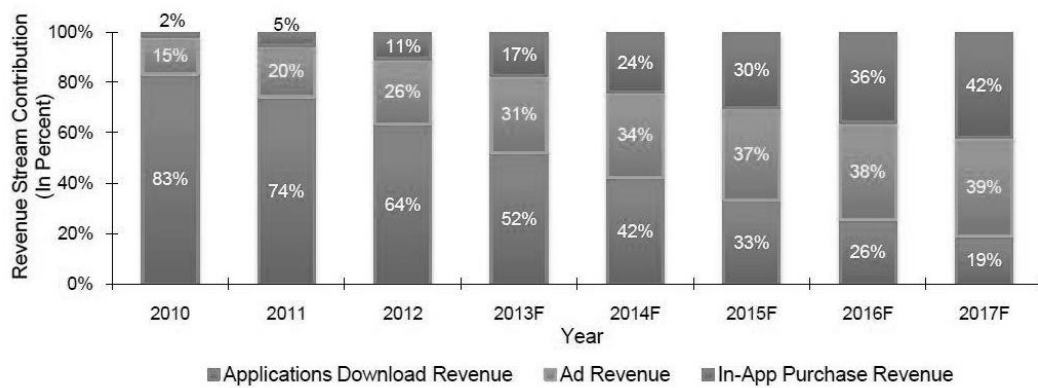


Fig. 4 “Mobile applications’ revenue streams” (Portio Research, 2013)

Source: <http://www.portioresearch.com/media/3895/MAF%202013%202017%20-%20SAMPLE%20PAGES.pdf> Accessed Date: 18.06.2014

After analyzing mobile applications and their user base situation globally, another analysis must be done for their local situation. In order to understand potential market in Turkey, mobile broadband subscribers’ situation is shown in the Figure 5 below. In 2013, mobile broadband subscribers increased exponentially. From the view of every mobile broadband subscriber is highly potential mobile application user, nearly half of mobile phone owners in Turkey could be considered as potential mobile phone users. Since, mobile broadband subscription is the starting point of technology acceptance in this era with smartphone ownership status.

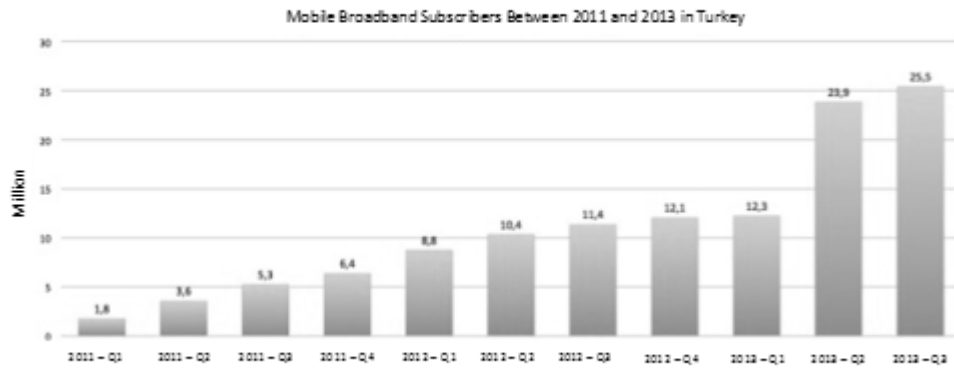


Fig. 5 “Mobile broadband subscribers between 2011 and 2013 in Turkey” (Webrazzi – Mobilike, 2013)

Source: <http://www.slideshare.net/webrazzi/trkiye-nternet-ekosistemi-raporu-v1>
 Accessed Date: 18.06.2014

The number of smartphones in Turkey is shown as Figure 6 in millions. According to Bilgi Teknolojileri Kurumu (BTK)’s estimations nearly 45 million smartphone users will be available in Turkey by the end of 2014. Figure 7 presents the distribution of smartphones in Turkey according to mobile operation systems with the help of Mobilike’s report. Apple/ iOS and Android mobile operation systems based devices are popular in Turkey according to other types of smart devices.

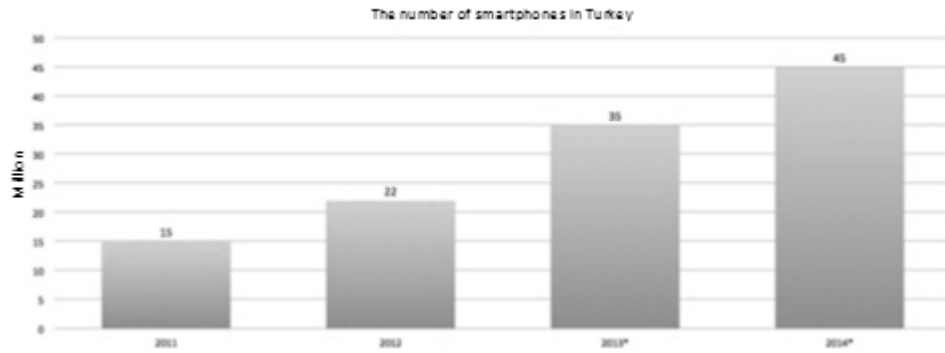


Fig. 6 “The number of smartphones in Turkey” (Webrazzi – Mobilike, 2013)

Source: <http://www.slideshare.net/webrazzi/trkiye-nternet-ekosistemi-raporu-v1>
 Accessed Date: 18.06.2014

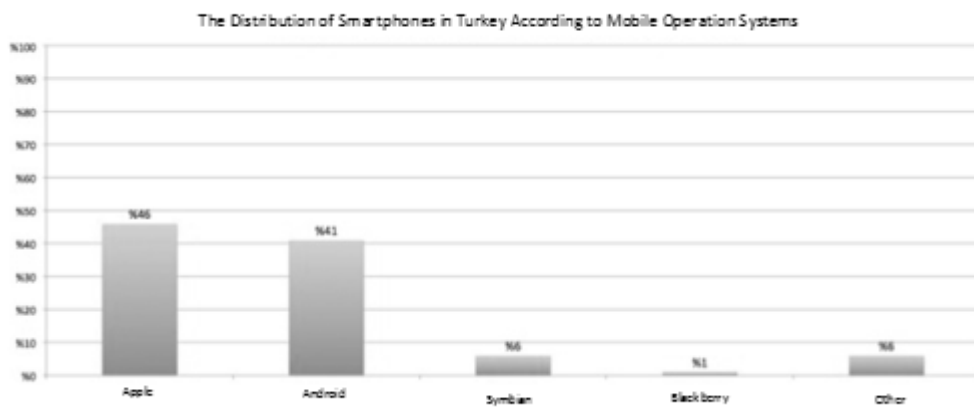


Fig. 7 “The distribution of smartphones in Turkey according to mobile operation systems” (Webrazzi – Mobilike, 2013)

Source: <http://www.slideshare.net/webrazzi/trkiye-nternet-ekosistemi-raporu-v1>
 Accessed Date: 18.06.2014

Another metric about mobile applications is their category specified traffic which shown in Figure 8. According to Mobilike’s research which is conducted in 2013, Turkish mobile application users, mostly interested in news related mobile

applications. Besides this, TV, sport, youth, music, technology, finance related mobile applications are getting more traffic from Turkish mobile application users.

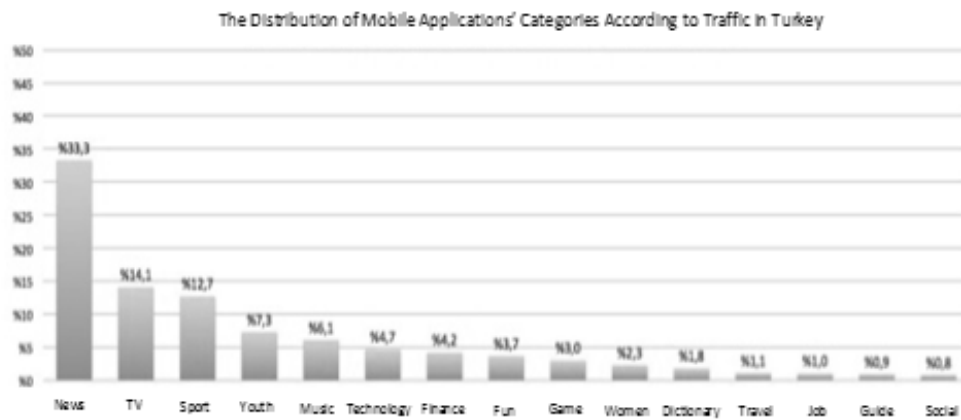


Fig. 8 “The distribution of mobile applications’ categories according to traffic”
(Webrazzi – Mobilike, 2013)

Source: <http://www.slideshare.net/webrazzi/trkiye-nternet-ekosistemi-raporu-v1>
Accessed Date: 18.06.2014

In Figure 9, Turkish consumers’ money spending amounts for mobile applications is shown. According to Deloitte’s report which is conducted in 2012, nearly half of Turkish mobile application users don’t know how much money they spend for mobile applications. The percentage of monthly money spenders more than 15 TL is only 20 percent, while the others are not spending any monthly amount of money or spend monthly less than 15 TL.

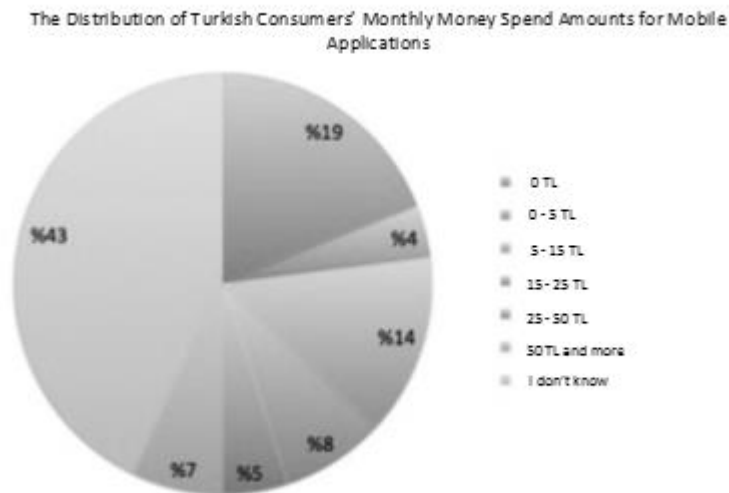


Fig. 9 “The distribution of Turkish consumers’ monthly money spending amounts for mobile applications” (Webrazzi – Deloitte, 2012)

Source: <http://www.slideshare.net/webrazzi/trkiye-nternet-ekosistemi-raporu-v1>
 Accessed Date: 18.06.2014

1.3 Purpose of the study

It is important to bear in mind that there are some factors which affect users’ long term mobile application usage. Not only making consumers mobile application downloaders but also convincing them to keep mobile applications in their mobile devices are hard and have some factors which effect their decisions. Therefore research topic of this study can be summarized as determining consumer’s mobile application usage intention in today’s competitive and digital world.

The main purposes of this study can be summarized as follows:

- evaluate consumers’ intention of using different types of mobile applications.
- find out how consumers evaluate mobile applications and determine critical criteria on evaluation of mobile applications

- discover general opinion of consumers toward mobile applications in general, and find out the relationship between their mobile phone usage intention and different mobile applications
- find out if there are different consumer segments and how these consumer segments differ from each other with respect to their preferences about mobile application usage
- investigate if mobile application usage satisfaction has an effect on long term mobile application loyalty
- find out which factors are effecting on which way consumers' mobile application satisfaction
- compare the differences between free and fee – based mobile application download preferences of users
- determine differences between demographic and technographic groups of people in terms of mobile application usage satisfaction

CHAPTER 2

LITERATURE REVIEW

2.1 Definition of mobile applications

Mobile applications may call as m-services in literature. Revels et al. (2010) defined mobile applications as any application service accessible from mobile phones via wireless and mobile communication networks.

Mobile application classification can be done from different point of view in literature. Varshney and Vetter (2002) proposed different groups of m-commerce applications, including financial applications, advertising, inventory management, product location / search, service management, wireless business reengineering, auction, entertainment /games, mobile office, distance education, and wireless data center. Coursaris and Hassanein (2002) suggested four types of mobile applications based on consumer needs: communication, information, entertainment and commerce. Buellingen and Woerter (2004) described the diffusion of mobile services in terms of communication, information, transaction and interaction.

Lots of factors can be listed for explaining importance of mobile applications. Ngai and Gunasekaran (2005) stated that people can be reached at any time via a mobile device based applications. Chong (2013) emphasized that users are no longer bound by geographical constraints. Besides these, Chen et.al (2011) explain importance of mobile applications with location-centric reachability, customization, and identifiability items. In addition to them, Song et.al (2013) focused that, some functionalities that are specifically designed for mobile devices such as Global Positioning System (GPS) navigation, location-based services, or Quick Response (QR) code scan searches increase the importance of mobile applications.

2.2 Factors for mobile application usage

This study focuses on factors that effect users' mobile application usage intention in Turkey. Before determining factors which are related to mobile application usage intention, an in-depth literature review is needed. Therefore, in the light of mobile application and mobile trade literature research, factors which are related with mobile application usage intention are placed in a matrix which can be seen at Table A1 (see Appendix A). These factors are listed according to their frequency of appearance in the previous studies and are placed in Table 4. Table 4 contains repetitive factors in literature.

Table 4. List of Factors Related to Mobile Application Usage Intention

| Factor | Number Of Studies | Factor | Number Of Studies |
|--|-------------------|--------------------------------------|-------------------|
| Perceived Usefulness / Perceived Value | 26 | Perceived Image / Expressiveness | 4 |
| Ease of use | 23 | Smart application usage predictions | 4 |
| WOM / Diffusiveness / Social Influence | 11 | Location Based Benefits | 4 |
| Enjoyment / Fun | 11 | Communication Need Coverance | 4 |
| Trust | 7 | Gender | 4 |
| Cost (Usage - Download) | 7 | Age | 4 |
| Customization / Personalization | 7 | Quality | 3 |
| Mobility Status | 7 | Time Of Day | 3 |
| Safety / Security | 6 | Personal Knowledge /Skills | 3 |
| Connectivity / Network Performance Status | 6 | Education Level | 3 |
| Power consumption | 6 | App Store Discoverability | 2 |
| Aesthetic Design / UI / Usability | 5 | Free Trialability | 2 |
| Context for mobility | 5 | Brand Status | 2 |
| Speed / Performance | 5 | Mobile device only app status | 2 |
| Free time availability for usage | 5 | Emergency Need Coverance | 2 |
| Acceptance of Tech status | 5 | Income Status / Socioeconomic Status | 2 |
| App Store Review/points - Recommender System | 4 | | |

After summarizing literature findings in a general manner, an in-depth analysis of the studies is needed in order to understand whole factors which are related with mobile application usage intention.

2.2.1 Perceived usefulness / perceived value

Perceived Usefulness / Perceived value is the most commonly referred factor in literature that effect mobile application usage intentions. According to Chang et al. (2012) perceived value is defined in mobile application area like an answer from users which is “This App suits my needs”. Head and Ziolkowski (2012) defined perceived usefulness as the degree to which an individual “believes that using a particular system would enhance his or her performance.” Besides this Wang et al. (2013) emphasized that perceived value can be categorized as functional, social, emotional, epistemic and conditional and summarized literature as mobile technology adoptions and usage are much related to perceived value of customers. According to Chong (2013), usefulness is defined as “the total value a user perceives from using a new technology”. Literature shows a lot of intention on this factor and Chong et al. (2011) summarize their literature review as perceived usefulness plays an important role in determining consumer adoption decisions on m-commerce or mobile internet activities. Cyr et al. (2006) demonstrate that perceived usefulness significantly influenced m-loyalty in their research. Li and Yeh (2010) bring different view into literature after they explained technology acceptance model and showed the relationship between m-trust and usefulness. Their model also includes design aesthetics as a variable.

Another study which is focused on technology acceptance model is written by Liao, et al. (2007) proved that perceived usefulness has a positive effect on attitude towards using 3G mobile services. Shin et al. (2009) also implemented technology acceptance model in their study which is about examining influencing factors of post – adoption usage of mobile internet. They defined perceived usefulness as degree a user perceives it to be valuable in fulfilling one’s goal and after making their data analysis they approved that the perception of mobile internet’s access quality manifested by its access speed and reliability positively affects its perceived usefulness. Park et al. (2014) made a recent research over determinants of player acceptance of mobile social network games with the help of again technology acceptance model. They supported both of their hypothesizes about perceived usefulness and declared that perceived usefulness of mobile social network games is positively related to user attitude toward the games and user intention to use the games. Kim and Hahn (2012) made a research about effects of personal traits on generation Y consumers’ attitudes toward the use of mobile devices for communication and commerce and they supported their perceived usefulness related hypothesis which is perceived usefulness of using mobile devices for communication has a positive impact on attitude toward using mobile devices for communication. Yu and Buahom (2013) also modified technology acceptance model and created a framework for exploring factors influencing consumer adoption on mobile commerce services, with the help of their literature review they remarked that “perceived usefulness” has positive effect on the attitude toward the information technology in general.

Revels et al. (2010) have created a conceptual model and proved that perceived usefulness has a positive effect on customer satisfaction with m-services by supported their hypothesis.

In order to give an example for Turkish market, Büyüközkan's (2007) study could be investigated. Büyüközkan (2007) has defined added value with the help of a question from the voice of customer "Why I use mobility instead of carrying out the same application by the conventional ways?" In addition, definition of added value factor in m-commerce Büyüközkan remarked that added value is one of most important requirements for Turkish m-commerce users after completion of her fuzzy AHP methodology for identifying m-commerce user requirements in Turkish market. Another example from Turkish market about perceived usefulness can be given from the article which is written by Bicen and Kocakoyun (2013). They stated that the main reason of Turkish students' mobile device application usage is because of their needs. Lee et al. (2011) stated that perceived usefulness has a positive impact on usage intention toward mobile financial services. Hong et al. (2006) has conducted a study that includes extensions of technology acceptance model and they defined that the major and strongest factor that effects continued IT usage intention is perceived usefulness. Wu et al. (2007) made a research with using revised technology acceptance model in order to determine mobile healthcare systems acceptance by healthcare professionals and they found out perceived usefulness has a direct effect on behavioral intention to use mobile healthcare services. Thakur and Srivasta, (2012) also repeated in their study which takes India as location that perceived usefulness are found to be significant dimension of technology adoption readiness to use mobile commerce. Chan and Chong (2012) added another paper into mobile

commerce literature and examined the factors examining the determinants of mobile commerce usage activities. Although there is no significant positive relationship between perceived usefulness and location – based services, they stated that perceived usefulness has a significant positive relationship with m – commerce activities such as content delivery, transactions and entertainment.

In the light of literature review, it is certain that Perceived Usefulness / Perceived Value is a very strong factor in mobile technology, mobile commerce related researches. Therefore in this study this factor is also included.

2.2.2 Perceived ease of use

Perceived ease of use is the second common factor in literature of mobile commerce and mobile applications. Its importance also related with famous technology acceptance model. Because perceived ease of use the other critical factor that effects attitude toward a technology with perceived usefulness which is mentioned above.

According to Chang et al. (2012) perceived ease of use is defined in mobile application area like an answer from users which is “This App seems easy to use”. In addition to this definition, Head and Ziolkowski (2012) defined perceived ease of use as, the degree to which an individual “believes that using a particular system would be free of efforts.” According to Chong (2013), perceived ease of use is defined as the degree to which a person believes that using the technology requires little effort. In study of Jarvenpaa et al. (2003) there is a real life definition of perceived ease of use about mobile commerce services is done by Finnish student as “I think there are a lot of useful services around, but how can you remember all the phone numbers, key words, codes and syntax? It’s too difficult.” According to Revels et al. (2010)’s

conceptual model which is mentioned earlier, perceived ease of use has a positive effect on customer satisfaction with m-services and perceived ease of use has a positive effect on perceived usefulness. Lee et al. (2011)'s findings also strongly support Revels et al. (2010)'s conceptual model and stated that, perceived ease of use has a positive impact on perceived usefulness toward mobile financial services and perceived ease of use has a positive impact on usage intention toward mobile financial services. Büyüközkan (2007)'s study which contains fuzzy AHP methodology has classified perceived ease of use under functionality with factors such as simplicity, flexibility and usability. Another study which is focused on technology acceptance model is written by Liao et al. (2007) also found out that, perceived ease of use is positively related to attitude in their study which conducts factors influencing the usage of 3G mobile services in Taiwan. Hong et al. (2006) have conducted a study that includes extensions of technology acceptance model and they declared that on continuance intention impact of perceived ease of use becomes stronger, they added reason of this surprising result as while time passes users get used to an information technology. Wu et al. (2007) made a research with using revised technology acceptance model in order to determine mobile healthcare systems acceptance by healthcare professionals and they found out perceived ease of use significantly affected healthcare professional behavioral intent. Thakur and Srivasta (2012) also repeated in their study which takes India as location that perceived ease of use are found to be significant dimension of technology adoption readiness to use mobile commerce. Shin et al. (2009) also implemented technology acceptance model in their study and proved their hypothesis which is mobile internet's ease of use has a positive effect on its perceived usefulness while there is

no significance between perceived ease of use and mobile internet usage level. Park et al. (2014) made a sooner research over determinants of player acceptance of mobile social network games with the help of again technology acceptance model. They found out that, perceived ease of use of mobile social network games is positively related to perceived enjoyment of the games and perceived ease of use of mobile social network games is positively related to user attitude toward games. Kim and Hahn (2012) made a research about effects of personal traits on generation Y consumers' attitudes toward the use of mobile devices for communication and commerce and they supported their perceived ease of use related hypotheses which are perceived ease of using mobile devices for communication has a positive impact on attitude toward using mobile devices for communication, perceived ease of using mobile devices for communication has a positive effect on the perceived usefulness of mobile devices for communication and perceived ease of using mobile devices for communication has a positive effect on the perceived enjoyment of using mobile devices for communication. Chan and Chong (2012) added another paper into mobile commerce literature and examined the factors examining the determinants of mobile commerce usage activities. They stated that perceived ease of use has a significant positive relationship with m – commerce activities such as content delivery, transactions, location-based services and entertainment.

In contrast to main literature, Chong et al. (2011) stated that perceived ease of use has not a significant and positive relationship with both Malaysian and Chinese consumer decisions to adopt mobile commerce. Cyr et al. (2006) also demonstrated in a different manner according to technology acceptance model and they stated that perceived ease of use of a mobile site will positively influence perceived usefulness

and perceived enjoyment and there is no direct relationship between perceived ease of use and mobile loyalty in mobile commerce. However Li and Yeh (2010) proved in their m-trust development model that higher perceived ease of use of a mobile website will result in higher level of m-trust. Yu and Buahom (2013) has explained important aspects of ease of use as clear symbols and function keys, few and simple payment process steps, graphic display and help functions.

2.2.3 WOM / diffusiveness / social influence

Perceived usefulness and perceived ease of use are common factors which took place also in famous technology acceptance model. After completion of their definitions with the help of literature review, it must be good to continue another critical factor which is word of mouth / diffusiveness / social influence for mobile application usage intention.

Chang et al. (2012) are given place social support in their study and they stated that social support includes social facilitation, social comparison, normative influence, social learning, cooperation, competition and recognition. After this introduction they defined diffusiveness in mobile application area like an answer from users which is “I would consider mentioning this App to my friends or family”. Besides this Wang et al. (2013) emphasized that social value definition as perceived utility acquired from an alternative’s association with one or more specific social groups. They also found significant effects between social value and behavioral intention to use mobile applications. Chong et al. (2011) defined social influence in mobile commerce area as the degree to which an individual user perceives the importance that others believe he or she should use an innovation. They continued their

explanation by adding that influence from peers, family even the media such as television might influence users to use m-commerce and they declared that social networking sites and online games also play role in creation of web community and social influence. They proved that social influence has a significant relationship with both Malaysian and Chinese consumer decisions to adopt m-commerce. Yu and Buahom (2013) has extended technology acceptance model by adding word of mouth into conceptual framework. They defined word of mouth (WOM) as the primary driver in the diffusion of new technology and innovation. They stated that WOM is an important source of user beliefs and also an effective encouragement on user purchase decisions. They narrowed down their definition according to mobile commerce era and stated that WOM is the process of transferring any information about the mobile commerce service. They summarized their literature review and have given a result which is WOM is an important and influential determinant to customers' attitude toward mobile commerce services. Thakur and Srivasta (2012) declared that social influence is found to be significant dimensions of technology adoption readiness to use mobile commerce. They defined social influence as the degree to which an individual perceives how important others he or she should use the new system. Because of their study focused on mobile payment systems, they explained that people exploit online banking because of they are encouraged by people surrounding them to accept and utilize online banking. There is another paper which focused on social influence and m-commerce usage activities which is written by Chan and Chong (2012) remarked that although there are no significant positive relationship between social influence and location – based services and between social influence and transactions, there are some significant positive relationships

exist such as relationship between social influence and content delivery, relationship between social influence and entertainment. In this research mobile commerce activities are classified as content delivery, transactions, location – based services and entertainment. Siau and Shen (2003) investigated social influence and word of mouth activities under subtitle of virtual communities and they stated that the sense of belonging to a community cultivates positive feelings and positive evaluations from group members generate a communal sense of trust in mobile commerce.

2.2.4 Perceived enjoyment / fun

Perceived enjoyment / fun also a common factor which takes place in mobile application usage intention literature

According to Chang et al. (2012) perceived enjoyment / fun is defined in mobile application area like an answer from users which is “I find this App exciting, this App seems fun”. Head and Ziolkowski (2012) defined perceived enjoyment as the extent to which an individual perceives using a technology to be “enjoyable in its own right, apart from any performance consequences that may be anticipated”. Park et al. (2014) defined perceived enjoyment as the extent to which the activity of using social network games is perceived to be enjoyable in its own right aside from the instrumental value of the technology. In addition to these definitions Wang et al. (2013) emphasized that enjoyment / fun can be investigated under emotional value. They stated that, play or fun gained by using a product / service for its own sake is related to emotional value. In this study they also declared that, the emotional value reflects enjoyment, playfulness, fun, and pleasure of using mobile Apps. It has been argued that emotional components, such as enjoyment and playfulness, could

promote the use of information systems, respectively. They also found significant effects between emotional value and behavioral intention to use mobile applications. One of the main researches that emphasized importance of fun / excitement about mobile application usage in literature belongs to Chong (2013) which remarked that, not only perceived enjoyment is an important determinant of mobile games adoption but also perceived enjoyment is often found to have a positive influence on the adoption of internet or e-commerce. After Chong (2013) has showed his conceptual model, he hypothesized that perceived enjoyment is positively related to the usage of m - commerce. His results proved that, although perceived enjoyment has no significant relationship with transaction – based activities, it has significant relationship with m – commerce activities such as content delivery, location – based services and entertainment. Cyr et al. (2006) used a real mobile phone to examine specific elements of visual aesthetics as antecedents to perceived usefulness, perceived ease of use and perceived enjoyment. They hypothesized that, design aesthetics of a mobile site will positively influence perceived enjoyment and perceived ease of use of a mobile site will positively influence perceived enjoyment. After collection and analysis of data, they stated that both hypotheses can be supported. They found significant relation between design aesthetics and perceived enjoyment and between perceived ease of use and perceived enjoyment. Mahatanankoon et al. (2005) has come up to mobile application usage intention topic from a different point of view and they classified mobile applications in 5 categories. They used user's purposes while doing their classifications and classified mobile applications as content delivery, transaction – based, location- based, emergency- assistant and entertainment. From this classification it can be argued that

entertainment is a very main aim for users. Therefore it should be conceivable that enjoyment / fun is one of main factors for mobile application users. Revels et al. (2010) have created a conceptual model and proved that perceived enjoyment has a positive effect on customer satisfaction with m-services by supported their hypothesis. Yu and Buahom (2013) also modified technology acceptance model and created a framework for exploring factors influencing consumer adoption on mobile commerce services, with the help of their literature review they remarked that there is a positive relationship between the perceived enjoyment and attitude towards using mobile commerce services. They also stated that perceived enjoyment shows intrinsic motive for usage and the users who enjoy mobile commerce services will generate more positive attitude and more likely to adopt the mobile commerce services. Park et al. (2014) made a sooner research over determinants of player acceptance of mobile social network games with the help of technology acceptance model. They supported both of hypothesizes about perceived enjoyment. Beside this, they declared that perceived enjoyment of mobile social network games is positively related to user attitude toward the games and user intention to use the games. As mentioned earlier, Kim and Hahn (2012) made a research about effects of personal traits on generation Y consumers' attitudes toward the use of mobile devices for communication and commerce. According to this study they supported their perceived enjoyment related hypothesis which are perceived enjoyment of using mobile devices for communication has a positive impact on attitude toward using mobile devices for communication and perceived enjoyment of using mobile devices for communication has a positive impact on the attitude toward using the devices for m – commerce. Chan and Chong (2012) has given a good example from real life in

their research and argued enjoyable advertisements. They declared that an interactive mobile advertisement in the form of a mobile game might be enjoyable for users, thus encouraging them to subscribe to more mobile advertisements. However, it might make the application harder to use for inexperienced users. Therefore, application developers need to understand the relationships between the motivation variables and m-commerce usage activities.

2.2.5 Trust

Trust could effect user's choices about mobile application usage and their behaviors. Plenty of studies from literature focus on trust and its relationships.

First of all, Barnes and Huff (2003) has defined trust in general as the extent to which the innovation adopter perceives the innovation provider to be trustworthy. Besides this, Chang et al. (2012) defined trust in mobile application area like an answer from users which is "This App seems safe and trustworthy". They stated that all mobile applications got at least moderate grades regarding trust in their study. They found out that, lack of trust was the most common issue why participants would not have wanted to start using the application. Yan et al. (2013) made a research and aimed that exploring the impact of trust information visualization on mobile application usage. They summarized online trust as an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited. They also focused on not only user interface design and trust relationship but also trust information notification and visualization. In order to found out these relationships they conducted experiments in China and Finland. They found that visualizing the trust and trust/reputation values makes a significant difference, as

users tend to change their usage intentions and decisions. The experimental results indicated that both the trust and trust / reputation indicators have significant impacts on usage willingness according to their displayed values. Results of this study and experiment suggest the importance of visualizing trust information on mobile application usage and its potential to improve mobile application usability. Chong et al. (2011) summarized their literature review as trust is an important element which affects consumer decisions to adopt technologies such as e-commerce. They defined trust as whether users are willing to become vulnerable to the m-commerce providers after considering their characteristics (e.g. security, brand name) They focused on the type of data transferring model which is used by mobile devices and stated that; because of the reason that m-commerce transactions involve transferring data in a wireless environment, users are exposed to higher security and privacy risks. After these explanations they wanted to hypothesized and found significance that, trust has a significant and positive relationship with both Malaysian and Chinese consumer decisions to adopt m-commerce. Li and Yeh (2010) completely focused on increasing trust in mobile commerce environment. Their main power for catching up this aim is according to their study design aesthetics improvements. They positioned mobile trust as dependent variable in their conceptual model and supported whole hypothesis which are related to mobile trust. Results can be summarized that; higher perceived usefulness, higher perceived ease of use and higher customization of a mobile website will result in higher level of m-trust.

Yan et al. (2012) bring a different kind of view into literature by investigating a trust behavior based reputation and recommender system for mobile applications. They stated that trustworthiness of mobile applications relates to their dependability,

security, usability and popularity. They wanted to achieve a trust behavior model by using a survey that asks for user opinion about trust behaviors regarding to mobile application usage.

As a result, they found that using behavior, reflection behavior and correlation behavior have significant correlation with the trust behavior. They also found that these factors have lower correlations with each other than their correlations with the trust behavior. They stated that these three factors can measure not only the general aspects but also the specific aspects of the trust behavior. Siau and Shen (2003) investigated building customer trust in mobile commerce era. The authors defined trust by using its three characteristics. According to their definition;

- First, a trust relationship involves two parties: the trustor and the trustee, reliant on each other for mutual benefit.
- Second, trust involves uncertainty and risk. No perfect guarantee ensures the trustee will live up to the trustor's expectation.
- Third, the trustor has faith in the trustee's honesty and benevolence, and believes the trustee will not betray his/her risk-assuming behavior.

Then, they have created a framework for building customer trust in mobile commerce.

Siau and Shen (2003) has added some suggestions to mobile commerce literature for continuous trust building which are, improving site quality, sharpening business competence, maintaining company integrity, posting privacy policy, strengthening security controls, fostering a virtual community, encouraging communication and increasing accessibility and using external auditing to monitor operations.

2.2.6 Cost

Cost is also found to be another important factor in literature which effects users' mobile application usage and download intention.

In study of Jarvenpaa et al. (2003) there is a real life definition of willingness to pay is exist, a HK student shows the importance of cost by telling that "If these features are not free of charge I won't use them" Chong et al. (2011) stated that cost is one factor that can slow development of mobile commerce. They focused on many early adopters as user in mobile applications market are younger students such as university and high school students. In the light of this overview, they mentioned that although the price of mobile commerce might be affordable to consumers in general, cost might play an important role in the adoption of mobile commerce among this group of younger users. Therefore they constituted hypotheses such and found that cost has a significant and negative relationship with both Malaysian and Chinese consumer decisions to adopt mobile commerce. Besides this research, Revels et al. (2010) have created a conceptual model and stated that perceived cost has a negative effect on customer satisfaction with m-services by supported their hypothesis.

Büyüközkan (2007) has classified mobile commerce user requirements as functionality, profitability and credibility in her hierarchy model of the determination of the m-commerce user requirements problem. Büyüközkan (2007) has given place to price under profitability factors and declared that price play a predominant role for Turkish mobile commerce users. Yu and Buahom (2013) has extended technology acceptance model by adding perceived cost into conceptual framework. They defined perceived cost to reflect people's concerns about the cost needed to perform mobile commerce services. The authors declared that like many researchers they also

considered cost an important determinant affecting user's attitude toward using the technology. Yu and Buahom (2013) classified cost types as;

- Primary purchase price (e.g. mobile device fee)
- Ongoing usage cost (e.g. subscription fee, communication fee, service fee)
- Maintenance cost
- Upgrade cost

After these explanations and data analysis they found that there is a negative relationship between the perceived cost and attitude toward using mobile commerce services. Olmsted et al. (2013) argued from a different point of view and brought opportunity cost into literature. They asserted that time spent searching and dissatisfied usage time of mobile applications can cause opportunity cost for a user.

2.2.7 Customization / personalization

Like cost and trust, customization / personalization is also considered as another vital factor which affects mobile application usage intention.

Li and Yeh (2010) proved in their m-trust development model that higher customization of a mobile website will result in higher level of m-trust. They stated that customization's impact can be extended by improving mobile usability.

Büyüközkan (2007) investigated customization / personalization effects under the title of individualization and stated that to be able to satisfy the user, it is necessary to concentrate on the characteristics of the individual concerned. In addition to this, Büyüközkan (2007) stated that mobile application must meet specific needs of user. She has given place under profitability section in her hierarchy model. Clarke (2001) stated that mobile devices are typically used by a sole individual. Therefore they are

ideal for individual – based target marketing. Mobile environment offers the opportunity to personalize messages to various segments, based upon time and location. According to this research advertising messages can be tailored to users' individual preferences. Although there are some disadvantages such as early power consumption and small screen size in mobile devices, the advantage of wireless and mobility can beat other devices from the view of personalization. Clarke (2001) also stated that the mobile database is the primary factor of mobile commerce success because of compiling personalized databases and providing personalized services. The data which can be collected via smart simcards offer the greatest potential for the customization. Siau et al. (2001) made an early research about mobile commerce and declared that one of the main advantageous offer for mobile commerce is personalization. They stated that mobile commerce applications can be personalized to represent information or provide services in ways appropriate to the specific user.

2.2.8 Personal mobility status

It is irrefutable that mobile applications could become such popular because of can be easily used by people in mobile status. Literature also has focused on this area. Plenty of studies are exist about relationship between user's mobility status and mobile applications.

Wang et al. (2013) has investigated mobility status under social value in their conceptual model and they described conditional value as the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker. Another definition about conditional value is specific case of other types of value. After these definitions they has given some

examples for users mobility status and mobile application usage such as users can use the Apps with GPS functions to identify their current location and find the correct direction of destination after becoming lost and mobile users can know the bus arrival time by using an App when they are waiting for the bus at a bus station. Both the examples are related to user's mobility status' effects on mobile application usage. Their research demonstrates conditional value significantly affect mobile App users' behavioral intentions via the mediation of functional, social, emotional, and epistemic value. Liang and Wei (2004) stated that in general mobile commerce applications have two major attributes which are mobility and reachability. They detailed mobility topic with time – critical services, location aware and location sensitive services. They also emphasized that ubiquitous communications and content delivery are very important components in mobile commerce. Yu and Buahom (2013) has extended technology acceptance model by adding mobility into conceptual framework. They defined mobility as advantages provided by mobile technologies as anytime and anywhere. They stated that mobile commerce services make an excellent fit with a mobile lifestyle. They also disputed mobility related hypotheses and found out there is a positive relationship between the “Mobility” and “Perceived usefulness” of mobile commerce services and there is a positive relationship between the individual “Mobility” and “Perceived ease of use” of mobile commerce services. Huang et al. (2012) emphasized that because of mobile usage easiness of mobile applications a smart phone user less tends to follow time and location to launch an App. Lee et al. (2011) renamed mobility as connectivity and defined as customers would be able to continue a mutual action without time or place limits through mobile technology. Therefore they hypothesized

their argument which is connectivity has a positive impact on perceived ease of use toward mobile financial services. After analysis of their dataset, they found significance for their hypothesis. However they have not found significant relationship directly between connectivity and usage intention. Park et al. (2014) defined perceived mobility as the extent of user awareness of the mobility value of mobile services and systems. They also stated that a large amount of prior research on mobile systems and services supports the idea that perceived mobility significantly impacts perceived usability and perspectives of users toward mobile services. In order to be consistent with previous studies related to perceived mobility they formed their hypothesis and found significance on it which is perceived mobility of mobile social network games is positively related to perceived usefulness of the games. Clarke (2001) has defined mobility under title of ubiquity and emphasized that mobile devices offer users the ability to receive information and perform transactions from virtually any location on a real-time basis. He continued his explanation by adding the summary for ubiquity definition which is mobile commerce users will have a presence everywhere or in many places simultaneously.

2.2.9 Safety / security

Safety / Security also very related factor on mobile application users' mobile application usage intention.

Büyüközkan (2007) has defined safety as the technical aspect of the credibility of the mobile applications. She emphasized that it must be ensured by protocols and by technologies available and it must be widened as long as necessary. Büyüközkan's (2007) hierarchy model has classified safety under credibility. Yu and

Buahom (2013) have declared perceived security related issues. They stated that lack of “Perceived security” is a major reason why many potential customers do not involve in new technology. They continued their explanations and added that users are particularly worried about the risks involved in transmitting personal information, such as name, address, phone number, etc. and sensitive information such as credit card numbers and bank account information, across the Internet because they think it may be put to fraudulent use. In the light of these explanations they found out that there is a positive relationship between the “Perceived security” and “Perceived usefulness” of mobile commerce services and there is a positive relationship between the “Perceived security” and “Perceived ease of use” of mobile commerce services.

Thakur and Srivasta (2012) made a study which takes India as location about customer usage intention of mobile commerce. They stated that, security risk and privacy risk is significantly associated with behavioral intention in negative relation, which indicates that security and privacy concerns are important in deterring customers from using mobile commerce. Siau et al. (2001) underscored the importance of information security in their early research and stated that information security is a key issue in mobile commerce. They give further information about this and declared that, in a transaction, each party involved needs to be able to authenticate its counterparts, to make sure that received messages are not tampered with, to keep the communication content confidential and to believe that the received messages come from the correct senders. Chan and Chong’ s (2012) paper which is examining the factors examining the determinants of mobile commerce usage activities also mentioned perceived security risks. They stated that, wireless environment transmissions are susceptible to security threats such as eavesdropping

and unauthorized access to the contents. They declared that security and privacy are both able to influence consumers' decisions to use mobile commerce. After these investigations they formed and tested their hypothesis. They found out that perceived security risk is negatively related to mobile commerce activities which are transactions and location - based services. However there are no significant relationships in other hypotheses which are perceived security risk is negatively related to mobile commerce activities which are content delivery and entertainment. Siau and Shen (2003) also added some technical explanations about mobile commerce security topic. They stated that in order to gain continuous trust mobile commerce enablers should strengthen security controls. They pointed that since data transmitted wirelessly is less secure than in the wired network, maximizing security is an urgent priority. Security controls, which provide technological and organizational support to mobile commerce, ensure timely and accurate completion of transactions, prevent fraud and manipulation, assure smooth transactions, and safeguard transaction authentication. Various methods such as digital signatures, encryption mechanisms, and authorization functionality can relieve customer security concerns regarding wireless communication, and enhance trust in wireless mobile commerce.

2.2.10 Connectivity / network performance status

It is undeniable that, connectivity and network performance status directly effect the status of mobile application usage. Nowadays, even some mobile applications can work offline such as mobile games and mobile photo applications most of mobile

applications needs to be mobile network connection in order to work properly and effectively.

Patro et al. (2013) focused on their paper that understanding of the usage pattern of a few popular apps, how it varies with different factors, such as network performance, device type and application type, and the possible generalizations. They also stated that higher network latencies due to poor network performance reduced user interactivity across mobile applications. The impact is higher for applications which require real – time communication with the servers. Moreover they stated that poor network performance causes shortened user sessions and loss in application revenues. They done an experiment and collect primary data with the help of network level measurement application which's name is Insight from real mobile application users. In the light of the data which is collected by Insight has been analyzed and the technical result is reported as, an increase of network latency from 300 ms to 900 ms caused average user interactivity to drop by 40%. Therefore they stated that user interactivity declined with an increase in network latencies for applications. In addition to this they stated that type of mobile application (mobile game, communication, maps, etc.) effects users' perception of poor network performance. If the mobile application needs to get instant responses from server, users feel poor network performance in maximum according to other applications. They summarized their findings by explaining that poor network performance or higher network latencies resulted in not only revenue losses but also shorter average session lengths. Wac et al. (2011) has made a research about experience of mobile applications used in daily life. In order to define problems they created criteria which are QoS (Quality of Service) and QoE (Quality of Experience).

They stated that mobile application usage intention is much related to the quality of service. The summary could explain end to end mobile application usage experience. It is easy to realize that quality of service covers the almost every step except mobile application and user interaction. Therefore even users' perceptions are much related to mobile application; probably network quality is the most essential factor for a smooth mobile application usage. Siau et al. (2001) also added some network related issues and stated that bandwidth and coverage are also important. According to their research network boundary and crosses from one network to another can cause connection losses. Smura et al. (2009) has created a framework for usage of mobile services and gives a place to network issue as a main category with content, application and device. Therefore network related issues or problems are very important for enabling end to end mobile user experience.

2.2.11 Power consumption

Qian et al. (2011) stated that even mobile applications are very popular in these days; their energy bottlenecks remain hidden due to a lack of visibility of interaction with the application behavior. In order to pass over this problem they have made a research which uses cross layer approach and determined that inefficient resource usage arose a lack of transparency in the lower – layer protocol behaviors of distinct classes of mobile applications. Patro et al. (2013) focused on their paper that different battery consumption rates could be consisted in devices which uses completely same hardwares such as memory and battery capacity. They explained the causes of difference of power consumption on same hardwares by the factors which are different screen brightness, battery age, variable cellular or Wi-Fi network

usage. While investigating mobile application usage and power consumption relationship, they suggested that brightness of specific screen areas which are not important for the user can be dynamically reduced. They also added that factors such as network type, user behavior and device type could cause widely varying battery usage across different application sessions. Finally, they stated that controlling screen brightness can vary across different device types. Therefore a combination of different techniques is required to optimize battery usage across mobile devices.

Rahmati et al. (2012) has made a different kind of study over the influence of socioeconomic differences on smartphone adoption, usage and usability and stated that low socioeconomic group consumes significantly more battery energy per day, and runs into more low battery situations. They also added that prevalent complaints about the battery life led to poor perceived usability. In study of Jarvenpaa et al. (2003) there is a real life definition about power consumption related product limitations in mobile commerce related study which is “The battery runs down quickly. It doesn’t even last 5 hours. I wish it would last for 24 hours.” Finally, Yan and Chen (2011) have made an experiment in their research to show an application’s effect of energy consumption over three mobile phones. Therefore it is irrefutable that mobile application usage has a direct effect on power consumption and battery life of a mobile device.

2.2.12 Aesthetic design / user interface

From the view of user experience probably user interface and aesthetic design of a mobile application is very important. Even some parts of aesthetic design and user

interface factor is similar to perceived ease of use, mainly they are different factors, so it needs to be examined solely.

Cyr et al. (2006) demonstrated in their literature review that user interface design and aesthetics of the website were found to be important for users' acceptance of technology. In further parts of their review they stated that, high correlations between perceived aesthetics and perceived ease of use are found. They also mentioned that not only graphical design elements, including color, photographs, font style and layout affected perceived usefulness of a web page, but also there is a linkage between perceived attractiveness of a website and perceived usefulness, perceived ease of use, perceived enjoyment. They continued their research by adding that, Interface design is increasingly important as companies and entertainment websites compete for rapidly increasing customers. They defined visual design as a thing which refers to the balance, emotional appeal or aesthetic of a website and it may be expressed through colors, shapes, font type, music or animation. They also stated that there is a significant relationship between aesthetic beauty and e-trust according to their literature review. After the completion of their literature review they have formed their own hypotheses which are itemized below and found significance over them.

- Design aesthetics of a mobile site will positively influence perceived usefulness.
- Design aesthetics of a mobile site will positively influence perceived ease of use.
- Design aesthetics of a mobile site will positively influence perceived enjoyment.

Li and Yeh (2010) also completed their study over this topic and they created a conceptual model. According to their model they have a hypothesis which is higher level of design aesthetics of a mobile website will have a higher impact on the customization of the mobile website. They found significance for this hypothesis. They also found significant relationships between design aesthetics and perceived ease of use and perceived usefulness like Cyr et al. (2006) proved before. Besides these, Wac et al. (2011) mentioned that user interface and mobile application design stay in quality of experience part in their methodology which is mentioned earlier. They defended that application designers use their own judgement and perception of an application's ease of use, so usability problems are formed. They also observed that user's quality of experience is subjective and influenced by application designs. They have given an example to prove their opinion and stated as an example that web browser page scrolling capabilities differs from user to user. Siau et al. (2001) has given place the importance of user interface design in their early study and they stated that unlike the wired computing environment where large screens are available, mobile commerce applications have to operate on small and often wearable mobile devices that can only include small screens. They added that in some cases, the mobile commerce applications may have to exploit the use of voice channels to enhance the efficiency of the user interface.

2.2.13 Mobile application speed / performance

Even a mobile application's speed and performance looks like very related to mobile network's speed and performance, it must be considered differently. Especially mobile applications which can be work offline's performance and speed are

independent from network performance and speed. Therefore mobile application's speed and performance needs to be considered as different factor.

Büyükozkan (2007) has given place mobile application's speed and performance under mobile commerce user requirements and emphasized that the principal objective pushing the user to prefer mobility is the speed of the mobile applications. Consequently, an optimal speed in each application is one of the more essential needs in mobility. Wac et al. (2011) has focused performance and speed related issues over end to end mobile application usage. According to their mobile service delivery definitions, mobile applications' performance needs to be considered under quality of experience. They stated that even most of performance and speed problems are because of network, mobile applications' speed and performance also an important factor for end to end mobile application usage. Clarke (2001) also stated that speed is one of key value offerings of mobile commerce. However mobile commerce has disadvantage against e-commerce about speed probably because of physical limitations of mobile devices.

2.2.14 Other factors

Besides the factors which are explained deeply above, there are other factors which can effect user's mobile application usage intention. These factors found place in literature not as common as factors above, but still needs to be considered.

Firstly, Chong (2013) emphasized that demographic variables have direct effect on mobile commerce usage activities. He found significance in his hypothesis that age is negatively related to the usage of m-commerce in terms of content-delivery, transactions and entertainment based mobile commerce activities. However

he also found that there is no significance in his hypothesis which is age is negatively related to the usage of mobile commerce in terms of location – based services. He continued his hypothesis and has brought into light that educational level is positively related to the transactions and location – based services while there is no such a relationship between educational level and content delivery, entertainment based mobile commerce activities. He also thought that males are more likely to use m-commerce but he couldn't found out any significant relationship between gender and mobile commerce usage. Rahmati et al. (2012) summarized income related socioeconomic status' impact on mobile application adoption and usage and defined that people who are inside low socioeconomic status tend to use mobile applications more frequently.

Another factor which is related with mobile application usage intention is perceived image and perceived expressiveness. Revels et al. (2010) have created a conceptual model and put perceived image as a factor inside this model. They defined perceived image as the degree to which use of an innovation is perceived to enhance one's image or social status in one's social system. They stated that perceived image is also considered to be an important factor of mobile services usage intention since mobile phone users generally uses mobile services to create, alter or preserve a positive image of themselves in relation to others. After these definitions they hypothesized that perceived image has a positive effect on customer satisfaction with mobile services. However according to their analysis they couldn't found significance over this topic. Head and Ziolkowski (2012) defined perceived expressiveness as the ability of an individual to express his or her emotions or

identity. But they also stated that the causal relationship between perceived expressiveness and attitude was not significant.

Personal knowledge and skills are also another factor which effects mobile application usage intention. Park et al. (2014)'s sooner study over determinants of player acceptance of mobile social network games defined skill as the user perception and behavior of how challenging it is to do a given activity and how skillful the user is when doing that activity. Therefore they hypothesized and found significance that perceived control and skill of mobile social network games is positively related to perceived enjoyment of the games while there is no significance in the hypothesis which is perceived control & skill of mobile social network games is positively related to perceived ease of use of the games.

Trialability is also another factor which belongs to mobile application literature. Chong et al. (2011) stated that in order to provide users to accept a new technology, offering free trials to users is an effective method to beat initial costs. According to their literature review, trialability is able to influence the adoption of cell phone banking. Thus, they hypothesized that trialability has a significant and positive relationship with both Malaysian and Chinese consumer decisions to adopt mobile commerce. However, they couldn't found significance on their trialability related hypothesis and they rejected them.

Like every study which is related to marketing, mobile application and mobile commerce literature also touched on brand impact. Yan, et al. (2012) has given a place to brand impact in their model and mentioned that, using behavior, reflection behavior and correlation behavior of a mobile application are effected by brand impact.

Some studies evaluated location based benefits, communication need coverage and emergency need coverage as different factors on usage of mobile applications. However in this study, they are considered as subfactors which are related to perceived usefulness and perceived value.

Time of day and free time availability for mobile application usage are also be considered as mobility status and they considered as subfactors of personal availability for mobile application usage.

There are also some download related factors in the literature such as application store review and points of a mobile application and user based recommender system comments' effects, smart application suggestion predictions, amount of applications in stores, application store satisfaction level, application store coherence, apple store discoverability. Because of the consistency of these factors they probably need to be considered under another study which only focuses on mobile application download factors.

In a very few studies mobility context compatibility, mobile device only application status, quality of mobile application, mobile web interface ownership status, country of origin, frequency of content differentiation, multi-channel engagement opportunity, attractiveness of mobile application, variety of services, closeness of installation time, personal motivation, self – activated / user – activated application status, private information usage, interruptions of mobile application usage and year of internet usage are evaluated as factors over mobile commerce and mobile application usage intentions. However because of density of these factors are low in literature, some of them will be considered as sub- factors which effects mobile application usage, and the others will be kept in out of scope of this study.

In addition to whole literature review, some self- added sub factors are defined about usage such as mobile device and network operator related issues and mobile device brand and operation system which is related with brand.

CHAPTER 3

THEORETICAL MODEL AND HYPOTHESES

Based on the discussions in the literature review part, a theoretical model which is illustrated in Figure 10 is developed for this thesis. Then, in line with this research's purposes, answers to the following questions had been tried to find out.

3.1 Research questions

The main purpose of this study is to figure out the main factors that contribute consumers' mobile application usage satisfaction in Turkey. Therefore, the following research questions are developed:

RQ1: Which factors can influence consumers' mobile application satisfaction?

RQ2: How can consumers be segmented based on the factors that affect their satisfaction from mobile applications?

RQ3-A: What is the demographic profile of each consumer segment?

RQ3-B: What is the technographic profile of each consumer segment?

RQ3-C: What is the category based mobile application usage pattern of each consumer segment?

RQ4: What are the factors that determine consumers' satisfaction from mobile applications?

RQ5: How consumers' satisfactions from mobile application usage effect their loyalty towards mobile applications?

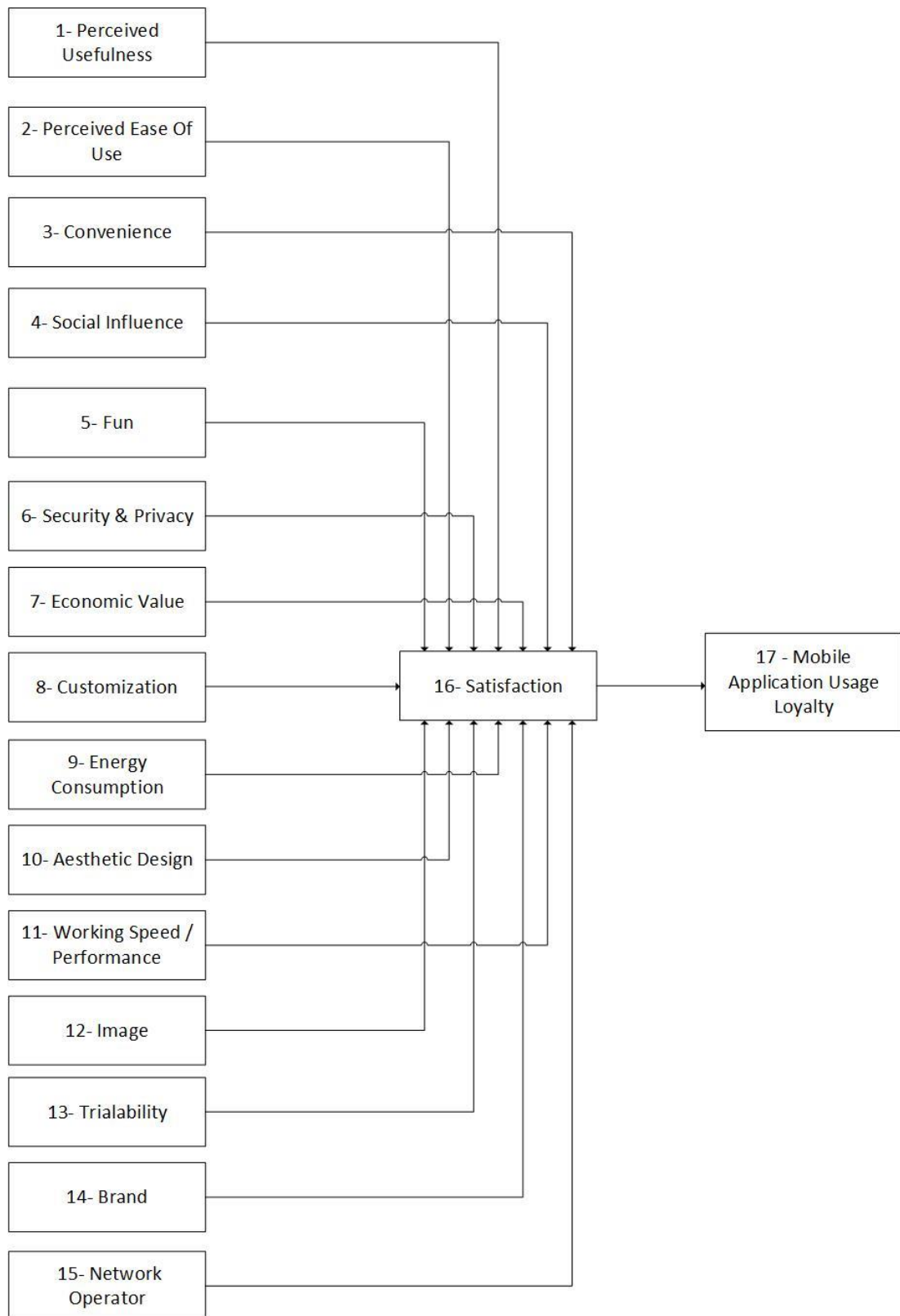


Fig. 10 Theoretical model before factor analysis

3.2 Hypotheses

Based on the research questions mentioned above, this study has 7 hypotheses according to re-generated theoretical model after factor and cluster analysis.

3.2.1 Demographics

Hypothesis 1a: There is a difference between males and females and their mobile application satisfaction level.

Hypothesis 1b: There is a difference between males and females and their mobile application loyalty.

Hypothesis 1c: There is a difference between age groups and their mobile application satisfaction level.

Hypothesis 1d: There is a difference between age groups and their mobile application loyalty.

Hypothesis 1e: There is a difference between income groups and their mobile application satisfaction level.

Hypothesis 1f: There is a difference between income groups and their mobile application loyalty.

Hypothesis 1g: There is a difference between education level related groups and their mobile application satisfaction level.

Hypothesis 1h: There is a difference between education level related groups and their mobile application loyalty.

3.2.2 Technographics

Hypothesis 2a: There is a difference between daily internet usage hours based groups and their mobile application satisfaction level.

Hypothesis 2b: There is a difference between daily internet usage hours based groups and their mobile application loyalty.

Hypothesis 2c: There is a difference between usage year of smart phone based groups and their mobile application satisfaction level.

Hypothesis 2d: There is a difference between usage year of smart phone based groups and their mobile application loyalty.

Hypothesis 2e: There is a difference between owned mobile device's brand based groups and their mobile application satisfaction level.

Hypothesis 2f: There is a difference between owned mobile device's brand based groups and their mobile application loyalty.

Hypothesis 2g: There is a difference between ownership type of mobile device based groups and their mobile application satisfaction level.

Hypothesis 2h: There is a difference between ownership type of mobile device based groups and their mobile application loyalty.

Hypothesis 2i: There is a difference between segment types and people's mobile application satisfaction level.

Hypothesis 2j: There is a difference between segment types and people's mobile application loyalty.

3.2.3 Factor list

Hypothesis 3a: There is positive relationship between speed & design level of mobile application and people's mobile application satisfaction level.

Hypothesis 3b: There is positive relationship between image of mobile application and people's mobile application satisfaction level.

Hypothesis 3c: There is positive relationship between usefulness of mobile applications and people's mobile application satisfaction level.

Hypothesis 3d: There is positive relationship between convenience of mobile applications and people's mobile application satisfaction level.

Hypothesis 3e: There is positive relationship between security & privacy level of mobile applications and people's mobile application satisfaction level.

Hypothesis 3f: There is positive relationship between customization level of mobile applications and people's mobile application satisfaction level.

Hypothesis 3g: There is positive relationship fun level of mobile applications and people's mobile application satisfaction level.

Hypothesis 3h: There is positive relationship between social influence level for mobile applications and people's mobile application satisfaction level.

Hypothesis 3i: There is positive relationship between less energy consumption level of mobile application and people's mobile application satisfaction level.

Hypothesis 3j: There is positive relationship between brand impact of mobile application and people's mobile application satisfaction level.

Hypothesis 3k: There is positive relationship between mobile network operator performance and people's mobile application satisfaction level.

Hypothesis 3l: There is positive relationship between trialability level of mobile applications and people's mobile application satisfaction level.

Hypothesis 3m: There is positive relationship between economic value level of mobile applications and people's mobile application satisfaction level.

Hypothesis 4: There is positive relationship between satisfaction level of mobile application and mobile application usage loyalty.

Hypothesis 5: Mobile application users' satisfaction is determined by usefulness, customization, convenience, image, speed & design, trialability, network operator, fun, brand, security & privacy, social influence, energy consumption and economic value.

3.2.4. Other hypotheses

Hypothesis 6a: There is a positive relationship between people's possibility of future free mobile application download intention in frequently used category and user's mobile application satisfaction level.

Hypothesis 6b: There is a positive relationship between people's possibility of future fee - based mobile application download intention in frequently used category and user's mobile application satisfaction level.

Hypothesis 7a: There is a positive relationship between people's possibility of future free mobile application download intention in frequently used category and their mobile application loyalty.

Hypothesis 7b: There is a positive relationship between people's possibility of future fee - based mobile application download intention in frequently used category and their mobile application loyalty.

CHAPTER 4

RESEARCH METHODOLOGY

This chapter explains the process and the details of the research that includes methodology of data collection, questionnaire preparation, measurement constructs and scales used in the survey, variables of questionnaire, data sampling and analysis.

4.1 Data collection method

Based on the purposes of this thesis which were mentioned in Chapter 1, an online survey was developed. The aim of this paper is to determine the relationships between factors which effect mobile application usage satisfaction in Turkey and to determine the relationship between mobile application usage satisfaction and mobile application usage loyalty. Questionnaires are useful and efficient tools for gathering sample data for these kinds of studies. This study is cross-sectional, therefore questionnaire is filled out by participants just one time.

4.2 Preparation of questionnaire

In the literature review phase, studies from various areas were investigated. Marketing, psychology, economics, information systems and management disciplines' satisfaction and loyalty related articles were chosen as principal focal point. From these studies which are explained in detail in literature review chapter of this thesis, variables were determined. According to these variables, scale investigation is done in literature. The scales' value of Cronbach's alpha for reliability and ease of meaningful translation to Turkish were taken into

consideration, after this step, selected questions are translated to Turkish and placed into questionnaire. For some variables, self- conducted questions are also used in questionnaire. The questionnaire is shown to a small pilot sample in order to prevent misleading translations, and according to their feedback some words are changed in questionnaire.

4.3 Components of the questionnaire

A total of 101 items which are grouped under 13 main questions are used in questionnaire. The online questionnaire has 3 pages and all of the questions have to be filled up by participants. In the first page of the questionnaire, a brief description of the aim of study is placed. In order to prevent misleading answers from participants, first question is designed as a filter question for non- smart mobile device users. If the participant is a smart mobile device user, then the questionnaire passes to the demographics and technographics section, the final part of the questionnaire includes questions about mobile applications' usage, satisfaction and loyalty of consumers. The questionnaire uses 5 point Likert Scale in final part (1: Strongly disagree, 2: Disagree, 3: Neither agrees, nor disagrees, 4: Agree, 5: Strongly agree), but multiple choice questions and ordinal scales are also used for classifying participant's profile in second part. The questionnaire takes nearly ten minutes to complete. English and Turkish versions of the questionnaire are available in the Appendices B and C. After eliminating non- smart mobile device users in the first page, the questionnaire continues as demographics and technographics parts which are explained in detail below.

4.3.1 Demographic characteristics of consumers

Because of demographics variables may effect directly or indirectly consumer's behaviors about mobile applications' usage, the following demographic variables are placed in the questionnaire:

Age: Ordinal scales are used for classifying the age of participants. The participants are needed to select one of the four alternatives as follows:

“16-25”, “26-35”, “36-45”, “46+”.

The popularity level of mobile application usage in younger generations is taken into consideration and age intervals are designed according to reach more efficient subgroups.

Gender: The participants are requested to select one of the two alternatives as follows:

“female” and “male”.

Education: Ordinal scales are used for classifying the education level of participants. To reach more certain results about education level, final graduation status is asked to participants. The respondents are requested to select one of the four alternatives as follows:

“primary school / secondary school”, “high – school”, “university (Bachelor's Degree)”

Monthly Income: Ordinal scales are used to measure the monthly income level of the participants. The participants are requested to select one of the six alternatives below:

“ < 1300 TL ”, “ 1300 – 2699 TL ”, “ 2700 – 4749 TL ”, “ 4750 – 6799 TL ”, “ 6800 – 13599 TL ”, “ 13600 TL + ”

4.3.2 Technographic characteristics of consumers

Because of technographics variables may effect directly or indirectly consumer's behaviors about mobile applications' usage, the following technographic variables are placed in the questionnaire:

Daily Internet Usage Frequency: Ordinal scales are used for measuring the daily internet usage level of participants. The participants are requested to select one of the four alternatives below:

“ 0 – 1 hour ”, “ 2 – 3 hours ”, “ 4 – 5 hours ”, “ 5+ hours ”

Mobile Device Usage History: Ordinal scales are used to measure the respondents' mobile device usage history. The participants are requested to choose one of the four alternatives as follows:

“ 0 – 1 year ”, “ 2 – 3 years ”, “ 3 – 4 years ”, “ 4+ years ”

The Brand of Smart Mobile Device: In that question, the category scale is used in order to determine respondent's mainly used smart mobile device's brand. This question gives opportunity to compare mobile application usage intentions according to smart mobile device brands in the analysis phase. Most popular brands are taken into consideration while determining the answer choices. An explanation for multiple smart mobile device owners is placed also in this question which requests selecting frequently used smart mobile device's brand from respondents. The participants are requested to choose eight alternatives as follows:

“Apple”, “Samsung”, “HTC”, “LG”, “Nokia”, “Sony”, “General Mobile”, “Others”

The Ownership Method of Mobile Smart Device: Category scales are used to determine respondents' ownership method of mobile smart device. The participants are requested to select three alternatives as follows:

“Personal mobile device”, “Company’s mobile device”, “I have both of them”

Category Based Mobile Application Usage Frequency: Ordinal scales are used to measure the respondents’ category based mobile application usage frequency.

Mobile application categories are determined as game, news, banking, health, shopping, communication (instant messaging), social media, cloud computing, hardware (using as a hand lamp or scanner), education, television, photograph, music, radio, sport, betting, weather condition . The participants are requested to choose one of the four alternatives as follows:

“ I don’t use ”, “ I rarely use ”, “ I sometimes use ”, “ I frequently use ”

4.3.3 Other questions related with theoretical model

After answering demographics and technographics questions, participants pass the third page which contains 75 sub-questions under three main questions. 11th question is designed to determine customers’ opinions and intentions about mobile application usage in terms of speed & design, image, usefulness, convenience, security & privacy, customization, fun, social influence, energy consumption, brand, network operator, trialability and economic value. Respondents are requested to answer questions in 5 - point Likert scale (1: Strongly disagree, 2: Disagree, 3: Neither agree, nor disagree, 4: Agree, 5: Strongly agree)

For sub-questions under 11th question which are placed on the third page, sub – question number information, variable information, the original and adapted versions of questions and original questions’ research paper information are summarized in the Table A2 (see Appendix A).

In order to determine mobile application users' different behaviors another question which is placed in the third page is designed. The aim of this question is determining category based loyalty differences towards fee - based and free mobile applications. The questions are self-constructed and 5 point Likert Scale (1: Strongly disagree, 2: Disagree, 3: Neither agree, nor disagree, 4: Agree, 5: Strongly agree) is used in this question.

Finally, the last question is again self-constructed for defining detailed differences between paid and free mobile applications. 5 point Likert Scale (1: Strongly disagree, 2: Disagree, 3: Neither agree, nor disagree, 4: Agree, 5: Strongly agree) is placed as answer options for participants in this question. Sub-questions cover the matters in particular below:

- Selective behavior
- Number of download behavior
- Removing behavior
- Time spending behavior
- Recommending to friends behavior

4.4 Data collection process

Online questionnaire is developed for receiving necessary data for study from respondents. To reach plenty of respondents easily and distribute the questionnaire to a large sample of group, online questionnaire is preferred. Since our target segment is mobile internet users, an online survey tool which has mobile device optimized interface is selected.

All the questions in the questionnaire are required an answer in order to obtain dataset for analysis. A question can not be skipped. An asterisk (*) is used to mark required questions. Respondents could not pass the next page until they answer all the questions. There are 3 pages exist in the questionnaire. Totally 845 people answered all the questions and generated the dataset which is needed for hypothesis testing.

In this research convenience sampling from non- probability sampling methods is used for selecting people and collecting data. The reasons for selecting convenience sampling are obtaining dataset quickly and distributing the questionnaire easily.

Although convenience sampling method has the lowest generalizability and representativeness, it is suitable for reaching pre-defined mobile internet users as audience. Time and cost restrictions also make convenience sampling suitable for data gathering.

The online questionnaire which is prepared via kwiksurvey.com is distributed by using mailing lists, forums, and social media. Not only friends but also friends of friends helped for distribution of questionnaire. In addition to them some academicians from universities and some employees from telecommunication sector filled and distributed the questionnaire. As explained before the first question is designed for selection of mobile device users. If the respondents is not a mobile device user, than he or she directly is sent to thank you page. The survey link was delivered to 2346 people, however; only 2131 number of people answered the questions. And only 845 participants out of 2131 respondents fully completed the survey. Hence the final sample size of this thesis is 845 mobile application users.

4.5 Data analysis approach

After gathering data from respondents, data was analyzed with using SPSS for further and deeper statistical analyses. The analyses below are done to the dataset:

- Descriptive analyses were done for demographic and technographic characteristics of mobile application users to determine statistical indicators like mean or standard deviation.
- Factor analysis was done for grouping related independent variables which are related with user satisfaction.
- Cluster analysis was done to classify segments of participants according to the factors that affect their satisfaction from mobile applications.
- Cross - tab analyses were done to understand segments' demographic, technographic and category based mobile application usage patterns.
- Correlation analysis was done to determine relations between mobile application users' satisfaction and loyalty.
- Multiple regression analyses were done in order to show the relationships between independent and dependent variables based on mathematical formulas.
- Difference analyses (t-test and ANOVA) were implemented to find the differences between groups of different demographic and technographic profiles in terms of mobile application users' satisfaction and loyalty.

CHAPTER 5

ANALYSES AND FINDINGS

After conducting reliability test for the scales, factor and cluster analyses were run, and besides ANOVA and t-tests, regression analysis and correlations were also used in line with the hypotheses of this thesis.

5.1 Descriptive analysis

5.1.1 Demographic profile of the respondents

Demographic characteristics of the respondents are presented in the Table 5 below.

Frequency and percentage information according to gender, age, graduation status and income level are shown in the table with using received information from questionnaire.

Table 5. Demographic Profile of the Respondents

| | | | | | | |
|----------------------|--------------------------|-------------------|-------------------|--|--------------------|------------|
| Gender | Female | Male | | | | |
| Frequency | 438 | 407 | | | | |
| Percentage | 51.83% | 48.17% | | | | |
| Age | 16-25 | 26-35 | 36-45 | 46+ | | |
| Frequency | 578 | 185 | 53 | 29 | | |
| Percentage | 68.40% | 21.89% | 6.27% | 3.43% | | |
| Graduation Status | Under High School Degree | High School | University | Graduate (MBA, M.A., M.Sc., and Ph.D.) | | |
| Frequency | 89 | 337 | 262 | 157 | | |
| Percentage | 10.5% | 39.88% | 31% | 18.62% | | |
| Monthly Income Level | < 1300 TL | 1300 TL – 2699 TL | 2700 TL – 4749 TL | 4750 TL – 6799 TL | 6800 TL – 13599 TL | 13600 TL + |
| Frequency | 338 | 154 | 204 | 88 | 48 | 13 |
| Percentage | 40% | 18.22% | 24.14% | 10.41% | 5.68% | 1.54% |

According to the results, only 13 people's monthly income level is higher than 13600 TL and 48 people's monthly income level is between 6800 TL and 13600 TL. Therefore, these groups are merged with the group of people whose monthly income levels are between 4750 TL and 6799 TL and a new group is defined with 149 respondents whose monthly income level is higher than 4750 TL. After this little adjustment, the research's demographic groups' are determined as Table 6 below.

Table 6. Adjusted Demographic Profile of the Respondents

| | | | | |
|--------------------------|--------------------------|-------------------|-------------------|--|
| Gender | Female | Male | | |
| Frequency | 438 | 407 | | |
| Percentage | 51.83% | 48.17% | | |
| Age | 16-25 | 26-35 | 36-45 | 46+ |
| Frequency | 578 | 185 | 53 | 29 |
| Percentage | 68.40% | 21.89% | 6.27% | 3.43% |
| Latest Graduation Status | Under High School Degree | High School | University | Graduate (MBA, M.A., M.Sc., and Ph.D.) |
| Frequency | 89 | 337 | 262 | 157 |
| Percentage | 10.5% | 39.88% | 31% | 18.62% |
| Monthly Income Level | < 1300 TL | 1300 TL – 2699 TL | 2700 TL – 4749 TL | 4750 TL + |
| Frequency | 338 | 154 | 204 | 149 |
| Percentage | 40% | 18.22% | 24.14% | 17.63% |

Female's percentage of mobile application users is slightly higher than male's percentage of mobile application users according to respondents of questionnaire.

For age distribution, 16 – 25 age group has the highest percentage which is 68.40%. After that 26 - 35 and 36 - 45 age groups have percentages as 21.89% and 6.27%. The final age group which consists people older than 46 has 3.43%. This distribution presents compatibility among common observations that mobile applications' higher popularity on younger ages.

According to the latest graduation status of people, high school and university graduates have highest percentages as 39.88% and 31%. This situation also presents parallelism with age group distribution results.

Finally for demographics, the group of people whose monthly income level lower than 1300 TL has the highest percentage as 40%. This result probably represents the group of people who are students without economic independence. The second largest group which consists of 204 people whose monthly income level is between 2700 TL and 4749 TL and this group's percentage is 24.14%. This group probably represents recently hired employees. After that, 156 respondents set a group with 18.22% percentage whose monthly income level is between 1300 TL and 2699 TL. People with monthly income level more than 4750 TL have percentage as 17.63%.

5.1.2 Technographic profile of the respondents

Technographic profile of respondents was investigated with questions from 6 to 10 in the questionnaire. Daily internet usage hours of participants, smart mobile device ownership history of participants, smart mobile device brand distribution of participants, smart mobile device ownership method of participants and category based mobile application usage profiles of participants are defined as factors for defining technographic profile of the respondents.

5.1.2.1 Daily internet usage hours of respondents

Daily internet usage of respondents was measured in four categories which are 0-1 hour, 2-3 hours, 4-5 hours and more than 5 hours.

According to answers of respondents only 52 of 845 people spend 0-1 hour in a day on the internet whose percentage is 6.15. 310 people chose 2-3 hours as answer and they take up 36.69% of the sample as most crowded group. 227 people said that, they spend 4-5 hours in a day on the internet and their percentage is 26.86 in the sample. 256 people with 30.30 percentages represent people who spend more than 5 hours in a day in this research. Table 7 summarizes the daily internet usage status of respondents.

Table 7. Daily Internet Usage Profile of Respondents

| | Frequency | Percent (%) |
|-------------|-----------|-------------|
| 0 - 1 hour | 52 | 6.15 |
| 2 - 3 hours | 310 | 36.69 |
| 4 - 5 hours | 227 | 26.86 |
| 5 + hours | 256 | 30.30 |
| Total | 845 | 100 |

5.1.2.2 Smart mobile device ownership history of respondents

Smart mobile device ownership history of respondents was categorized in four categories which are 0-1 year, 1-2 years, 2-3 years and more than 4 years.

According to answers of participants 115 people with 13.60 percentage of sample have 0-1 year smart mobile device ownership history represents smallest group in the research while 285 people with 33.72 percentage of sample take the largest slice in the pie. 219 people said that they have used smart mobile device for last 1-2 years and their percentage is 25.91 in the sample. 226 people with 26.74 percentages represent people with the history of more than 4 years with using smart mobile device in this research. Table 8 summarizes the daily internet usage status of respondents.

Table 8. Smart Mobile Device Ownership History of Respondents

| | Frequency | Percent (%) |
|-------------|-----------|-------------|
| 0 - 1 year | 115 | 13.60 |
| 1 - 2 years | 219 | 25.91 |
| 2 - 3 years | 285 | 33.72 |
| 4 + years | 226 | 26.74 |
| Total | 845 | 100 |

5.1.2.3 Smart mobile device brand distribution of participants

Type of participants' smart mobile device brand is defined with combo box question.

In order to prevent misunderstanding for people who have more than one smart mobile device, it is requested from them that to select the brand of smart mobile device which is used from them most. Most common brands of smart phones such as Apple, Samsung, HTC, LG, Nokia, Sony, General Mobile were listed as answer options in that questions while there was other option available for the users who are using smart mobile devices which have other brand names.

According to answers of smart mobile device holders 360 people have Samsung branded smart mobile device which represents 42.60% of audience. Apple branded smart mobile device users created a sample with 270 people and took second place with 31.95% of respondents. 43 people said that their smart mobile devices' brand is LG and they have 5.09% from the pie. General Mobile holders were 42 people and their percentage is 4.97. 37 people from the participants group used HTC branded smart phone whose percentage is 4.38. There were 35 Sony branded smart mobile device users exist in this research and their percentage is 4.14. The least crowded group is created by 22 Nokia branded smart mobile users and they represent 2.6% of participants. 36 people chose other from answer options and created a group

which represents 4.26% of sample. Table 9 summarizes the smart mobile device brand distribution of respondents.

Table 9. Smart Mobile Device Brand Distribution of Participants

| | Frequency | Percent (%) |
|----------------|-----------|-------------|
| Samsung | 360 | 42.60 |
| Apple | 270 | 31.95 |
| LG | 43 | 5.09 |
| General Mobile | 42 | 4.97 |
| HTC | 37 | 4.38 |
| Sony | 35 | 4.14 |
| Nokia | 22 | 2.60 |
| Others | 36 | 4.26 |
| Total | 845 | 100 |

5.1.2.4 Smart mobile device ownership method of participants

Users' smart mobile device ownership method is also investigated in this study and a question is placed into the questionnaire. This question helped to categorize participants according to their smart mobile device ownership method. Personal smart mobile device ownership, company owned smart mobile device ownership and not only personal smart mobile device ownership both also company owned smart mobile device ownership methods are listed in this question as answer options.

792 people out of 845 participants who represent 93.8% of sample replied that they have smart mobile device personally while only 6 people with 0.07 percentage of audience declared they use smart mobile device with the help of their company. As a third group which consists 47 people with 5.5 percentages of participants chose that they have both personal and company-owned smart mobile devices. Table 10 summarizes the smart mobile device ownership method of participants.

Table 10. Smart Mobile Device Ownership Method of Participants

| | Frequency | Percent (%) |
|---|-----------|-------------|
| Personal smart mobile device ownership | 792 | 93.73 |
| Company owned smart mobile device ownership | 6 | 0.71 |
| Both personal and company owned smart mobile device ownership | 47 | 5.56 |
| Total | 845 | 100 |

5.1.3 Category based mobile application usage profiles of participants

Mobile application users' category based mobile application usage frequency was investigated via questionnaire and summarized in Table 11 below. Social media, instant messaging, music and photography applications are defined as most popular and most frequently used applications by 845 respondents. While betting, cloud storage solutions, banking and television related mobile applications are least frequently used by them.

Table 11. Category Based Mobile Application Usage Profiles of Participants

| Category Name | Data Type of Respondents | I don't use | I rarely use | I sometimes use | I frequently use |
|--------------------------------------|--------------------------|-------------|--------------|-----------------|------------------|
| Game | Number | 199 | 254 | 221 | 171 |
| | Percentage | 23.6% | 30.1% | 26.2% | 20.2% |
| News | Number | 74 | 188 | 257 | 326 |
| | Percentage | 8.8% | 22.2% | 30.4% | 38.6% |
| Banking | Number | 436 | 144 | 114 | 151 |
| | Percentage | 51.6% | 17.0% | 13.5% | 17.9% |
| Health | Number | 375 | 266 | 154 | 50 |
| | Percentage | 44.4% | 31.5% | 18.2% | 5.9% |
| Shopping | Number | 285 | 218 | 213 | 129 |
| | Percentage | 33.7% | 25.8% | 25.2% | 15.3% |
| Instant Messaging | Number | 10 | 33 | 63 | 739 |
| | Percentage | 1.2% | 3.9% | 7.5% | 87.5% |
| Social Media | Number | 28 | 33 | 76 | 708 |
| | Percentage | 3.3% | 3.9% | 9.0% | 83.8% |
| Cloud Storage Solutions | Number | 429 | 178 | 130 | 108 |
| | Percentage | 50.8% | 21.1% | 15.4% | 12.8% |
| Hardware (Hand torch, scanner, etc.) | Number | 147 | 291 | 261 | 146 |
| | Percentage | 17.4% | 34.4% | 30.9% | 17.3% |
| Education | Number | 90 | 224 | 278 | 253 |
| | Percentage | 10.7% | 26.5% | 32.9% | 29.9% |
| Television | Number | 471 | 173 | 133 | 68 |
| | Percentage | 55.7% | 20.5% | 15.7% | 8.0% |
| Photography | Number | 12 | 91 | 176 | 566 |
| | Percentage | 1.4% | 10.8% | 20.8% | 67.0% |
| Music | Number | 45 | 97 | 158 | 545 |
| | Percentage | 5.3% | 11.5% | 18.7% | 64.5% |
| Radio | Number | 284 | 194 | 180 | 187 |
| | Percentage | 33.6% | 23.0% | 21.3% | 22.1% |
| Sport | Number | 382 | 199 | 140 | 124 |
| | Percentage | 45.2% | 23.6% | 16.6% | 14.7% |
| Betting | Number | 731 | 53 | 35 | 26 |
| | Percentage | 86.5% | 6.3% | 4.1% | 3.1% |
| Weather Condition | Number | 113 | 256 | 236 | 240 |
| | Percentage | 13.4% | 30.3% | 27.9% | 28.4% |

5.1.4 Mobile application users' items of satisfaction determinants

In the questions from 11 to 13, a 5 point Likert Scale which consists answer choices from strongly disagree to strongly agree is used to define most highlighted items for determinants. The mean values of each question according to their scales are shown in the Table A3 (see Appendix A).

5.1.5 Mobile application Users' satisfaction from mobile applications

In order to measure mobile application users' satisfaction level from mobile applications a satisfaction scale is also placed in the questionnaire which consists 6 questions. Item based results of satisfaction scale according to 5 point Likert scale and satisfaction items' mean values are shown in the Table 12 below.

Table 12. Mean Values for Item Based Results of Overall Satisfaction Scale

| Items | N | Mean (Over 5) | Std. Deviation |
|--|-----|---------------|----------------|
| Mobile applications encounter exactly what I need. | 845 | 3.27 | 0.94 |
| Taking everything into consideration, the service received from mobile applications is satisfying. | 845 | 3.76 | 0.78 |
| I am satisfied with my decision to use mobile applications. | 845 | 4.06 | 0.72 |
| Using mobile applications in daily life activities is a wise way. | 845 | 3.85 | 0.77 |
| Using mobile applications has been a good experience. | 845 | 3.9 | 0.77 |
| Mobile applications answer my expectations. | 845 | 3.7 | 0.82 |

6 items are placed in the questionnaire to determine mobile application users' satisfaction level. These items' mean values are shown in the table 12 above. From there it could be concluded that mobile application users' are satisfying that using mobile application in general. These 6 items mean values are 3.75 from 5 and 86.8% of people said, they are agree or strongly agree that "I am satisfied with my decision to use mobile applications.

5.1.6 Mobile application users' loyalty towards mobile applications

In order to measure mobile application users' loyalty towards mobile applications a four questions loyalty scale is placed in the questionnaire. Mean values of loyalty scale's questions are shown in the Table 13 below.

Table 13. Mean Values for Item Based Results of Loyalty Scale

| Items | N | Mean (Over 5) | Std. Deviation |
|---|-----|------------------|-------------------|
| I would use mobile applications that used previously once and satisfied with their performance in the future again. | 845 | 4.07 | 0.78 |
| I use mobile applications with satisfying performance in a long range period. | 845 | 4.22 | 0.73 |
| I don't think to change mobile applications which I frequently use. | 845 | 4.12 | 0.81 |
| It would be difficult to give up easily from a mobile application, if I get used to it. | 845 | 4.00 | 0.93 |

The results of loyalty scale could be summarized as below:

- 87.2% of respondents agree or strongly agree that they can use mobile applications that used previously once and satisfied with their performance, in the future again.

- 90.5% of respondents agree or strongly agree that they will use mobile applications with satisfying performance in a long range period.
- 85.2% of mobile application users who answered questionnaire declared that they don't think to change mobile applications which they frequently use.
- However only 78.5% of respondents while comparing the item with other loyalty scale items agree or strongly agree that, changing a mobile application which they get used to use it will be difficult for them.
- Total average mean value for four items is calculated as 4.1. Therefore, it is not discussible that, mobile application users tend to behave loyal when it comes to mobile application usage.

5.1.7 Mobile application users' future mobile application download intention

For analyzing mobile application users' future mobile application download intention towards to fee-based and free mobile applications and investigating if there is a difference between mobile application users' download intention between fee-based and free mobile applications the question below is asked to participants with using 5 point Likert scale. According to responses of the participants it can be summarized that mobile application users are more willing to download free mobile applications which are in the most frequently used category according to their choices, in the future. Table 14 below summarizes the findings.

Table 14. Frequency Values of Mobile Application Users' Future Mobile Application Download Intention in General

| Items | 1- Strongly Disagree | 2- Disagree | 3- Neither Disagree Nor Agree | 4- Agree | 5- Strongly Agree |
|---|----------------------|-----------------|-------------------------------|-----------------|-------------------|
| I can download free mobile applications which are in the most frequently used category according to me, in the future. | 9 (1.10%) | 37 (4.40%) | 134 (15.90%) | 482 (57.00%) | 183 (21.70%) |
| I can download fee-based mobile applications which are in the most frequently used category according to me, in the future. | 85 (10.10%) | 150 (17.80%) | 262 (31.00%) | 272 (32.20%) | 76 (9.00%) |

5.1.8 Mobile application users' comparison between fee-based and free mobile applications

To define mobile application users' opinions upon fee-based and free mobile applications, a final scale of questionnaire is placed into questionnaire. It is requested from mobile application users to evaluate free mobile applications in terms of their opinions towards fee-based mobile applications and to make comparisons. 5 point Likert scale is used to determine participants' acceptance level for statements which are in the Table 15 below. According the responses of participants, it can be summarized as follows:

- Mobile application users behave less selective for free mobile applications, they download more number of free mobile applications, they spend more time with free mobile applications and they more likely recommend free

mobile applications to their friends when they compare free mobile applications and fee-based mobile applications.

- However mobile application users said that they more likely delete free mobile applications from their smart mobile devices when they compare free mobile applications and fee-based mobile applications.

Table 15. Frequency Values of Mobile Application Users' Future Mobile Application Download Intention

| Items | 1- Strongly Disagree | 2- Disagree | 3- Neither Disagree Nor Agree | 4-Agree | 5- Strongly Agree |
|--|----------------------|-----------------|-------------------------------|-----------------|-------------------|
| I am less selective for free mobile applications when I think about my behavior toward fee-based mobile applications | 71 (8.40%) | 163 (19.30%) | 173 (20.50%) | 335 (39.60%) | 103 (12.20%) |
| I download more number of free mobile applications than fee-based mobile applications | 35 (4.10%) | 112 (13.30%) | 110 (13.00%) | 352 (41.70%) | 236 (27.90%) |
| I less likely delete free mobile applications even I don't use them regularly when I think about my behavior towards fee-based mobile applications | 255 (30.20%) | 293 (34.70%) | 117 (13.80%) | 130 (15.40%) | 50 (5.90%) |
| I spend more time with free mobile applications when I think about my behavior towards fee-based mobile applications | 61 (7.20%) | 191 (22.60%) | 193 (22.80%) | 301 (35.60%) | 99 (11.70%) |
| I more likely recommend free mobile applications to my friends when I think about my behavior towards fee-based mobile applications | 55 (6.50%) | 138 (16.30%) | 192 (22.70%) | 328 (38.80%) | 132 (15.60%) |

5.2 Factor analysis

To determine similarity levels of satisfaction determinants, factor analysis is used. 54 determinants which are mostly taken from literature review are put into factor analysis and it is investigated that if they can be grouped or not.

5.2.1 Mobile application users' satisfaction items' factor analysis – first iteration

5.2.1.1 Reliability analysis

There are 54 items available as user satisfaction determinant items. Cronbach's Alpha value of these items is 0.909. According to this value, it can be stated that mobile application users' satisfaction determinants are consistent and reliable. Cronbach's Alpha value is shown in Table 16 below.

Table 16. Cronbach's Alpha Analysis Results of Satisfaction Determinants

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| 0.909 | 54 |

5.2.1.2 Sampling adequacy

Before applying factor analysis to determine similarity levels of satisfaction determinants, adequacy of sample needs to be checked via Kaiser- Meyer Olkin and Bartlett's Test of Sphericity tests. KMO measure is found as 0.893, therefore the sample is adequate to run the factor analysis. Beside this measure significance level of Bartlett's Test of Sphericity is found as 0.000, which means the sample is reliable to apply the factor analysis. Table 17 below shows the detailed results of these tests.

Table 17. KMO and Bartlett's Test of Sphericity Values for Mobile Application Users' Satisfaction Factors' First Iteration

| KMO and Bartlett's Test | | |
|---|----------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.893 |
| Bartlett's Test of Sphericity | Approx. Chi - Square | 18475.8 |
| | df | 1421 |
| | Sig. | 0.000 |
| | | |

5.2.1.3 Total variance explained

Results of the factor analysis show that 62.89% of the total variance is explained by 14 constructs. Because of total variance's value is greater than 60%, the results can be considered as satisfying. In that factor analysis, principle components method and varimax method were used.

5.2.1.4 Mobile application users' satisfaction items' factor analysis results – first iteration

Mobile application users' satisfaction determinants which are previously defined as 54 items were entered factor analysis. Rotated component matrix is placed at Table A4 (see Appendix A). According to the results of the rotated component matrix, 5 determinants were taken out of the analysis and factor analysis was repeated as second iteration. The results of the second iteration also will be also explained in detail on next section of this study.

5.2.2 Mobile application users' satisfaction items' factor analysis – second iteration

A second iteration for factor analysis is conducted because in the first iteration there were variables which have factor loads lower than 0.40. Beside this some variables have been evenly distributed to factors. Hence 5 variables were excluded and then the factor analysis was run again for the remaining 49 items. Excluded items are shown the Table 18 below.

Table 18. Excluded Items for Second Iteration of Factor Analysis

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|-----------------------------|-----------------------------------|--|---|
| 11.24 | Economic Value | Yu et al. (2013) | If the service is not expensive, I willing to purchase them. | If the mobile application is not expensive, I may purchase it. |
| 11.27 | Economic Value | Yu et al. (2013) | Mobile commerce services would offer a good value for money. | The benefits, which are provided by mobile applications, must deserve the money paid for them. |
| 11.54 | Brand | Ballester and Elleman (2005) | Even when another brand is on sale, I would prefer the brand [X] | I prefer using my familiar brand's fee-based mobile application instead of a free mobile application which is owned by a brand that I am not accustomed to. |
| 11.39 | Working Speed / Performance | Self-Added | N/A | Working speed of a mobile application is more important than its functionality. |
| 11.58 | Network Operator | Self-Added | N/A | Two different mobile applications can be used simultaneously via smart mobile devices. |

5.2.2.1 Reliability analysis

There are 49 items available as user satisfaction determinant items. Cronbach's Alpha value of these items is 0.903. According to this value, it can be stated that mobile application users' satisfaction determinants are consistent and reliable. Cronbach's Alpha value is shown in Table 19 below.

Table 19. Cronbach's Alpha Analysis Results of Satisfaction Determinants – Second Iteration

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| 0.903 | 0.91 | 49 |

5.2.2.2 Sampling adequacy

The KMO value of remaining items is found as 0.889, which is greater than 0.5. Therefore, the sample is still adequate to run the factor analysis. Beside this, Bartlett's Test of Sphericity is found as 0.000, which guarantees the sample is reliable to apply factor analysis. Table 20 below, shows the detailed results of both tests.

Table 20. KMO and Bartlett's Test of Sphericity Values for Mobile Application Users' Satisfaction Factors - Second Iteration

| KMO and Bartlett's Test | | |
|---|----------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.889 |
| Bartlett's Test of Sphericity | Approx. Chi - Square | 16963.31 |
| | df | 1176 |
| | Sig. | 0.000 |

5.2.2.3 Total variance explained

Results of the factor analysis show that 63.61% of the total variance is explained by 13 constructs. Because of total variance's value is greater than 60%, the results can be considered as satisfying. In that factor analysis, principle components method and varimax method were used.

5.2.2.4 Mobile application users' satisfaction items' factor analysis results – second iteration

After analyzing the results of rotated component matrix, 49 items related to mobile application users' satisfaction level were classified and named as 13 factors. These factors, their explained variance level and items loadings' values are shown in the Table A5 (see Appendix A).

According to the results of factor analysis remaining 49 items were grouped and renamed as 13 factors. Newly defined simplified factors are listed as; speed & design, image, usefulness, convenience, security & privacy, customization, fun, social influence, energy consumption, brand, network operator, trialability, economic value.

5.2.2.5 Mean values of mobile application users' satisfaction items after factor analysis

After factor analysis 13 determinants are defined which effect mobile application users' satisfaction level. These newly generated factors' mean and standard deviation values are shown in the Table 21 below.

Table 21. Mean Values of Mobile Application Users' Satisfaction Items After Factor Analysis

| Factor Name | Number of Items | Mean (Over 5) | Std. Deviation |
|--------------------|-----------------|---------------|----------------|
| Speed & Design | 7 | 4.32 | 0.55 |
| Convenience | 6 | 4.16 | 0.61 |
| Brand | 2 | 4.01 | 0.78 |
| Energy Consumption | 3 | 4.01 | 0.77 |
| Usefulness | 5 | 3.98 | 0.65 |
| Network Operator | 2 | 3.91 | 0.79 |
| Fun | 3 | 3.88 | 0.8 |
| Customization | 3 | 3.86 | 0.63 |
| Trialability | 3 | 3.85 | 0.72 |
| Economic Value | 2 | 3.64 | 0.87 |
| Image | 5 | 2.91 | 0.95 |
| Social Influence | 3 | 2.76 | 0.87 |
| Security & Privacy | 5 | 2.58 | 0.86 |

5.2.2.6 Internal consistencies of mobile application users' satisfaction and loyalty scales

Before publishing the new theoretical model, internal consistencies of mobile application users' satisfaction and loyalty scales also need to be investigated.

According to the results which are shown in the Table 22 below, satisfaction and mobile application usage loyalty scales are internally consistent and reliable.

Table 22. Internal Consistencies of Mobile Application Users' Satisfaction and Loyalty Scales

| Factor Name | Number of Items | Cronbach's Alpha |
|----------------------------------|-----------------|------------------|
| Overall Satisfaction | 6 | 0.874 |
| Mobile Application Usage Loyalty | 4 | 0.774 |

5.2.3 The new theoretical model after factor analysis

After factor analyses new and renamed determinants are defined and new classification of items is made, satisfaction and loyalty scales' internal consistencies are found reliable and consistent. As a result, Figure 11 shows the latest situation of theoretical model.

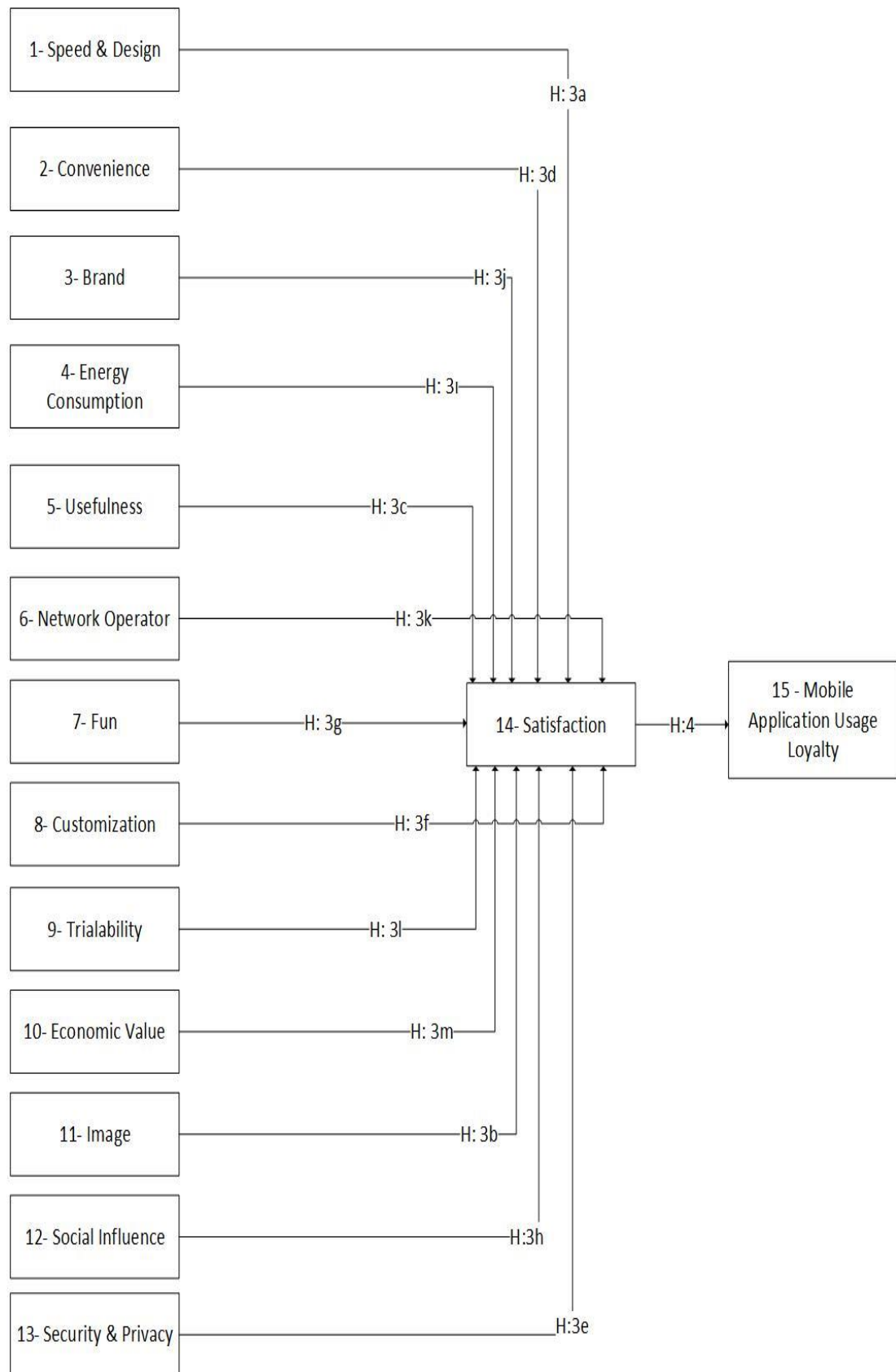


Fig. 11 The theoretical model after factor analysis

5.3 Cluster analysis

After factor analyses, cluster analysis is done to create segments from mobile application users. For doing this, K-means cluster analysis method is used. Trials of three clusters and five cluster analysis was done, however these clusters were observed as unsuitable according to aim of cluster determination. Because of number of participants are enough, four clusters were created and this solution was observed as optimum solution against three cluster and five cluster solutions. In a four cluster solution, it is obvious that cluster 2 has the lowest number of respondents whereas cluster 1 constitutes the largest segment. Number of user for each cluster information is placed in the Table 23 below.

Table 23. Number of Users in Each Cluster

| Number of Cases in each Cluster | | |
|---------------------------------|---|-----|
| Cluster | 1 | 298 |
| | 2 | 63 |
| | 3 | 225 |
| | 4 | 259 |
| Valid | | 845 |
| Missing | | 0 |

Final cluster centers are defined in the Table 24 below. With using this information segmentation is done and clusters' names are designated.

Table 24. Final Cluster Centers

| Final Cluster Centers | | | | |
|-----------------------|---------|------|------|------|
| | Cluster | | | |
| | 1 | 2 | 3 | 4 |
| Design & Speed | 4.1 | 3.53 | 4.47 | 4.64 |
| Image | 2.81 | 2.28 | 2.25 | 3.74 |
| Usefulness | 3.83 | 3.37 | 3.84 | 4.42 |
| Convenience | 3.95 | 3.75 | 4.22 | 4.47 |
| Security & Privacy | 2.6 | 2.42 | 2.03 | 3.09 |
| Customization | 3.62 | 3.13 | 3.93 | 4.26 |
| Fun | 3.61 | 3.03 | 3.85 | 4.41 |
| Social Influence | 2.79 | 2.2 | 2.29 | 3.28 |
| Energy Consumption | 3.7 | 3.05 | 4.35 | 4.3 |
| Brand | 3.87 | 2.76 | 4.1 | 4.4 |
| Network Operator | 3.64 | 2.79 | 4.11 | 4.33 |
| Trialability | 3.63 | 2.98 | 3.92 | 4.26 |
| Economic Value | 3.19 | 2.91 | 4.1 | 3.93 |

The importance of satisfaction determinants for each cluster is shown in the Table 25 below.

Table 25. Cluster Based Satisfaction Determinants List

| Factor | C 1 | Factor | C 2 | Factor | C 3 | Factor | C 4 |
|--------------------|------|--------------------|------|--------------------|------|--------------------|------|
| Design & Speed | 4.1 | Convenience | 3.75 | Design & Speed | 4.47 | Design & Speed | 4.64 |
| Convenience | 3.95 | Design & Speed | 3.53 | Energy Consumption | 4.35 | Convenience | 4.47 |
| Brand Impact | 3.87 | Usefulness | 3.37 | Convenience | 4.22 | Usefulness | 4.42 |
| Usefulness | 3.83 | Customization | 3.13 | Network Operator | 4.11 | Fun | 4.41 |
| Energy Consumption | 3.7 | Energy Consumption | 3.05 | Brand Impact | 4.1 | Brand Impact | 4.4 |
| Network Operator | 3.64 | Fun | 3.03 | Economic Value | 4.1 | Network Operator | 4.33 |
| Trialability | 3.63 | Trialability | 2.98 | Customization | 3.93 | Energy Consumption | 4.3 |
| Customization | 3.62 | Economic Value | 2.91 | Trialability | 3.92 | Customization | 4.26 |
| Fun | 3.61 | Network Operator | 2.79 | Fun | 3.85 | Trialability | 4.26 |
| Economic Value | 3.19 | Brand Impact | 2.76 | Usefulness | 3.84 | Economic Value | 3.93 |
| Image | 2.81 | Security & Privacy | 2.42 | Social Influence | 2.29 | Image | 3.74 |
| Social Influence | 2.79 | Image | 2.28 | Image | 2.25 | Social Influence | 3.28 |
| Security & Privacy | 2.6 | Social Influence | 2.2 | Security & Privacy | 2.03 | Security & Privacy | 3.09 |

According to distribution of satisfaction determinants towards clusters, segments are defined and matched with clusters into Table 26 below. Design & Speed, convenience, brand impact and usefulness are the most important factors for pragmatics while economic value, image, social influence and security & privacy are the least important ones. For laggards, the most important factors are listed as convenience, design & speed, usefulness and customization. Laggards don't give attention on brand impact, security & privacy, image and social influence. Value conscious users' expectations focus on design & speed, energy consumption, convenience and network operator while they put usefulness, social influence, image and security & privacy at the end of their list. Demandings stated that design & speed, convenience, usefulness and fun as their important mobile application satisfaction factors whereas they pay no attention upon economic value, image, social influence and security & privacy factors.

Table 26. Segment – cluster matching

| Cluster | Segment Name |
|-----------|-----------------|
| Cluster 1 | Pragmatics |
| Cluster 2 | Laggards |
| Cluster 3 | Value Conscious |
| Cluster 4 | Demandings |

ANOVA table for cluster analysis is placed in the Table 27 below. According to the results of this table differences in the mean values and variance of four segments with respect to satisfaction determinants are exist and significant. The ANOVA table shows statistically significant differences among four cluster groups. The F values in

the ANOVA table indicate that; image, design & speed, network operator and brand impact are respectively the most difference generator factors among four groups.

Table 27. ANOVA Table for Cluster Analysis

| ANOVA | | | | | | |
|--------------------|-------------|----|-------------|-----|---------|-------|
| | Cluster | | Error | | F | Sig. |
| | Mean Square | df | Mean Square | df | | |
| Design & Speed | 28.632 | 3 | 0.204 | 841 | 140.129 | 0.000 |
| Image | 101.437 | 3 | 0.543 | 841 | 186.739 | 0.000 |
| Usefulness | 27.901 | 3 | 0.328 | 841 | 85.178 | 0.000 |
| Convenience | 16.17 | 3 | 0.318 | 841 | 50.845 | 0.000 |
| Security & Privacy | 45.709 | 3 | 0.584 | 841 | 78.283 | 0.000 |
| Customization | 30.673 | 3 | 0.285 | 841 | 107.639 | 0.000 |
| Fun | 47.091 | 3 | 0.466 | 841 | 100.984 | 0.000 |
| Social Influence | 46.823 | 3 | 0.589 | 841 | 79.544 | 0.000 |
| Energy Consumption | 44.469 | 3 | 0.437 | 841 | 101.689 | 0.000 |
| Brand | 48.734 | 3 | 0.431 | 841 | 113.164 | 0.000 |
| Network Operator | 51.505 | 3 | 0.441 | 841 | 116.858 | 0.000 |
| Trialability | 35.419 | 3 | 0.387 | 841 | 91.484 | 0.000 |
| Economic Value | 53.929 | 3 | 0.568 | 841 | 94.935 | 0.000 |

5.4 Cross – tabs analysis

After cluster analysis, cross –tabs analysis is done to determine segments' demographic, technographic and category based mobile application usage pattern specifications which are previously defined as research questions in Chapter 3. For doing these cross-tabs analysis is done from descriptive statistics is selected.

First of all, segments' demographic specifications are investigated. The results of segment and gender crosstabulation are shown in the Table 28 below. According to results of analysis, females are represented mostly in pragmatics and demandings, while males mainly find places in laggards and value conscious segments. Especially, it can be stated more than half of laggards are male.

Table 28. Crosstabulation Results for Gender and Segments

| Cluster Number of Case * Gender Crosstabulation | | | | | |
|---|-----------------|---------------------------------|---------|---------|----------|
| | | | Gender | | Total |
| | | | Females | Males | |
| Cluster Number of Case | Pragmatics | Count | 159 | 139 | 298 |
| | | % within Cluster Number of Case | 53% | 47% | 100.00 % |
| | Laggards | Count | 28 | 35 | 63 |
| | | % within Cluster Number of Case | 44% | 56% | 100.00 % |
| | Value Conscious | Count | 116 | 109 | 225 |
| | | % within Cluster Number of Case | 52% | 48% | 100.00 % |
| | Demandings | Count | 135 | 124 | 259 |
| | | % within Cluster Number of Case | 52% | 48% | 100.00 % |
| Total | | Count | 438 | 407 | 845 |
| | | % within Cluster Number of Case | 51.80 % | 48.20 % | 100.00 % |

Another cross – tabs analysis is done between age groups and segments. The results of segment and age group crosstabulation are shown in the Table 29 below.

According to results of analysis, laggards and pragmatics consist more percentage of elderly people against value conscious and demandings. More than 93% of value conscious people are younger than 35.

Table 29. Crosstabulation Results for Age Groups and Segments

| Cluster Number of Case * Age Crosstabulation | | | | | | | |
|--|-----------------|---------------------------------|--------|--------|-------|-------|-------|
| | | | Age | | | | Total |
| | | | 16-25 | 26-35 | 36-45 | 46+ | |
| Cluster Number of Case | Pragmatics | Count | 193 | 62 | 26 | 17 | 298 |
| | | % within Cluster Number of Case | 64.8 % | 20.8 % | 8.7 % | 5.7 % | 100 % |
| | Laggards | Count | 44 | 12 | 3 | 4 | 63 |
| | | % within Cluster Number of Case | 69.8 % | 19.0 % | 4.8 % | 6.3 % | 100 % |
| | Value Conscious | Count | 163 | 47 | 12 | 3 | 225 |
| | | % within Cluster Number of Case | 72.4 % | 20.9 % | 5.3 % | 1.3 % | 100 % |
| | Demandings | Count | 178 | 64 | 12 | 5 | 259 |
| | | % within Cluster Number of Case | 68.7 % | 24.7 % | 4.6 % | 1.9 % | 100 % |
| Total | | Count | 578 | 185 | 53 | 29 | 845 |
| | | % within Cluster Number of Case | 68.4 % | 21.9 % | 6.3 % | 3.4 % | 100 % |

The third cross – tabs analysis for demographic variables is done between education level groups and segments. The results of segment and education level group crosstabulation are shown in the Table 30 below. According to results of analysis, laggards and pragmatics consist more percentage of graduate & doctorate level as latest graduation status people against value conscious and demandings. More than half of laggards have at least university diploma which make this segment unique according to this statistic.

Table 30. Crosstabulation Results for Education Level Groups and Segments

| Cluster Number of Case * Education Crosstabulation | | | | | | | |
|--|-----------------|---------------------------------|-----------------------------------|-------------|---------------|----------------------|-------|
| | | | Education | | | | Total |
| | | | Primary School & Secondary School | High School | Undergraduate | Graduate & Doctorate | |
| Cluster Number of Case | Pragmatics | Count | 30 | 118 | 83 | 67 | 298 |
| | | % within Cluster Number of Case | 10.1% | 39.6% | 27.9% | 22.5% | 100% |
| | Laggards | Count | 5 | 24 | 21 | 13 | 63 |
| | | % within Cluster Number of Case | 7.9% | 38.1% | 33.3% | 20.6% | 100% |
| | Value Conscious | Count | 22 | 94 | 73 | 36 | 225 |
| | | % within Cluster Number of Case | 9.8% | 41.8% | 32.4% | 16.0% | 100% |
| | Demandings | Count | 32 | 101 | 85 | 41 | 259 |
| | | % within Cluster Number of Case | 12.4% | 39.0% | 32.8% | 15.8% | 100% |
| Total | | Count | 89 | 337 | 262 | 157 | 845 |
| | | % within Cluster Number of Case | 10.5% | 39.9% | 31.0% | 18.6% | 100% |

The fourth and final cross – tabs analysis for demographic variables is done between monthly income level based groups and segments. The results of segment and monthly income level based groups crosstabulation is shown in the Table 31 below.

According to results of analysis, demandings and laggards consist more percentage of people whose monthly income level is more than 6800 TL against pragmatics and value conscious segments. Value conscious and demandings consist more percentage of people whose monthly income level is less than 1300 TL against pragmatics and laggards.

Table 31. Crosstabulation Results for Monthly Income Level Based Groups and Segments

| Cluster Number of Case * Income TL Crosstabulation | | | | | | | | |
|--|-----------------|---------------------------------|-----------|-------------------|-------------------|-------------------|-----------|-------|
| | | | Income TL | | | | | Total |
| | | | < 1300 TL | 1300 TL – 2699 TL | 2700 TL – 4749 TL | 4750 TL – 6799 TL | 6800 TL + | |
| Cluster Number of Case | Pragmatics | Count | 110 | 58 | 70 | 37 | 23 | 298 |
| | | % within Cluster Number of Case | 36.9 % | 19.5% | 23.5% | 12.4% | 7.7% | 100 % |
| | Laggards | Count | 24 | 11 | 14 | 7 | 7 | 63 |
| | | % within Cluster Number of Case | 38.1 % | 17.5% | 22.2% | 11.1% | 11.1 % | 100 % |
| | Value Conscious | Count | 98 | 39 | 54 | 24 | 10 | 225 |
| | | % within Cluster Number of Case | 43.6 % | 17.3% | 24.0% | 10.7% | 4.4% | 100 % |
| | Demandings | Count | 106 | 46 | 66 | 20 | 21 | 259 |
| | | % within Cluster Number of Case | 40.9 % | 17.8% | 25.5% | 7.7% | 8.1% | 100 % |
| Total | | Count | 338 | 154 | 204 | 88 | 61 | 845 |
| | | % within Cluster Number of Case | 40.0 % | 18.2% | 24.1% | 10.4% | 7.2% | 100 % |

Secondly, segments' technographic specifications are investigated. The results of segment and daily internet usage profile of respondents crosstabulation is shown in the Table 32 below. According to results of analysis, laggards and demandings have more percentage of 5+ hours daily internet using respondents against pragmatics and value conscious people. After using the weighted average method, segments can be listed according to their daily internet usage hours like: 1-Demandings, 2-Laggards, 3- Value conscious, 4- Pragmatics

Table 32. Crosstabulation Results for Daily Internet Usage Profile of Respondents and Segments

| Cluster Number of Case * Daily Internet Usage Profile of Respondents Crosstabulation | | | | | | | |
|--|-----------------|---------------------------------|---|-------------|-------------|-----------|-------|
| | | | Daily Internet Usage Profile of Respondents | | | | Total |
| | | | 0 - 1 hour | 2 - 3 hours | 4 - 5 hours | 5 + hours | |
| Cluster Number of Case | Pragmatics | Count | 23 | 123 | 80 | 72 | 298 |
| | | % within Cluster Number of Case | 7.7% | 41.3% | 26.8% | 24.2% | 100% |
| | Laggards | Count | 4 | 23 | 15 | 21 | 63 |
| | | % within Cluster Number of Case | 6.3% | 36.5% | 23.8% | 33.3% | 100% |
| | Value Conscious | Count | 16 | 82 | 64 | 63 | 225 |
| | | % within Cluster Number of Case | 7.1% | 36.4% | 28.4% | 28.0% | 100% |
| | Demandin gs | Count | 9 | 82 | 68 | 100 | 259 |
| | | % within Cluster Number of Case | 3.5% | 31.7% | 26.3% | 38.6% | 100% |
| Total | | Count | 52 | 310 | 227 | 256 | 845 |
| | | % within Cluster Number of Case | 6.2% | 36.7% | 26.9% | 30.3% | 100% |

Another cross – tabs analysis is done between smart mobile device ownership history based groups and segments. The results of segment and smart mobile device ownership history based groups crosstabulation is shown in the Table 33 below.

According to results of analysis, demandings and laggards have more percentage of respondents who have bought their mobile phone more than 4 years ago. It is certain that late technology acceptance population ratio of value conscious segment is higher than the others. After using the weighted average method, segments can be listed according to their yearly smart mobile device history like below:

- 1- Laggards
- 2- Demandings
- 3- Pragmatics
- 4- Value Conscious

Therefore, laggards and demandings can be stated as early adopters beside value conscious cluster members.

Table 33. Crosstabulation Results for Daily Internet Usage Profile of Respondents and Segments

| Cluster Number of Case * Smart Mobile Device Ownership History of Respondents Crosstabulation | | | | | | | |
|---|-----------------|---------------------------------|--|-------------|-------------|-----------|-------|
| | | | Smart Mobile Device Ownership History of Respondents | | | | Total |
| | | | 0 - 1 year | 1 - 2 years | 2 - 3 years | 4 + years | |
| Cluster Number of Case | Pragmatics | Count | 39 | 90 | 89 | 80 | 298 |
| | | % within Cluster Number of Case | 13.1% | 30.2% | 29.9% | 26.8% | 100% |
| | Laggards | Count | 6 | 13 | 27 | 17 | 63 |
| | | % within Cluster Number of Case | 9.5% | 20.6% | 42.9% | 27.0% | 100% |
| | Value Conscious | Count | 40 | 63 | 72 | 50 | 225 |
| | | % within Cluster Number of Case | 17.8% | 28.0% | 32.0% | 22.2% | 100% |
| | Demandings | Count | 30 | 53 | 97 | 79 | 259 |
| | | % within Cluster Number of Case | 11.6% | 20.5% | 37.5% | 30.5% | 100% |
| | Total | Count | 115 | 219 | 285 | 226 | 845 |
| | | % within Cluster Number of Case | 13.6% | 25.9% | 33.7% | 26.7% | 100% |

The third cross – tabs analysis for technographic variables is done between smart mobile device brand based groups and segments. The results of segment and smart mobile device brand based groups’ crosstabulation are shown in the Table 34 below.

According to results of analysis, it is obvious that demandings has the more percentage of Samsung and Apple users against other groups. In addition to this, not well-known branded smart mobile device owners' ratio is also very low in demandings. HTC owners' ratio in laggards segment and General Mobile owners' ratio in value conscious segment are other remarkable points.

Table 34. Crosstabulation Results for Smart Mobile Device Based Groups and Segments

| Cluster Number of Case * Smart Mobile Device Brand Distribution of Participants Crosstabulation | | | | | | | | | | | |
|---|------------------|---------------------------------|--|-------|-------|----------------|------|-------|--------|---------|-------|
| | | | Smart Mobile Device Brand Distribution of Participants | | | | | | | | Total |
| | | | Sam sung | Apple | LG | General Mobile | HTC | Son y | Nok ia | Othe rs | |
| Clust er Num ber of Case | Pragma tics | Count | 123 | 93 | 14 | 16 | 12 | 15 | 6 | 19 | 298 |
| | | % within Cluster Number of Case | 41.3 % | 31.2% | 4.7 % | 5.4% | 4.0% | 5.0 % | 2.0 % | 6.4% | 100% |
| | Laggar ds | Count | 25 | 19 | 2 | 2 | 6 | 3 | 3 | 3 | 63 |
| | | % within Cluster Number of Case | 39.7 % | 30.2% | 3.2 % | 3.2% | 9.5% | 4.8 % | 4.8 % | 4.8% | 100% |
| | Value Consci ous | Count | 93 | 67 | 12 | 14 | 11 | 8 | 9 | 11 | 225 |
| | | % within Cluster Number of Case | 41.3 % | 29.8% | 5.3 % | 6.2% | 4.9% | 3.6 % | 4.0 % | 4.9% | 100% |
| | Deman dings | Count | 119 | 91 | 15 | 10 | 8 | 9 | 4 | 3 | 259 |
| | | % within Cluster Number of Case | 45.9 % | 35.1% | 5.8 % | 3.9% | 3.1% | 3.5 % | 1.5 % | 1.2% | 100% |
| Total | | Count | 360 | 270 | 43 | 42 | 37 | 35 | 22 | 36 | 845 |
| | | % within Cluster Number of Case | 42.6 % | 32.0% | 5.1 % | 5.0% | 4.4% | 4.1 % | 2.6 % | 4.3% | 100% |

The fourth and final cross – tabs analysis for technographic variables is done between smart mobile device ownership method based groups and segments. The results of segment and smart mobile device ownership method based groups crosstabulation is shown in the Table 35 below. According to results of analysis, demandings and laggards consist more percentage of people who have both personal and company owned smart mobile device against pragmatics and value conscious segments. Value conscious segment consists more percentage of people who have only personal smart mobile device relatively other segments.

Table 35. Crosstabulation Results for Smart Mobile Device Ownership Method Based Groups and Segments

| Cluster Number of Case * Smart Mobile Device Ownership Method of Participants Crosstabulation | | | | | | |
|---|-----------------|---------------------------------|--|---|---|-------|
| | | | Smart Mobile Device Ownership Method of Participants | | | Total |
| | | | Personal smart mobile device ownership | Company owned smart mobile device ownership | Both personal and company owned smart mobile device ownership | |
| Cluster Number of Case | Pragmatics | Count | 281 | 3 | 14 | 298 |
| | | % within Cluster Number of Case | 94.30% | 1.00% | 4.70% | 100% |
| | Laggards | Count | 58 | 1 | 4 | 63 |
| | | % within Cluster Number of Case | 92.10% | 1.60% | 6.30% | 100% |
| | Value Conscious | Count | 216 | 1 | 8 | 225 |
| | | % within Cluster Number of Case | 96.00% | 0.40% | 3.60% | 100% |
| | Demandings | Count | 237 | 1 | 21 | 259 |
| | | % within Cluster Number of Case | 91.50% | 0.40% | 8.10% | 100% |
| Total | | Count | 792 | 6 | 47 | 845 |
| | | % within Cluster Number of Case | 93.70% | 0.70% | 5.60% | 100% |

Finally, segments' category based mobile application usage patterns are analyzed. For detailed results of segments and participants' category based mobile application usage patterns crosstabulation, Table A6 (see Appendix A) is placed.

According to the results demandings took first place in terms of frequently using for any category except banking. Usually laggards have maximum percentage of non-using ratio for a category. From there it can be concluded that while demandings are heavy mobile application users, laggards are not. The summary table of maximum percentage ownership value and segment information according to users' usage frequency ratio for a category is placed in Table A7 (see Appendix A).

5.5 Independent samples t-tests

This test is used to test the hypotheses that the mean scores on some interval or ratio scaled variable will be significantly different for two independent samples or groups. Hypotheses listed below need this test to define results:

Hypothesis 1a: There is a difference between males and females and their mobile application satisfaction level.

The results of independent samples t-tests with 0.95 significance level demonstrate that there is no significant difference between males and females and people's mobile application satisfaction level. Table 36 below presents the group statistics information for female and male groups in terms of overall satisfaction average.

Table 36. Group Statistics Information for Gender Groups – Overall Satisfaction Average

| Group Statistics | | | | | |
|-------------------|--------|-----|-------|---------------|-----------------|
| | Gender | N | Mean | Std.Deviation | Std. Error Mean |
| Satisfaction _Avr | Female | 438 | 3.734 | 0.60147 | 0.02874 |
| | Male | 407 | 3.791 | 0.65669 | 0.03255 |

Detailed results of test are stated below in the Table 37 below. 2 tailed significance level is reported as 0.184. Therefore hypothesis 1a can be rejected.

Table 37. Detailed Results of Independent Samples Test for Gender Groups – Overall Satisfaction Average

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|-------------------|-----------------------------|---|------|------------------------------|-----|-----------------|-----------------|-----------------------|---|--------|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Satisfaction _Avr | Equal variances assumed | 1.875 | .171 | -1.329 | 843 | .184 | -.05752 | .04328 | -.14247 | .02744 |
| | Equal variances not assumed | | | -1.375 | 821 | .186 | -.05752 | .04342 | -.14275 | .02771 |

Hypothesis 1b: There is a difference between males and females and their mobile application loyalty.

The results of independent samples t-tests with 0.95 significance level demonstrate that there is no significant difference between males and females and their mobile application loyalty. Table 38 below presents the group statistics information for female and male groups in terms of mobile application loyalty.

Table 38. Group Statistics Information for Gender Groups – Loyalty Average

| Group Statistics | | | | | |
|------------------|--------|-----|-------|---------------|-----------------|
| | Gender | N | Mean | Std.Deviation | Std. Error Mean |
| Loyalty _Avr | Female | 438 | 4.103 | 0.60344 | 0.02883 |
| | Male | 407 | 4.107 | 0.65742 | 0.03259 |

Detailed results of test are stated below in the Table 39 below. 2 tailed significance level is reported as 0.924. Therefore hypothesis 1b can be rejected.

Table 39. Detailed Results of Independent Samples Test for Gender Groups – Loyalty Average

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|--------------|-----------------------------|---|------|------------------------------|--------|-----------------|-----------------|-----------------------|---|--------|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Loyalty _Avr | Equal variances assumed | 3.333 | .068 | -.095 | 843 | .924 | -.00414 | .04338 | -.08928 | .08100 |
| | Equal variances not assumed | | | -.095 | 82.295 | .924 | -.00414 | .04351 | -.08955 | .08127 |

5.6 ANOVA tests

ANOVA means analysis of variance. This test compares the differences in the mean values and variance of three groups with respect to a continuous (parametric) variable (interval or ratio). The below hypotheses from demographics section are analyzed with using ANOVA test method.

Hypothesis 1c: There is a difference between age groups and their mobile application satisfaction level.

Hypothesis 1d: There is a difference between age groups and their mobile application loyalty.

Table 40. ANOVA Analysis Between Age and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Age Group | N | Mean | F | Sig. |
|---------------------------------------|-----------|-----|------|-------|-------|
| Mobile Application Satisfaction Level | 16-25 | 578 | 3.72 | 3.719 | 0.011 |
| | 26-35 | 185 | 3.89 | | |
| | 36-45 | 53 | 3.79 | | |
| | 46+ | 29 | 3.66 | | |
| Mobile Application Loyalty | 16-25 | 578 | 4.1 | 0.465 | 0.707 |
| | 26-35 | 185 | 4.11 | | |
| | 36-45 | 53 | 4.13 | | |
| | 46+ | 29 | 3.97 | | |

According to test results of ANOVA analysis, Hypothesis 1d is rejected while Hypothesis 1c is supported which means that there is no difference between age groups and people's long term mobile application usage intentions however there is a difference between age groups and people's mobile application satisfaction level. To

determine exact age groups which have differences towards mobile application satisfaction level, Tukey test is done from Ad Hoc tests. Table 41 below shows the results of Tukey test.

Table 41. Tukey Test Results from Ad Hoc Tests for Hypothesis 1c

| Multiple Comparisons | | | | | | |
|-------------------------------|---------|-----------------------|------------|------|-------------------------|-------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Age | (J) Age | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| 16-25 | 26-35 | -.16925* | .05287 | .008 | -.3054 | -.0331 |
| | 36-45 | -.07386 | .08983 | .844 | -.3051 | .1574 |
| | 46+ | .06082 | .11911 | .957 | -.2458 | .3674 |
| 26-35 | 16-25 | .16925* | .05287 | .008 | .0331 | .3054 |
| | 36-45 | .09539 | .09752 | .762 | -.1556 | .3464 |
| | 46+ | .23007 | .12501 | .255 | -.0917 | .5519 |
| 36-45 | 16-25 | .07386 | .08983 | .844 | -.1574 | .3051 |
| | 26-35 | -.09539 | .09752 | .762 | -.3464 | .1556 |
| | 46+ | .13468 | .14458 | .788 | -.2375 | .5068 |
| 46+ | 16-25 | -.06082 | .11911 | .957 | -.3674 | .2458 |
| | 26-35 | -.23007 | .12501 | .255 | -.5519 | .0917 |
| | 36-45 | -.13468 | .14458 | .788 | -.5068 | .2375 |

According to the results of Tukey test, there is a difference between 16-25 and 26-35 age groups and their mobile application satisfaction level. It can be stated that users whose age is between 26 and 35 are more satisfied with mobile applications than users whose age is between 16 and 25 in Turkey.

Hypothesis 1e: There is a difference between income groups and their mobile application satisfaction level.

Hypothesis 1f: There is a difference between income groups and their mobile application loyalty.

Table 42. ANOVA Analysis Between Income Levels and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Income Level | N | Mean | F | Sig. |
|---------------------------------------|-------------------|-----|------|-------|-------|
| Mobile Application Satisfaction Level | < 1300 TL | 338 | 3.71 | 2.983 | 0.031 |
| | 1300 TL – 2699 TL | 154 | 3.73 | | |
| | 2700 TL – 4749 TL | 204 | 3.76 | | |
| | 4750 TL + | 149 | 3.89 | | |
| Mobile Application Loyalty | < 1300 TL | 338 | 4.08 | 1.575 | 0.194 |
| | 1300 TL – 2699 TL | 154 | 4.06 | | |
| | 2700 TL – 4749 TL | 204 | 4.1 | | |
| | 4750 TL + | 88 | 4.14 | | |

According to test results of ANOVA analysis, Hypothesis 1f is rejected while Hypothesis 1e is supported which means that; there is no difference between income groups and user's mobile application usage loyalty however there is a difference between income groups and people's mobile application satisfaction level. To determine exact income groups which have differences towards mobile application satisfaction level, Tukey test is done from Ad Hoc tests. Table 43 below shows the results of Tukey test.

Table 43. Tukey Test Results from Ad Hoc Tests for Hypothesis 1e

| Multiple Comparisons | | | | | | |
|-------------------------------|----------------------|------------------------------|---------------|------|-------------------------|-------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Income \$ | (J) Income \$ | Mean Differenc e (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| < 1300 TL | 1300 TL – 2699 TL | -.02173 | .06093 | .984 | -.1786 | .1351 |
| | 2700 TL – 4749 TL | -.05594 | .05557 | .746 | -.1990 | .0871 |
| | 4750 TL + | -.18059* | .06163 | .018 | -.3392 | -.0219 |
| 1300 TL – 2699 TL | < 1300 TL | .02173 | .06093 | .984 | -.1351 | .1786 |
| | 2700 TL – 4749 TL | -.03421 | .06690 | .956 | -.2064 | .1380 |
| | 4750 TL + | -.15885 | .07202 | .123 | -.3442 | .0265 |
| 2700 TL – 4749 TL | < 1300 TL | .05594 | .05557 | .746 | -.0871 | .1990 |
| | 1300 TL – 2699 TL | .03421 | .06690 | .956 | -.1380 | .2064 |
| | 4750 TL + | -.12464 | .06754 | .253 | -.2985 | .0492 |
| 4750 TL + | < 1300 TL | .18059* | .06163 | .018 | .0219 | .3392 |
| | 1300 TL – 2699 TL | .15885 | .07202 | .123 | -.0265 | .3442 |
| | 2700 TL + | .12464 | .06754 | .253 | -.0492 | .2985 |

According to the results of Tukey test, there is a difference between 4750 TL + and < 1300 TL income groups and their mobile application satisfaction level. It can be stated that users whose monthly income level is greater than 4750 TL + are more satisfied with mobile applications than users whose monthly income level is below 1300 TL. As a conclusion, it can be stated that users whose monthly income level is greater than 4750 TL are more satisfied with mobile applications than users whose monthly income level is below 1300 TL.

Hypothesis 1g: There is a difference between education level related groups and their mobile application satisfaction level.

Hypothesis 1h: There is a difference between education level related groups and their mobile application loyalty.

Table 44. ANOVA Analysis Between Education Levels and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Education Level | N | Mean | F | Sig. |
|---------------------------------------|-----------------------------------|-----|------|-------|-------|
| Mobile Application Satisfaction Level | Primary School & Secondary School | 89 | 3.76 | 1.94 | 0.122 |
| | High School | 337 | 3.71 | | |
| | Undergraduate | 262 | 3.76 | | |
| | Graduate & Doctorate | 157 | 3.86 | | |
| Mobile Application Usage Loyalty | Primary School & Secondary School | 89 | 4.26 | 2.661 | 0.047 |
| | High School | 337 | 4.06 | | |
| | Undergraduate | 262 | 4.08 | | |
| | Graduate & Doctorate | 157 | 4.13 | | |

According to test results of ANOVA analysis, Hypothesis 1g is rejected while Hypothesis 1h is supported which means that; there is no difference between education level based user groups and people's mobile application satisfaction level however there is a difference between education level based user groups and people's long term mobile application usage intentions . To determine exact education level based user groups which have differences towards long term mobile application usage intentions, Tukey test is done from Ad Hoc tests. Table 45 below shows the results of Tukey test.

Table 45. Tukey Test Results from Ad Hoc Tests for Hypothesis 1h

| Multiple Comparisons | | | | | | |
|--|--|------------------------------|------------|------|----------------------------|----------------|
| Loyalty_Avr Tukey HSD | | | | | | |
| (I) Education | (J) Education | Mean Differenc e (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| Primary School & Secondary School | High School | .20321* | .07482 | .034 | .0106 | .3958 |
| | Undergraduat e | .17626 | .07702 | .102 | -.0220 | .3745 |
| | Graduate & Doctorate | .12710 | .08330 | .422 | -.0873 | .3415 |
| High School | Primary School & Secondary School | -.20321* | .07482 | .034 | -.3958 | -.0106 |
| | Undergraduat e | -.02696 | .05171 | .954 | -.1601 | .1062 |
| | Graduate & Doctorate | -.07611 | .06066 | .592 | -.2323 | .0800 |
| Undergraduat e | Primary School & Secondary School | -.17626 | .07702 | .102 | -.3745 | .0220 |
| | High School | .02696 | .05171 | .954 | -.1062 | .1601 |
| | Graduate & Doctorate | -.04916 | .06336 | .865 | -.2123 | .1139 |
| Graduate & Doctorate | Primary School & Secondary School | -.12710 | .08330 | .422 | -.3415 | .0873 |
| | High School | .07611 | .06066 | .592 | -.0800 | .2323 |
| | Undergraduat e | .04916 | .06336 | .865 | -.1139 | .2123 |

According to the results of Tukey test, there is a difference between users whose latest graduation status is Primary School & Secondary School and users whose latest graduation status is High School towards long term mobile application usage intentions. Users whose latest graduation status is Primary School & Secondary

School are more loyal to mobile applications and their long term mobile application usage intentions are more stable than users whose latest graduation status is High School.

The below hypotheses from technographics section are analyzed with using ANOVA test method.

Hypothesis 2a: There is a difference between daily internet usage hours based groups and their mobile application satisfaction level.

Hypothesis 2b: There is a difference between daily internet usage hours based groups and their mobile application loyalty.

Table 46. ANOVA Analysis Between Daily Internet Usage Hours and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Daily Internet Usage Hour | N | Mean | F | Sig. |
|---------------------------------------|---------------------------|-----|------|-------|-------|
| Mobile Application Satisfaction Level | 0 - 1 hour | 52 | 3.67 | 4.235 | 0.006 |
| | 2 - 3 hours | 310 | 3.69 | | |
| | 4 - 5 hours | 227 | 3.74 | | |
| | 5 + hours | 256 | 3.87 | | |
| Mobile Application Loyalty | 0 - 1 hour | 52 | 4.00 | 2.08 | 0.101 |
| | 2 - 3 hours | 310 | 4.07 | | |
| | 4 - 5 hours | 227 | 4.07 | | |
| | 5 + hours | 256 | 4.18 | | |

According to test results of ANOVA analysis, Hypothesis 2b is rejected while Hypothesis 2a is supported which means that there is no difference between daily internet usage hours and people's long term mobile application usage intentions however there is a difference between daily internet usage hours and people's mobile application satisfaction level. To determine exact daily internet usage groups which

have differences towards mobile application satisfaction level, Tukey test is done from Ad Hoc tests. Table 47 below shows the results of Tukey test.

Table 47. Tukey Test Results from Ad Hoc Tests for Hypothesis 2a

| Multiple Comparisons | | | | | | |
|---|---|-----------------------|------------|------|-------------------------|-------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Daily Internet Usage Profile of Respondents | (J) Daily Internet Usage Profile of Respondents | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| 0 - 1 hour | 2 - 3 hours | -.02208 | .09371 | .995 | -.2633 | .2192 |
| | 4 - 5 hours | -.07362 | .09614 | .870 | -.3211 | .1739 |
| | 5 + hours | -.19932 | .09512 | .155 | -.4442 | .0455 |
| 2 - 3 hours | 0 - 1 hour | .02208 | .09371 | .995 | -.2192 | .2633 |
| | 4 - 5 hours | -.05153 | .05463 | .781 | -.1922 | .0891 |
| | 5 + hours | -.17723* | .05281 | .005 | -.3132 | -.0413 |
| 4 - 5 hours | 0 - 1 hour | .07362 | .09614 | .870 | -.1739 | .3211 |
| | 2 - 3 hours | .05153 | .05463 | .781 | -.0891 | .1922 |
| | 5 + hours | -.12570 | .05701 | .123 | -.2725 | .0211 |
| 5 + hours | 0 - 1 hour | .19932 | .09512 | .155 | -.0455 | .4442 |
| | 2 - 3 hours | .17723* | .05281 | .005 | .0413 | .3132 |
| | 4 - 5 hours | .12570 | .05701 | .123 | -.0211 | .2725 |

According to the results of Tukey test, there is a difference between users whose daily internet usage is 2-3 hours and users who use internet more than 5 hours in a day and their mobile application satisfaction level. It can be stated that users who use internet more than 5 hours in a day, more satisfied with mobile applications than users whose daily internet usage is 2-3 hours.

Hypothesis 2c: There is a difference between usage year of smart phone based groups and their mobile application satisfaction level.

Hypothesis 2d: There is a difference between usage year of smart phone based groups and their mobile application loyalty.

Table 48. ANOVA Analysis Between Usage Year of Smart Phone and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Smart Phone Usage Year | N | Mean | F | Sig. |
|---------------------------------------|------------------------|-----|------|-------|-------|
| Mobile Application Loyalty | 0 - 1 year | 115 | 4.06 | 3.329 | 0.019 |
| | 1 - 2 years | 219 | 4.02 | | |
| | 2 - 3 years | 285 | 4.10 | | |
| | 4 + years | 226 | 4.20 | | |
| Mobile Application Satisfaction Level | 0 - 1 year | 115 | 3.60 | 8.020 | 0.000 |
| | 1 - 2 years | 219 | 3.68 | | |
| | 2 - 3 years | 285 | 3.75 | | |
| | 4 + years | 226 | 3.91 | | |

According to test results of ANOVA analysis, both Hypothesis 2c and Hypothesis 2d are supported which means that there is difference between groups of participants according to their smart phone usage year and people's long term mobile application usage intentions and people's mobile application satisfaction level. To determine exact groups according to their smart mobile device usage history which have differences towards mobile application satisfaction level and long term mobile application usage intention, Tukey tests are done from Ad Hoc tests. Table 49 and Table 50 below shows the results of Tukey tests.

Table 49. Tukey Test Results from Ad Hoc Tests for Hypothesis 2c

| Multiple Comparisons | | | | | | |
|--|--|-----------------------|------------|------|-------------------------|-------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Smart Mobile Device Ownership History of Respondents | (J) Smart Mobile Device Ownership History of Respondents | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| 0 - 1 year | 1 - 2 years | -.07997 | .07154 | .679 | -.2641 | .1042 |
| | 2 - 3 years | -.15123 | .06863 | .123 | -.3279 | .0254 |
| | 4 + years | -.30795* | .07116 | .000 | -.4911 | -.1248 |
| 1 - 2 years | 0 - 1 year | .07997 | .07154 | .679 | -.1042 | .2641 |
| | 2 - 3 years | -.07126 | .05583 | .578 | -.2150 | .0724 |
| | 4 + years | -.22798* | .05891 | .001 | -.3796 | -.0763 |
| 2 - 3 years | 0 - 1 year | .15123 | .06863 | .123 | -.0254 | .3279 |
| | 1 - 2 years | .07126 | .05583 | .578 | -.0724 | .2150 |
| | 4 + years | -.15671* | .05533 | .024 | -.2992 | -.0143 |
| 4 + years | 0 - 1 year | .30795* | .07116 | .000 | .1248 | .4911 |
| | 1 - 2 years | .22798* | .05891 | .001 | .0763 | .3796 |
| | 2 - 3 years | .15671* | .05533 | .024 | .0143 | .2992 |

According to the results of Tukey test, there is a difference between users who have used smart mobile devices for 1-2 years and users who have used smart mobile devices for more than 4 years and their mobile application satisfaction level.

Beside this, there is a difference between users who have used smart mobile devices for 2-3 years and users who have used smart mobile devices for more than 4 years and their mobile application satisfaction level. Finally, there is a difference between users who have used smart mobile devices for 0-1 years and users who have used smart mobile devices for more than 4 years and their mobile application satisfaction level. As a result users who have used smart mobile devices for more than 4 years are

more satisfied than other users who have used smart mobile devices for less than 4 years.

Table 50. Tukey Test Results from Ad Hoc Tests for Hypothesis 2d

| Multiple Comparisons | | | | | | |
|--|--|-----------------------|------------|------|-------------------------|-------------|
| Loyalty_Avr Tukey HSD | | | | | | |
| (I) Smart Mobile Device Ownership History of Respondents | (J) Smart Mobile Device Ownership History of Respondents | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| 0 - 1 year | 1 - 2 years | .04570 | .07221 | .921 | -.1402 | .2316 |
| | 2 - 3 years | -.03699 | .06927 | .951 | -.2153 | .1413 |
| | 4 + years | -.13725 | .07183 | .224 | -.3221 | .0476 |
| 1 - 2 years | 0 - 1 year | -.04570 | .07221 | .921 | -.2316 | .1402 |
| | 2 - 3 years | -.08270 | .05635 | .458 | -.2277 | .0624 |
| | 4 + years | -.18296* | .05946 | .012 | -.3360 | -.0299 |
| 2 - 3 years | 0 - 1 year | .03699 | .06927 | .951 | -.1413 | .2153 |
| | 1 - 2 years | .08270 | .05635 | .458 | -.0624 | .2277 |
| | 4 + years | -.10026 | .05585 | .276 | -.2440 | .0435 |
| 4 + years | 0 - 1 year | .13725 | .07183 | .224 | -.0476 | .3221 |
| | 1 - 2 years | .18296* | .05946 | .012 | .0299 | .3360 |
| | 2 - 3 years | .10026 | .05585 | .276 | -.0435 | .2440 |

According to the results of Tukey test, there is a difference between users who have used smart mobile devices for 1-2 years and users who have used smart mobile devices for more than 4 years and their long term mobile application usage intention. It can be stated that users who have used smart mobile devices more than 4 years are more loyal to the mobile applications than users who have used smart mobile devices for 1-2 years.

Hypothesis 2e: There is a difference between owned mobile device's brand based groups and their mobile application satisfaction level.

Hypothesis 2f: There is a difference between owned mobile device's brand based groups and their mobile application loyalty.

Table 51. ANOVA Analysis Between Owned Mobile Device Brand and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Owned Mobile Device Brand | N | Mean | F | Sig. |
|---------------------------------------|---------------------------|-----|------|-------|-------|
| Mobile Application Satisfaction Level | Samsung | 360 | 3.75 | 2.344 | 0.023 |
| | Apple | 270 | 3.85 | | |
| | LG | 43 | 3.78 | | |
| | General Mobile | 42 | 3.7 | | |
| | HTC | 37 | 3.6 | | |
| | Sony | 35 | 3.66 | | |
| | Nokia | 22 | 3.53 | | |
| | Others | 36 | 3.53 | | |
| Mobile Application Loyalty | Samsung | 360 | 4.08 | 2 | 0.053 |
| | Apple | 270 | 4.18 | | |
| | LG | 43 | 4.11 | | |
| | General Mobile | 42 | 4.07 | | |
| | HTC | 37 | 3.94 | | |
| | Sony | 35 | 4.25 | | |
| | Nokia | 22 | 3.86 | | |
| | Others | 36 | 3.96 | | |

According to test results of ANOVA analysis, Hypothesis 2f is rejected while Hypothesis 2e is supported which means that; there is no difference between owned mobile device brand and people's long term mobile application usage intentions, however there is difference between groups of participants according to their owned mobile device brand and people's mobile application satisfaction level. To determine

exact user groups according to their smart mobile device choice which have differences towards mobile application satisfaction level, Tukey test is done from Ad Hoc tests. Table A8 (see Appendix A) shows the results of Tukey test.

The results of Tukey test don't present any significant differences according to owned brand of smart mobile device. From the results of ANOVA test and means of mobile application users' satisfaction level an argument can be placed like below. The level of mobile application usage loyalty according to mobile application users' owned mobile device is listed below:

- 1- Sony
- 2- Apple
- 3- LG
- 4- Samsung
- 5- General Mobile
- 6- Others
- 7- HTC
- 8- Nokia

The level of mobile application usage satisfaction according to mobile application users' owned mobile device is listed below:

- 1- Apple
- 2- LG
- 3- Samsung
- 4- General Mobile
- 5- Sony
- 6- HTC

7- Nokia

8- Others

Hypothesis 2g: There is a difference between ownership type of mobile device based groups and their mobile application satisfaction level.

Hypothesis 2h: There is a difference between ownership type of mobile device based groups and their mobile application loyalty.

Table 52. ANOVA Analysis Between Ownership Type of Mobile Device and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Ownership Type of Smart Mobile Device | N | Mean | F | Sig. |
|---------------------------------------|--|-----|------|-------|-------|
| Mobile Application Satisfaction Level | 1- Personal smart mobile device ownership | 792 | 3.74 | 3.588 | 0.028 |
| | 2- Company owned smart mobile device ownership | 6 | 3.94 | | |
| | 3- Both personal and company owned smart mobile device ownership | 47 | 3.98 | | |
| Mobile Application Loyalty | 1- Personal smart mobile device ownership | 792 | 4.09 | 1.059 | 0.347 |
| | 2- Company owned smart mobile device ownership | 6 | 4.2 | | |
| | 3- Both personal and company owned smart mobile device ownership | 47 | 4.22 | | |

According to test results of ANOVA analysis, Hypothesis 2h is rejected while Hypothesis 2g is supported which means that there is no difference between users' ownership type of mobile device and people's long term mobile application usage intentions however there is a difference between users' ownership type of mobile device and people's mobile application satisfaction level. To determine exact user groups according to their ownership type of smart mobile device which have

differences towards mobile application satisfaction level, Tukey test is done from Ad Hoc tests. Table 53 below shows the results of Tukey test.

Table 53. Tukey Test Results from Ad Hoc Tests for Hypothesis 2g

| Multiple Comparisons | | | | | | |
|---|---|-----------------------|------------|------|-------------------------|-------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Smart Mobile Device Ownership Method of Participants | (J) Smart Mobile Device Ownership Method of Participants | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| Personal smart mobile device ownership | Company owned smart mobile device ownership | -.19802 | .25695 | .721 | -.8013 | .4053 |
| | Both personal and company owned smart mobile device ownership | -.24294* | .09414 | .027 | -.4640 | -.0219 |
| Company owned smart mobile device ownership | Personal smart mobile device ownership | .19802 | .25695 | .721 | -.4053 | .8013 |
| | Both personal and company owned smart mobile device ownership | -.04492 | .27183 | .985 | -.6831 | .5933 |
| Both personal and company owned smart mobile device ownership | Personal smart mobile device ownership | .24294* | .09414 | .027 | .0219 | .4640 |
| | Company owned smart mobile device ownership | .04492 | .27183 | .985 | -.5933 | .6831 |

According to the results of Tukey test, there is a difference between users who have personal smart mobile device and users who have both personal and company owned smart mobile device and their mobile application satisfaction level. It can be stated that users who have both personal and company owned smart mobile device are more

satisfied with mobile applications than people who have only personal smart mobile device.

Hypothesis 2i: There is a difference between segment types and people's mobile application satisfaction level.

Hypothesis 2j: There is a difference between segment types and people's mobile application loyalty.

Table 54. ANOVA Analysis Between Segment Types and Mobile Application Satisfaction Level, Mobile Application Usage Loyalty

| | Segment Types | N | Mean | F | Sig. |
|---------------------------------------|-----------------|-----|------|---------|-------|
| Mobile Application Satisfaction Level | Pragmatics | 298 | 3.63 | 106.326 | 0.000 |
| | Laggards | 63 | 3.02 | | |
| | Value Conscious | 225 | 3.63 | | |
| | Demandings | 259 | 4.19 | | |
| Mobile Application Loyalty | Pragmatics | 298 | 3.94 | 75.396 | 0.000 |
| | Laggards | 63 | 3.32 | | |
| | Value Conscious | 225 | 4.17 | | |
| | Demandings | 259 | 4.41 | | |

According to test results of ANOVA analysis, both Hypothesis 2i and Hypothesis 2j are supported which means that there is difference between segment types and people's long term mobile application usage intentions and people's mobile application satisfaction level. To determine exact groups according to segment types which have differences towards mobile application satisfaction level and long term mobile application usage intention, Tukey tests for not equal variances are done from Ad Hoc tests. Table 55 and Table 56 below show the results of Tukey tests.

Table 55. Tukey Test Results from Ad Hoc Tests for Hypothesis 2i

| Multiple Comparisons | | | | | | |
|----------------------------------|-------------------------------|------------------------------|---------------|-------|----------------------------|----------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Cluster Number of Case | (J) Cluster Number of Case | Mean Differenc e (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| Pragmatics | Laggards | .60610 [*] | .07439 | .000 | .4146 | .7976 |
| | Value Conscious | -.00301 | .04738 | 1.000 | -.1250 | .1190 |
| | Demandings | -.56500 [*] | .04558 | .000 | -.6823 | -.4477 |
| Laggards | Pragmatics | -.60610 [*] | .07439 | .000 | -.7976 | -.4146 |
| | Value Conscious | -.60910 [*] | .07647 | .000 | -.8060 | -.4122 |
| | Demandings | -1.17110 [*] | .07537 | .000 | -1.3651 | -.9771 |
| Value Conscious | Pragmatics | .00301 | .04738 | 1.000 | -.1190 | .1250 |
| | Laggards | .60910 [*] | .07647 | .000 | .4122 | .8060 |
| | Demandings | -.56200 [*] | .04889 | .000 | -.6879 | -.4361 |
| Demandings | Pragmatics | .56500 [*] | .04558 | .000 | .4477 | .6823 |
| | Laggards | 1.17110 [*] | .07537 | .000 | .9771 | 1.3651 |
| | Value Conscious | .56200 [*] | .04889 | .000 | .4361 | .6879 |

According to the results of Tukey test, there is a difference between all segment types except pragmatics and value conscious segments and their mobile application satisfaction level. It can be stated that demandings people are most satisfied users. Users from segments of value conscious and pragmatics took second place and they have no differences from the point of mobile application satisfaction level between each other. Laggards are the least satisfied users of mobile applications.

Table 56. Tukey Test Results from Ad Hoc Tests for Hypothesis 2j

| Multiple Comparisons | | | | | | |
|----------------------------------|----------------------------------|-----------------------------|------------|------|----------------------------|----------------|
| Loyalty_Avr Tukey HSD | | | | | | |
| (I) Cluster Number of Case | (J) Cluster Number of Case | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| Pragmatics | Laggards | .61778* | .07765 | .000 | .4179 | .8177 |
| | Value Conscious | -.22952* | .04945 | .000 | -.3568 | -.1022 |
| | Demandings | -.46501* | .04757 | .000 | -.5875 | -.3426 |
| Laggards | Pragmatics | -.61778* | .07765 | .000 | -.8177 | -.4179 |
| | Value Conscious | -.84730* | .07981 | .000 | -1.0528 | -.6418 |
| | Demandings | -1.08280* | .07866 | .000 | -1.2853 | -.8803 |
| Value Conscious | Pragmatics | .22952* | .04945 | .000 | .1022 | .3568 |
| | Laggards | .84730* | .07981 | .000 | .6418 | 1.0528 |
| | Demandings | -.23550* | .05103 | .000 | -.3669 | -.1041 |
| Demandings | Pragmatics | .46501* | .04757 | .000 | .3426 | .5875 |
| | Laggards | 1.08280* | .07866 | .000 | .8803 | 1.2853 |
| | Value Conscious | .23550* | .05103 | .000 | .1041 | .3669 |

According to the results of Tukey test, there is a difference between all segment types and their mobile application usage loyalty. It can be stated that demandings people are the most loyal users of mobile applications. Value Conscious people took second place, while pragmatics owned third place. Laggards are the least loyal users of mobile applications.

5.7. Correlation analysis

In this section, relations between mobile application usage loyalty and mobile application users' satisfaction level will be analyzed with using correlation analysis.

In correlation analysis, investigation of how related two variables are in the same or opposite directions will be done.

5.7.1 Mobile application users' satisfaction and mobile application usage loyalty

Correlation analysis using Pearson coefficients is used to find relations between mobile application users' satisfaction and mobile application usage loyalty.

Hypothesis 4: There is positive relationship between satisfaction level of mobile application and long term mobile application usage.

Table 57. Correlation Between Mobile Application Users' Satisfaction and Mobile Application Usage Loyalty

| | | Mobile Application Usage Loyalty | Hypothesis | Result |
|--|---------------------|----------------------------------|------------------------|-----------|
| Mobile Application Users' Satisfaction | Pearson Correlation | 0.574** | H16: Positive Relation | Supported |
| | Sig. (2- tailed) | 0.000 | | |

After analyzing the results from the table above, the significant positive correlations are determined between mobile application users' satisfaction and mobile application usage loyalty and hypotheses 16 is supported. Significance value for this correlation analysis is less than 0.01.

5.7.2 Other hypotheses

In order to analyze hypothesis 6 and hypothesis 7, correlation analysis with using Pearson coefficients will be used.

Hypothesis 6a: There is a positive relationship between people's possibility of future free mobile application download intention in frequently used category and user's mobile application satisfaction level.

Hypothesis 6b: There is a positive relationship between people's possibility of future fee- based mobile application download intention in frequently used category and user's mobile application satisfaction level.

Hypothesis 7a: There is a positive relationship between people's possibility of future free mobile application download intention in frequently used category and mobile application loyalty.

Hypothesis 7b: There is a positive relationship between people's possibility of future fee – based mobile application download intention in frequently used category and mobile application loyalty.

Table 58. Correlation Results for Hypothesis 6 and Hypothesis 7

| Mobile Application Users' Satisfaction | | | Hypothesis | Result |
|--|---------------------|---------|------------------------|-----------|
| People's possibility of future free mobile application download intention in frequently used category | Pearson Correlation | 0.314** | H6a: Positive Relation | Supported |
| | Sig. (2-tailed) | 0.000 | | |
| People's possibility of future fee - based mobile application download intention in frequently used category | Pearson Correlation | 0.225** | H6b: Positive Relation | Supported |
| | Sig. (2-tailed) | 0.000 | | |
| Mobile Application Users' Loyalty | | | Hypothesis | Result |
| People's possibility of future free mobile application download intention in frequently used category | Pearson Correlation | 0.321** | H7a: Positive Relation | Supported |
| | Sig. (2-tailed) | 0.000 | | |
| People's possibility of future fee - based mobile application download intention in frequently used category | Pearson Correlation | 0.103** | H7b: Positive Relation | Supported |
| | Sig. (2-tailed) | 0.000 | | |

After analyzing the results from the table above, the significant positive correlations are determined and hypothesis 6 and hypothesis 7 are supported. Significance value for these correlation analyses are less than 0.01. It can be stated that, user's possibility of future free mobile application download intention in frequently used category has more positive relation than user's possibility of future fee - based mobile application download intention in frequently used category with both mobile application users' satisfaction and mobile application users' loyalty.

5.8 Regression analysis

5.8.1 Multiple regression analysis for mobile application satisfaction as dependent variable

Regression analysis is done in order to define the cause and effect relationships between dependent and independent variables. According to this study's theoretical model, 13 independent variables are existing. Therefore Hypothesis 5 can be determined as follows:

Hypothesis 5: Mobile application user's satisfaction is determined by usefulness, customization, convenience, image, design & speed, trialability, network operator, fun, brand, security & privacy, social influence, energy consumption, economic value.

In addition to Hypothesis 5, this multiple regression analysis will also investigate the relationship between satisfaction factors and satisfaction one by one and explain answers to hypothesis are placed in Hypothesis 3.

Stepwise linear regression analysis will be conducted to reach results of cause and effect relationships between dependent and independent variables via SPSS.

Table 59. ANOVA Table for Mobile Application User's Satisfaction Regression Analysis with Stepwise Method

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|-----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 9 | Regression | 173.910 | 9 | 19.323 | 100.869 | .000 ⁱ |
| | Residual | 159.961 | 835 | .192 | | |
| | Total | 333.870 | 844 | | | |

i. Predictors: (Constant), Usefulness, Customization, Image, Network_Operator, Security_Privacy, Design_Speed, Trialability, Convenience, Brand_Impact

b. Dependent Variable: Satisfaction_Avr

According to results of ANOVA analysis, prediction level of this model is high, because of high value of F which is 100.869. In addition to this, significance value of this model is 0.000. Therefore, it can be stated that mobile application user's satisfaction can be predicted by this multiple regression equation with these independent variables significantly.

Table 60. Model Summary Table for Mobile Application User's Satisfaction Regression Analysis with Stepwise Method

| Model Summary ^b | | | | | | | | | | |
|----------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|------|------|---------------|---------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df 1 | df 2 | Sig. F Change | |
| 9 | .722 ⁱ | .521 | .516 | .43769 | .002 | 4.077 | 1 | 835 | .044 | 1.863 |

a. Predictors: (Constant), Economic_Value, Security_Privacy, Convenience, Social_Influence, Network_Operator, Energy_Consumption, Brand_Impact, Fun, Trialability, Image, Customization, Usefulness, Design_Speed

b. Dependent Variable: Satisfaction_Avr

According to results of Model Summary table, R value is determined as 0.722 which must be between -1 and 1. Beside R value, R^2 value is calculated as 0.521 which can take values between 0 and 1. Since R and R^2 values are high, the results of multiple regression analysis are highly predictive and satisfying. In addition to this, Durbin- Watson value is determined as 1.863 which is valid for multiple regression analysis.

According to R, R^2 and Durbin - Watson values, the model defined as significant. For further analysis, to determine which variables are effecting mobile application users' satisfaction level, T- values and significance levels for the variables were investigated and placed in the model. These variables are listed in the Table 61 below.

Table 61. Multiple Regression Coefficients of Mobile Application Users' Satisfaction Level Determinants

| Coefficients ^a | | | | | | |
|---------------------------|------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 9 | (Constant) | -.172 | .148 | | -1.158 | .247 |
| | Usefulness | .318 | .029 | .329 | 10.867 | .000 |
| | Customization | .150 | .029 | .149 | 5.069 | .000 |
| | Image | .081 | .018 | .122 | 4.398 | .000 |
| | Network_Operator | .094 | .021 | .117 | 4.385 | .000 |
| | Security_Privacy | .094 | .020 | .129 | 4.835 | .000 |
| | Design_Speed | .113 | .034 | .100 | 3.328 | .001 |
| | Trialability | .067 | .025 | .076 | 2.701 | .007 |
| | Convenience | .077 | .030 | .075 | 2.551 | .011 |
| | Brand | .045 | .022 | .056 | 2.019 | .044 |

a. Dependent Variable: Satisfaction_Avr

It is a normal situation that mobile application user's satisfaction level slightly below zero even all independent variables are zero, so, even though satisfaction as dependent variable's significance value is greater than 0.05 significance level it is placed into model. As a summary, the multiple regression equation is determined like below:

$$\begin{aligned} \text{Mobile Application User's Satisfaction} = & - 0.172 + (0.318 * \text{Usefulness}) + (0.150 * \\ & \text{Customization}) + (0.113 * \text{Design \& Speed}) + (0.094 * \text{Network Operator}) + (0.094 \\ & * \text{Security \& Privacy}) + (0.081 * \text{Image}) + (0.077 * \text{Convenience}) + (0.067 * \\ & \text{Trialability}) + (0.045 * \text{Brand}) \end{aligned}$$

After observing the results of multiple regression analysis, the most predictive independent variables are determined according to 0.05 level. These determinants are defined as usefulness, customization, design & speed, network operator, security & privacy, image, convenience, trialability and brand impact.

However, fun, social influence, energy consumption, economic value determinants could not find place in multiple regression equation which means these four factors don't have significant effect on mobile application user's satisfaction level.

It can be concluded that hypothesis 5 is partially supported, since all of the determinants which placed in theoretical model couldn't be determined as significant factors.

After regression analysis, the final model is constituted and summarized as in Figure 12 below:

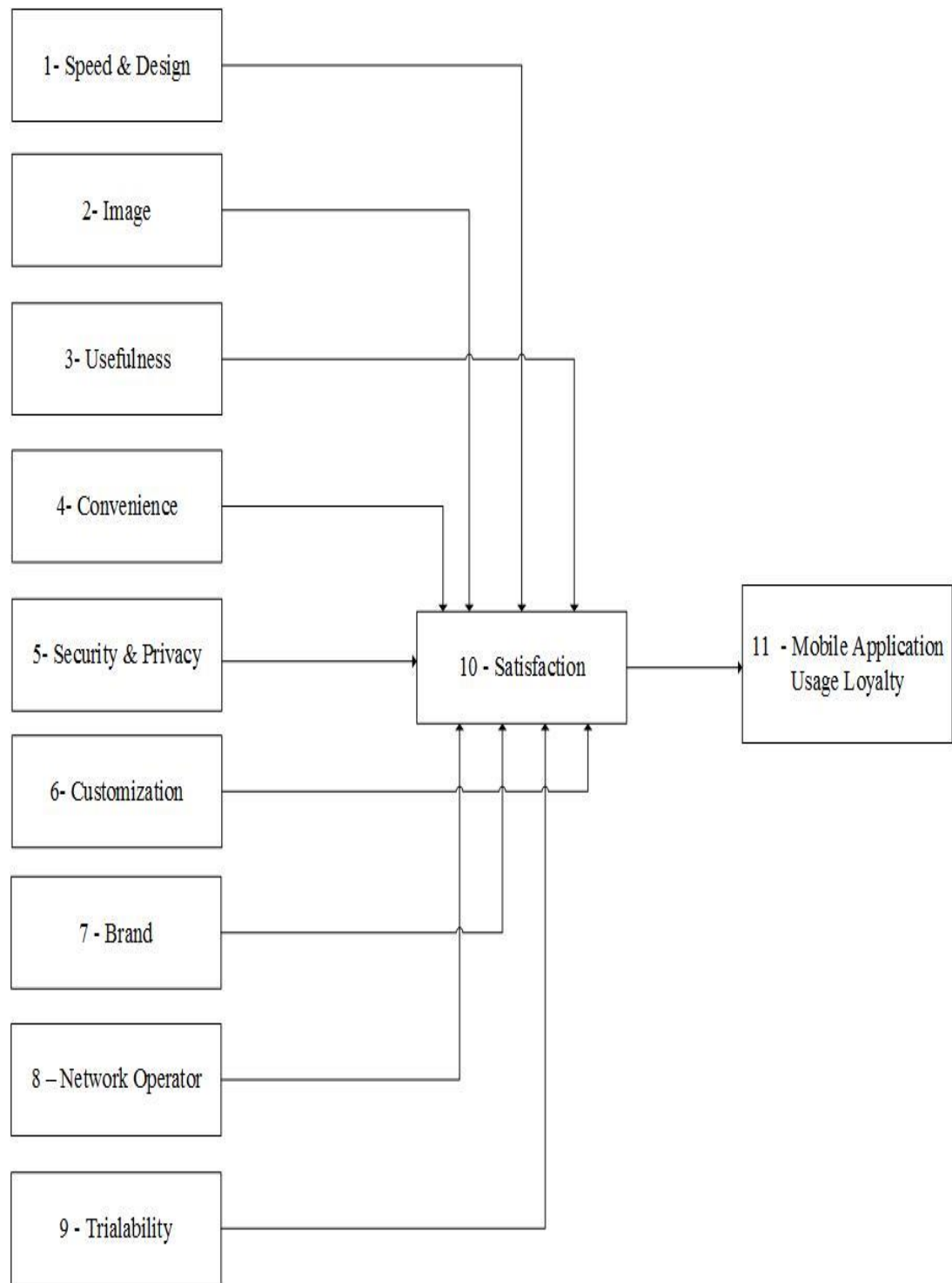


Fig. 12 Final model of mobile application usage loyalty determinants

As a conclusion, all hypothesis are placed into the Table A9 (see Appendix A) to summarize findings and show the supportability status of them.

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1 Conclusion

This thesis contains a detailed analyses of literature which is related with mobile applications, mobile commerce, mobile lifestyle of users, factors which are effecting mobile application usage, in short mobile revolution. Nearly a hundred papers from literature are investigated, afterwards important factors are determined from selected studies and they are explained in detail.

In the light of literature and proven scales from research papers, a questionnaire is developed and it is applied to active mobile application users. A total of 845 respondents fully completed the survey, their answers are used for testing hypotheses and reviewing theoretical model. Descriptive analysis, factor analysis, cluster analysis, correlation analysis, multiple regression analysis, ANOVA analysis and T-tests are used as statistical methods to reach results by using SPSS.

Descriptive findings suggest that majority of the respondents (68.40%) are between the age of 16-25, while only 3.43% of respondents' age over 46. Besides that, totally 70.88% of respondents' latest graduation status are high school and university. 40% of people who respond questionnaire have monthly income lower than 1300 TL, therefore it can be summarized that students without economic independence constitutes the majority of the respondents. In addition to demographic profile, technographic profile of audience is also investigated via questionnaire. According to answers, the main group of respondents spends 2-3 hours in a day on the web, they have 2-3 years of history with smart mobile devices. Nearly three fourths

of respondents' smart mobile device brands are Samsung and Apple and 99% of respondents have personally owned smart mobile device. Social media, instant messaging, music and photography categories are determined as the most popular mobile application categories by participants.

Descriptive analyses indicate that, most of users' mobile application satisfaction related determinants have mean values which are greater than 3.5. Therefore it can be concluded that most of the participants agree or strongly agree with the statements which are placed into questionnaire. According to mean values of satisfaction determinants; perceived ease of use, working speed/performance, energy consumption, aesthetic design and convenience determined as top five items. Beside this, the respondents also agree with satisfaction scale with 3.75 mean value and loyalty scale with 4.09 mean value. Another question in the questionnaire searches mobile application users' future mobile application download intention, the results of this question can be summarized as even mobile application users stated that they will download fee - based mobile applications in their most popular category, they accepted that, they will more willing to download free mobile applications than fee – based ones. In addition to that, mobile application users behave less selective for free mobile applications, they download more number of free mobile applications, they spend more time with free mobile applications and they more likely recommend free mobile applications to their friends when they compare free mobile applications with fee- based mobile applications. However they said that they more likely delete free mobile applications, therefore it can be concluded that, mobile application users are more loyal to the paid mobile applications.

After descriptive findings, iterative factor analyses were applied for the items related to mobile application users' satisfaction. According to the results of factor analysis, thirteen factors are identified, namely: speed & design, image, usefulness, convenience, security & privacy, customization, fun, social influence, energy consumption, brand, network operator, trialability and economic value.

Cluster analysis is conducted in order to discover the segments based on the factors related to users' mobile application satisfaction. At the end four clusters are identified namely: pragmatics, laggards, value conscious and demandings.

- Pragmatics for mobile application users who has priorities as design & speed, convenience, brand and usefulness
- Laggards for mobile application users who has priorities as convenience, design & speed, usefulness and customization
- Value conscious for mobile application users who has priorities as design & speed, energy consumption, convenience and network operator
- Demandings for mobile application users who has priorities as design & speed, convenience, usefulness and fun

Cross – tab analysis is done and clusters' characteristics are defined like below:

Pragmatics: Females are more than males in this segment, 85.6% of members' age are below 35, half of them have at least university diploma, nearly 80% of members' monthly income are below 4750 TL, half of them use internet more than 4 hours in a day, only 13.1% of them had bought their mobile smart device sooner than 1 year ago, their most popular three smart mobile device brand are Samsung, Apple and other not well – known brands and mainly they use only their personal smart mobile device. Their most popular mobile application category is banking when

comparing with the other segments, oppositely they are light users of game and cloud computing mobile applications relatively other segments.

Laggards: Males are more than females in this segment, nearly 89% of members' age are below 35, 54% of them have at least university diploma, nearly 78% of members' monthly income are below 4750 TL, more than half of them use internet more than 4 hours in a day, more than 90% of them had bought their mobile smart device more than 1 year ago, their most popular three smart mobile device brand are Samsung, Apple and HTC and mainly they use only their personal smart mobile device. They are not bad while comparing with other segments in terms of mobile application usage frequency in categories of game, education, weather condition. However, they usually take first place according to maximum non users' ratio, therefore they can be described as light users.

Value Conscious: Females are more than males in this segment, nearly 93.5% of members' age are below 35, more than half of them don't have at least university diploma yet, nearly 85% of members' monthly income are below 4750 TL, 56.4% of them use internet more than 4 hours in a day, nearly 18% of them have owned their mobile smart device sooner than 1 year ago, their most popular three smart mobile device brand are Samsung, Apple and General Mobile and mainly they use only their personal smart mobile device, only 4% of them own company owned smart mobile device. They are not bad while comparing with other segments in terms of mobile application usage frequency in category of sport. However, they take first place according to maximum non users' ratio in categories of health and news.

Demandings: Females are more than males in this segment, 93.4% of members' age are below 35, more than half of them don't have at least university diploma yet,

nearly 85% of members' monthly income are below 4750 TL, 65% of them use internet more than 4 hours in a day, more than 88 % of them have owned their mobile smart device more than 1 year ago, their most popular three smart mobile device brand are Samsung, Apple and LG and mainly they use only their personal smart mobile device. 8% of them have at least two smart mobile devices. They are addicted to use mobile applications, they took first place in terms of maximum percentage usage frequency in all categories except banking.

Independent T-tests prove that there is no significant difference between females and males and mobile application user's long term mobile application usage intentions and mobile application user's satisfaction.

ANOVA tests are done for investigating differences according to age groups in terms of mobile application usage loyalty and satisfaction. Results show that, there is no difference between age groups and people's long term mobile application usage intentions however there is a difference between age groups and people's mobile application satisfaction level. Beside this, it can be also summarized from ANOVA analysis that, there is no difference between income groups and people's long term mobile application usage intentions however there is a difference between income groups and mobile application users' mobile application satisfaction level. Another ANOVA tests are done between education levels and mobile application usage loyalty and between education levels and mobile application satisfaction level. No difference is found between education level based grouped people and mobile application user's satisfaction level. However, a significant difference exists between education level based user groups and people's long term mobile application usage intentions. ANOVA analyses are also done for technographics section, results

present that there is no difference between groups of participants according to their daily internet usage hours and people's long term mobile application usage intentions while there is difference between groups of participants according to their daily internet usage hours and people's mobile application satisfaction level. Mobile application users who spend more than 5 hours in a day on the internet are more satisfied with mobile applications' performance. Another ANOVA test is done to determine differences between smart mobile device usage year based groups, it can be concluded that, mobile application users who use smart mobile devices more than 4 years are more loyal upon mobile applications and they are also more satisfied with mobile applications' performance. It is determined by another ANOVA test that, Sony, Apple and LG branded smart mobile device owners are more loyal to mobile applications while Apple, LG and Samsung branded smart mobile device owners are more satisfied with mobile applications. The final ANOVA test has as an argument that mobile application users who have both personal and company owned smart mobile device are more satisfied with mobile applications in general.

Correlation analysis is done between satisfaction and mobile application usage loyalty and a positive relationship between satisfaction level of mobile application and long term mobile application usage is determined.

Regression analysis is done in order to define the cause and effect relationships between mobile application users' satisfaction determinants and mobile application users' satisfaction. The results present that usefulness, customization, design & speed, network operator, security & privacy, image, convenience, trialability, brand determinants effect mobile application users' satisfaction level.

Fun, social influence, energy consumption, economic value determinants are excluded from final theoretical model according to regression analysis results. In literature it can be found that these determinants effect the adoption of mobile application usage for users. However, in this study mobile application users' satisfaction and loyalty factors are investigated. The difference between adoption and satisfaction generated these results. Another significant cause and effect relationship is also found between mobile application usage satisfaction and mobile application usage loyalty. In the light of all these analyses the final model which is shown in Chapter 5 is determined.

Speed & Design is determined as a factor that influences users' mobile application satisfaction. This finding is similar to the study of Patro et al. (2013), in which the authors state that user interactivity declined if a network latency occurs. Beside this Cyr et al. (2006) stated that interface design is important for companies to rapidly increase their customers. It can be understandable that satisfied users may transform to customers. Therefore the result is not surprising and it is parallel with the literature findings for speed & design. Image is another independent variable in latest theoretical model like Revels et al. (2010)'s study. In Revels et al. (2010)'s study, the authors placed perceived image in their conceptual model and determined that perceived image has a positive effect on customer satisfaction with mobile services. With the help of findings in this thesis, this relationship between perceived image and customer satisfaction is extended to relationship between perceived image and mobile application usage satisfaction. Usefulness is another important factor that effects mobile application usage satisfaction of users according to analysis results. It is very common factor in literature which contains software topics. Chong et al.

(2011) summarized their literature review as perceived usefulness plays an important role in determining consumer adoption decisions on m-commerce or mobile internet activities. Beside this Cyr et al. (2006) demonstrate that perceived usefulness significantly influenced m-loyalty in their research. Liao et al. (2007) proved that perceived usefulness has a positive effect on attitude towards using 3G services. Another parallel example can be given from Revels et al. (2010)'s conceptual model, they proved that perceived usefulness has a positive effect on customer satisfaction with m-services. Convenience is also another important factor which can be commonly found in literature. In Liao et al. (2007) and Revels et al. (2010)'s studies convenience under name of perceived ease of use is constituted as positive factor for mobile services. Srivasta (2012) also found a significant dimension between perceived ease of use and technology adoption readiness to use mobile commerce. In this thesis also a significant relationship is found between mobile application usage satisfaction and convenience. This result is similar with general literature findings. Security & Privacy is created as an important independent variable after factor analysis in this thesis. The analysis results show parallelism with literature. Yu and Buahom (2013) declared that lack of perceived security is a major reason why many potential customers do not involve new technologies. Siau et al. (2001) underscored the importance of information security and they stated information security as a key factor in mobile commerce. Analysis results of this study proved that customization is also another factor that effects mobile application usage satisfaction. Clarke (2001) stated that reaching individuals with tailored messages is an ideal opportunity. Siau et al (2001) also stated in their research that mobile commerce applications can be personalized to represent information or provide services in ways appropriate to the

specific user and these situations are increasing satisfaction. Brand is also very popular factor in marketing, mobile application and mobile commerce literature. Yan et al. (2012) gave place to brand impact in their theoretical model and stated that using behavior of a mobile application is effected by brand impact. The findings of this study also support the literature. Network operator and its quality are found by the most essential factor for a smooth mobile application usage by Wac et al. (2011). Beside this, Smura et al. (2009) gave a place to network issues as a main category for usage of mobile services in their framework. Results from literature show similarity with this study. The final supportive factor for mobile application usage satisfaction is trialability. In Chong et al. (2011)'s study a hypothesis is conducted to investigate whether a significant and positive relationship between trialability and Malaysian and Chinese consumer decisions to adopt mobile commerce. However they couldn't found significance on their hypothesis, therefore they rejected them. The results of this study show that a positive relationship between mobile application usage satisfaction and trialability is exist in Turkey. Probably the cultural effects and the difference between mobile commerce and mobile application usage can cause this non-parallel result. As mentioned earlier hypothesis which include fun, social influence, energy consumption and economic value factors are rejected according to analysis which are made according to respondents' answers. The main reason which causes these results difference between adoption and satisfaction. As an example, Thakur and Srivasta (2012) declared that social influence is found to be significant dimensions of technology adoption readiness to use mobile commerce. However in this study, the relationship between mobile application usage satisfaction and social influence is investigated and no significant relationship is found. For fun factor,

Chong (2013) stated that, perceived enjoyment is found a positive influence on the adoption of internet or e-commerce. Again, the difference between adoption and satisfaction takes place the explain the surprising results in this study. Chong et al. (2011) showed in their study that cost plays an important role in the adoption of mobile commerce among young users. However the findings of this thesis summarized that there is no significant relationship between mobile application usage satisfaction and economic value.

6.2 Managerial implications

In today's ultrarelativistic technological environment, smart mobile devices and mobile applications as their first positioned marketing tools become more and more important every day. This thesis investigated mobile application user's mobile application satisfaction factors which causes long term mobile application usage, mobile application usage loyalty. The inferences and findings from this thesis may be very valuable for Turkish business world.

First of all, according to demographic information of respondents, this study mainly focuses on young generation and students. Beside this, it can be stated that the main audience spend more than 2 hours in a day on the web and they are smart mobile device users for at least 2 years. The audience mainly equally distributed between Apple and Samsung branded smart mobile device ownership status, therefore the findings will be very valuable for both Google Play and AppStore mobile application owners as companies or independent mobile application developers. Social media, instant messaging, music and photography related mobile applications are more popular than others, so for advertisers and clients, it is

important to use mobile applications in these categories to reach target audiences. Design & speed, convenience, brand, energy consumption, usefulness are determined by participants as most agreed scales. Therefore for designers, it must not be forgettable that designing simple and aesthetic designs for mobile application users, for developers it is also an important insight that mobile application users care mobile applications' working speed and performance, less energy consumption which is related with smart mobile device processor usage ratio become very important factor for today's genius young generation. Brand impact also another important factor for mobile application users. Therefore mobile application owners should work on marketing activities and they must institutionalize. Mobile application users also stated that they are more willing to download free mobile applications, however they are less willing to delete fee - based ones. Therefore to keep them more loyal to mobile applications, in some special circumstances it may be preferred that using fee- based mobile applications to interact with target audience. It must also be taken into consideration that mobile application users download more number of free mobile applications and they more likely recommend free mobile applications to their friends, so if the aim of mobile application owner is quickly spreading to the larger clusters, using free mobile applications seems as right choice.

Mobile application satisfaction level is varying according to age groups and income levels, therefore developing special interfaces or special mobile applications according to these segments looks meaningful and this must be also noted by mobile application owners as companies or independent mobile application developers. Another important finding for business owners and mobile application developers is

that, satisfaction level of mobile application users differs according to their daily internet usage which means satisfying heavy internet users are easier than satisfying other groups. Beside this, users with more than 4 years smart mobile device usage history are more satisfied with mobile applications' performance than other groups. Therefore while developing or improving mobile applications, it must be important for independent mobile application developers or mobile application owners as companies to think satisfying late adopters. For choosing mobile application development environment, brand based mobile application usage loyalty and mobile application usage satisfaction levels of users will be important for mobile application developers and mobile application owners as companies. Apple branded mobile device owners found places in top 3 for both mobile application satisfaction levels and long term mobile application usage commitment while Samsung users only stated that they are satisfied with mobile applications' performance.

Four segments are created and named from the results of cluster analysis as pragmatics, laggards, value conscious and demandings and their characteristics are defined via cross-tab analyses. For mobile application owners, it is critical to develop and publish targeted mobile applications to these groups in order to reach huge number of downloads and great usage rates. For advertisers it must not be forgettable that to target segments with using related mobile applications in their interested areas and present them related product or services according to segments' preferences.

Usefulness, customization, convenience, image, design & speed factors are listed as top five correlative factors for mobile application usage satisfaction. Therefore the mobile application owners as companies or independent mobile application developers need to really focus on these factors if they want their mobile

application users be satisfied with their mobile applications. As a summary, an ideal mobile application must be useful, it must be easily customizable according to personal preferences, a mobile application must be easily reachable and usable at every time simply, it must have image and give prestige to its users, its design must be nice and attractive and it must work fast. This study also guarantees that if mobile application users are satisfied with mobile applications, they will behave more loyal to mobile applications. Therefore in order to generate loyal mobile application users, companies or independent developers' number one positioned duty is keeping mobile application users in a satisfied situation.

Finally, this study determined how to satisfy mobile application users and give another managerial implication to mobile application owners as companies and independent mobile application developers. According to multiple regression analysis, usefulness, customization, design & speed, network operator, security & privacy, image, convenience, trialability and brand impact effect mobile application users' satisfaction level. From there, successful mobile applications' specialities are listed below to show the right way business environment:

- A mobile application must be useful.
- A mobile application must be easily customizable according to user's preferences and personality.
- A mobile application must have an aesthetic design and work fast.
- A mobile application must use network operators' potential.
- A mobile application must be trustworthy and should care about users' information security & privacy.

- A mobile application must have a good image and give prestige to its users
- A mobile application must be easily accessible and simply usable at every time
- A mobile application must offer trial opportunities to its users.
- A mobile application must have a good brand impact.

6.3 Limitations and recommendations for future research

In this thesis, convenience sampling from non- probability sampling methods is used for selecting people and collecting data. Convenience sampling has been chosen because collecting data with this method is easy and fast. Time and cost restrictions make convenience sampling method suitable for data gathering. For future studies about this topic, it is recommended that, a probability sampling design should be used to generalize the results and increase the representativeness.

Another limitation is usage of text based questions which give limited interaction chances to people. Even the respondents stated their opinions about the statements, it may be better to observe their behavior instead of analyzing their answers. Therefore experiments with real mobile applications can be used to determine truths and test hypotheses. By doing these experiments, future studies can reach more insights about mobile application usage intentions in Turkey.

In addition to that, in this study data collection was done via an online survey, because of non-existence of face to face communication, accuracy of respondents' demographics information depends on their answers. For comparing intention of respondents from different regions towards mobile application usage, targeted

audience can be selected from pre-defined cities. Moreover, this questionnaire is applied in Turkish and for Turkish citizens. If there is a person who is living in Turkey but doesn't how to speak Turkish, his or her opinions couldn't be included in this research. Furthermore, this study only investigates mobile application behaviors in Turkey, to reach more generalizable results for literature, this questionnaire must be applied to other nations and other countries to validate results or compare nation based differences upon mobile application usage intentions.

Another limitation about this study is respondents' differing perceptions about mobile applications. Since the survey does not contain any specific mobile application related questions, mobile application users' perceptions about different application categories may also be different. For future researchers, it is suggested to place specific mobile application related questions, by doing so everybody will understand same mobile application and answer question according to its' performance.

In this research, mobile application store based classifications were not used. For future studies, researchers can be placed mobile application store based questions into their questionnaire and investigate mobile application users varying behaviors towards mobile application store.

Moreover, in this thesis cross-sectional study is used and data gathered from respondents only once. Longitudinal studies can be done over same sample and / or same topic in different times to check respondents' opinions upon mobile applications and determine deviations over time in their opinions.

Finally, all of the factors which are highlighted in the literature are not included in this thesis in order to balance questionnaires effectiveness and keep its

completing time in optimum. Therefore other factors which are given in the matrix at Table A1 (see Appendix A), should be important for further studies. These factors must also be investigated over Turkish mobile application users' in order to gain more in-depth results. With the help of these factors more complicated theoretical models and hypotheses can be generated and can be tested.

APPENDIX A : APPENDIX TABLES

Table A1. Adoption Matrix of Studies and Factors

| | Amount of apps in store | App Store Satisfaction | App Store Coherence | WOM / Diffusiveness / Social Influence | App Store Discoverability | Trust | Free Trialability | Brand Status | Mobile Web Interface Ownership Status | App Store Review/points -Recommender System | Country Of Origin | Perceived Image / Expressiveness | Mobile device only app status | Ease of use | Enjoyment / Fun | Frequency of content differentiation | Aesthetic Design / UI / Usability | Cost (Usage - Download) | Multi-Channel Engagement | Attractiveness | Variety of Services | Context for mobility | Customization / Personalization | Safety / Security | Speed / Performance | Smart application usage predictions | Quality | Location Based Benefits | Mobility Status | Free time availability for usage | Acceptance of Tech status | Personal Need Coverage /Perceived Value / Usefulness | Emergency Need Coverage | Communication Need Coverage | Time Of Day | Connectivity / Network Performance Status | Closeness of Installation Time | Personal Knowledge /Skills | Personal Motivation | Self- Activated / User - Activated Application Status | Private info usage | Power consumption | Interruptions of mobile application usage | Income Status / Socioeconomic Status | Gender | Age | Education Level | Year of Internet Usage | | | | | |
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| Song et al., 2013 | X | X | X | | X | | | | | X | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chang, Kaasinen, and Kaipainen, 2012 | | | | X | | X | | | | | | | | X | X | | | | | | X | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |
| Wang, Liao, and Yang, 2013 | | | | X | | | | | | | | | | | X | X | X | | | | | | | | | | | | | X | X | X | X | | | | | | | | | | | | | | | | | | | | |
| Chong, Chan, and Ooi, 2012 | | | | X | | X | X | | | | | | | X | | | | | X | | | X | | | | | | | | | | X | X | X | | | | | | | | | | | | | | | | | | | |
| Mort and Drennan, 2004 | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | | | | | | | | | | | | | | | | | | | |
| Yu and Buahom, 2013 | | | | X | | | | | | | | | | X | X | | | X | | | | | | X | | | | | | X | | X | X | | | | | | | | | | | | | | | | | | | | |
| Bicen and Kocakoyun, 2013 | | | | X | | | | | | | | | | | | | | | | | | | | | X | | | | | | | X | X | X | | X | | | | | | | | | | | | | | | | | |
| Thakur and Srivastava, 2012 | | | | X | | | | | | | | | | X | | | | | | | | | | X | | | | | | | | X | X | | | | | | | | X | | | | | | | | | | | | |

| | Amount of apps in store | App Store Satisfaction | App Store Coherence | WOM / Diffusiveness / Social Influence | App Store Discoverability | Trust | Free Trialability | Brand Status | Mobile Web Interface Ownership Status | App Store Review/points -Recommender System | Country Of Origin | Perceived Image / Expressiveness | Mobile device only app status | Ease of use | Enjoyment / Fun | Frequency of content differentiation | Aesthetic Design / UI / Usability | Cost (Usage - Download) | Multi-Channel Engagement | Attractiveness | Variety of Services | Context for mobility | Customization / Personalization | Safety / Security | Speed / Performance | Smart application usage predictions | Quality | Location Based Benefits | Mobility Status | Free time availability for usage | Acceptance of Tech status | Personal Need Coverage /Perceived Value / Usefulness | Emergency Need Coverage | Communication Need Coverage | Time Of Day | Connectivity / Network Performance Status | Closeness of Installation Time | Personal Knowledge /Skills | Personal Motivation | Self- Activated / User - Activated Application Status | Private info usage | Power consumption | Interruptions of mobile application usage | Income Status / Socioeconomic Status | Gender | Age | Education Level | Year of Internet Usage | | |
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| Wac et al., 2011 | | | | X | | | | | | | | | X | | | | X | | | | | | | | X | | | | | | | X | | | | X | X | | | | | | | | | | | | | |
| Chan and Chong, 2012 | | | | X | | | | | | | | | | X | X | | | | | | | | | X | | | | | | | | | X | | | | | | | | | | X | | X | | | | | |
| Barnes and Huff, 2003 | | | | X | | X | X | | | | | X | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Siau and Shen, 2003 | | | | X | | X | | | | | | | | | | | | | | | | | | X | | | | X | | | | | | | | | | | | | | | | | | | | | | |
| Liang and Wei, 2004 | | | | | X | | | | | | | | | X | | | | | | | | | X | | | | | | | X | X | | | | | | | | | | | | | | | | | | | |
| Li and Yeh, 2010 | | | | | | X | | | | | | | | X | | | X | | | | | | X | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Yan et al., 2013 | | | | | | X | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deng, Zhang, and Yan, 2012 | | | | | | X | | X | | X | | | | | | | | | | | | | X | | | | X | | | | | | | | | | | X | | | | | | | | | | | | |
| Kim and Hahn, 2012 | | | | | | | | X | | | | | | X | X | | | | | | | | | | | | | | | | | X | X | | | | | | | | | | | | | | | | | |
| Tossell et al., 2012 | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Böhmer, Ganer, and Krüger, 2013 | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | |
| Yan and Chen, 2011 | | | | | | | | | | X | | | | | | | X | X | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | |
| Cyr, Head, and Ivanov, 2006 | | | | | | | | | | | X | | | X | X | | X | | | | | X | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |

| | Amount of apps in store | App Store Satisfaction | App Store Coherence | WOM / Diffusiveness / Social Influence | App Store Discoverability | Trust | Free Trialability | Brand Status | Mobile Web Interface Ownership Status | App Store Review/points -Recommender System | Country Of Origin | Perceived Image / Expressiveness | Mobile device only app status | Ease of use | Enjoyment / Fun | Frequency of content differentiation | Aesthetic Design / UI / Usability | Cost (Usage - Download) | Multi-Channel Engagement | Attractiveness | Variety of Services | Context for mobility | Customization / Personalization | Safety / Security | Speed / Performance | Smart application usage predictions | Quality | Location Based Benefits | Mobility Status | Free time availability for usage | Acceptance of Tech status | Personal Need Coverage /Perceived Value / Usefulness | Emergency Need Coverage | Communication Need Coverage | Time Of Day | Connectivity / Network Performance Status | Closeness of Installation Time | Personal Knowledge /Skills | Personal Motivation | Self- Activated / User - Activated Application Status | Private info usage | Power consumption | Interruptions of mobile application usage | Income Status / Socioeconomic Status | Gender | Age | Education Level | Year of Internet Usage | | | |
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| Revels, Tojib and Tsarenko, 2010 | | | | | | | | | | | | X | | X | X | | | X | | | | | | | | | | | | | X | X | | | | | | | | | | | | | | | | | | | |
| Head and Ziolkowski, 2012 | | | | | | | | | | | | X | | X | X | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | |
| Rahmati and Zhong, 2013 | | | | | | | | | | | | X | | | | | | | | | | X | X | | | | | | | | X | | | | | | | | | | | | | | | | | | | | |
| Patro et al., 2013 | | | | | | | | | | | | | X | | | | | | | | | | | | | X | | | | | X | | | | | X | | | | | | X | | | | | | | | | |
| Chong, 2013 | | | | | | | | | | | | | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Büyükköçkan, 2009 | | | | | | | | | | | | | | X | | | | X | | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | | |
| Liao, Tsou, and Huang, 2007 | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lee et al., 2012 | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | |
| Hong, Thong, and Tam, 2006 | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wu, Wang and Lin, 2006 | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Rahmati et al., 2012 | | | | | | | | | | | | | | X | | | | | | | | X | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Shin et al., 2009 | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | Amount of apps in store | App Store Satisfaction | App Store Coherence | WOM / Diffusiveness / Social Influence | App Store Discoverability | Trust | Free Trialability | Brand Status | Mobile Web Interface Ownership Status | App Store Review/points -Recommender System | Country Of Origin | Perceived Image / Expressiveness | Mobile device only app status | Ease of use | Enjoyment / Fun | Frequency of content differentiation | Aesthetic Design / UI / Usability | Cost (Usage - Download) | Multi-Channel Engagement | Attractiveness | Variety of Services | Context for mobility | Customization / Personalization | Safety / Security | Speed / Performance | Smart application usage predictions | Quality | Location Based Benefits | Mobility Status | Free time availability for usage | Acceptance of Tech status | Personal Need Coverage /Perceived Value / Usefulness | Emergency Need Coverage | Communication Need Coverage | Time Of Day | Connectivity / Network Performance Status | Closeness of Installation Time | Personal Knowledge /Skills | Personal Motivation | Self- Activated / User - Activated Application Status | Private info usage | Power consumption | Interruptions of mobile application usage | Income Status / Socioeconomic Status | Gender | Age | Education Level | Year of Internet Usage | |
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| Park et al., 2014 | | | | | | | | | | | | | | X | X | | | | | | | | | X | | | | | X | | | | | | | | X | | | | | | | | | | | | |
| Siau, Lim, and Shen, 2001 | | | | | | | | | | | | | | X | | | X | | | | | | X | X | | | | | X | | | | | | | | | | | | | | | | | | | | |
| Olmsted, Rim, and Zerba, 2012 | | | | | | | | | | | | | | X | | | | X | | | | X | | | | | | | | | | X | | | | | | | | | | | | | X | X | X | X | X |
| Jarvenpaa et al., 2003 | | | | | | | | | | | | | | X | | | | X | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |
| Mahatanankoon, Wen, and Lim, 2005 | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | X | | | | | | | | | | | | | X | | | | | | | |
| Clarke, 2001 | | | | | | | | | | | | | | | | | | X | | | | | X | | | | | | X | | | | | | | | | | | | | | | | | | | | |
| Smura, Kivi, and Töyli, 2009 | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | X | | | | | | | | | | | | | |
| Qian et al., 2011 | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | X | | | | | | | | |
| Zou et al., 2013 | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| Sun et al., 2013 | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| Shin, Hong, and Dey, 2012 | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | | | | | | | | | | | | | | | | | | | | | | |
| Parate et al., 2013 | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |

Table A2. Details for Sub - Questions Which Belong to 11th Question

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|-----------------------|-----------------------------------|--|---|
| 11.1 | Perceived Usefulness | Thakur and Srivastava (2012) | Using mobile payment services will enable me to accomplish transactions more quickly | Transactions can be completed more quickly by using mobile applications. |
| 11.2 | Perceived Usefulness | Thakur and Srivastava (2012) | Using mobile payment services will increase my productivity | Mobile applications make me more productive |
| 11.3 | Perceived Usefulness | Li and Yeh (2010) | The service required the fewest steps to accomplish what I wanted to do with it. | Mobile applications meet expectations in few steps and quickly. |
| 11.4 | Perceived Usefulness | Yu and Buahom (2013) | I find mobile commerce services to be useful for me. | Mobile applications are useful. |
| 11.5 | Perceived Usefulness | Self- Added | N/A | Mobile applications meet people's needs. |
| 11.6 | Perceived Ease of Use | Chong et al. (2011) | Using m-commerce requires minimum effort | Using mobile applications requires minimum effort. |
| 11.7 | Perceived Ease of Use | Thakur and Srivastava (2012) | Learning to operate mobile payment services will be easy for me | Learning to use mobile applications is easy. |
| 11.8 | Perceived Ease of Use | Thakur and Srivastava (2012) | Working with mobile payment services is not complicated; it is easy to understand what is going on | Working with mobile applications is not complicated; it is easy to understand what is going on. |
| 11.9 | Convenience | Yu et al. (2013) | I am able to use mobile commerce services every time. | Mobile applications can be used at any time. |
| 11.10 | Convenience | Yu et al. (2013) | I am able to use mobile commerce services everywhere. | Mobile applications can be used at everywhere. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|--------------------|-----------------------------------|---|---|
| 11.11 | Convenience | Self-Added | N/A | In general, doing transactions via mobile applications is easy. |
| 11.12 | Social Influence | Thakur and Srivastava (2012) | People who influence my behavior think that I should use mobile payment services | My friends and peers advise that I should use mobile applications. |
| 11.13 | Social Influence | Thakur and Srivastava (2012) | People in my environment who use mobile payment services have more prestige than those who do not | My friends and peers advise, who use mobile applications, are more prestigious than those who do not. |
| 11.14 | Social Influence | Self - Added | N/A | I can change my idea about a mobile application because of my friends' comments. |
| 11.15 | Social Influence | Yu et al. (2013) | WOM affect my decision in using mobile commerce services. | My friends' opinions about mobile applications effect my decision. |
| 11.16 | Fun | Yu et al. (2013) | I have fun by using mobile commerce services. | Using mobile applications is fun. |
| 11.17 | Fun | Yu et al. (2013) | I do not see time go by when I using mobile commerce services. | While using mobile applications, time go by. |
| 11.18 | Fun | Yu et al. (2013) | Using mobile commerce services is a good way to spend my free time. | Using mobile applications is a good way to spend spare time. |
| 11.19 | Security & Privacy | Chong et al. (2012) | Privacy on m-commerce is well protected. | Privacy on mobile applications is well protected. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|--------------------|-----------------------------------|--|--|
| 11.20 | Security & Privacy | Yu et al. (2013) | I feel secure in providing personal information (e.g., name, address, phone number) for conducting mobile commerce services. | It is secure to provide personal information (e.g., name, address, phone number) before downloading mobile applications. |
| 11.21 | Security & Privacy | Yu et al. (2013) | I think mobile commerce services secure in conducting the transactions | Mobile application related transactions have been done secure environments. |
| 11.22 | Security & Privacy | Self-Added | N/A | The information which people share with mobile applications is not shared with different people or corporations without getting their permissions. |
| 11.23 | Security & Privacy | Self-Added | N/A | Mobile application companies draw money from credit cards without giving any notice. |
| 11.24 | Economic Value | Yu et al. (2013) | If the service is not expensive, I willing to purchase them. | If the mobile application is not expensive, I may purchase it. |
| 11.25 | Economic Value | Yu et al. (2013) | Price is the most important factor when I use mobile commerce services. | Price is the most important factor for mobile application usage. |
| 11.26 | Economic Value | Self-Added | N/A | If there is a free chance available for a benefit, I don't buy a mobile application to have same benefit. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|--------------------|-----------------------------------|--|--|
| 11.27 | Economic Value | Yu et al. (2013) | Mobile commerce services would offer a good value for money. | The benefits, which are provided by mobile applications, must deserve the money paid for them. |
| 11.28 | Customization | Coelho and Henseler (2009) | If I changed between companied I wouldn't obtain products and services as customized as I have now | If a mobile application doesn't offer specialized content for me, I will use its alternative. |
| 11.29 | Customization | Li and Yeh (2010) | The site provides me with information and products according to my preferences. | Mobile applications provide me information and products according to my preferences. |
| 11.30 | Customization | Self - Added | N/A | Mobile applications must bring contents which are related to my interests into the forefront. |
| 11.31 | Energy Consumption | Self - Added | N/A | My smart mobile device's battery ends quicker, while I am using mobile applications. |
| 11.32 | Energy Consumption | Self - Added | N/A | I want to know which mobile application in my smart mobile device consumes more energy. |
| 11.33 | Energy Consumption | Self - Added | N/A | The level of mobile applications' energy consumption influences my mobile application usage. |
| 11.34 | Energy Consumption | Self - Added | N/A | I rarely use mobile applications that consume battery rapidly. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|-----------------------------|-----------------------------------|---|---|
| 11.35 | Aesthetic Design | Cyr et al. (2006) | The screen design (i.e., colors, boxes, navigation bars, etc.) is attractive. | Mobile applications' design must be amusing and attractive. |
| 11.36 | Aesthetic Design | Cyr et al. (2006) | The site looks professional designed. | Mobile applications must have professional style. |
| 11.37 | Aesthetic Design | Self-Added | N/A | Mobile applications must have aesthetic design. |
| 11.38 | Working Speed / Performance | Self-Added | N/A | Mobile applications should work fast. |
| 11.39 | Working Speed / Performance | Self-Added | N/A | Working speed of a mobile application is more important than its functionality. |
| 11.40 | Working Speed / Performance | Self-Added | N/A | I don't like waiting while using mobile applications. |
| 11.41 | Working Speed / Performance | Cebi (2013) | The site should provide quick loading, accessing, and using | Mobile applications should provide quick loading, accessing, and using. |
| 11.42 | Image | Revels et al. (2010) | Using mobile services improves my self-image. | Using mobile applications improves my self-image. |
| 11.43 | Image | Revels et al. (2010) | People who use mobile services have more prestige. | People who use mobile applications have more prestige and more popularity. |
| 11.44 | Image | Revels et al. (2010) | People who use mobile services are information technology savvy. | People who use mobile applications are technology savvy. |
| 11.45 | Image | Self-Added | N/A | I think that I can express my personality by using features of mobile applications. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|------------------|-----------------------------------|---|---|
| 11.50 | Trialability | Chong et al. (2011) | I would like to know more about m-commerce before using it. | I would like to know more about mobile applications before using them. |
| 11.51 | Trialability | Chong et al. (2011) | Have free access to m-commerce applications for a month might convince me to use it | Having free access to fee-based mobile applications during a trial period may convince me to buy them. |
| 11.52 | Trialability | Parthasarathy and Forlani (2010) | Before I subscribed to this on-line service, I tried other on-line services. | Trying similar free mobile applications is a good way before buying a fee-based mobile application. |
| 11.53 | Brand | Self - Added | N/A | I trust more to a mobile application which is owned by a well-known brand. |
| 11.54 | Brand | Ballester and Elleman (2005) | Even when another brand is on sale, I would prefer the brand [X] | I prefer using my familiar brand's fee-based mobile application instead of a free mobile application which is owned by a brand that I am not accustomed to. |
| 11.55 | Brand | Self - Added | N/A | I prefer a well - recognized brand's mobile application rather than an unrecognized brand's mobile application. |
| 11.56 | Network Operator | Self-Added | N/A | Mobile operator's service level effects mobile application usage. |
| 11.57 | Network Operator | Self-Added | N/A | Mobile application usage level decreases in indoor areas due to the difficulties about mobile internet connectivity. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|------------------|-------------------------------------|---|---|
| 11.58 | Network Operator | Self-Added | N/A | Two different mobile applications can be used simultaneously via smart mobile devices. |
| 11.59 | Satisfaction | Dolen et al. (2002) | This encounter was exactly what I needed. | Mobile applications meet exactly what I need. |
| 11.60 | Satisfaction | Patterson and Smith (2003) | Taking everything into consideration, how do you feel about the service you received from service provider? | Taking everything into consideration, the service received from mobile applications is satisfying. |
| 11.61 | Satisfaction | Hausman (2004) | I am satisfied with my decision to use this doctor. | I am satisfied with my decision to use mobile applications. |
| 11.62 | Satisfaction | Hausman (2004) | My choice to use this doctor was a wise one. | Using mobile applications in daily life activities is a wise way. |
| 11.63 | Satisfaction | Hausman (2004) | Owning this doctor has been a good experience. | Using mobile applications has been a good experience. |
| 11.64 | Satisfaction | Homburg, Koschate, and Hoyer (2005) | The restaurant would meet my expectations. | Mobile applications meet my expectations. |
| 11.65 | Loyalty | Cyr et al. (2006) | I would consider using this mobile service in the future. | I would use mobile applications that used previously once and satisfied with their performance in the future again. |
| 11.66 | Loyalty | Self-Added | N/A | I use mobile applications with satisfying performance in a long range period. |
| 11.67 | Loyalty | Lin and Wang (2006) | My preference for this m-commerce website would not willingly change. | I don't think to change mobile applications which I frequently use. |

| Question Number in Survey | Related Variable | Original Questions' Adapted Study | Original Question in Scale | Adapted Question in Scale |
|---------------------------|------------------|-----------------------------------|---|---|
| 11.68 | Loyalty | Lin and Wang (2006) | It would be difficult to change my beliefs about this m-commerce website. | It would be difficult to give up easily from a mobile application, if I get used to it. |

Table A3. The Most Important Mobile Application Satisfaction Determinants Based on Mean Values

| Determinant | Items | N | Mean (Over 5) | Std. Deviation |
|-----------------------------|---|-----|------------------|-------------------|
| Energy Consumption | My smart mobile device's battery ends quicker, while I am using mobile applications. | 845 | 4.55 | 0.71 |
| Working Speed / Performance | Mobile applications should provide quick loading, accessing, and using | 845 | 4.52 | 0.67 |
| Perceived Ease of Use | Learning to use mobile applications is easy. | 845 | 4.46 | 0.68 |
| Working Speed / Performance | I don't like waiting while using mobile applications. | 845 | 4.46 | 0.73 |
| Working Speed / Performance | Mobile applications should work fast. | 845 | 4.37 | 0.75 |
| Energy Consumption | I want to know which mobile application in my smart mobile device consumes more energy. | 845 | 4.35 | 0.85 |
| Economic Value | The benefits, which are provided by mobile applications, must deserve the money paid for them. | 845 | 4.33 | 0.81 |
| Aesthetic Design | Mobile applications' design must be amusing and attractive | 845 | 4.29 | 0.76 |
| Brand | I trust more to a mobile application which is owned by a well-known brand. | 845 | 4.22 | 0.8 |
| Perceived Ease of Use | Working with mobile applications is not complicated; it is easy to understand what is going on. | 845 | 4.22 | 0.77 |
| Aesthetic Design | Mobile applications must have professional style. | 845 | 4.21 | 0.75 |
| Convenience | In general, doing transactions via mobile applications is easy. | 845 | 4.17 | 0.77 |
| Convenience | Mobile applications can be used at any time. | 845 | 4.16 | 0.86 |
| Perceived Usefulness | Transactions can be completed more quickly by using mobile applications. | 845 | 4.16 | 0.77 |
| Fun | Using mobile applications is fun. | 845 | 4.12 | 0.8 |
| Perceived Usefulness | Mobile applications are useful. | 845 | 4.1 | 0.79 |

| Determinant | Items | N | Mean (Over 5) | Std. Deviation |
|-----------------------|--|-----|------------------|-------------------|
| Perceived Usefulness | Mobile applications meet people's needs. | 845 | 4.09 | 0.8 |
| Network Operator | Two different mobile applications can be used simultaneously via smart mobile devices. | 845 | 4.07 | 0.91 |
| Network Operator | Mobile operator's service level effects mobile application usage. | 845 | 4.06 | 0.88 |
| Energy Consumption | The level of mobile applications' energy consumption influences my mobile application usage. | 845 | 4.03 | 0.98 |
| Customization | Mobile applications must bring contents which are related to my interests into the forefront. | 845 | 4.02 | 0.74 |
| Perceived Ease of Use | Using mobile applications requires minimum effort. | 845 | 4.01 | 0.84 |
| Perceived Usefulness | Mobile applications meet expectations in few steps and quickly. | 845 | 4.01 | 0.78 |
| Convenience | Mobile applications can be used at everywhere. | 845 | 3.97 | 0.99 |
| Trialability | I would like to know more about mobile applications before using them. | 845 | 3.91 | 0.86 |
| Trialability | Trying similar free mobile applications is a good way before buying a fee-based mobile application. | 845 | 3.9 | 0.96 |
| Customization | If a mobile application doesn't offer specialized content for me, I will use its alternative. | 845 | 3.87 | 0.87 |
| Economic Value | If there is a free chance available for a benefit, I don't buy a mobile application to have same benefit. | 845 | 3.86 | 0.99 |
| Aesthetic Design | Mobile applications must have aesthetic design. | 845 | 3.85 | 1 |
| Fun | While using mobile applications, time go by. | 845 | 3.81 | 1.08 |
| Brand | I prefer a well - recognized brand's mobile application rather than an unrecognized brand's mobile application. | 845 | 3.8 | 1.01 |
| Network Operator | Mobile application usage level decreases in indoor areas due to the difficulties about mobile internet connectivity. | 845 | 3.76 | 1.01 |

| Determinant | Items | N | Mean (Over 5) | Std. Deviation |
|-----------------------------|--|-----|------------------|-------------------|
| Trialability | Having free access to fee-based mobile applications during a trial period may convince me to buy them. | 845 | 3.74 | 1.13 |
| Customization | Mobile applications provide me information and products according to my preferences. | 845 | 3.7 | 0.81 |
| Fun | Using mobile applications is a good way to spend spare time. | 845 | 3.7 | 1.12 |
| Energy Consumption | I rarely use mobile applications that consume battery rapidly. | 845 | 3.64 | 1.15 |
| Perceived Usefulness | Mobile applications make people more productive. | 845 | 3.52 | 1.02 |
| Economic Value | Price is the most important factor for mobile application usage. | 845 | 3.42 | 1.18 |
| Image | People who use mobile applications are technology savvy. | 845 | 3.37 | 1.14 |
| Working Speed / Performance | Working speed of a mobile application is more important than its functionality. | 845 | 3.27 | 1.02 |
| Image | Using mobile applications improves my self-image. | 845 | 2.94 | 1.21 |
| Economic Value | If the mobile application is not expensive, I may purchase it. | 845 | 2.93 | 1.3 |
| Privacy & Security | Privacy on mobile applications is well protected. | 845 | 2.91 | 1.12 |
| Privacy & Security | Mobile application related transactions have been done secure environments. | 845 | 2.83 | 1.03 |
| Image | I think that I can express my personality by using features of mobile applications. | 845 | 2.82 | 1.17 |
| Social Influence | My friends and peers advise, who use mobile applications, are more prestigious than those who do not. | 845 | 2.81 | 1.21 |
| Social Influence | I can change my idea about a mobile application because of my friends' comments. | 845 | 2.8 | 1.08 |
| Privacy & Security | The information which people share with mobile applications are not shared with different people or corporations without getting their permissions | 845 | 2.79 | 1.13 |
| Social Influence | My friends and peers advise that I should use mobile applications. | 845 | 2.75 | 1.1 |

| Determinant | Items | N | Mean (Over 5) | Std. Deviation |
|-----------------------|---|-----|------------------|-------------------|
| Social Influence | My friends' opinions about mobile applications effect my decision. | 845 | 2.75 | 1.14 |
| Brand | I prefer using my familiar brand's fee-based mobile application instead of a free mobile application which is owned by a brand that I am not accustomed to. | 845 | 2.72 | 1.14 |
| Image | People who use mobile applications have more prestige and more popularity. | 845 | 2.59 | 1.2 |
| Privacy & Security | It is secure to provide personal information (e.g., name, address, phone number) before downloading mobile applications. | 845 | 2.54 | 1.13 |
| Privacy & Security | Mobile application companies draw money from credit cards without giving any notice. | 845 | 1.85 | 1.17 |

Table A4. Result of Rotated Component Matrix for User's Satisfaction Items

| | Component | | | | | | | | | | | | | |
|--|-----------|-------|---|---|---|-------|---|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Working_Speed_1_Mobile applications should work fast. | 0.741 | | | | | | | | | | | | | |
| Working_Speed_3_I don't like waiting while using mobile applications. | 0.724 | | | | | | | | | | | | | |
| Working_Speed_4_Mobile applications should provide quick loading, accessing, and using. | 0.705 | | | | | | | | | | | | | |
| Aesthetic_Design_2_Mobile applications must have professional style. | 0.667 | | | | | | | | | | | | | |
| Aesthetic_Design_1_Mobile applications' design must be amusing and attractive | 0.649 | | | | | | | | | | | | | |
| Aesthetic_Design_3_Mobile applications must have aesthetic design. | 0.597 | | | | | | | | | | | | | |
| Working_Speed_2_Working speed of a mobile application is more important than its functionality. | 0.427 | | | | | | | | | | | | | |
| Power_Consumption_1_My smart mobile device's battery ends quicker, while I am using mobile applications. | 0.417 | | | | | 0.405 | | | | | | | | |
| Perceived_Image_2_People who use mobile applications have more prestige and more popularity. | | 0.865 | | | | | | | | | | | | |
| Perceived_Image_1_Using mobile applications improves my self-image. | | 0.806 | | | | | | | | | | | | |
| Perceived_Image_4_I think that I can express my personality by using features of mobile applications. | | 0.783 | | | | | | | | | | | | |
| Perceived_Image_3_People who use mobile applications are technology savvy. | | 0.694 | | | | | | | | | | | | |

| | Component | | | | | | | | | | | | | |
|--|-----------|-------|-------|-------|---|---|---|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Social_Influence_2_My friends and peers advise, who use mobile applications, are more prestigious than those who do not. | | 0.617 | | | | | | | | | | | | |
| Perceived_Usefulness_4_Mobile applications are useful | | | 0.77 | | | | | | | | | | | |
| Perceived_Usefulness_3_Mobile applications meet expectations in few steps and quickly | | | 0.74 | | | | | | | | | | | |
| Perceived_Usefulness_1_Transactions can be completed more quickly by using mobile applications | | | 0.722 | | | | | | | | | | | |
| Perceived_Usefulness_2_Mobile applications make people more productive | | | 0.705 | | | | | | | | | | | |
| Perceived_Usefulness_5_Mobile applications meet people's needs | | | 0.678 | | | | | | | | | | | |
| Perceived_Ease_Of_Use_3_Working with mobile applications is not complicated; it is easy to understand what is going on. | | | | 0.808 | | | | | | | | | | |
| Perceived_Ease_Of_Use_2_Learning to use mobile applications is easy | | | | 0.778 | | | | | | | | | | |
| Convenience_1_Mobile applications can be used at any time. | | | | 0.697 | | | | | | | | | | |
| Convenience_3_In general, doing transactions via mobile applications is easy. | | | | 0.674 | | | | | | | | | | |
| Convenience_2_Mobile applications can be used at everywhere. | | | | 0.658 | | | | | | | | | | |
| Perceived_Ease_Of_Use_1_Using mobile applications requires minimum effort. | | | | 0.53 | | | | | | | | | | |

| | Component | | | | | | | | | | | | | |
|--|-----------|---|---|---|-------|-------|-------|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Trust_3_Mobile application related transactions have been done secure environments | | | | | 0.869 | | | | | | | | | |
| Trust_2_It is secure to provide personal information (e.g., name, address, phone number) before downloading mobile applications. | | | | | 0.838 | | | | | | | | | |
| Trust_4_The information which people share with mobile applications are not shared with different people or corporations without getting their permissions | | | | | 0.818 | | | | | | | | | |
| Trust_1_Privacy on mobile applications is well protected. | | | | | 0.728 | | | | | | | | | |
| Trust_5_Mobile application companies draw money from credit cards without giving any notice | | | | | 0.462 | | | | | | | | | |
| Customizaiton_1_If a mobile application doesn't offer specialized content for me, I will use its alternative. | | | | | | 0.663 | | | | | | | | |
| Customization_3_Mobile applications must bring contents which are related to my interests into the forefront. | | | | | | 0.63 | | | | | | | | |
| Customization_2_Mobile applications provide me information and products according to my preferences. | | | | | | 0.535 | | | | | | | | |
| Cost_4_The benefits, which are provided by mobile applications, must deserve the money paid for them | | | | | | 0.445 | | | | | | | | |
| Perceived_Enjoyment_2_While using mobile applications, time go by. | | | | | | | 0.748 | | | | | | | |

| | Component | | | | | | | | | | | | | |
|---|-----------|---|---|---|---|---|-------|-------|-------|-------|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Perceived_Enjoyment_3_Using mobile applications is a good way to spend spare time. | | | | | | | 0.736 | | | | | | | |
| Perceived_Enjoyment_1_Using mobile applications is fun | | | | | | | 0.617 | | | | | | | |
| Social_Influence_4_My friends' opinions about mobile applications effect my decision. | | | | | | | | 0.863 | | | | | | |
| Social_Influence_3_I can change my idea about a mobile application because of my friends' comments. | | | | | | | | 0.848 | | | | | | |
| Social_Influence_1_My friends and peers advise that I should use mobile applications. | | | | | | | | 0.424 | | | | | | |
| Trialability_2_Having free access to fee-based mobile applications during a trial period may convince me to buy them. | | | | | | | | | 0.728 | | | | | |
| Trialability_3_Trying similar free mobile applications is a good way before buying a fee-based mobile application. | | | | | | | | | 0.642 | | | | | |
| Cost_1_If the mobile application is not expensive, I may purchase it. | | | | | | | | | 0.501 | | | | | |
| Trialability_1_I would like to know more about mobile applications before using them. | | | | | | | | | | | | | | |
| Power_Consumption_4_I rarely use mobile applications that consume battery rapidly. | | | | | | | | | | 0.808 | | | | |
| Power_Consumption_3_The level of mobile applications' energy consumption influences my mobile application usage | | | | | | | | | | 0.779 | | | | |

| | Component | | | | | | | | | | | | | |
|--|-----------|---|---|---|---|---|---|---|---|-----------|-----------|-----------|-----------|-----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Power_Consumption_2_I want to know which mobile application in my smart mobile device consumes more energy. | | | | | | | | | | 0.4 31 | | | | |
| Mobile_Device_Network_Performance_2_Mobile application usage level decreases in indoor areas due to the difficulties about mobile internet connectivity. | | | | | | | | | | | 0.6 74 | | | |
| Mobile_Device_Network_Performance_1_Mobile operator's service level effects mobile application usage. | | | | | | | | | | | 0.6 38 | | | |
| Mobile_Device_Network_Performance_3_Two different mobile applications can be used simultaneously via smart mobile devices. | | | | | | | | | | | | | | |
| Brand_Impact_3_I prefer a well - recognized brand's mobile application rather than an unrecognized brand's mobile application. | | | | | | | | | | | | 0.7 93 | | |
| Brand_Impact_2_I prefer using my familiar brand's fee-based mobile application instead of a free mobile application which is owned by a brand that I am not accustomed to. | | | | | | | | | | | | 0.5 9 | | 0.4 38 |
| Brand_Impact_1_I trust more to a mobile application which is owned by a well-known brand. | | | | | | | | | | | | 0.5 74 | | |
| Cost_3_If there is a free chance available for a benefit, I don't buy a mobile application to have same benefit. | | | | | | | | | | | | | 0.6 53 | |

| | Component | | | | | | | | | | | | | |
|--|-----------|---|---|---|---|---|---|---|---|----|----|----|-------|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Cost_2_Price is the most important factor for mobile application usage | | | | | | | | | | | | | 0.651 | |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 24 iterations.

Table A5. Factor Classification of Mobile Application Users' Satisfaction Items

| Factor Name | Total Variance Explained (%) | Items | Item Loadings |
|--------------------|------------------------------|---|---------------|
| F1. Speed & Design | 19.76 | I don't like waiting while using mobile applications. | 0.740 |
| | | Mobile applications should provide quick loading, accessing, and using | 0.739 |
| | | Mobile applications should work fast. | 0.737 |
| | | Mobile applications must have professional style. | 0.669 |
| | | Mobile applications' design must be amusing and attractive. | 0.668 |
| | | Mobile applications must have aesthetic design. | 0.573 |
| | | My smart mobile device's battery ends quicker, while I am using mobile applications. | 0.461 |
| F2. Image | 8.90 | People who use mobile applications have more prestige and more popularity. | 0.873 |
| | | Using mobile applications improves my self-image. | 0.809 |
| | | I think that I can express my personality by using features of mobile applications. | 0.770 |
| | | People who use mobile applications are technology savvy. | 0.687 |
| | | My friends and peers advise, who use mobile applications, are more prestigious than those who do not. | 0.632 |
| F3. Usefulness | 6.70 | Mobile applications are useful | 0.774 |
| | | Mobile applications meet expectations in few steps and quickly | 0.741 |
| | | Transactions can be completed more quickly by using mobile applications | 0.727 |
| | | Mobile applications make people more productive. | 0.699 |
| | | Mobile applications meet people's needs | 0.683 |
| F4. Convenience | 4.36 | Working with mobile applications is not complicated; it is easy to understand what is going on. | 0.793 |
| | | Learning to use mobile applications is easy | 0.767 |
| | | Mobile applications can be used at any time. | 0.733 |

| Factor Name | Total Variance Explained (%) | Items | Item Loadings |
|------------------------|------------------------------|--|---------------|
| | | Mobile applications can be used at everywhere. | 0.695 |
| | | In general, doing transactions via mobile applications is easy. | 0.670 |
| | | Using mobile applications requires minimum effort. | 0.502 |
| F5. Security & Privacy | 3.38 | Mobile application related transactions have been done secure environments. | 0.869 |
| | | It is secure to provide personal information (e.g., name, address, phone number) before downloading mobile applications. | 0.842 |
| | | The information which people share with mobile applications are not shared with different people or corporations without getting their permissions | 0.818 |
| | | Privacy on mobile applications is well protected. | 0.729 |
| | | Mobile application companies draw money from credit cards without giving any notice. | 0.479 |
| F6. Customization | 3.26 | If a mobile application doesn't offer specialized content for me, I will use its alternative. | 0.686 |
| | | Mobile applications must bring contents which are related to my interests into the forefront. | 0.598 |
| | | Mobile applications provide me information and products according to my preferences. | 0.548 |
| F7. Fun | 2.97 | While using mobile applications, time go by. | 0.752 |
| | | Using mobile applications is a good way to spend spare time. | 0.743 |
| | | Using mobile applications is fun. | 0.609 |
| F8. Social Influence | 2.79 | My friends' opinions about mobile applications effect my decision. | 0.878 |
| | | I can change my idea about a mobile application because of my friends' comments. | 0.860 |
| | | My friends and peers advise that I should use mobile applications. | 0.369 |
| F9. Energy Consumption | 2.62 | I rarely use mobile applications that consume battery rapidly. | 0.809 |
| | | The level of mobile applications' energy consumption influences my mobile application usage. | 0.777 |

| Factor Name | Total Variance Explained (%) | Items | Item Loadings |
|-----------------------|------------------------------|--|---------------|
| | | I want to know which mobile application in my smart mobile device consumes more energy. | 0.421 |
| F10. Brand | 2.42 | I prefer a well - recognized brand's mobile application rather than an unrecognized brand's mobile application. | 0.756 |
| | | I trust more to a mobile application which is owned by a well-known brand. | 0.635 |
| F11. Network Operator | 2.25 | Mobile operator's service level effects mobile application usage. | 0.679 |
| | | Mobile application usage level decreases in indoor areas due to the difficulties about mobile internet connectivity. | 0.671 |
| F12. Trialability | 2.12 | Having free access to fee-based mobile applications during a trial period may convince me to buy them. | 0.541 |
| | | Trying similar free mobile applications is a good way before buying a fee-based mobile application. | 0.525 |
| | | I would like to know more about mobile applications before using them. | 0.374 |
| F13. Economic Value | 2.08 | Price is the most important factor for mobile application usage. | 0.695 |
| | | If there is a free chance available for a benefit, I don't buy a mobile application to have same benefit. | 0.645 |

Table A6. Crosstabulation Results for Category Based Mobile Application Usage

Patterns and Segments

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|---------------|-----------------|------------|-------------|--------------|-----------------|------------------|-------|
| News | Pragmatics | Count | 24 | 66 | 98 | 110 | 298 |
| | | Percentage | 8.10% | 22.10% | 32.90% | 36.90% | 100% |
| | Laggards | Count | 7 | 17 | 19 | 20 | 63 |
| | | Percentage | 11.10% | 27.00% | 30.20% | 31.70% | 100% |
| | Value Conscious | Count | 25 | 47 | 70 | 83 | 225 |
| | | Percentage | 11.10% | 20.90% | 31.10% | 36.90% | 100% |
| | Demandings | Count | 18 | 58 | 70 | 113 | 259 |
| | | Percentage | 6.90% | 22.40% | 27.00% | 43.60% | 100% |
| | Total | Count | 74 | 188 | 257 | 326 | 845 |
| | | Percentage | 8.80% | 22.20% | 30.40% | 38.60% | 100% |
| Banking | Pragmatics | Count | 152 | 49 | 38 | 59 | 298 |
| | | Percentage | 51.00% | 16.40% | 12.80% | 19.80% | 100% |
| | Laggards | Count | 39 | 7 | 10 | 7 | 63 |
| | | Percentage | 61.90% | 11.10% | 15.90% | 11.10% | 100% |
| | Value Conscious | Count | 124 | 45 | 21 | 35 | 225 |
| | | Percentage | 55.10% | 20.00% | 9.30% | 15.60% | 100% |
| | Demandings | Count | 121 | 43 | 45 | 50 | 259 |
| | | Percentage | 46.70% | 16.60% | 17.40% | 19.30% | 100% |
| | Total | Count | 436 | 144 | 114 | 151 | 845 |
| | | Percentage | 51.60% | 17.00% | 13.50% | 17.90% | 100% |
| Health | Pragmatics | Count | 132 | 114 | 40 | 12 | 298 |
| | | Percentage | 44.30% | 38.30% | 13.40% | 4.00% | 100% |
| | Laggards | Count | 33 | 18 | 10 | 2 | 63 |
| | | Percentage | 52.40% | 28.60% | 15.90% | 3.20% | 100% |
| | Value Conscious | Count | 120 | 60 | 33 | 12 | 225 |
| | | Percentage | 53.30% | 26.70% | 14.70% | 5.30% | 100% |

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|---------------|-----------------|------------|-------------|--------------|-----------------|------------------|-------|
| | Demandings | Count | 90 | 74 | 71 | 24 | 259 |
| | | Percentage | 34.70% | 28.60% | 27.40% | 9.30% | 100% |
| | Total | Count | 375 | 266 | 154 | 50 | 845 |
| | | Percentage | 44.40% | 31.50% | 18.20% | 5.90% | 100% |
| Shopping | Pragmatics | Count | 95 | 95 | 73 | 35 | 298 |
| | | Percentage | 31.90% | 31.90% | 24.50% | 11.70% | 100% |
| | Laggards | Count | 27 | 18 | 15 | 3 | 63 |
| | | Percentage | 42.90% | 28.60% | 23.80% | 4.80% | 100% |
| | Value Conscious | Count | 96 | 61 | 34 | 34 | 225 |
| | | Percentage | 42.70% | 27.10% | 15.10% | 15.10% | 100% |
| | Demandings | Count | 67 | 44 | 91 | 57 | 259 |
| | | Percentage | 25.90% | 17.00% | 35.10% | 22.00% | 100% |
| | Total | Count | 285 | 218 | 213 | 129 | 845 |
| | | Percentage | 33.70% | 25.80% | 25.20% | 15.30% | 100% |
| Communication | Pragmatics | Count | 4 | 15 | 28 | 251 | 298 |
| | | Percentage | 1.30% | 5.00% | 9.40% | 84.20% | 100% |
| | Laggards | Count | 1 | 6 | 5 | 51 | 63 |
| | | Percentage | 1.60% | 9.50% | 7.90% | 81.00% | 100% |
| | Value Conscious | Count | 1 | 7 | 19 | 198 | 225 |
| | | Percentage | 0.40% | 3.10% | 8.40% | 88.00% | 100% |
| | Demandings | Count | 4 | 5 | 11 | 239 | 259 |
| | | Percentage | 1.50% | 1.90% | 4.20% | 92.30% | 100% |
| | Total | Count | 10 | 33 | 63 | 739 | 845 |
| | | Percentage | 1.20% | 3.90% | 7.50% | 87.50% | 100% |
| Social Media | Pragmatics | Count | 15 | 13 | 32 | 238 | 298 |
| | | Percentage | 5.00% | 4.40% | 10.70% | 79.90% | 100% |
| | Laggards | Count | 2 | 6 | 7 | 48 | 63 |
| | | Percentage | 3.20% | 9.50% | 11.10% | 76.20% | 100% |

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|-----------------|-----------------|------------|-------------|--------------|-----------------|------------------|-------|
| | Value Conscious | Count | 6 | 9 | 19 | 191 | 225 |
| | | Percentage | 2.70% | 4.00% | 8.40% | 84.90% | 100% |
| | Demandings | Count | 5 | 5 | 18 | 231 | 259 |
| | | Percentage | 1.90% | 1.90% | 6.90% | 89.20% | 100% |
| | Total | Count | 28 | 33 | 76 | 708 | 845 |
| | | Percentage | 3.30% | 3.90% | 9.00% | 83.80% | 100% |
| Cloud Computing | Pragmatics | Count | 166 | 62 | 42 | 28 | 298 |
| | | Percentage | 55.70% | 20.80% | 14.10% | 9.40% | 100% |
| | Laggards | Count | 34 | 13 | 10 | 6 | 63 |
| | | Percentage | 54.00% | 20.60% | 15.90% | 9.50% | 100% |
| | Value Conscious | Count | 116 | 48 | 29 | 32 | 225 |
| | | Percentage | 51.60% | 21.30% | 12.90% | 14.20% | 100% |
| | Demandings | Count | 113 | 55 | 49 | 42 | 259 |
| | | Percentage | 43.60% | 21.20% | 18.90% | 16.20% | 100% |
| | Total | Count | 429 | 178 | 130 | 108 | 845 |
| | | Percentage | 50.80% | 21.10% | 15.40% | 12.80% | 100% |
| Game | Pragmatics | Count | 68 | 104 | 74 | 52 | 298 |
| | | Percentage | 22.80% | 34.90% | 24.80% | 17.40% | 100% |
| | Laggards | Count | 19 | 13 | 19 | 12 | 63 |
| | | Percentage | 30.20% | 20.60% | 30.20% | 19.00% | 100% |
| | Value Conscious | Count | 48 | 69 | 60 | 48 | 225 |
| | | Percentage | 21.30% | 30.70% | 26.70% | 21.30% | 100% |
| | Demandings | Count | 64 | 68 | 68 | 59 | 259 |
| | | Percentage | 24.70% | 26.30% | 26.30% | 22.80% | 100% |
| | Total | Count | 199 | 254 | 221 | 171 | 845 |
| | | Percentage | 23.60% | 30.10% | 26.20% | 20.20% | 100% |
| Hardware | Pragmatics | Count | 57 | 113 | 94 | 34 | 298 |
| | | Percentage | 19.10% | 37.90% | 31.50% | 11.40% | 100% |

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|---------------|-----------------|-------------|-------------|--------------|-----------------|------------------|-------|
| | Laggards | Count | 16 | 22 | 18 | 7 | 63 |
| | | Percent age | 25.40% | 34.90% | 28.60% | 11.10% | 100 % |
| | Value Conscious | Count | 39 | 75 | 66 | 45 | 225 |
| | | Percent age | 17.30% | 33.30% | 29.30% | 20.00% | 100 % |
| | Demandings | Count | 35 | 81 | 83 | 60 | 259 |
| | | Percent age | 13.50% | 31.30% | 32.00% | 23.20% | 100 % |
| | Total | Count | 147 | 291 | 261 | 146 | 845 |
| | | Percent age | 17.40% | 34.40% | 30.90% | 17.30% | 100 % |
| Education | Pragmatics | Count | 38 | 85 | 103 | 72 | 298 |
| | | Percent age | 12.80% | 28.50% | 34.60% | 24.20% | 100 % |
| | Laggards | Count | 11 | 17 | 19 | 16 | 63 |
| | | Percent age | 17.50% | 27.00% | 30.20% | 25.40% | 100 % |
| | Value Conscious | Count | 25 | 66 | 69 | 65 | 225 |
| | | Percent age | 11.10% | 29.30% | 30.70% | 28.90% | 100 % |
| | Demandings | Count | 16 | 56 | 87 | 100 | 259 |
| | | Percent age | 6.20% | 21.60% | 33.60% | 38.60% | 100 % |
| | Total | Count | 90 | 224 | 278 | 253 | 845 |
| | | Percent age | 10.70% | 26.50% | 32.90% | 29.90% | 100 % |
| Television | Pragmatics | Count | 171 | 63 | 48 | 16 | 298 |
| | | Percent age | 57.40% | 21.10% | 16.10% | 5.40% | 100 % |
| | Laggards | Count | 42 | 10 | 9 | 2 | 63 |
| | | Percent age | 66.70% | 15.90% | 14.30% | 3.20% | 100 % |
| | Value Conscious | Count | 137 | 40 | 30 | 18 | 225 |
| | | Percent age | 60.90% | 17.80% | 13.30% | 8.00% | 100 % |
| | Demandings | Count | 121 | 60 | 46 | 32 | 259 |
| | | Percent age | 46.70% | 23.20% | 17.80% | 12.40% | 100 % |
| | Total | Count | 471 | 173 | 133 | 68 | 845 |
| | | Percent age | 55.70% | 20.50% | 15.70% | 8.00% | 100 % |

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|---------------|-----------------|------------|-------------|--------------|-----------------|------------------|-------|
| Photography | Pragmatics | Count | 4 | 39 | 65 | 190 | 298 |
| | | Percentage | 1.30% | 13.10% | 21.80% | 63.80% | 100% |
| | Laggards | Count | 4 | 7 | 23 | 29 | 63 |
| | | Percentage | 6.30% | 11.10% | 36.50% | 46.00% | 100% |
| | Value Conscious | Count | 4 | 29 | 47 | 145 | 225 |
| | | Percentage | 1.80% | 12.90% | 20.90% | 64.40% | 100% |
| | Demandings | Count | 0 | 16 | 41 | 202 | 259 |
| | | Percentage | 0.00% | 6.20% | 15.80% | 78.00% | 100% |
| | Total | Count | 12 | 91 | 176 | 566 | 845 |
| | | Percentage | 1.40% | 10.80% | 20.80% | 67.00% | 100% |
| Music | Pragmatics | Count | 19 | 39 | 64 | 176 | 298 |
| | | Percentage | 6.40% | 13.10% | 21.50% | 59.10% | 100% |
| | Laggards | Count | 5 | 6 | 22 | 30 | 63 |
| | | Percentage | 7.90% | 9.50% | 34.90% | 47.60% | 100% |
| | Value Conscious | Count | 12 | 31 | 31 | 151 | 225 |
| | | Percentage | 5.30% | 13.80% | 13.80% | 67.10% | 100% |
| | Demandings | Count | 9 | 21 | 41 | 188 | 259 |
| | | Percentage | 3.50% | 8.10% | 15.80% | 72.60% | 100% |
| | Total | Count | 45 | 97 | 158 | 545 | 845 |
| | | Percentage | 5.30% | 11.50% | 18.70% | 64.50% | 100% |
| Radio | Pragmatics | Count | 101 | 73 | 66 | 58 | 298 |
| | | Percentage | 33.90% | 24.50% | 22.10% | 19.50% | 100% |
| | Laggards | Count | 28 | 13 | 12 | 10 | 63 |
| | | Percentage | 44.40% | 20.60% | 19.00% | 15.90% | 100% |
| | Value Conscious | Count | 81 | 52 | 42 | 50 | 225 |
| | | Percentage | 36.00% | 23.10% | 18.70% | 22.20% | 100% |
| | Demandings | Count | 74 | 56 | 60 | 69 | 259 |
| | | Percentage | 28.60% | 21.60% | 23.20% | 26.60% | 100% |

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|-------------------|-----------------|------------|-------------|--------------|-----------------|------------------|-------|
| | Total | Count | 284 | 194 | 180 | 187 | 845 |
| | | Percentage | 33.60% | 23.00% | 21.30% | 22.10% | 100% |
| Sport | Pragmatics | Count | 132 | 81 | 46 | 39 | 298 |
| | | Percentage | 44.30% | 27.20% | 15.40% | 13.10% | 100% |
| | Laggards | Count | 37 | 14 | 8 | 4 | 63 |
| | | Percentage | 58.70% | 22.20% | 12.70% | 6.30% | 100% |
| | Value Conscious | Count | 107 | 50 | 41 | 27 | 225 |
| | | Percentage | 47.60% | 22.20% | 18.20% | 12.00% | 100% |
| | Demandings | Count | 106 | 54 | 45 | 54 | 259 |
| | | Percentage | 40.90% | 20.80% | 17.40% | 20.80% | 100% |
| | Total | Count | 382 | 199 | 140 | 124 | 845 |
| | | Percentage | 45.20% | 23.60% | 16.60% | 14.70% | 100% |
| Betting | Pragmatics | Count | 261 | 19 | 12 | 6 | 298 |
| | | Percentage | 87.60% | 6.40% | 4.00% | 2.00% | 100% |
| | Laggards | Count | 58 | 2 | 2 | 1 | 63 |
| | | Percentage | 92.10% | 3.20% | 3.20% | 1.60% | 100% |
| | Value Conscious | Count | 201 | 9 | 7 | 8 | 225 |
| | | Percentage | 89.30% | 4.00% | 3.10% | 3.60% | 100% |
| | Demandings | Count | 211 | 23 | 14 | 11 | 259 |
| | | Percentage | 81.50% | 8.90% | 5.40% | 4.20% | 100% |
| | Total | Count | 731 | 53 | 35 | 26 | 845 |
| | | Percentage | 86.50% | 6.30% | 4.10% | 3.10% | 100% |
| Weather Condition | Pragmatics | Count | 43 | 98 | 90 | 67 | 298 |
| | | Percentage | 14.40% | 32.90% | 30.20% | 22.50% | 100% |
| | Laggards | Count | 14 | 19 | 14 | 16 | 63 |
| | | Percentage | 22.20% | 30.20% | 22.20% | 25.40% | 100% |
| | Value Conscious | Count | 31 | 61 | 63 | 70 | 225 |
| | | Percentage | 13.80% | 27.10% | 28.00% | 31.10% | 100% |

| Category Name | Segment Name | Data Type | I don't use | I rarely use | I sometimes use | I frequently use | Total |
|---------------|--------------|------------|-------------|--------------|-----------------|------------------|-------|
| | Demandings | Count | 25 | 78 | 69 | 87 | 259 |
| | | Percentage | 9.70% | 30.10% | 26.60% | 33.60% | 100% |
| | Total | Count | 113 | 256 | 236 | 240 | 845 |
| | | Percentage | 13.40% | 30.30% | 27.90% | 28.40% | 100% |

Table A7. The Summary Table for Maximum Percentage Owned Segment and Usage Frequency

| Category Name | Category Name | I don't use | I rarely use | I sometimes use | I frequently use |
|---------------|-----------------------------------|----------------------------|-----------------|-----------------|------------------|
| News | Max Percentage Owned Segment Name | Laggards / Value Conscious | Laggards | Pragmatics | Demandings |
| | Max Percentage For A Segment | 11.10% | 27.00% | 32.90% | 43.60% |
| | Percentage For Total Audience | 8.76% | 22.25% | 30.41% | 38.58% |
| Banking | Max Percentage Owned Segment Name | Laggards | Value Conscious | Demandings | Pragmatics |
| | Max Percentage For A Segment | 61.90% | 20.00% | 17.40% | 19.80% |
| | Percentage For Total Audience | 51.60% | 17.04% | 13.49% | 17.87% |
| Health | Max Percentage Owned Segment Name | Value Conscious | Pragmatics | Demandings | Demandings |
| | Max Percentage For A Segment | 53.30% | 38.30% | 27.40% | 9.30% |
| | Total Percentage For Audience | 44.38% | 31.48% | 18.22% | 5.92% |
| Shopping | Max Percentage Owned Segment Name | Laggards | Pragmatics | Demandings | Demandings |
| | Max Percentage For A Segment | 42.90% | 31.90% | 35.10% | 22.00% |
| | Percentage For Total Audience | 33.73% | 25.80% | 25.21% | 15.27% |
| Communication | Max Percentage Owned Segment Name | Laggards | Laggards | Pragmatics | Demandings |
| | Max Percentage For A Segment | 1.60% | 9.50% | 9.40% | 92.30% |
| | Percentage For Total Audience | 1.18% | 3.91% | 7.46% | 87.46% |
| Social Media | Max Percentage Owned Segment Name | Pragmatics | Laggards | Laggards | Demandings |
| | Max Percentage For A Segment | 5.00% | 9.50% | 11.10% | 89.20% |

| Category Name | Category Name | I don't use | I rarely use | I sometimes use | I frequently use |
|-----------------|-----------------------------------|-------------|-----------------|-----------------|------------------|
| | Percentage For Total Audience | 3.31% | 3.91% | 8.99% | 83.79% |
| Cloud Computing | Max Percentage Owned Segment Name | Pragmatics | Value Conscious | Demandings | Demandings |
| | Max Percentage For A Segment | 55.70% | 21.30% | 18.90% | 16.20% |
| | Percentage For Total Audience | 50.77% | 21.07% | 15.38% | 12.78% |
| Game | Max Percentage Owned Segment Name | Laggards | Pragmatics | Laggards | Demandings |
| | Max Percentage For A Segment | 30.20% | 34.90% | 30.20% | 22.80% |
| | Percentage For Total Audience | 23.55% | 30.06% | 26.15% | 20.24% |
| Hardware | Max Percentage Owned Segment Name | Laggards | Pragmatics | Demandings | Demandings |
| | Max Percentage For A Segment | 25.40% | 37.90% | 32.00% | 23.20% |
| | Percentage For Total Audience | 17.40% | 34.44% | 30.89% | 17.28% |
| Education | Max Percentage Owned Segment Name | Laggards | Value Conscious | Pragmatics | Demandings |
| | Max Percentage For A Segment | 17.50% | 29.30% | 34.60% | 38.60% |
| | Percentage For Total Audience | 10.65% | 26.51% | 32.90% | 29.94% |
| Television | Max Percentage Owned Segment Name | Laggards | Demandings | Demandings | Demandings |
| | Max Percentage For A Segment | 66.70% | 23.20% | 17.80% | 12.40% |
| | Percentage For Total Audience | 55.74% | 20.47% | 15.74% | 8.05% |
| Photography | Max Percentage Owned Segment Name | Laggards | Pragmatics | Laggards | Demandings |
| | Max Percentage For A Segment | 6.30% | 13.10% | 36.50% | 78.00% |
| | Percentage For Total Audience | 1.4% | 10.8% | 20.8% | 67.0% |

| Category Name | Category Name | I don't use | I rarely use | I sometimes use | I frequently use |
|-------------------|-----------------------------------|-------------|-----------------|-----------------|------------------|
| Music | Max Percentage Owned Segment Name | Laggards | Value Conscious | Laggards | Demandings |
| | Max Percentage For A Segment | 7.90% | 13.80% | 34.90% | 72.60% |
| | Percentage For Total Audience | 5.33% | 11.48% | 18.70% | 64.50% |
| Radio | Max Percentage Owned Segment Name | Laggards | Pragmatists | Demandings | Demandings |
| | Max Percentage For A Segment | 44.40% | 24.50% | 23.20% | 26.60% |
| | Percentage For Total Audience | 33.61% | 22.96% | 21.30% | 22.13% |
| Sport | Max Percentage Owned Segment Name | Laggards | Pragmatists | Value Conscious | Demandings |
| | Max Percentage For A Segment | 58.70% | 27.20% | 18.20% | 20.80% |
| | Percentage For Total Audience | 45.2% | 23.6% | 16.6% | 14.7% |
| Betting | Max Percentage Owned Segment Name | Laggards | Demandings | Demandings | Demandings |
| | Max Percentage For A Segment | 92.10% | 8.90% | 5.40% | 4.20% |
| | Percentage For Total Audience | 86.51% | 6.27% | 4.14% | 3.08% |
| Weather Condition | Max Percentage Owned Segment Name | Laggards | Pragmatists | Pragmatists | Demandings |
| | Max Percentage For A Segment | 22.20% | 32.90% | 30.20% | 33.60% |
| | Percentage For Total Audience | 13.37% | 30.30% | 27.93% | 28.40% |

Table A8. Tukey Test Results from Ad Hoc Tests for Hypothesis 2e

| Multiple Comparisons | | | | | | |
|--|--|-----------------------------|---------------|-------|----------------------------|----------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Smart Mobile Device Brand Distribution of Participants | (J) Smart Mobile Device Brand Distribution of Participants | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| Samsung | Apple | -.09136 | .05036 | .611 | -.2444 | .0617 |
| | LG | -.02756 | .10092 | 1.000 | -.3342 | .2791 |
| | General Mobile | .05688 | .10199 | .999 | -.2530 | .3668 |
| | HTC | .15115 | .10798 | .857 | -.1770 | .4793 |
| | Sony | .09259 | .11074 | .991 | -.2439 | .4291 |
| | Nokia | .22138 | .13737 | .743 | -.1960 | .6388 |
| | Others | .22222 | .10933 | .460 | -.1100 | .5544 |
| Apple | Samsung | .09136 | .05036 | .611 | -.0617 | .2444 |
| | LG | .06380 | .10270 | .999 | -.2483 | .3759 |
| | General Mobile | .14824 | .10375 | .844 | -.1670 | .4635 |
| | HTC | .24251 | .10965 | .346 | -.0907 | .5757 |
| | Sony | .18395 | .11237 | .728 | -.1575 | .5254 |
| | Nokia | .31274 | .13868 | .320 | -.1086 | .7341 |
| | Others | .31358 | .11098 | .090 | -.0236 | .6508 |
| LG | Samsung | .02756 | .10092 | 1.000 | -.2791 | .3342 |
| | Apple | -.06380 | .10270 | .999 | -.3759 | .2483 |
| | General Mobile | .08444 | .13569 | .999 | -.3279 | .4968 |
| | HTC | .17871 | .14026 | .908 | -.2475 | .6049 |
| | Sony | .12016 | .14239 | .990 | -.3125 | .5528 |
| | Nokia | .24894 | .16395 | .798 | -.2492 | .7471 |
| | Others | .24978 | .14130 | .642 | -.1796 | .6791 |
| General Mobile | Samsung | -.05688 | .10199 | .999 | -.3668 | .2530 |
| | Apple | -.14824 | .10375 | .844 | -.4635 | .1670 |
| | LG | -.08444 | .13569 | .999 | -.4968 | .3279 |
| | HTC | .09427 | .14103 | .998 | -.3342 | .5228 |
| | Sony | .03571 | .14315 | 1.000 | -.3993 | .4707 |
| | Nokia | .16450 | .16461 | .975 | -.3357 | .6647 |
| | Others | .16534 | .14206 | .942 | -.2663 | .5970 |

| Multiple Comparisons | | | | | | |
|--|--|-----------------------|------------|-------|-------------------------|-------------|
| Satisfaction_Avr Tukey HSD | | | | | | |
| (I) Smart Mobile Device Brand Distribution of Participants | (J) Smart Mobile Device Brand Distribution of Participants | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| HTC | Samsung | -.15115 | .10798 | .857 | -.4793 | .1770 |
| | Apple | -.24251 | .10965 | .346 | -.5757 | .0907 |
| | LG | -.17871 | .14026 | .908 | -.6049 | .2475 |
| | General Mobile | -.09427 | .14103 | .998 | -.5228 | .3342 |
| | Sony | -.05856 | .14748 | 1.000 | -.5067 | .3896 |
| | Nokia | .07023 | .16839 | 1.000 | -.4414 | .5819 |
| | Others | .07107 | .14643 | 1.000 | -.3739 | .5160 |
| Sony | Samsung | -.09259 | .11074 | .991 | -.4291 | .2439 |
| | Apple | -.18395 | .11237 | .728 | -.5254 | .1575 |
| | LG | -.12016 | .14239 | .990 | -.5528 | .3125 |
| | General Mobile | -.03571 | .14315 | 1.000 | -.4707 | .3993 |
| | HTC | .05856 | .14748 | 1.000 | -.3896 | .5067 |
| | Nokia | .12879 | .17018 | .995 | -.3883 | .6459 |
| | Others | .12963 | .14848 | .988 | -.3215 | .5808 |
| Nokia | Samsung | -.22138 | .13737 | .743 | -.6388 | .1960 |
| | Apple | -.31274 | .13868 | .320 | -.7341 | .1086 |
| | LG | -.24894 | .16395 | .798 | -.7471 | .2492 |
| | General Mobile | -.16450 | .16461 | .975 | -.6647 | .3357 |
| | HTC | -.07023 | .16839 | 1.000 | -.5819 | .4414 |
| | Sony | -.12879 | .17018 | .995 | -.6459 | .3883 |
| | Others | .00084 | .16926 | 1.000 | -.5135 | .5152 |
| Others | Samsung | -.22222 | .10933 | .460 | -.5544 | .1100 |
| | Apple | -.31358 | .11098 | .090 | -.6508 | .0236 |
| | LG | -.24978 | .14130 | .642 | -.6791 | .1796 |
| | General Mobile | -.16534 | .14206 | .942 | -.5970 | .2663 |
| | HTC | -.07107 | .14643 | 1.000 | -.5160 | .3739 |
| | Sony | -.12963 | .14848 | .988 | -.5808 | .3215 |
| | Nokia | -.00084 | .16926 | 1.000 | -.5152 | .5135 |

Table A9. Supportability Status of Hypotheses

| Hypothesis Number | Hypothesis | Supported | Not Supported |
|-------------------|---|-----------|---------------|
| 1a | There is a difference between males and females and their mobile application satisfaction level. | | X |
| 1b | There is a difference between males and females and their mobile application loyalty. | | X |
| 1c | There is a difference between age groups and their mobile application satisfaction level. | X | |
| 1d | There is a difference between age groups and their mobile application loyalty. | | X |
| 1e | There is a difference between income groups and their mobile application satisfaction level. | X | |
| 1f | There is a difference between income groups and their mobile application loyalty. | | X |
| 1g | There is a difference between education level related groups and their mobile application satisfaction level. | | X |
| 1h | There is a difference between education level related groups and their mobile application loyalty. | X | |
| 2a | There is a difference between daily internet usage hours based groups and their mobile application satisfaction level. | X | |
| 2b | There is a difference between daily internet usage hours based groups and their mobile application loyalty. | | X |
| 2c | There is a difference between usage year of smart phone based groups and their mobile application satisfaction level. | X | |
| 2d | There is a difference between usage year of smart phone based groups and their mobile application loyalty. | X | |
| 2e | There is a difference between owned mobile device's brand based groups and their mobile application satisfaction level. | X | |
| 2f | There is a difference between owned mobile device's brand based groups and their mobile application loyalty. | | X |
| 2g | There is a difference between ownership type of mobile device based groups and their mobile application satisfaction level. | X | |

| Hypothesis Number | Hypothesis | Supported | Not Supported |
|-------------------|--|-----------|---------------|
| 2h | There is a difference between ownership type of mobile device based groups and their mobile application loyalty. | | X |
| 2i | There is a difference between segment types and people's mobile application satisfaction level. | X | |
| 2j | There is a difference between segment types and people's mobile application loyalty. | X | |
| 3a | There is positive relationship between design & speed level of mobile application and people's mobile application satisfaction level. | X | |
| 3b | There is positive relationship between image of mobile application and people's mobile application satisfaction level. | X | |
| 3c | There is positive relationship between usefulness of mobile applications and people's mobile application satisfaction level. | X | |
| 3d | There is positive relationship between convenience of mobile applications and people's mobile application satisfaction level. | X | |
| 3e | There is positive relationship between security & privacy level of mobile applications and people's mobile application satisfaction level. | X | |
| 3f | There is positive relationship between customization level of mobile applications and people's mobile application satisfaction level. | X | |
| 3g | There is positive relationship fun level of mobile applications and people's mobile application satisfaction level. | | X |
| 3h | There is positive relationship between social influence level for mobile applications and people's mobile application satisfaction level. | | X |
| 3i | There is positive relationship between less energy consumption level of mobile application and people's mobile application satisfaction level. | | X |
| 3j | There is positive relationship between brand impact of mobile application and people's mobile application satisfaction level. | X | |
| 3k | There is positive relationship between mobile network performance and people's mobile application satisfaction level. | X | |
| 3l | There is positive relationship between trialability level of mobile applications and people's mobile application satisfaction level. | X | |

| Hypothesis Number | Hypothesis | Supported | Not Supported |
|-------------------|---|---------------------|---------------|
| 3m | There is positive relationship between economic value level of mobile applications and people's mobile application satisfaction level. | | X |
| 4 | There is positive relationship between satisfaction level of mobile application and mobile application usage loyalty. | X | |
| 5 | Mobile application user's satisfaction is determined by usefulness, customization, convenience, image, design & speed, trialability, network operator , fun, brand, security & privacy, social influence, energy consumption, economic value. | Partially Supported | |
| 6a | There is a positive relationship between people's possibility of future free mobile application download intention in frequently used category and user's mobile application satisfaction level. | X | |
| 6b | There is a positive relationship between people's possibility of future fee - based mobile application download intention in frequently used category and user's mobile application satisfaction level. | X | |
| 7a | There is a positive relationship between people's possibility of future free mobile application download intention in frequently used category and their mobile application loyalty. | X | |
| 7b | There is a positive relationship between people's possibility of future fee - based mobile application download intention in frequently used category and their mobile application loyalty. | X | |

APPENDIX B

SAMPLE QUESTIONNAIRE (ENGLISH)



Consumers' Mobile Application Usage

Dear Participant,

This survey is part of a research which is about consumers' mobile application usage behavior. If you are a user of smartphone or tablet, you can fill out this survey.

This survey will take 8 - 10 minutes. Please answer questions according to their explanations. The information you provide will remain confidential. There won't be any questions which are related to your name or your e-mail address in this survey.

The answers you provide in this survey will be used as data set of master thesis which belongs to Bogazici University Management Information Systems program and managed by Professor Doctor Aslıhan Nasır.

I wish you will enjoy your time while you are filling out this survey. Please do not forget to click submit button after you finish this survey.

Thank you for your help.

Yiğit Aşıroğlu
yigitasiroglu@hotmail.com

1* Are you a user of smartphone or tablet?

- ☐ Yes
- ☐ No

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Consumers' Mobile Application Usage - 2

2* What is your age interval?

- ☐ 16-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46+

3* Please indicate your gender.

- ☐ Female
- ☐ Male

4* What is your latest graduation status?

- ☐ Some High School Degree
- ☐ High School
- ☐ University
- ☐ Graduate (MBA, M.A., M.Sc., Ph.D)

5* What is your monthly income?

- ☐ < 1300 TL
- ☐ 1300 - 2699 TL
- ☐ 2700 - 4749 TL
- ☐ 4750 - 6799 TL
- ☐ 6800 - 13599 TL
- ☐ 13600 + TL

6* How many hours do you spend on the internet as daily average?

- ☐ 0-1 hour
- ☐ 2-3 hours
- ☐ 4-5 hours
- ☐ 5+ hours

7* How many years do you use your smartphone or tablet ?

- ☐ 0-1 year
- ☐ 1-2 years
- ☐ 2-3 years
- ☐ 4+ years

8* What is the brand of your smartphone or tablet? (If you have more than one smart mobile device, please select the most used one.)

9* How did you own your smart mobile phone or tablet?

- ☐ Personal smart mobile device
- ☐ Company owned smart mobile device
- ☐ I have both of them

10* Please specify your category based mobile application usage frequencies which are listed below.

| | 0 - I don't use | 1 - I rarely use | 2 - I sometimes use | 3 - I frequently use |
|-------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Game | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| News | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Banking | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Health | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Shopping | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Communication (Instant messaging) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Social Media | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cloud Computing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hardware (torch, scanner, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Learning | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Television | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Photography | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Music | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Radio | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Sport | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Betting | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Weather Condition | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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Consumers' Mobile Application Usage - 3

11* Please indicate your acceptance level for statements which are listed below.

1 - Strongly disagree 2 - Disagree 3 - Neither agree nor disagree 4 - Agree 5 - Strongly agree

1- Transactions
can be completed
more quickly by
using mobile
applications.

2 - Mobile
applications make
me more
productive

3 - Mobile
applications meet
expectations in
few steps and
quickly.

4- Mobile
applications are
useful.

5- Mobile
applications meet
people's needs.

6- Using mobile
applications
requires minimum
effort.

7- Learning to use

mobile
applications is
easy.

8- Working with
mobile
applications is not
complicated; it is
easy to
understand what
is going on.

9- Mobile
applications can
be used at any
time.

10- Mobile
applications can
be used at
everywhere.

11- In general,
doing transactions
via mobile
applications is
easy.

12 - My friends
and peers advise
that I should use
mobile
applications.

13 - My friends
and peers advise,
who use mobile
applications, are
more prestigious
than those who do
not.

14 - I can change
my idea about a
mobile application
because of mv

friends'
comments.

15 - My friends'
opinions about
mobile
applications effect
my decision.

16 - Using mobile
applications is fun.

17 - While using
mobile
applications, time
go by.

18 - Using mobile
applications is a
good way to
spend spare time.

19 - Privacy on
mobile
applications is well
protected.

20 - It is secure to
provide personal
information (e.g.,
name, address,
phone number)
before
downloading
mobile
applications.

21 - Mobile
application related
transactions have
been done secure
environments.

22 - The
information which
people share with
mobile

applications are not shared with different people or corporations without getting their permissions.

23 - Mobile application companies draw money from credit cards without giving any notice.

24 - If the mobile application is not expensive, I may purchase it.

25 - Price is the most important factor for mobile application usage.

26 - If there is a free chance available for a benefit, I don't buy a mobile application to have same benefit.

27 - The benefits, which are provided by mobile applications, must deserve the money paid for them.

28 - If a mobile application doesn't offer specialized content for me. I

will use its
alternative.

29 - Mobile
applications
provide me
information and
products
according to my
preferences.

30 - Mobile
applications must
bring contents
which are related
to my interests
into the forefront.

31 - My smart
mobile device's
battery ends
quicker, while I am
using mobile
applications.

32 - I want to
know which mobile
application in my
smart mobile
device consumes
more energy.

33 - The level of
mobile
applications'
energy
consumption
influences my
mobile application
usage.

34 - I rarely use
mobile
applications that
consume battery
rapidly.

35 - Mobile applications' design must be amusing and attractive

36 - Mobile applications must have professional style.

37 - Mobile applications must have aesthetic design.

38 - Mobile applications should work fast.

39 - Working speed of a mobile application is more important than it's functionality.

40 - I don't like waiting while using mobile applications.

41 - Mobile applications should provide quick loading, accessing, and using.

42 - Using mobile applications improves my self-image.

43 - People who use mobile

applications have more prestige and more popularity.

44 - People who use mobile applications are technology savvy.

45 - I think that I can express my personality by using features of mobile applications.

46 - When facing difficult tasks in mobile application usage, I am certain that I will accomplish them without getting help.

47 - Compared to other people, I can use mobile applications very well.

48 - I think that, I have knowledge and skills which are related to mobile application usage.

49 - I can teach to other users how to use mobile applications.

50 - I would like to know more about mobile

applications
before using them.

51- Having free
access to fee-
based mobile
applications during
a trial period may
convince me to
buy them..

52 - Trying similar
free mobile
applications is a
good way before
buying a fee-
based mobile
application.

53 - I trust more to
a mobile
application which
is owned by a
well-known brand.

54- I prefer using
my familiar
brand's fee-based
mobile application
instead of a free
mobile application
which is owned by
a brand that I am
not accustomed
to.

55- I prefer a well
- recognized
brand's mobile
application rather
than an
unrecognized
brand's mobile
application.

56- Mobile

operator's service
level effects
mobile application
usage.

57 - Mobile
application usage
level decreases in
indoor areas due
to the difficulties
about mobile
internet
connectivity.

58 - Two different
mobile
applications can
be used
simultaneously via
smart mobile
devices.

59 - Mobile
applications meet
exactly what I
need

60 - Taking
everything into
consideration, the
service received
from mobile
applications is
satisfying.

61 - I am satisfied
with my decision
to use mobile
applications.

62 - Using mobile
applications in
daily life activities
is a wise way..

63 - Using mobile

applications has
been a good
experience

64 - Mobile
applications meet
my expectations.

65 - I would use
mobile
applications that
used previously
once and satisfied
with their
performance in
the future again.

66 - I use mobile
applications with
satisfying
performance in a
long range
period..

67 - I don't think to
change mobile
applications which
I frequently use.

68 - It would be
difficult to give up
easily from a
mobile application,
if I get used to it.

12* Please indicate your acceptance level for statements which are listed below.

1 - Strongly disagree 2 - Disagree 3 - Neither agree nor disagree 4 - Agree 5 - Strongly agree

1- I can download
free mobile
applications which
are in the most
frequently used

category
according to me,
in the future.

2- I can download
paid mobile
applications which
are in the most
frequently used
category
according to me,
in the future.

13* Please indicate your acceptance level for statements below which are
related to **free mobile applications** that while you are comparing free
mobile applications with paid mobile applications.

1- Strongly disagree 2- Disagree 3- Neither agree nor disagree 4- Agree 5- Strongly agree

I am less selective

I download more

I don't delete even
I don't use them

I spend more time

I recommend
more to my
friends.

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APPENDIX C

SAMPLE QUESTIONNAIRE (TURKISH)



Mobil Uygulama Kullanımı Davranışları

Değerli Katılımcı,

Bu anket, kullanıcıların mobil uygulama kullanımı davranışlarını belirlemeye yönelik yapılan bir araştırmanın parçasıdır. Akıllı telefon ya da tablet kullanıcısı iseniz anketi doldurabilirsiniz.

Bu anketi doldurmanız yaklaşık 8-10 dakikanızı alacaktır. Lütfen sorulara açıklamalarına göre cevap veriniz. Sağladığınız bilgiler gizli kalacaktır. Bu ankette sizden adınızı veya e-posta adresinizi belirtmenizi isteyen sorular sorulmayacaktır.

Anketteki sorulara vereceğiniz yanıtlar, Boğaziçi Üniversitesi Yönetim Bilişim Sistemleri bölümünde Prof. Dr. Aslıhan Nasır yönetiminde yürüttüğüm tez çalışmam için veri kaynağını oluşturacaktır.

Anketi doldururken eğlenmenizi dilerim. Lütfen bitirdikten sonra onay butonuna tıklamayı unutmayın.

Yardımanız için teşekkür ederim.

Yiğit Aşıroğlu
yigitasiroglu@hotmail.com

1* Akıllı telefon ya da tablet kullanıyor musunuz?

- ☐ Evet
☐ Hayır



Mobil Uygulama Kullanımı Davranışları - 2

2* Yaş aralığınız nedir?

- ☐ 16-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46+

3* Cinsiyetinizi belirtiniz.

- ☐ Kadın
- ☐ Erkek

4* En son mezun olduğunuz okul itibariyle mezuniyet durumunuzu belirtiniz.

- ☐ Liseden Düşük
- ☐ Lise
- ☐ Üniversite
- ☐ Yüksek Lisans (MBA, M.Sc., M.A., Ph.D.)

5* Aylık ortalama geliriniz ne kadardır?

- ☐ < 1300 TL
- ☐ 1300 - 2699 TL
- ☐ 2700 - 4749 TL
- ☐ 4750 - 6799 TL
- ☐ 6800 - 13599 TL
- ☐ 13600 + TL

6* Günde ortalama kaç saatinizi internette geçiriyorsunuz?

- ☐ 0-1 saat
- ☐ 2-3 saat
- ☐ 4-5 saat
- ☐ 5+ saat

7* Kaç yıldır akıllı telefon ya da tablet kullanıyorsunuz?

- ☐ 0-1 yıl
- ☐ 1-2 yıl
- ☐ 2-3 yıl
- ☐ 4+ yıl

8* Akıllı telefonunuzun ya da tabletinizin markası nedir?

(Birden fazla mobil cihaza sahipseniz, en fazla kullandığınız mobil cihazın markasını seçiniz.)

9* Akıllı telefonunuz ya da tabletinize ne şekilde sahip oldunuz?

- ☐ Kişisel Telefonum
- ☐ Şirket Telefonu
- ☐ Her ikisine de sahibim

10* Aşağıdaki kategorilerde yer alan mobil uygulamaları kullanım sıklığınızı belirtiniz.

| | 0 - Kullanmıyorum | 1 - Az kullanıyorum | 2 - Ara sıra kullanıyorum | 3 - Sık kullanıyorum |
|--|-----------------------|------------------------|------------------------------|-------------------------|
| Oyun | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Haber | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bankacılık | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sağlık | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Alışveriş | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| İletişim (Anlık mesajlaşma uygulamaları) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sosyal Medya | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bulut Depolama | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Donanım (el feneri, tarayıcı gibi) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Eğitim / Öğretim | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Televizyon | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fotoğraf | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Müzik | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Radyo | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|-------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Spor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bahis | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hava Durumu | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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Mobil Uygulama Kullanımı Davranışları - 3

11* Lütfen aşağıdaki ifadelere ne derecede katıldığınızı belirtiniz.

| | 1 - Kesinlikle katılmıyorum | 2 - Katılmıyorum | 3 - Kararsızım | 4 - Katılıyorum | 5 - Kesinlikle Katılıyorum |
|--|--------------------------------|-----------------------|-----------------------|-----------------------|-------------------------------|
| 1- Mobil uygulamaları kullanarak, işlemlerimi daha hızlı şekilde başarıyla tamamlarım. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 - Mobil uygulamalar, daha üretken olmamı sağlar. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 - Mobil uygulamalar beklentimi bir kaç adımda ve çabuk bir şekilde karşılıyor. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4- Mobil uygulamalar benim için yararlıdır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5- Mobil uygulamalar aracılığı ile ihtiyaçlarımı karşılayabiliyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6- Mobil uygulamaları kullanmak az çaba gerektirir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 7- Mobil uygulamaların kullanımını öğrenmek benim için kolay. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8- Mobil uygulamalarla çalışmak karmaşık değildir ve anlaması kolaydır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9- Mobil uygulamaları her zaman kullanabiliyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10- Mobil uygulamaları her yerde kullanabiliyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11- Genel olarak, mobil uygulamalarla işlem yapmak kolaydır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12 - Yakın çevrem, mobil uygulamaları kullanmam gerektiğini öğretir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13 - Yakın çevremde mobil uygulama kullanan insanlar, kullanmayanlara göre daha prestij sahibi kimselerdir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14 - Bir mobil uygulama hakkındaki fikrimi, arkadaşlarımla yorumlarıyla değiştirebilirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15 - Yakın çevremde mobil uygulamalar hakkındaki görüşleri kararımı etkiliyor. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16 - Mobil uygulamaları kullanarak eğlenebilirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17 - Mobil uygulamaları kullanırken zamanın nasıl geçtiğini fark etmiyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 18 - Mobil uygulamalar, boş zamanımı geçirmek için güzel bir yoldur. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 19 - Mobil uygulamalar üzerinde gizliliğim korunmaktadır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 20 - Mobil uygulamalar için kişisel bilgilerimi (isim, adres, telefon numarası, kredi kartı, banka hesabı gibi vs) paylaşıırken kendimi güvende hissediyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 21 - Mobil uygulamaların, işlemlerini güvenli ortamda yaptığını düşünüyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 22 - Mobil uygulamalarla paylaştığım verilerin, benden izin alınmadan farklı kişi ya da kuruluşlarla paylaşılmayacağını düşünüyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 23 - Mobil uygulamaların haberim olmadan kredi kartımdan para çekmesinden çekinmem. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 24 - Eğer mobil uygulama pahalı değilse, onu satın alabilirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 25 - Mobil uygulama kullanımında fiyat en önemli faktördür. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 26 - Bir mobil uygulamanın bana sağladığı faydayı, | | | | | |

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| <p>mobil cihaz dışında ücretsiz olarak elde etme imkanım varsa, o faydayı elde etmek için mobil uygulamayı satın almam.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>27 - Mobil uygulamaların bana sağladığı fayda, ödediğim paranın karşılığını vermelidir.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>28 - Eğer bir mobil uygulama bana özel içerik sunmazsa, alternatifini kullanmayı denerim.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>29 - Mobil uygulamalar, tercihlerime göre bilgi ve ürün sunuyor.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>30 - Mobil uygulamalar, ilgi alanlarımla uyumlu içerikleri ön plana çıkarmalıdır.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>31 - Mobil uygulama kullandığımda, telefonumun şarjı daha çabuk bitiyor.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>32 - Telefonumda yer alan hangi mobil uygulamanın daha çok enerji harcadığını bilmek isterim.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>33 - Telefonumda yer alan mobil uygulamaların, telefonumun şarjını bitirme seviyesi, mobil uygulamaları ne derecede kullanacağım üzerinde etkilidir.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>34 - Telefonumun şarjını daha hızlı bitiren mobil</p> | | | | | |

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| uygulamaları daha az kullanırım. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 35 - Mobil uygulamaların tasarımı hoş ve çekici olmalıdır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 36 - Kullandığım mobil uygulamaların stili profesyonel olmalıdır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 37 - Tasarımı estetik olan mobil uygulamaları diğerlerine göre daha sık kullanırım. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 38 - Hızlı çalışan mobil uygulamaları sıklıkla kullanmayı tercih ederim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 39 - Bir mobil uygulamanın hızı, işlevselliğinden daha önemlidir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 40 - Mobil uygulamaları kullanırken beklemekten hoşlanmam. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 41 - Mobil uygulamalar çabuk yüklenmeli, erişilmeli ve kullanılmalıdır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 42 - Kullandığım mobil uygulamalar, imajıma katkıda bulunur. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 43 - Mobil uygulama kullanan insanlar daha popüler ve prestijli bireylerdir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 44 - Mobil uygulama kullanan insanlar bilgi teknolojileri konusunda daha bilgilidir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 45 - Mobil uygulamaların özelliklerini kullanarak, kişiliğimi yansıtabileceğimi düşünüyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 46 - Mobil uygulama kullanımında zorluklarla karşılaşsam, yardım almadan üstesinden gelirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 47 - Diğer kullanıcılarla kendimi karşılaştırdığımda, mobil uygulamaları daha iyi kullanırım. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 48 - Mobil uygulamaları kullanabilecek bilgi ve yeteneklere sahip olduğumu düşünüyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 49 - Diğer kullanıcılara, mobil uygulamaları nasıl kullanacaklarını öğretebilirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 50 - Mobil uygulamaları kullanmadan önce onlar hakkında daha çok bilgi edinmek isterim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 51- Ücretli mobil uygulamalarda deneme süresi olması, beni mobil uygulamayı kullanmam konusunda ikna eder. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 52 - Bir mobil uygulamayı | | | | | |

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| satin almadan önce, ücretsiz benzerlerini denerim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 53 - Tanınan bir markanın mobil uygulamasına daha çok güvenirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 54- Kullanmadığım markanın mobil uygulaması ücretsiz olsa bile, kullandığım markanın ücretli mobil uygulamasını tercih ederim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 55- Tanınan bir markanın mobil uygulamasını, bilinmeyen bir markanın mobil uygulamasına tercih ederim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 56- Mobil operatörümün çekim gücü mobil uygulama kullanımımı etkiler. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 57 - Kapalı alanlarda mobil uygulama kullanımım, mobil internete erişim zorluğundan dolayı azalır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 58 - Mobil cihazımla aynı anda iki ayrı mobil uygulamayı kullanabilmeliyim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 59 - Mobil uygulamalar ihtiyacım olanı tam anlamıyla karşılar. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 60 - Tüm mobil uygulama kullanımı deneyimlerimi düşündüğümde, mobil | | | | | |

uygulamalardan aldığım hizmetten memnunum.

☐☐☐☐☐

61 - Mobil uygulamaları kullanmaktan memnunum.

☐☐☐☐☐

62 - İşlemlerimde mobil uygulama kullanarak doğru olanı yaptığıma inanıyorum.

☐☐☐☐☐

63 - Mobil uygulamaları kullanmak, iyi bir deneyim sunuyor.

☐☐☐☐☐

64 - Mobil uygulamalar, beklentilerimi karşılıyor.

☐☐☐☐☐

65 - Bir kez kullanıp memnun kaldığım mobil uygulamaları gelecekte yeniden kullanabilirim.

☐☐☐☐☐

66 - Memnun olduğum mobil uygulamaları uzun dönemli olarak kullanırım.

☐☐☐☐☐

67 - Sıklıkla kullandığım mobil uygulamaları değiştirmeyi düşünmüyorum.

☐☐☐☐☐

68 - Bir mobil uygulamaya alıştığım zaman kolay kolay vazgeçemem.

☐☐☐☐☐

12* Lütfen aşağıdaki ifadelere ne derecede katıldığınızı belirtiniz.

1 - Kesinlikle katılmıyorum 2 - Katılmıyorum 3 - Kararsızım 4 - Katılıyorum 5 - Kesinlikle Katılıyorum

| | | | | | |
|---|----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| 1- En sık kullandığım mobil uygulama türünde ileride daha farklı ücretsiz mobil uygulamaları da indirebilirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2- En sık kullandığım mobil uygulama türünde ileride daha farklı ücretli mobil uygulamaları da indirebilirim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13* Akıllı telefonunuza yüklediğiniz ücretli uygulamalarla kıyaslandığında, ücretsiz mobil uygulamalar için aşağıdaki ifadelere ne derecede katıldığınızı belirtiniz. | | | | | |
| | 1- Kesinlikle Katılmıyorum | 2- Katılmıyorum | 3- Kararsızım | 4- Katılıyorum | 5- Kesinlikle Katılıyorum |
| Daha az seçiciyim | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Daha çok sayıda indiriyorum | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Kullanmasam da telefonumdan silmiyorum | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Daha çok zaman geçiriyorum | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Arkadaşıma daha fazla tavsiye ediyorum | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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