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**ISTANBUL AYDIN UNIVERSITY**

**INSTITUTE OF SOCIAL SCIENCES**

# THE EFFECT OF COLOR AND SHAPE OF THE APPLICATION LOGO ON ONLINE APPLICATION BUYING BEHAVIOUR OF UNIVERSITY STUDENTS

**THESIS**

**Elshan MAMMADOV**

**Department of Business**

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**Thesis Supervisor: Asst. Prof. Dr. Ilkay KARADUMAN**

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***To my Parents***
***The reason of what I become today.***
***Thanks for your support and continuous care.***

**FOREWORD**

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**June 2017** **Elshan MAMMADOV**

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# UYGULAMA LOGOSUNUN RENGİNİN VE ŞEKLİNİN ÜNİVERSİTE ÖĞRENCİLERİNİN ÇEVRİMİÇİ UYGULAMA ALIŞI DAVRANIŞINA ETKİSİ

## ÖZET

Günümüzde mobil cihazların gelişmesi insanların hayat tarzını kolaylaştırmakta, onların eğitim, eğlence, spor, bankacılık, turizm sektörlerinde ve başka günlük işlerinde yardımcı olmaktadır. Mobil cihazlar WIFI, Bluetooth, GSM gibi bağlantılarla farklı cihazlara bağlanarak onları kullanmak, verileri toplamak gibi işlemleri yapmakla bize hizmet etmektedir. Mobil cihazların gelişmesi mobil uygulamaların da üretimine, onların da günü-günden çoğalmasına neden olmuştur. Çağdaş mobil cihazların güçlü parametreleri daha hızlı ve zengin uygulamaları çalıştırmak gücündedir.

Çalışmanın amacı üniversite öğrencilerinin günlük kullandıkları mobil uygulamaların alışına, uygulama logosunun renginin ve tasarımının etki yapıp, yapmamasını tespit etmektir. Bu etkinin cinsiyet, yaş, eğitim ve mobil dükkan kullanımı gibi demografik değişkenler bakımından farklılık edip etmediğini öğrenmektir. Bu çalışmanın amacı anket yoluyla incelenmiştir. Çalışmanın evreni İstanbul ilindeki öğrenciler götürülmüştür. Anket çalışması İstanbul Aydın Üniversitesi öğrencileri arasında uygulanmış ve 271 kişiden cevap toplanmıştır. Veriler SPSS 21 programı kullanılarak incelenmiş ve analiz edilmiştir.

**Anahtar kelimeler:** *Mobil Uygulama, Tüketici Davranışı, Logo Rengi, Logo Tasarımı*

# THE EFFECT OF COLOR AND SHAPE OF THE APPLICATION LOGO ON ONLINE APPLICATION BUYING BEHAVIOUR OF UNIVERSITY STUDENTS


## ABSTRACT

Nowadays the globalization of mobile devices made easy the people's lifestyle and helping them in different – educational, entertainment, sport, banking, tourism sectors and other daily jobs. Mobile devices are connecting to different devices with various connections such as: WIFI, Bluetooth, GSM which help us to use them and collect database. The development of mobile devices caused to the production and proliferation of mobile applications. The powerful parameters of modern mobile devices can operate faster and richer mobile applications.

The aim of the study is to determine if the color and design of mobile application logo affect the buying behavior of university students. In addition to it, to find if this influence differs according to demographic variances such as: gender, age, education and mobile application preference. The purpose of this study has been investigated through questionnaire. The universe of this research was taken the students in Istanbul. The questionnaire study was conducted among the students of Istanbul Aydin University and around 271 answers were collected. Moreover, collected data analyzed using the SPSS 21 program.



**Keywords:** *Mobile Application, Consumer Behaviour, Logo Color, Logo Shape*

## 1. INTRODUCTION

For the first time mobile applications were so simple. The first mobile applications were calendars, calculators, alarm clocks and so on. Improving technology strove application creators to think and built the modern applications which serve us in different issues. Obviously, mobile technology that we use today pushed forward the evolution of online applications (Pocatilu, 2010, Pentina, at al., 2016). Mobile applications make easy our life, help us to solve our time-consuming issues. Mobile technologies stimulated the improvement of operating systems. Modern years there are two main operating systems that available in most mobile devices. They are IOS and Android OS. Developers think and create various types of applications which are suitable for these operating systems. Today a huge number of mobile applications are available in the internet. People are able to enter application market, download and install to their devices easily.

Mobile devices are small, portable devices which consist from CPU, screen, memory and some other interfaces. These devices are provided with small keyboard, touchable screen which can be easily carried. Certainly, a lot of mobile devices have got the same characteristics, however they are built with different operating systems. Nowadays the most popular mobile devices are IPAD, Iphone, Tablets and so on. Generally these devices differ with their screen size, battery life, CPU, memory and some other features. Mobile devices are not only cellphones, tablets and smartphones but also digital cameras, netbooks, media players and other mobile gadgets. According to Traxler & Campus (2009) each person choose these devices according to his or her charachteristics.

Mobile phones have some features such as gaming, messaging, communicating and so on. However, there is number of functions that smartphones don't have. E-book reading, full internet browsing is not comfortable like in tablets in smartphones. Smartphones simply can't perform in this at desired level. The large screen factor that tablet has allows us to enjoy some need that is not available in smartphones.

Consumer is a physical person who buys goods, products and use. There are two types of consumers: individual consumer and organizational consumer. If a person purchases things, to use and dispose in personal reasons, he is an individual consumer. However, government agencies and organizations are organizational consumers. According to Al-jaraisy (2008) individual consumers purchases products to satisfy their own and family needs, but organizational consumers buy products to resell to others. There are some cases that organizational consumers not only buy things to resell but also to produce new items or goods. Apple, BP, Lenovo, Toyota are examples for organizational consumers. According to Khan (2006) all of us are consumers.

There are some internal and external factors that influence consumers' buying decisions. Commonly marketers say that there are 4 main factors which effect consumers. They are cultural, social, psychological and personal factors. Culture is the strength which forms personality. Norms, beliefs and values form the culture. According to Goodrich and Mooij (2013) culture is the sum of norms and standards. by learning the culture of any tribe or population we learn the same people that connected to this culture. This helps the marketers to know which product is suitable for the population. Other factors that influence consumers are social, personal and psychological factors. Reference groups, family roles, statuses include to social factors. Age, lifestyle, personality and a person's occupation is personal factors effecting purchasing decisions. To give an example to psychological factors we can say beliefs, motivation, perception and so on.

Color has a significant influence on purchasing choices. Color creates positive and negative thought about products. People can perceive color differently according to their gender, culture, religion and a lot of other features. The main feature of color is attracting people's attention. Moreover, the products' colorful appearance makes them easy detected by ourselves. The shape of product influencing people's decisions too. There is no doubt that people give attention to product's design as well. According to Ricardo (2008) the design of product influences customer's first impression about the brand.

This research is master thesis written about the impact of color and shape on consumers buying decisions. The topic of research is "the effect of color and shape of the application logo on online application buying behavior of university students".

Research consists of 2 parts. First part explains mobile applications, mobile devices and their operating systems. Also, the first part tells about consumers, their purchasing behavior, decision making processes. There is information about the color and shape(design) in marketing in this part as well. The second part is about survey which took part between university students in Istanbul Aydin University. 271 students answered survey questions. Collected data analyzed with SPSS 21 program.

In the second part, 8 different hypotheses tested with the Mann-Whitney U and Kruskal-Wallis H test. The reliability of research was measured with Cronbach's Alpha test, which results showed the test enough reliably, all values were above the acceptance 0.7. The aim of this test was to explore influence of color and shape on consumers. In addition to it, 4 main demographic variables were taken to determine the importance of influence on gender, age, education and applicants' application store preferences.

# 2. LITERATURE REVIEW

## 2.1 Mobile Applications

### 2.1.1 Description of mobile applications

As we know the mobile applications that we are using in phones and computer tablets, meet our need and wants in daily life. With the globalization of world and development of internet, smartphones and computers tablets improved the mobile apps significantly for the past years (Beyaznar, 2014). According to Pocatilu, (2010) the mobile technology that available to us today pushed forward the development of mobile applications. Furthermore, the strong parameters of these devices allow them to run the fast and rich applications. The evolution of tecnology, multimedia evolved the improvement of mobile application sphere (Pentina, at al., 2016). Moreover, mobile apps which are people using in communication, media, entertainment and banking areas, helping them to realize time-consuming work without the assistant of computers (Beyaznar, 2014).

One of the wide spread technology all over the world is mobile technology. Undoubtedly, a lot of people use this technology in everyday life. According to D'Orazio et, al. (2017) the usage of mobile technologies stimulated the development of mobile applications especially Android and IOS applications. Seyed Ebrahim, Ezzadeen, & Alhazmi, (2015) stated that development and usage of mobile technologies motivate vendors and developers to create quite enough mobile apps. These mobile apps can be defined like software programs for mobile devices. There are a lot of mobile apps that people can download and use in their devices. People may review the applications they want to download, choose the needed one and write a feedback to them. Nowadays a range of mobile apps are available in stores related to sectors such as education, game, communication, shopping, browsing internet, reading e-book and etc. (Seyed Ebrahim et al., 2015).

The easily accessibility of internet and development of internet-based technology help us to access almost to all services. The internet that assists us to use shopping,

entertainment, education and so on services, has become more useful and widespread with the creating mobile applications (Bilgili, 2014). A number of applications that available in internet such as gaming, sosial network and etc. accomodated to humans life (Tan & Yang, 2014). These apps help us catch internet services quick and easily, moreover, these mobile applications can be installed to different devices depending on its operating system (Bilgili, 2014). For instance, as we know the widely used IOS system is suitable for Apple branded devices, Windows Phone operating system in some Nokia models and Android system is used in most phone models such as: Samsung, HTC, LG, Huawei and etc.

Nowadays, huge percentage of world people use mobile apps to keep in touch with friends, to find documents, to browse internet. This means, applications meet the users' needs (Islam, Islam, & Mazumder, 2010). Of course, people can run their daily and business problems through different apps. Applications allow people to find product in internet, to facilitate their life, search brands and categories in site (Ahuja & Khazanchi, 2016). Also some of the businesses make money by using mobile applications (Islam et al., 2010). Hung, Shih, Shieh, Lee, & Huang, (2012) stated that today's mobile technologies help us in different tasks. However, some of them can't perform good enough because of their memory capacity, battery life and some other features.

In the beginning, mobile apps were very simple like alarm clocks, calculators. But globalizing and developing world made developers to create modern applications that cope with enough issues. Today's apps are vast functioning and they divided into some categories such as multimedia, travel, games, communications, utilities (Islam et al., 2010).

Namli (2010) stated that applications that developed for mobile devices are referred to call as mobile applications. In addition, we can say that such applications are similar with the computer applications in development process, but they actually quite different in terms of equipment and technologies they are used.

### 2.1.2 Smart mobile devices

Mobile devices are basic computers with battery, CPU, memory, screen, input and output interfaces. Mobile devices are using waves to communicate with various frequencies over networks. 2 of the common communication protocols are CDMA

and GSM. According to La Polla, Martinelli, & Sgandurra, (2013) with the help of mobile devices today people are able to access to different services. Moreover this feature made them a part of our life. Apart from that, today various mobile technology connections like WIFI, Bluetooth, GSM raised the connection to different new ubiquitous. Mayron, (2015) says that smart mobile devices are fascinating technology that allows people use their platform to overcome various tasks. Although these devices little, they have got strong battery life, powered processors which make them to do particular functions. The mails, music that we listen, social network we use or other tasks we do in these small devices include to these functions. Suarez-Tangil, Tapiador, Peris-Lopez, & Ribagorda, (2014) stated that smart devices can cooperate with number of third-part applications from different application markets. Unfortunately, some malicious programs and applications get connection to personal information of device owners, which is privacy problem for them.

The word “mobile” which means portable, implies that mobile devices are small and portable devices. In other words, mobile devices are little, touchable, provided with small keyboard, which give a chance to carry them on a person. Altough, there are many mobile devices with the similar characteristics, they are implemented with the different operating systems (Bilgili, 2014).

The most popular devices nowadays are Iphone, Ipad and Samsung Galaxy tablet devices. Generally these devices divided into two main types and classified bu screen size - tablet PC and smartphones (Kim & Moon, 2013).

**Table 2.1** Device Specifications

| **Type** | **Name** | **CPU** | **RAM** |
|---|---|---|---|
| Desktop | PC | 2.50 GHz(Quad) | 3.5 GB |
| Tablet | Ipad<br>Galaxy Tab | A4 1GHz<br>1 GHz(Dual) | 512 MB<br>1 GB |
| Smartphone | Iphone<br>Galaxy S | 1 GHz<br>1 GHz | 512 MB<br>512 MB |

**Source:** Kim & Moon, (2013)

This table explains that PC standards outperform another devices, following tablets outperform smartphones. In addition to this, there is a significant difference in screen size of this devices. The most desktop PCs have greater screen size than 19 inches. However tablets' screen sizes vary from 7 to 10 inches. According to smartphone screens, they are below 4 inches (Kim & Moon, 2013).

Obviously, smartphone users view pictures on a small screen, so there is no need for a large image. Therefore, web services should provide small images for smartphone users. Compared with smartphones tablets are purchased because of their increased screen size. According to these reasons, services should optimize performance for each device (Kim & Moon, 2013).

According to Bilgili (2014) Wi-Fi, Bluetooth, GPS and similar technologies that we are using in mobile devices are the way to connect with the other devices. In addition to this, a power supply of this devices provided with lithium batteries. Mobile camera, microphone, sensor features of these devices give us to communicate with the world.

Mobile devices include not only smartphones but also digital cameras, netbooks, media players, game consoles and handled computers. Almost each person owns one of them and uses. People choose these devices according to their characteristics, identity and individuality (Traxler & Campus, 2009). Todays mobile devices allow us to connect other people, to find needed information, to connect other devices even to store information in device memory. Shiraz, Gani, Khokhar, & Buyya, (2013) stated that the improvement in mobile technology area allows smartphones compute future and use other devices. People want to use different applications in their smartphones. Although, technology improved significant recent years smart mobile devices can't perform better because of their parameters such as battery, memory and so on.

According to Mıhcı (2014) mobile devices are those little devices which are provided with battery and GSM, GPRS, Wi-Fi connections allowing the use 3G of technologies to facilitate communication. To give an example to these devices smartphones, tablets and other portable devices.

The most important feature of the mobile device is its size and capacity for transportation. In this case smartphones are in the first place, they fit easily in pocket

and handbag. They include a lot of functions and transportation of these devices extremely easy (Aslan & Aslan, 2013).

Today the number of people that uses smartphones and tablets are increasing day by day. As the price of these technologies going down with the passing time and the wish to communicate with others and make the life easier support people to purchase devices (Aslan & Aslan, 2013).

According to Velmurugan (2017) mobile phones have got a lot of benefits that people use them today. But, there are some functions that smartphones can't provide consumers, such as e-book reading, full internet browsing. These smartphones simply can't perform at desired level. Thus, tablets allow us to cover our needs like playing colorful games, to enjoy the internet books with its large screen.

Initially we were used to do our work such as emailing, checking something and other by using laptops, PC desktops however, nowadays we are used to meet these needs with the assistance of our little friends (Aslan & Aslan, 2013). People take photos, record videos others send emails, spend time in social networks, order something with the help of mobile devices.

As we know mobile devices have specific operating systems. The main of them are IOS, Android and Windows Phone. Development of mobile technology influenced vendors and developers to create the new sector calling mobile applications.

The increasing number of mobile devices such as: smartphones and tablets impacting the number of mobile apps. Accordingly, in 2013 there were 56 billion apps for smartphones and 14 billion apps for tablets downloaded from the internet. It calculated that there will be around 200 billion downloaded apps from the internet till 2017 (Aslan & Aslan, 2013).

#### 2.1.2.1 Phones

With the creation cellphones, smartphones and similar mobile devices changed some aspects of society. Even in March of 2012 the Pew Internet and American Life Project had a research over American adults and found that 88 % of U.S. adults bought cell phones and half of them smartphones. Today smartphones are part of human life in every country (Filieri & Lin, 2017).

Compared with last year smartphone usage increased amongst all demographic groups. According to survey ownership of mobile devices rose up too (Muehlegger & Shoag, 2014).

Before mobile phones had requirements such as phone calls, digital phone book, pick up button. But now smartphones offer much more and we can consider them little computers which we can put our pockets. Now phones take a considerable part in human life like communication device (Lane et al., 2010).

According to Lay-Yee, Kok-Siew & Yin-Fah (2013) smartphones are mobile technologies which can send and get messages or make and receive voice calls. These mobile devices help to use internet, video and other media. Apart from that smartphones are littler computers that have significant applications.

Initially the smartphones were perceived for business use because of their cost, but now smartphones spread all over the world. Now smartphone allow consumers to socialize and better engage by using its platform and applications (Sarwar & Soomro, 2013). Nowadays smartphones covered with touchscreen panel, and they have a few buttons.

Today's smartphone was created since last 10 years when apple introduced smartphone to consumers. Early smartphones were created for companies and their price were too expensive for individual consumers According to Sarwar & Soomro, (2013) smartphone era consists from 3 phases. The first phase began with the marketing IBM's smartphone in 1993. Of course, this smartphone was targeting corporations. The second era began with creating of IPhone in 2007. This was the first time that industry suggested smartphone to general consumers. In the third phase was targeting improvement of display quality, mobile operating system, introduce powerful batteries. This phase began with the upgrades of mobile operating systems.

Smartphones have got some advantages. One of the usual advantages of smartphones that people can use them on-the-go. It means it is very simple and comfortable to use smartphones while driving or walking. This is good for executives, managers and others. As they can check or send emails and browse internet while doing something. Portability is the other advantage of smartphones. Although, they are bigger than normal phones, but compared with computers smartphones light and little mobile devices which are easy to transport.

Day by day smartphone owners are increasing. According to Smith, (2013) the smartphone ownership rose to 56% between American adults.

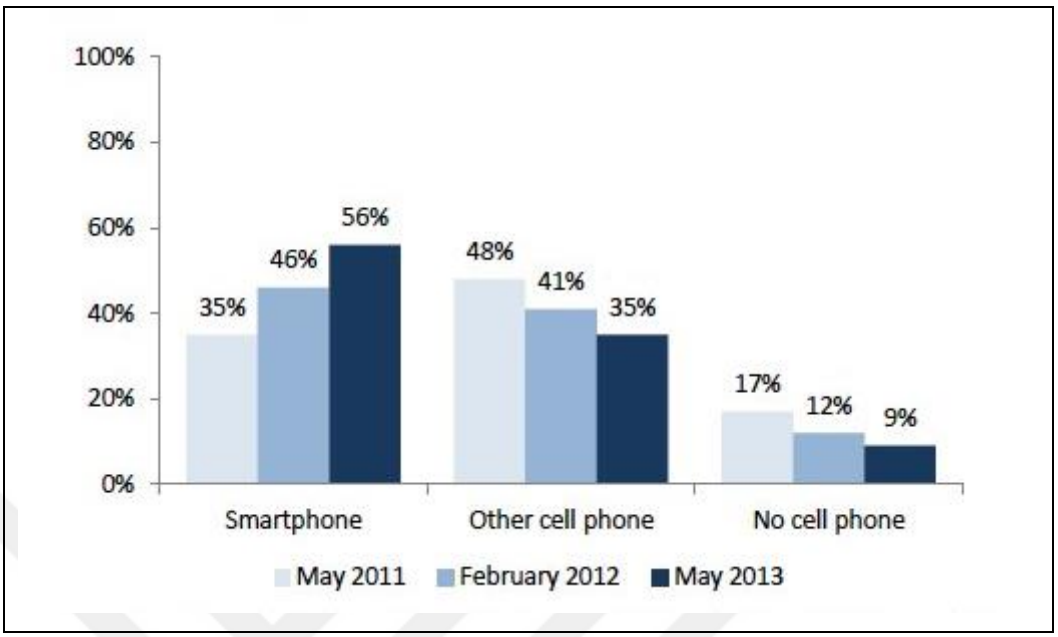



**Figure 2.1** Changes in smartphone ownership 2011-2013
**Source:** Smith, (2013)

This figure shows us the percentage of U.S adults who got smartphones in 2011, 2012 and 2013 years. According to this information, the number of people who own smartphone is increasing by years, while the number of persons that use other cell phones decreasing. Moreover, in 2011 35% of American adults had smartphones and this went up to 46% then 56% accordingly in 2012 and 2013 years. As well as, the figure gives information about people wo has not got cell phone. Although in 2011 17% of adults did not have phones, this index dropped to 9% in 2013.

Smartphones like IPhone and Blackberry are cellular phones which include apps and internet access. Nowadays these phones have impact on businesses and society (Jamal, Sedie, Haleem, & Hafiz, 2012).

Smartphones has strong operating systems like Android, IOS, Windows Phone and they consist from huge memory, strong processor and batteries. Day by day people get intertwined with smartphones (Xia et al., 2013).

Now, smartphones not only serving like communication and calculation technology but also including dozens of features such as GPS, compass, accelerometer and so on. Now phones have some disruptive apps that can share user's real time location and activity like Facebook (Lane et al., 2010).

### 2.1.2.2 Tablets

A tablet computer commonly shortened to tablet, is something between computer and smartphone. Tablet includes features of both devices in it. We can call tablets like small computers because they work as computer and the main difference from smartphone is its screen's wide range (Singh, Singh & Kumar, 2012).

Müller, Gove, & Webb, (2012) believe that tablet purchases increased significant for the past years. The main aim that people use tablets are: to listen music, to keep in touch with friends through social media, emailing, chatting, e-book reading. According to Griffey, (2012) after the introduction of IPad to people the tablets got the new stage like computing technology. Zickuhr, (2013) also stated that tablet ownership increased 2 times for the last year.

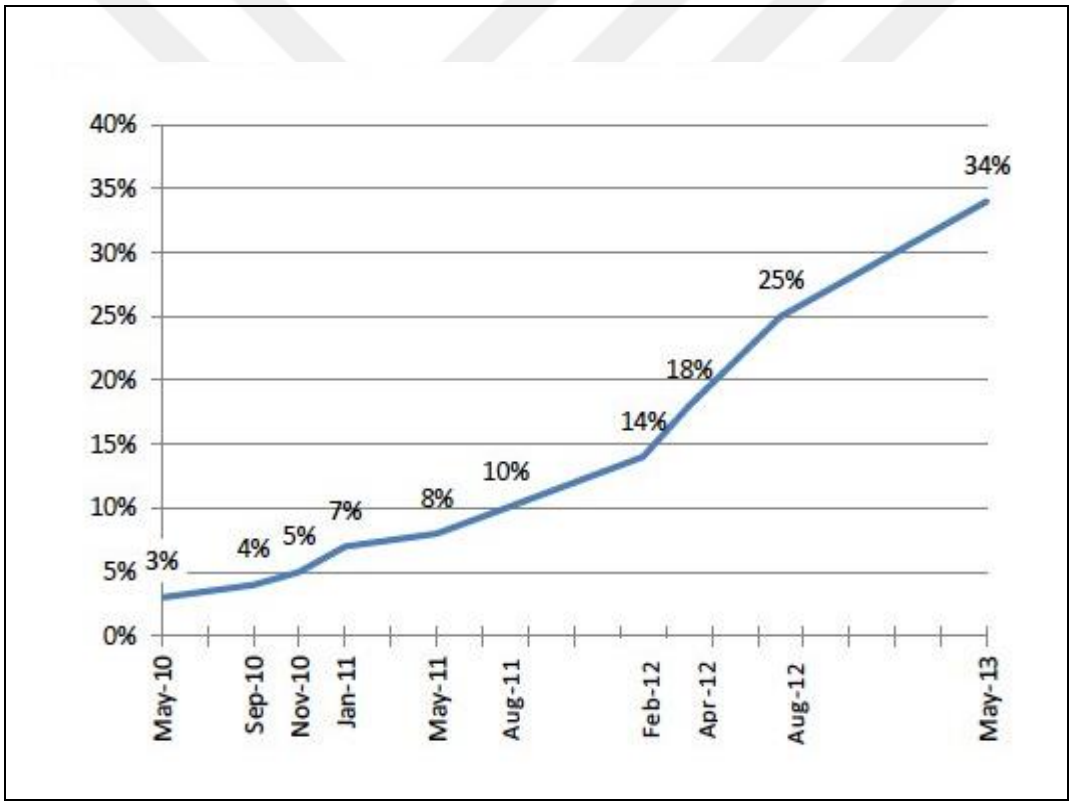



**Figure 2.2** Tablet ownership over time 2010 - 2013
**Source:** Zickuhr (2013)

The figure above shows the tablet ownership between 2010 and 2013 years in America. It is obvious from the chart that 3% American adults owned tablet PC's in May 2010. Moreover, the upward trend makes it easy for us to understand that the tablet purchases or in other word adoption increasing every year. In the middle of 2011 year it the tablet ownership increased to 10%. According to Zickuhr, (2013) the main tablets that adults purchased were IPad, Google Nexus, Samsung. As well as,

the chart explains that the adoption of tablet PC's doubled for the last 2012-2013 years.

According to Farance et al., (2015) the main aspect that people prefer tablets than smartphones is their screen size. Although smartphones meet a lot of needs of users, they have other disadvantages such as weak battery and small screen size.

Nowadays 2 main tablets types are in the market, Apple IPad and Android OS tablets. Instead of other tablets Apple tablets powered with IOS system. Tablets don't have mouse and they work in touch control, they provided with touchscreen which range from 5 to 14 inches (Lee, Lee & Chan-Olmsted, 2017). Tablets have keyboards too, and appear if user needs to type something. There are 6 special gesture languages in tablets, which helps in working on screen:

1. Tap – Helps to launch applications
2. Tap and Hold – Is it often works like right mouse of PC
3. Swipe – Commonly uses when flipping images or pages
4. Scroll – Uses for scrolling pages
5. Pinch to zoom – Helps to zoom in or zoom out images or internet pages
6. Double tap – Often serves the same function pinch to zoom.

Tablets provided with Wi-Fi technology so users can connect to the internet. Even some tablets have 3G and 4G wireless mobile telecommunication technology. The software of tablets is on IOS or Android operating systems (Lee, Lee & Chan-Olmsted, 2017). All you need to go to setting of this device and connect wireless internet.

Although, tablets and smartphones have common features, tablets have some advantages than smartphones. Tablets are good for playing games because of their wide screen. Tablets equipped with powered batteries than smartphones, so tablets are able work 8-9 hours (Singh, Singh & Kumar, 2012). Another positive feature of this device is smart readers, we can read documents with better quality.

The main differences between tablets and smartphones in the next table:

Table 2.2 **Differences between tablets and smartphone**

| Features | Tablets | Smartphones |
|---|---|---|
| Screen Size(inches) | 7 to 11 | 2 to 4.3 |
| Make Phone Calls | Yes | Yes |
| Keyboard | Qwerty Keyboard on Touch screen | Qwerty Keyboard on Touch screen |
| Storage Space | 16 to 64 GB | 2 to 32GB |
| Operating System | IOS, Android, Blackberry | IOS, Android, Blackberry, Windows Phone |
| Typing | Fair | Poor |
| Reading | Excellent | Poor |
| Web Browsing | Excellent | Poor |
| Portability | Poor | Excellent |
| Photo/Video Display | Excellent | Fair (small display) |

**Source:** Singh, Singh & Kumar, (2012)

### 2.1.2.3 Wearable devices

Wearable devices, wearable technologies are the devices people can wear or placed in, on and into clothes (Ener, 2015). According to Jiang et al., (2015) wearable technology is the modern technology that gives unique services. These devices provide the technology world with the advanced challenges. Frost&Sullivan (2014) believe that a few years ago wearable devices significantly increased in electronic market. The growth was noticeable in fitness and health sector.

Wearable devices are electronic technologies that consolidated into clothes or accessories such as jewelry, watches which can be worn by users (Ching & Singh, 2016). Today's wearable technologies operate the same functions such as: smartphones or computers. Smartwatches, bracelets, e-textiles, glasses are examples of wearable gadgets and they are used in different sectors such as gaming, fitness, sport, security, healthcare and so on.

#### 2.1.2.3.1 Smartwatches

The smartwatch is one of the wearable technologies. Android Wear and Apple Watches are the two main smartwatches in the marker. These watches are connected to the users' smartphone, so if some notifications arrive on phone such as: phone calls, messages and so on they are automatically forwarding to smartwatches. They also make sounds or vibration at that time what getting information (Ching & Singh, 2016). The notifications are open on the display when user raises his or her hand. Smartwatches allow users to send messages, make voice commands, launch apps. The screen of watches turns display off to serve the power of battery and show the screen only when user touch the screen or shake hand. Moreover, users can download a lot of applications from the app store for their devices (Pizza et al. 2016).

#### 2.1.2.3.2 Google glass

Google glass is the mobile technology which featured with optical display that looks like a pair of glasses. This device can perform the same tasks that smartphones do (Young et al., 2016). Google glass works with voice commands. This mobile device was developer by Google X.

A lot of free apps are available for google glass such as: Google Maps, Google +, Gmail. Users can control this device with voice commands like: "Record video", "Take a photo", "Send message to Someone" and so on (Mishra, 2016). Google glass wearable and easy handle, accessing of chats, maps, videos.

Here are some features of google glass:

1. Camera – 5-mp camera which can take a photo and record 720p videos.
2. Touchpad – which is located on the side of the device and works by swiping on it.
3. Display – consists from liquid crystal with LED illuminated display.

### 2.1.3 Mobile operating systems

Nowadays, mobile phones are a part of human's life. Even a few years ago we were using mobile phones only for messaging and voice calling. But now these devices help us to receive and send e-mails and so many things (Kamboj & Gupta, 2012).

Operating system is of the needed software element of any processor-based technology. Devices can't perform their task without operating system. Furthermore, OS use software and hardware of device and realize various tasks which are illustrate on the screen of this device (Okediran et al., 2014). OS run a range of programs at

the same time, providing perfect performance of them. It is not doubt, that operating system is responsible for the administration of the memory of devices. Generally, users don't have a direct contact with OS, so, the interaction between the OS and user is provided by the apps which downloaded from app store (Jindal & Jain, 2012).

#### 2.1.3.1 Android and Play Store

Android OS is computing platform that designed for tablet, smartphones and other devices. Today most of the smartphones work with the Android OS. Android launched in 2003 by Andy Rubin who established the Android Inc. Company. Later, Android was bought and improved by Google. This OS is based on Linux Kernel, which provides advanced computer processing (Narmatha & KrishnaKumar, 2016).

In 2008 the first smartphone based on Android OS were sold and in 2010 this OS was leading smartphone platform. In 2012 Android owned 59% of market share in the world (Nosrati, Karimi & Hasanvand, 2012).

Users can download Android apps from Play Store. Day by day a range of apps are creating by developers including games, shopping, social networking. There are number of free and paid applications that available for downloading on Play Store (Jindal & Jain, 2012). The apps of Android OS were written with the using of Java programming (Okediran et al., 2014). Nowadays, an application market of Android – Play Store is a great opportunity for developers to introduce their app creations to millions of consumers (Jindal & Jain, 2012).

#### 2.1.3.2 IOS and Apple Store

IOS software system developed by Apple Inc. Originally, IOS, developed for IPhone in 2007, however, now it supports IPad, IPod Touch and Apple TV also (Jaiswal & Kumar, 2014).

We know that IOS derived from Mac OS, but IOS has got some innovations that significant only for itself like accelerometer support and interface which make IPhone easy to use (Singla & Mendiratta, 2014). Here are some features that IOS offer:

1. Secure and stable OS for phones
2. The most pleasant interface between the mobile operating systems

3. The most secure and less bugs as the reason of high standardization at developing time
4. A range of apps and updates from Apple Store

In 2008 Apple introduced Apple Store to IOS. From that time users can browse and download apps to their devices. Normally applications are free or paid. Some of applications have inn-app purchases, which mean you should pay a little money when using some features of app. The revenues generated from downloaded apps dividing between application developer and Apple corporation following 70% to 30% (Jaiswal & Kumar, 2014).

People downloaded apps 130 billion times from Apple Store since 2008 and in 2016 Apple store has 2 million applications that available in it. In 2009 the most downloaded applications were announced by Apple, that was Facebook and Google Earth.

#### 2.1.3.3 Windows Phone

The OS which Microsoft created for phones called Windows Mobile. Divya & KrishnaKumar (2016) stated that after the changes that Google Android and Apple IOS did in 2007, Microsoft created Windows Phone. Windows phone is an OS for smartphones. In 2010 Microsoft launched Windows phone 7 which updated to Windows phone 8 later. Today Windows phone 8.1 is in the market which has X Box with console level gaming. Nokia and HTC companies are using this operating system. Furthermore, it was announced that all Nokia phones will be provided with Windows phone 7 OS from 2011 year (Okediran et al., 2014). Today one of the best smartphones that using Windows phone are HTC Mobile Radar, Nokia Lumia 928 and Lumia 1020 and so on. (Divya & KrishnaKumar, 2016).

#### 2.1.3.4 Types of mobile apps

There are 3 types of applications, they are native apps, mobile web apps and hybrid apps.

According to Tun (2014) native apps are those apps which written in the language of a specific platform. For Apple it is Swift or Objective-C and for Android it is Java. They developed only for one platform and can take all advantages of the device such as camera, GPS, contact list and other. Example for native apps are all apps that available in the menu when you buy new phone.

Web apps are web sites, that are not real apps but look like to them. Web apps are written in web code which is relevant to website but looks like to a native app. For example, Flipkart, Moodboard (Tun, 2014).

Tun (2014) stated that hybrid apps are half native and half web applications. Of course, we can see hybrid apps in app stores like native applications. On the other hand, they rely on HTML like web apps. Example for hybrid apps are Twitter, Gmail, Uber, Instagram.

## 2.2 Consumer Behavior

### 2.2.1 Consumer

The word "Consumer" is a common word. Normally, consumer is a physical person who buys items, things, products, services because of personal use. Consumer is a person who makes the decisions to buy products or consumer is an individual who pays significant money to consume something.

> We usually think of the consumer as the person who identifies a need or desire, searches for a product to satisfy this need, buys the product and then consumes the product in order to satisfy the need (Noel, 2009).

Obviously, in many cases the consumer is the same person who makes the decision and buys the item. However, there are too many cases when the consumer and purchaser are different individuals. A case buying of laptops for child is one of them (Noel, 2009). It means, parents are purchasers who buy laptop, but consumer is a son or daughter who uses the laptop. Furthermore, another example for the same case if we buy the ring for our girlfriend we are the purchaser but girlfriend is a consumer. According to Noel (2009), consumption is not only purchasing, using or having tangible products such as bottle of water, cell phone but also intangible products, services like holiday bookings or attending in a gym.

According to Kardes, Cronley & Cline (2010) consumers divide to two types, individual (final) consumer and organizational consumer. A person or a family is an individual consumer but government agencies and organizations are organizational consumers. Al-jaraisy (2008) stated that individual consumer is a person or individual who buys things or services to satisfy his own needs or family needs. Even, a boy buying a gift to someone is an example for individual consumer. The main point is that individual consumer purchase things and services to consume and

satisfy needs but not to resell these things. There are a lot of examples for individual consuming: paying house's water bills, buying something to eat or buying a carpet, computer, furniture for home or some hospital, dental treatments for family. Individual consumer can be any person and there is not any feature for the life stage of this kind consumer. Even, a child who begs his mom to buy something to him, a girl who buys some sweet for eating or an old man is an individual consumer (Kardes, Cronley & Cline, 2010).

Compared with final consumer organizational consumers buy things or services not only to resell them to others but also to produce new things or products. Moreover, the organizations buy equipment in order to run their businesses (Kardes Cronley & Cline 2010).

A lot of organizations may be an example for organizational consumers just as Starbucks, Procter and Gamble, Turkish Airlines, Hilton hotel and many others. Obviously, these companies do not relate with each other but they do the same things. They buy raw materials, goods to produce new things and resell to individual consumers. As well as, hotels, airlines, government agencies and similar companies need to purchase equipment to serve final consumers (Al-jaraisy, 2008).

According to Khan (2006) "All of us are consumers". All durable, speciality, industrial goods are the consumable goods that we buy, use in order satisfy our daily needs. The social classes, income, motivation, personality and many other internal and external factors influence us to buying processes. From this point of view all people are consumers. As the result, consumer behavior is the main sector that organizations should explore this sector very well (Noel, 2009). This is the key to consumers and way to understand what to produce, how much produce and for whom to produce. Traditionally, if someone buys something considered a consumer but now the view changed. Because there are some cases that consumers are not the buyers (Khan, 2006). To illustrate this point, we can give as example a family. When father buys refrigerator for house the whole family became consumers. Here entire household use refrigerator, so father is buyer but at the same time is consumer like entire household.

**Table 2.3** Some consumer behavior roles

| Roles | Descriptions |
|---|---|
| Initiator | The individual who determines a need |
| Influencer | A person who influences purchaser with action or some words |
| Buyer | An individual who purchase (mostly head of family) |
| User | The person who use or consumer product |

**Source:** Khan, (2006)

Table above shows the roles of persons in buying behavior (Khan, 2006). We can explain this table in simple words by giving and an example. Mother thinks that an old TV that family uses at home should be changed. She plays the role of the initiator. She explains this to her husband. The child as an influencer supports this idea. He searches a lot of information in google about TV and markets that sale cheaper than others. In conclusion father as a buyer visits the suitable market for them and purchases TV. Moreover, the entire family play role of user in this example.

### 2.2.2 Consumer buying behavior

Some people thing that "consumer behavior" is only a buying of things, services and consuming of it. But this phrase is much more about it. A consumer's behavior begins before buying goods and services with the determining of need. According to Khaniwale (2015) consumer behavior includes all acting and feelings when buy any product or service.

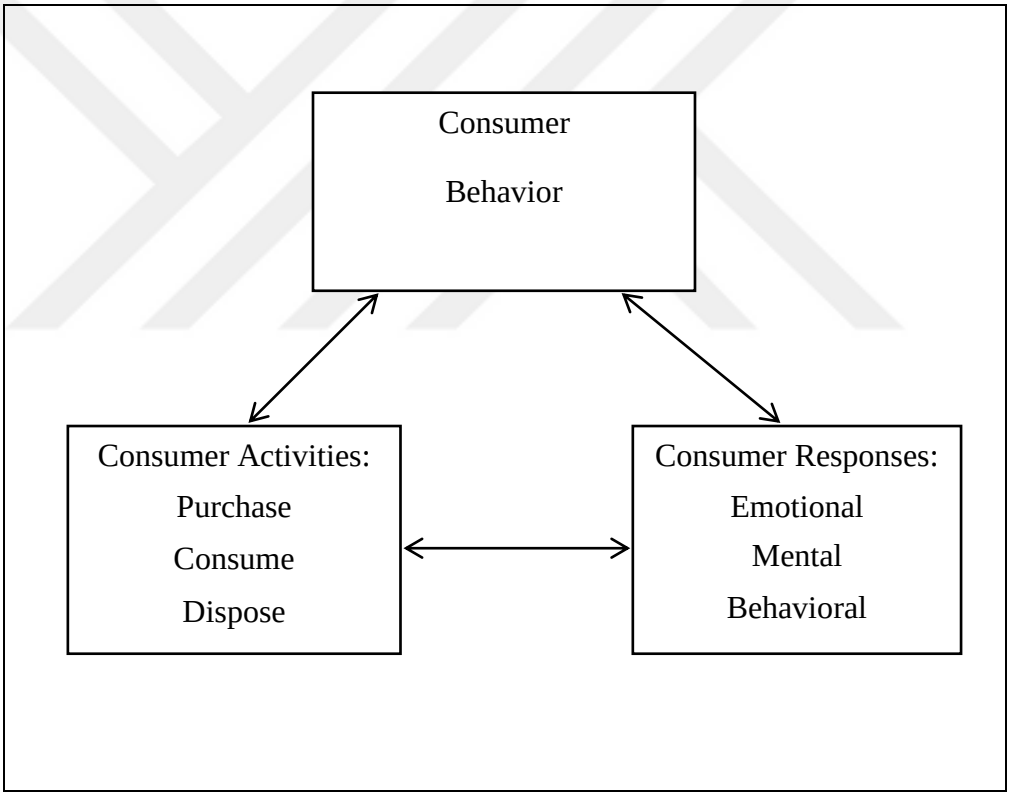
Moreover, traditional buying behavior is learning only buying processes, while understanding consumer behavior learns not only purchasing action but also the decision making, evaluating and impact on consumer decisions. To understand this idea in one sentence we can read the marketers common view about consumer behavior.

> Consumer behavior is the study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society (Hawkins & Mothersbaugh, 2010).

Kardes, Cronley & Cline (2010) stated the description of consumer behavior in two – "*traditional*" and "*modern*" definitions too. As we said before traditional way explains only consumers buying acts but modern consumer behavior illustrates consumer's all steps that he does in buying behavior including before and after purchasing performance.

In table below shows consumer activities and responses that related with each other at the same time building consumer behavior.

**Table 2.4** What is consumer behavior?




**Source:** Kardes, Cronley, Cline, (2010)

The table explains that consumer behavior sums mental, emotional behavioral responses which influence people and push forward in order purchase, consume and dispose goods and services (Kardes Cronley & Cline 2010). *Purchasing* is one of activity of consumer. People get services and goods through this activity. In addition to it, data that estimated and collected such as: "in which store or magazine to buy" is included to purchase activity. A consumption of good or service is *use* activity. It can

be an eating of something after purchasing like candy or a ticket to an event which will take part after some days. Therefore, use activity divides to immediately and delayed use (consumption). Finally, after using a service or product a consumer gets rid of it – this calls *disposal* activity.

Consumer responses divide to emotional, mental and behavioral responses. Accordingly, *emotional* responses are consumer's feelings, *mental* responses opinion about goods and services. At last the actions that consumer do during buying, use the products are *behavior* responses (Kardes Cronley & Cline 2010). For example: discussing the decision with someone or to search information about the product in the internet**.**

According to Solomon et al. (2006) consumer behavior "is the process that individuals purchase, use dispose the products to satisfy their desires". As we see, consumers are those people who are spending their resources to use different products or services. People are acting in different ways determining, thinking, evaluating to purchase the things and consume them to fulfill their needs**.** There are lots of explanations of the consumer behavior definition.

> "Consumer behavior represents the study of individuals and the activities that take place to satisfy their realized needs. That satisfaction comes from the processes used in selecting, securing, and using products or services when the benefits received from those processes meet or exceed consumers' expectations. In other words, when an individual realizes that he has a need, the psychological process starts the consumer decision process. Through this process, the individual sets out to find ways to fulfill the need he has identified. That process includes the individual's thoughts, feelings, and behavior. When the process is complete, the consumer is faced with the task of analyzing and digesting all the information, which determines the actions he will take to fulfill the need." (Lake, 2009)

If we will shorten and simplify this information consumer behavior is number of steps such as determining, making decision, purchasing and so on that individuals, persons, consumers have to pass in order to satisfy their needs.

Consumer behavior learns the actions of individuals when they try to get the services and products that organizations produce and offers them (Noel, 2009). The main point in consumption is decision. Consumer plays role of decision maker in this. So, the result of this decision is purchasing of product. Consumer behavior a group of these and related activities people do to cover their needs. Following this, individuals may make decisions by themselves or discussing it with someone else. It may differ from a case what consumer is buying (Al-jaraisy, 2008). If a man buys a pair of

shoes for himself and decides it himself it is individual decision making, while whole family discussing the model of car which they will buy for family it is collective decision making.

There are a lot of different reasons to study the consumer behavior. Number of persons are learning the consumer behavior. For instance, a marketer learning it to improve sales of organization, a student learns it in university, a designer learns it to create a better advertisement.

Moreover, consumer behavior help to increase the performance of business, effect the individuals, explains, simplify and helps customers to make decisions in their purchases (Khan, 2006). In order to improve a business performance companies, huge holdings learn consumer behavior. It is important to understand consumers, their buying, thinking, decision making processes and factors that impact their decisions in purchasing processes. This helps organizations to better understand their customers and people, how to market the available products to them. In addition, with the studying consumer behavior they know what to produce or develop for customers. They develop marketing strategies and plans in order to increase company's sales (Kardes, Cronley & Cline 2010).

According to Lake (2009) consumer behavior answers different questions which help organizations to better understand them. Mainly they are:

1. Why do consumers buy? There are various reasons that individuals make to buy. They may purchase one service or product in order to make better their life-style, to become a part of group that they want to be include or for their self-actualization.
2. What influences their buying behavior? Actually, number of internal and external factors exist that influence purchasing decisions. It can be emotions, personality, cultural belongings or something else that make consumer to purchase.

Consumer behavior gives you information about consumers, persons which is important to better understand them. By understanding them you can easily promote your products and improve your sales (Lake, 2009: Kardes Cronley & Cline 2010).

According to Khan (2006) the most important reason to study consumer behavior " *is the role that it plays in our lives*". We are discussing and talking about products, things, services get a lot of information through TV and internet which influence our life, decision and purchases (Khan, 2006).

Al-jaraisy (2008) stated that **c**onsumer behavior studies are important in terms of their effect on individuals, families and organizations. The benefit for individuals and families that consumer behavior helps them to evaluate the alternatives, make better decisions to cover their needs. Continuously, for organizations and marketers, consumer behavior helps them to better understand the consumers purchase behavior and attitudes.

### 2.2.3 Consumer buying decision

Decision is the action of choosing something between two or more alternatives. People make different decisions in everyday life, which changes their life in future. Now we will explain the simple model of consumer-related decision making (Khan, 2006).

1. Economic man model: The people that include to this kind of model are rational decision makers.
2. Passive man model: Unlike the economic man model, the consumers that belong to passive man model are irrational purchasers.
3. Cognitive Man Model: Consumer describes here like problem solver. So, consumer searching the information and evaluating it. When consumer finds sufficient information, he makes decision.

According to Hawkins & Mothersbaugh, (2010) the phrase consumer decision describes a person that rationally evaluating the services, products, brands which will satisfy his need with least cost. Moreover, in some cases the decisions made on brands style, price or characteristics, however sometimes consumers make decisions on emotions or feelings. And consumers purchase the products because it makes them feel good or other will like it.

> All decisions involve alternatives and values, and all decision processes involve problem structuring and evaluation. Yet there are many kinds of decisions. Most are easy, but many are both hard and important to get right. Decisions become hard when there are many values to think about at once and tradeoffs have to be made or when there are many possible futures to think about at once and uncertainty has to be weighed. Tools are available for problem structuring and evaluation that address both kinds of difficulty (Anderson, 2002).

In simple all decisions have alternatives and all decisions involve choice. We live in uncertain world and make a lot of decisions every day. When we make decision and

choose between alternatives, we reject the ones that we think it will not help us or will be bad, and choose the one that we believe it will be good.

Decision making divides to 2 steps: problem structuring and evaluation (Anderson, 2002)

1. *Problem structuring* consists from recognition of problem, alternatives, categorizing the alternatives.
2. *Evaluation* is measuring the alternatives and choosing the best one.

### 2.2.4 Types of consumer decisions

Every person makes different decisions every day. These decisions range from what to wear, where to go, what to buy, where to buy and so on. Accordingly, the making these decisions vary from easy to hard. Some of them are the same acting which we do every day, others important things. Therefore, we are able to differ and divide decision by characterizing the effort from low to high that consumers spend these decisions while they make (Al-jaraisy, 2008).

Following that, there are 3 types of consumer decision processes. They are: nominal (routine) decision making, limited decision making and extended decision making. All types consist from different stages that consumers pass through these stages when make purchases (Hawkins & Mothersbaugh, 2010; Al-jaraisy, 2008).

1. *Nominal decision making* (See Table 2.5) also calls habitual decision making. According to this type the consumer skip some of the stages in decision making when he does his usual purchasing. According to Hawkins & Mothersbaug (2010) nominal decision making process divides to 2 categories: Brand loyal purchases and Repeat purchases.

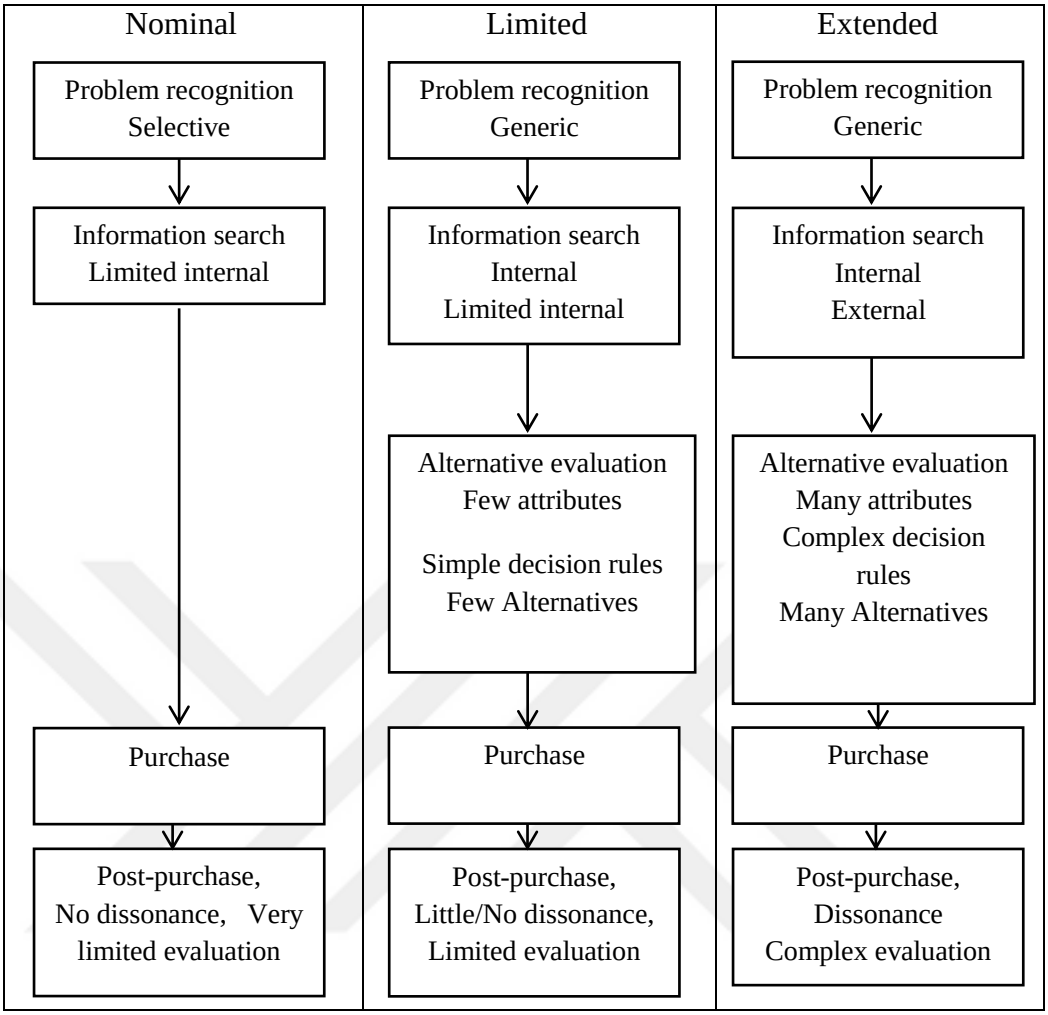
i) People who include to brand loyal purchases category are the persons that make the same buying in the same brand. It means that they have experience in purchasing in the same brand, so they loyal to this brand (Hawkins & Mothersbaugh, 2010). At least a person who makes purchasing in one brand and thinking that this product covers his needs and satisfies him, this makes him a loyal to brand. Accordingly, when companies increase the loyalty to services or product it makes harder for other organizations to involve customers purchase their products (Hawkins & Mothersbaugh, 2010).

ii) Repeat (routine) purchases are the same purchases we make often. The consumer makes his decisions in short time, because of routine shopping. In this shopping, the risk is extremely low and purchases are often cheap (Al-jaraisy, 2008; Khan, 2006). Moreover, everything is beginning with the determining of a need, then making the purchase. When you understand that this product satisfies your need you buy the same product when you need it. We can give an example for repeat purchases buying of newspaper every day.

2. *Limited decision making* (See Table 2.5). Compared with nominal decision making the buying decisions are more difficult in limited decision making because of unknown brands or services. In this type of decision making the consumer should act in a limited way (Al-jaraisy, 2008). Moreover, the consumer passes through decision making steps, however he does not have a lot of time to spend on each step. According to Khan (2006), compared with nominal decision making limited decision making takes a lot of time and the rate of risk higher. As we said before the risk in routine decision making is less but this factor is high in limited decision making. Limited decision making may occur with the help of situational and emotional needs (Hawkins & Mothersbaugh, 2010). For instance, one time you may decide to buy other toothpaste because you are bored with old one. Another example it may occur in the store when you like the appearance of the product.

3. *Extended decision making* (See Table 2.5). We mentioned that types of decision making processes divided according their complexity. So, the level of decision making complexity is extremely high in extended decision making. It depends on that people do not have enough information about the products that they are purchasing. According to Hawkins & Mothersbaugh (2010) it takes much more time to make decision in extended decision making processes. The new house, computer, car, different luxury or durable goods, jewelry are the products that people purchasing for the first time (Khan, 2006; Al-jaraisy, 2008). As consumers have limited experience in this it takes a long time to decide in product choosing. Accordingly, consumers pass through all levels in this type decision making and spend enough time in all steps for information search and evaluating. Also, the risk factor is extremely high here (Al-jaraisy, 2008).

**Table 2.5** Nominal, Limited, Extended Decision Making

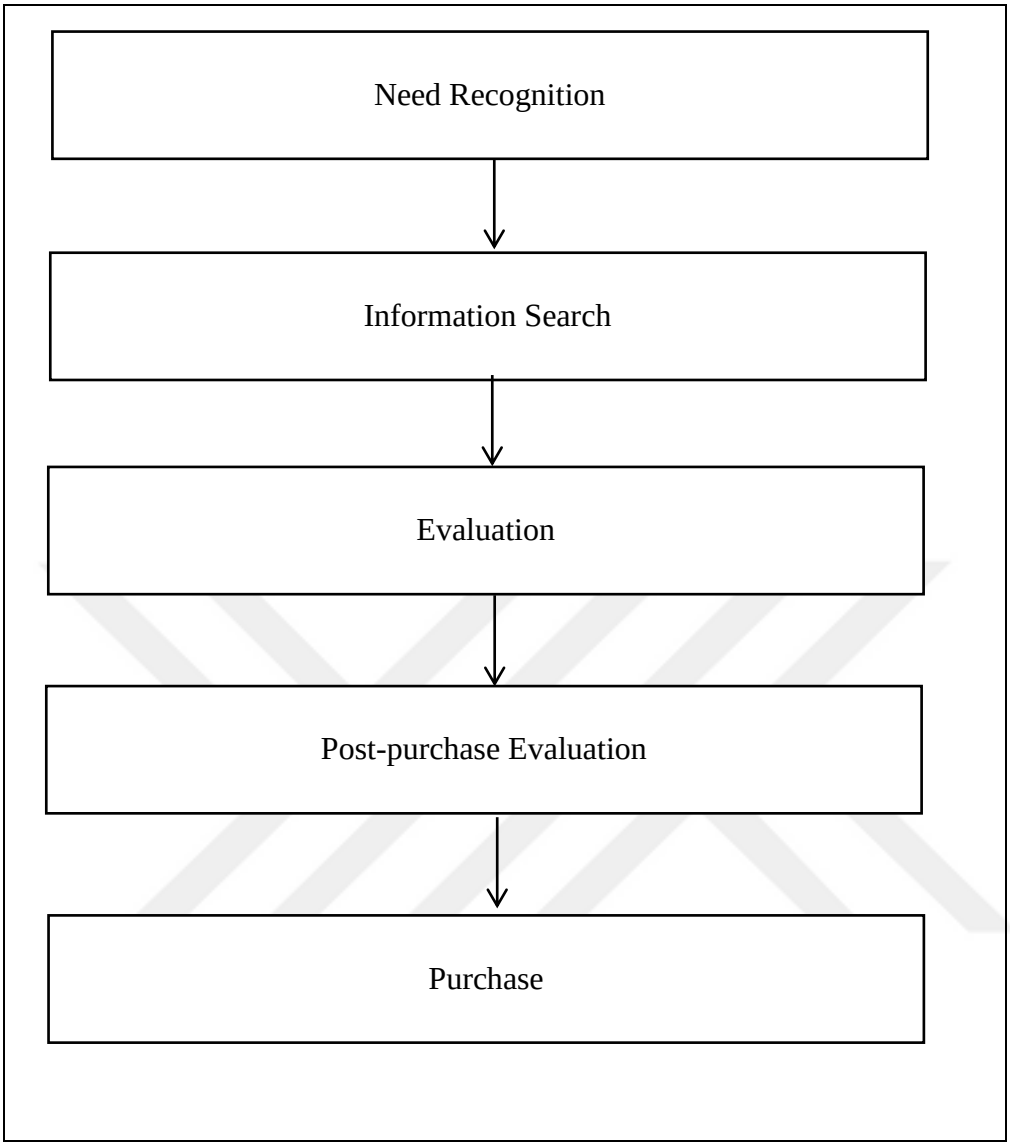



**Source:** Khan (2006)

### 2.2.5 Decision making process

Traditional decision making process consist from 5 stages. They are: Need/Problem recognition, Information search, Evaluation of alternatives, Purchasing, Post-purchasing behavior. Each consumer passes through each step when purchases something. The next picture shows the steps of traditional decision making process.

**Table 2.6** Decision making process




**Source:** Noel (2009)

Now let's explain every step of decision making more clearly.

1. Need/Problem recognition. This is the first step of traditional decision making. Problem recognition occurs when a person sees a significant difference between recognized and desired level or what is perceived and actual state. In other words, the individual understands the difference between the real situation and the situation that he wants to be (Kardes Cronley & Cline 2010). According to Khan (2006) the existence of consumption opens a way to problem recognition.

Al-jaraisy (2008) believes that needs, wants and opportunities are stimulating the consumer for problem recognition. Like a main aspect of problem recognition stimulus helps consumer to determine the need. Moreover, stimulus takes its source

from friends, neighbors and from other surroundings. Also, different advertisements, commercials are the source of stimulus. Our feelings such as: hunger, pain as well as included to this source.

According to Kardes, Cronley & Cline (2010) problem recognition can trigger in three ways. These are the consumer's needs, wants and opportunities. Need is psychological or physical feeling. Moreover, in need feeling the consumers actual and desired state are close together. Consumers can cover their needs with their actual state. Buying a gasoline for a car when it is finished an example for need. Want occurs when desired state above the actual state. Personality, culture, experiences of the consumers' influence their wants. Furthermore, if my friend has a new laptop, and I am going to buy like his laptop it is want. Opportunity, occurs when a person's ideal and actual state far from each other.

2. Information search. As the consumer defined the problem or his need the next step is the searching of the information about the product or service (Khan, 2006; Al-jaraisy, 2008). Moreover, the information may be limited or sufficient. There are many cases that consumers have a lot of information about the product which simplifies the evaluating process or in opposite the lack of information make difficult to take decisions in evaluating step. According to Al-jaraisy (2008) consumer can get information from different resources. They are:

a) Internal resources. These are the experiences that connected to consumer's past. We can say that consumer searching information that related his past experience. Moreover, consumer analyzes the information that he was dealing with the same need in the past.

b) Group resources. All social and personal resources are included to this section. People we know, our family, friends, classmates, colleges, and many others are example for this resource. This is the most effective purchase decision influencers.

c) Marketing resources. Another important source of information is marketing resources. All advertisements, sale boosters and other campaigns are included to this resource. Furthermore, these resources are made and prepared by companies, organizations in order to inform consumers.

d) Public resources. All mass media such as internet reviews, comments, newspaper articles or comments of product technician are included to this resource. This kind of information mainly related to product quality.

e) Experimental resources. In simple, it means the examining or testing the product during buying it.

3. Evaluation of alternatives. Once we searched the information and collected it now we should evaluate it and choose the needed one to us. So how it works let's see explanation. Evaluation of alternatives varies from product to product, as well as from consumer to consumer. Moreover, the main features that help the consumer in evaluating process is price, color, quality, safety, options, style, warranty, durability and other features of the product (Al-jaraisy, 2008; Lake, 2009).

According to Lake (2009), consumers use 3 forms of choosing process in evaluating process. These are:

a) Affective choice. This is emotional factor. We call it "it feels right". In addition, this factor does not depend on decision ruler, so when consumer purchases product he fells himself good.

b) Attitude-based choice. Consumer makes sure that product covers his needs, and chooses that one which looks better.

c) Attribute choice. Consumer checks all features and benefits of the product and chooses the best one which has got more features or benefits.

4. Purchasing. This is the choosing one alternative and making the purchase. In some cases, consumers select brand that make discount at purchasing time. Moreover, the purchase influences by different factors such as amount of information, limit or the friends, family members absence during purchasing (Al-jaraisy, 2008). In addition, the information provided by salesman is another strong factor. Sometimes finalizing one purchase opens way to another purchasing. For instance, when we buy laptop it can make us to buy printer, mouse or other gadgets for the laptop.

According to Lake (2009) the purchases divide to 2 categories:

i) High-involvement purchases such as buying a car, home. These purchases make people to think deeply, and evaluate alternatives

ii) Low-involvement purchases such as shampoo, water. People don't think a lot of on these decisions when buy these products.

The role of marketing in these purchases is significant. In high-involvement purchases marketers should provide more information about products and simplify the evaluation of alternatives for consumers.

5. Post-purchasing behavior. This is the final step of traditional decision making process. This step does not exist in low-involvement purchases, however in high-involvement purchases this stage take a lot of time for thinking (Lake, 2009). Consumer thinks if she made the right choice or not.

Lake (2009) stated that this step has got 3 outcomes.

a) Purchase is below expectation. The purchasing does not meet the expectation. Consumer is unhappy with this product. He can return or want you to change product as well. This situation may influence your company performance in bad way. So, the consumer may spread negative news about your product.

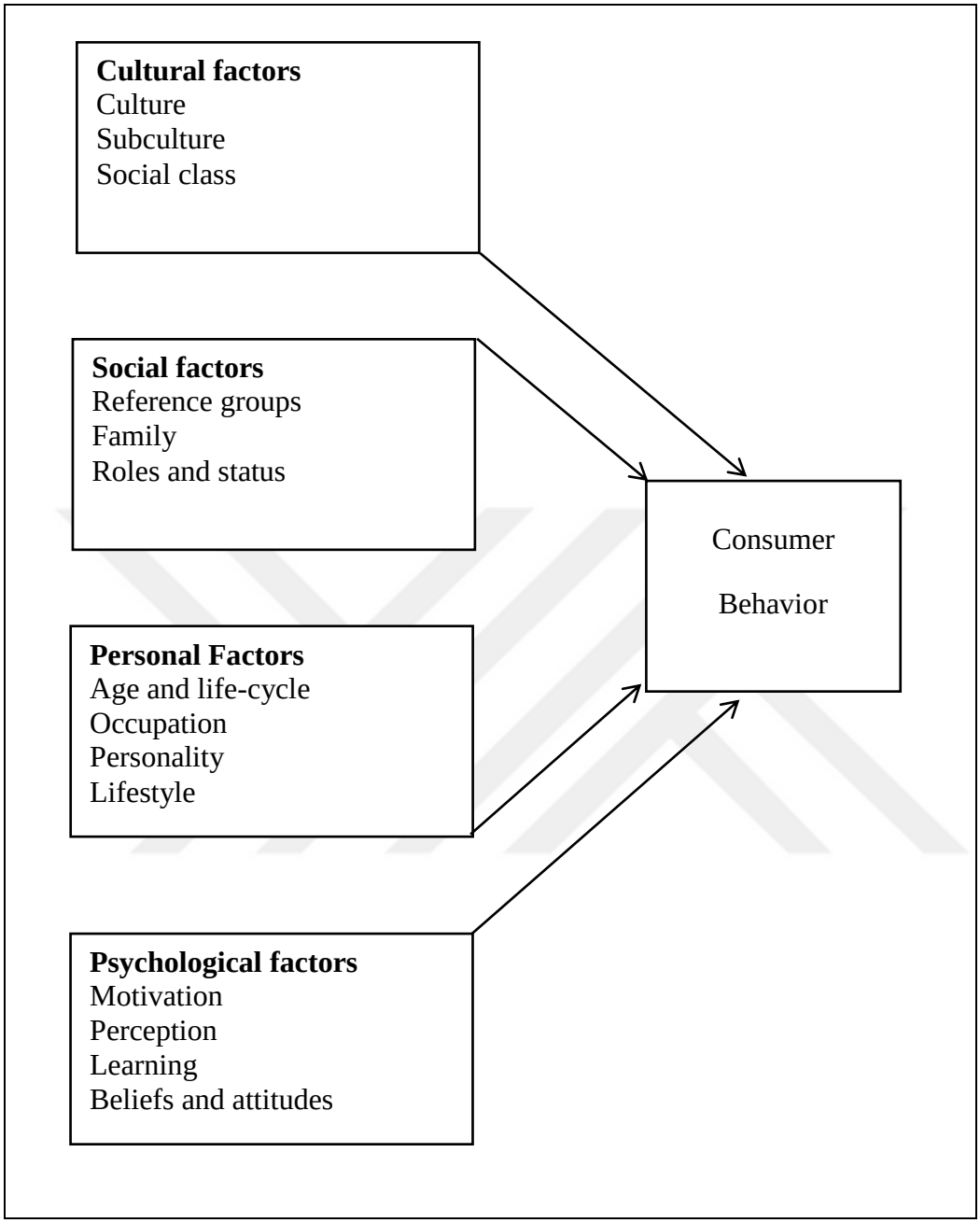
b) Purchase matches expectation. Here buying of product meet the expectations. But as salesman you will not hear anything form this customer.

c) Purchase exceeds expectations. Consumer finds the quality and features of the product extremely high. He sees that product meets his expectations. This is very good for business too. Such kind of consumers may bring a lot of customers to you. Or he will make buying again from your company

### 2.2.6 Factors effecting consumer's buying decision

Consumer buying decision is effected by internal and external factor. Therefore, it is very necessary for marketers to learn this factors in order to know how consumers act when purchasing, and what makes them to change decisions. Marketers say that there are 4 main factors that influence consumers behavior. They are sosial factors, cultural factors, psychological factors and personal factors.

**Table 2.7** Factors influencing consumer behavior




**Source:** Khan, (2006)

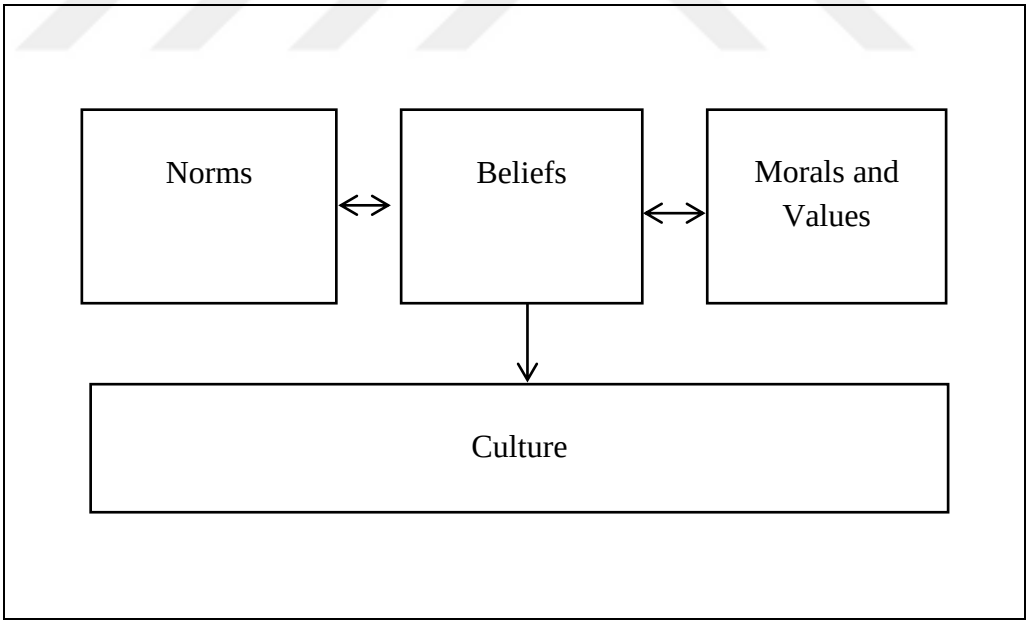
The table below shows us the main 4 factors that have effect on consumer behavior. Moreover, cultural and social factors are external but personal and psychological factors are internal factors that influence individual's buying behavior. Each heading divides to subheadings.

### 2.2.6.1 Cultural factors

One of the 4 main factors which influence buyer behavior is cultural factor. This is the essential external effect on individual's wants and needs (Durmaz, 2014). Furthermore, culture is the all-including strength which forms of person's personality. In other words, culture influences the consumer's behavior, as well as effects person's purchases. According to Lake (2009) while the marketers and organizations know the culture of their customers it will better and easy to serve them, and effect their purchases.

Goodrich and Mooij (2013) stated that culture is the sum of norms and standards. So, a person should have some standards to participate in any culture. Culture is main aspect to learn in order to know the consumer well. An individual must follow and obey these standards in order to support the value and rules of culture. From this point of view in buying processes the consumer has to appraise if the product or service fits the beliefs of his culture or not (Lake, 2009).

**Table 2.8** What creates the culture




**Source:** Lake, (2009)

The table explains us that the culture consists from norms, beliefs and standards, values.

The rules that people obey and accept are the norms, as well as the things which they believe are their beliefs. This means gathered together these aspects form their culture (Lake, 2009)

According to Al-jaraisy (2008) the definition of culture is a mix of symbols and relics that forms the person's behavior. Apart from that shopping and the purchasing acts that consumers do also influenced by consumer's culture.

Cultures and their values develop the norms. Huge percentage of people obey these standards, however some of them don't obey these rules and get punished. Furthermore, culture changes every day and every year. Globalization and improving technology makes it to adapt them. According to Kacen & Lee (2002) if the organization sets goal to become a leader in market it should design and produce goods according to the culture of the country where it sells products. Huge companies change, cancel or renew some kind of products because of the culture of countries that they make sales. Sometimes the same product of the company may bring a lot of profit in one country while it will not make the same profit in other country because of the difference in the culture (Khan, 2006).

Cultural values differ from country to country. Kotler says that kids that grow in different countries have different view to worlds, different line of vision. Beside this, they have got various rituals, achievements and so on (Kotler & Keller, 2011).

Cultures divide to subcultures. Durmaz, Celik, Oruc (2011) stated that subculture is the second main concept must be learned in order to analyze consumers. According to Talloo (2008) subcultures include different groups such as religion, racial or geographic. Different nationalities also include to subcultures. The values, rules, standards as well as religions related together create nationalities. Organizations and marketers are using particular features to learn these groups and better market their services. It is very important to better know the customer because when they make purchases and choose the products and services, they are more likely to consume the product which suits their group, ethnicity. Of course, the three different Hispanic, Asian and African consumers will have various identity. Also, the brands, products will bound to their identities in purchasing acts.

Another aspect that makes people to create subculture is their religion. There are different religions in the world. They provide people with feelings, beliefs.

Moreover, in some religions consuming of some products are restricted or not acceptable, while in other religions it is normal. To simplify this point of view Islam will be good example. Most people know that consuming of pork and alcohol is prohibited for Muslims. As we said that religion gives to people beliefs, in this religion people accept the rules that their book provides them, and they obey them. It does not allow them the using or drinking of alcohol. In other religion that called Buddhism the using of meat is prohibited. So, they consume meat in some circumstances. So above mentioned things will help the marketers to make creative messages to their customers. So, they will not do any mistake like to market meat for Buddhists. Age and gender another subculture which impacts consumer behavior (Lake, 2009).

Cultures include subgroups or we can say subcultures. Geographic area also segment culture into subcultures. Today we have Asian, European, African and so on cultures which subdivide to different little groups or nations. Moreover, they have own beliefs, values, life styles. Kotler & Keller, (2011) stated that when subgroups grow and get bigger marketers consider them and begin to produce specified products and services in order to satisfy their needs and at the same time to increase profit of the organizations.

Nowadays society divides to various social classes which is the subgroup of culture. Dividing the society to social classes means the sorting them to social scale by their income, lifestyle, economic situation, education and etc. Furthermore, the people that get in the same social class have similar interest or viewpoint (Al-jaraisy, 2008).

According to Al-jaraisy (2008) social classes have got some characteristics:

1. The people in the same social classes are look like in their acting and behaving. As well as they tend to buy similar services, goods.

2. The main points are the salary, educations, place that people consider in evaluation process when segmenting people to social classes.

3. Geographical places such as place of birth or resident place also one aspect to separate people social classes.

4. People or in other word consumers who belongs the same social classes show similar consumption behavior in purchasing period.

5. Persons who are in various social classes have diverse reactions and feedback to the similar marketing advertisings.

Kotler & Keller (2011) stated that people in USA divided to 7 levels. They are:

1. Lower lowers
2. Upper lowers
3. Working class
4. Middle class
5. Upper middles
6. Lower uppers
7. Upper uppers

In simple, the members of these different classes have different preferences in buying behavior. They choose to read or watch different media or television channels as well as programs. While lower class spent time to television, upper class takes time with reading books or magazines.

However, Al-jaraisy (2008) believes that in general people grouped in 3 main social classes. Following they are upper class, middle class and lower class.

1. The rich families, people, professional persons and celebrities or wealth families are included to upper class

2. Middle class. People in this group are established of medium or intermediate companies. Businessmen also included to this class. These people take higher place in middle class. On the other hand, university teachers, office workers and similar persons take a lower part in middle class. In order to reach and enter high classes they try hard and take risks.

3. Lower class (Working class). Here people who are skilled personnel, laborer or unemployed people. Income is lower in this class to. However, in some persons such as craftsmen in this class can earn more money than managers but it does not say that they are include to upper class. These two persons may earn the same money or salary but the education that they have, will differ them to separate social classes.

### 2.2.6.2 Social factors

Another factor that affects persons in buying decisions is social factors. Reference groups, family as well as roles and status are important subheadings of social factors.

According to Hawkins & Mothersbaugh, (2010) we should differ the term of group and reference group. So, if we simplify the word group, it is a number of persons that have common norms, beliefs, values which defined the relations between them. On the other hand reference group is a group which helps a person to behave in a right way in a needed situation. Khan, (2006) also stated that group consists from some persons. And they have own rules between group. However, in his explanation reference group is the sum of individuals who affect you in purchasing behavior. They are able to influence your buying decisions. Reference group include family, friends, coworkers, colleges. These people influence people when they make purchases, helping them in selecting the goods, services. According to Al-jeraisy, (2008) we can define a reference group like persons with common rules which impact people in purchasing period. Moreover, reference groups may be like big society or small group like individual's family. Furthermore, the family is one of the most powerful group which is able to effect person's buying actions. It is obvious that family influence an individual's behavior in many choices. According to Khan, (2006) reference groups divide to four categories. They are:

Normative groups. In this group, the members should obey the norms. So, there are some rules that people should obey them. Or the member will get punished. In other words, this group is influencing the behavior of the member, what to buy, how to wear. Moreover, there are some invisible rules in this groups such as: which perfume to use.

Comparative reference group. The person often compares himself with the other members of the group. So, they want to find out if other members support their idea and attitudes.

Dissociative group. Sometimes individuals don't want to be identified by a group. In that cases they strive to dissociate from that crowd. Sometimes individuals act in such manner in order to reach and enter the higher social class. So, they begin not to buy the same items, brands or use the same services from dissociative group.

Status reference group. There are some cases that individuals refer to the other person's situation in the group. So, such individuals want to catch the same status like their aspirational person in the group.

In short, reference group has powerful impact on consumer behavior and purchasing decisions. Moreover, people discuss their purchases, what they like or suggest to each other the products which is the main impact in buying behavior.

Mirzaei & Ruzdar, (2010) defined that family members, social organizations, professional institutions all include to reference groups. Moreover, these groups impact the behavior of the people. According to Schiffman & Kanuk (2009) shopping groups, virtual groups, friendship groups are the different kinds of social groups. Internet groups such as: Facebook, Twitter, LinkedIn or Google+ are also social groups (Cetină, Munthiu, & Rădulescu, 2012). Kotler & Armstrong, (2008) stated that there are 3 main ways that reference groups affect the individual. First of all, an individual meets the new lifestyle, then the new beliefs, ideas, thinks that influenced the person will change the reference group. At last the condition that formulated as the result will affect the purchasing decisions.

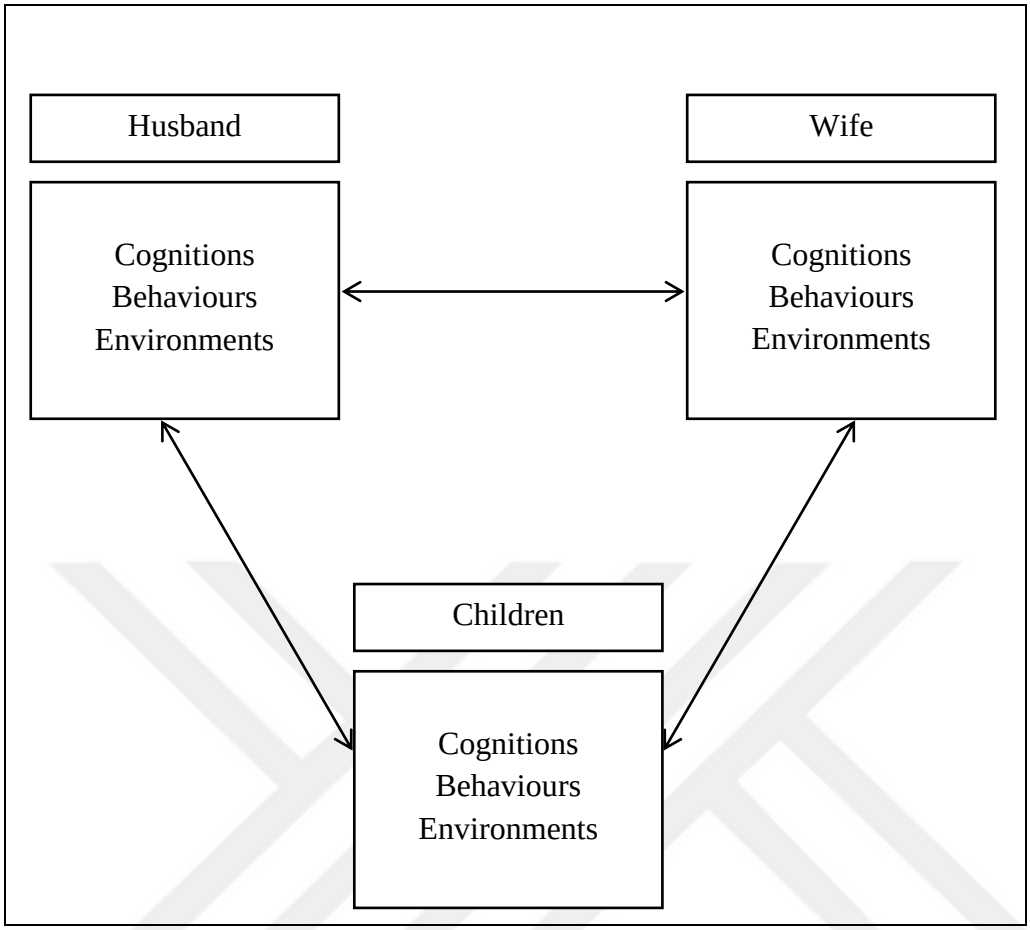
Some groups have got direct impact on individuals. Such type groups are membership groups. It means if we have continuous interaction with any group it is the membership group for us. In addition, the neighbors, classmates, coworkers are our membership group (Al-Azzam, 2014). According to Peter & Olson, (2009) the members of reference groups can be from the same or other culture, social class. There are some individuals that are more skilled or have got more knowledge. People that have got special skills often become the opinion leaders in these groups. Organizations, companies try to access the opinion leaders and market their brands, products by direct marketing.

Family is the second main social factor which affects consumer's purchase decisions. According to Khan, (2006) the family is people living together who related with each other with marriage. Family is a social group in which members satisfy their own or common needs with the given resources. Al-jeraisy, (2008) believe that a family is a human organization. Moreover, a family is a set of people who live with each other and using common resource. According to Al-Azzam, (2014) family is the most strong power which affect the individual's purchasing behavior. On the basis the family is a primitive form of reference group (Mirzaei & Ruzdar, 2010; Al-Azzam, 2014; ). Every individual can get a family in 2 ways. So accordingly, a person is born in a family and become a part of it. Here individual grows under pressure of his parents and take the economic, environmental religion views of his parents. Al-

jeraisy (2008) believes that when the child is grown by parents they explain family value and beliefs to him, which he should obey. The second way is to get marry and create own family. Here the person get affected from the children, wife side (Al-Azzam, 2014). Marriage family has got more impact on buying behavior. As well as, this type of family involves much consumption of different kinds of products. To give an example we can say furniture, car, kitchen equipment and etc. (Al-jeraisy, 2008). According to Abraham (2011) there is a difference between family and reference group. Furthermore, family members should gratify the needs of entire family members with the help of fixed money. Apart from that, family impacts the members characteristics, beliefs, aims even the opinion when individual makes in buying processes. Some of family members or all of them always, discuss and make decisions when they need something to buy. All the members have got specific role in buying behavior. Sometimes children are decisions maker in buying process, especially when buying little things. However, the wife and husband take the decision responsibility when the expensive good are purchasing. The decision making responsibility differs according to the purchasing item or type.

According to Khan, (2006) family members influence each other, even they are affected by others. Moreover, the table below illustrates the reciprocal factors which affect family members.

**Table 2.9** The reciprocal influence of family members




**Source:** Khan (2006)

It is obvious that each person participates in different groups such as organizations, conversation clubs, classes, friends and etc. Marketers can understand the needs of groups by learning individual's role and status in a group (Ramya & Mohamed Ali, 2016). According to Kotler & Keller, (2012) role is the sum of activities that an individual does. Moreover, a person's role carries his status. For example, a teen has got a role of a son between his parents, but at the same time he is a student when participate in classes. Or a woman may be at the same time a wife of her husband, a daughter of her parents and the sales manager at work. Every role has got specific purchasing behavior. According to Mirzaei & Ruzdar (2010) each role has own dignity. This is the respect that the people have toward this role. Normally, people chose and purchase the goods which reflect their role and status.

### 2.2.6.3 Personal factors

One of the strong factor that affect consumers' decisions when people make purchases are personal factors. As we know people are different, so they have

different characteristics, thinking style. Moreover, people make decisions and evaluate alternatives according their characteristics or thought. Personal factors influence individual's decisions. Sometimes something may be very valuable for us, however it can be nothing for others. It depends on personality.

According to Sarker, Bose, Palit, & Haque (2013) the main personal factor which impact consumers purchase behavior are: age, personality, economic situation, lifestyle. To give an example, a manager in one company buys and wears branded clothes, while a normal worker buys cheap ones and don't care about brands. Or young and old people wear in different styles. Furthermore, it depends on their feature of think, interests, age, lifestyle and other personal factors.

Khan (2006) believes that personality is person's psychological characteristics that reflect person's opinion about everything that surrounds him. Hence, these psychological characteristics differs individuals from other persons. In addition to this, each individual has got specific personality, that affect persons thinks, decisions and purchasing choices. Therefore, it is important for marketers to learn people personality through consumer behavior, in order to create marketing strategies which will increase organization's income.

According to Tanner & Raymond (1944) a person's disposition, helps to understand why individuals are various. Moreover, the researchers say that the connection among personality and purchasing behavior in confused. Even they stated that people who are open minded or openness, are reacting well to different advertisements which contain graphic.

Abdu & Purwanto (2013) stated that personality is the individual's character which explains itself by person's reacting to the thing that surround and happen to him. There is one point of view that brands have personalities. According to this, each person will choses the brand which suits his or her personality.

Personality very important concept because it helps to divide consumers in groups properly their psychological characteristics. Marketers can't change people's personality, so they learn them by dividing to these segments, and target these persons to market their products better (Sarker et al., 2013).

According to Sarker et al. (2013) the main thing that marketing learns is why people do what they do actually. It is important to marketers because if they learn

consumer's purchasing behavior, they will know what consumer wants and they can affect the decision of customer.

Every person has different wants according to their age. Individuals purchase a lot of products, services and their age, ife style influence these purchases. Furthermore, the tastes, choices and desires change with the changing of age (Ramya & Mohamed Ali, 2016). According to Fratu (2011) age is powerful discriminator of consumer behavior. Anyway, young and old people don't have the same tastes. Apart from that, teens, younger people are more like to spend money compared with old people.

According to Al-jeraisy (2008) age range divides to 3 stages.

1. Youth stage. 25 to 34 age people. They take more risk and seek independence. Fashion is important for them that product quality.
2. Maturity stage. People from 35 to 54 ages. People in this age care about their family, therefore it influences their consumption. They are more experienced in their work. They like to buy products with high quality.
3. Advanced stage. Here is included the individuals from age 55. They are not interested in new products, innovations. Their experience is important for them. They are more likely to give advice to others. They think about comfort.

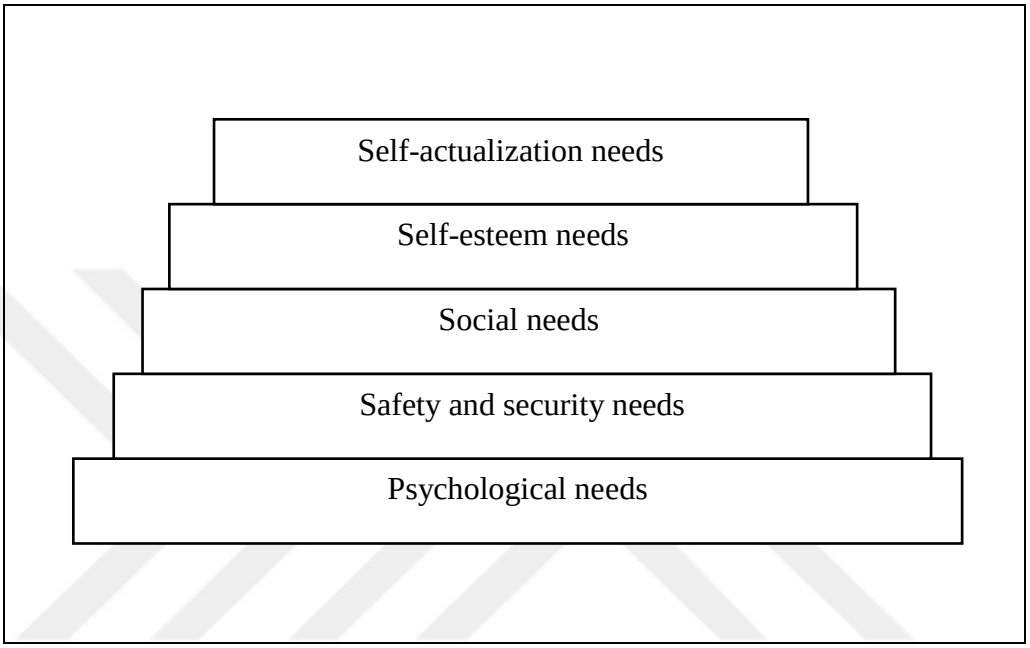
Moreover, income, education, occupation and other personal factors influence buying behavior.

#### 2.2.6.4 Psychological factors

The major psychological factors that influence person's purchasing decisions, choices are motivation, perception, learning, beliefs and attitudes. Purchasing of one service or good depends on how individual perceives it, if something motivates to buy it (Khaniwale, 2015). According to Hemanth & Shruthi (2013) marketers don't have enough control over these factors, that's why they take a significant attention on psychological factors. According to Hawkins & Mothersbaugh (2010) motivation is the reason for behavior. Moreover motivation is the answer why and individual act in a specific manner. Solomon, Bamossy, Askegaard, & Hogg (2006) stated that motivation occurs when need is determined. When need is determined and activated a consumer strive to act in a particular way in order to reduce the need. According to Al-jeraisy (2008) motivation is an energy which stimulate an individual to do some acts in order to achieve targeted objective. Furthermore, motivation is an internal

strength which makes a subject to do something to cover his desires and needs. Motivation is the person's internal wants. The main popular approach that we have about motivation was founded by Abraham Maslow. It is "Maslow's hierarchy of needs". Furthermore, he classified the needs which individuals determine in their life.

**Table 2.10** Maslow's hierarchy of needs




**Source:** Kotler & Keller (2012)

The table above shows the Maslow's hierarchy of needs. Khan (2006) classified table below:

1. Psychological needs. Water, oxygen, food, sleep. Products to eat, medicine, products to drink, house.
2. Safety needs. Shelter for security and safety, security of family, employment, health. Different products like gun, insurance.
3. Social needs. Friendship, love, relationship, group acceptance, to be loved. Jewelry products, fashion clothes, cosmetics products.
4. Esteem needs. Achievement, desire for status, reputation, prestige. Products like furniture, car.
5. Self-actualization needs. Self-development of person's himself. Desire for self- fulfilment. Products such as art, sport, vacations.

Another psychological factor that influences consumer behavior is perception. Perception is the way how people see and perceive the environment, acts and other

things. We are using our sense organs to perceive these things. According to Khaniwale (2015) perception is the process by which a person find and analyze the information for using it. Two different persons can watch the same advertisement and perceive it in different ways. Because individuals get and perceive the news, information according to their values, needs. Moreover, according to Durmaz (2014) perception is the energy that gives us information about whole world and this information comes to our brain through sensing process. People see and understand the world and everything in different ways. Furthermore, no one feel and see anything in 100%.

Learning is the following subheading of psychological factors. People learn from their past experience, from another people. They use the information they learned in their purchasing behavior. In addition, people gather the information from different sources and use it when make decisions (Khaniwale, 2015). According to Khan (2006) if an individual is going to buy a product he tries to gather information and learn about it. If a person wants to purchase a car, he searches information and learn everything about car.

Attitude is person's feelings, thinks, idea about something. It is hard to change one person's attitude about something. According to Khaniwale (2015) people have various attitudes and beliefs about goods and services. Moreover, the brand image forms from these attitudes, which influence the final purchasing decision.

## 2.3 Color and Shape in Marketing

### 2.3.1 Psychology of color

It is not doubt that colors have got a significant role in attracting people to products. Furthermore, while warm colors attracting individuals and strive consumers to purchase the items, the role of cool colors is helping people in decision making process. Lots of companies and organizations use colors in their products and logo (Kaushik, 2011). Color a part of our everyday life. According to Naz & Epps (2004) colors have got a powerful affect in our emotions and feeling. To give an example red color associated with excitement or blue color associated with comfort and etc. In other words, some of colors are expressing more feelings or one emotion is able to associate with different colors at the same time.

According to Unal (2015) color psychology is how our brain understands the color. It is not the same with color symbolism. Color symbolism is something about cultural meaning of colors. Moreover, it is about how our ancients describe colors and what means colors in their though. However, color psychology is something another. Perception of color on a person depends on his mood. For instance, the gray sky may affect our psychology variously. If in warm summer the sky will get gray it will influence us negative, however, the same gray sky will have positive effect on us if everywhere will be covered with white snow.

We live in a world of color. Technological development as well as the growth in TV, phone and different gadgets hastened the influence of color on human psychology. Color helps to increase individual's arousal. It was found that warm colors like yellow or red can increase human's arousal than cool colors such as blue or green. According to a survey which were done by Greene, Bell, & Boyer (1983) warm colors increase arousal while cool colors do opposite. Number of people participated in this survey. They were in a little room which was colored with ten different colors. Following this, people were given a task to measure boredom. As the result, they found warm colors effecting human arousal more that cool colors. Moreover, number of scientists accepted that arousal can increase the memory (Roozendaal, 2002). According to Lynnay (2007), if color increase arousal and arousal is able to increase memory, then it means color has impact on memory.

Unal (2015), stated that color tricks used by people, who is expert in color psychology. For instance, when a person goes in a place, does the color in a room affect him. Obviously yes, because the atmosphere there impacts the human brain and a person get in that atmosphere. So, the interior architects use different color in a little place to make people feel themselves in big and deeper places.

### 2.3.2 Color in marketing

Colors have got specific meanings and these meanings play role in communicating with people. Moreover, consumers have various color choices for specific product. If consumer thinks that one color suits certain product it does not says that it is the consumers's favorite color (Amsteus, Al-shaaban, & Wallin, 2015). According to Grossman & Wisenblit (1999) organizations can't choose the color for goods, which is the consumers' favorite colors.

Colors have significant meanings and can affect consumers' behavior. According to Labrecque, Patrick, & Milne (2013), historically for all people, religions color were used to differenciate the items, objects. For instance, govermental persons uses color to signify the social roles and statuses. Marketers are using color in different promotions, logotypes or in desining package and stores. Moreover, this helps them to capture consumers' attentions and to differ brands from other company products. According to Lightfoot & Gerstman (1998), color is the main element of brand. It is the visual equity of product. Rawsthorn (2010), stated that color is the key which helps goods, items to be more attractive.

Amsteus et al. (2015) believe that color is influential design element. In other words, the colors on product packages help to catch the attention of consumers. The other feature that color has is helping the consumers to differ the products to their competitiors and creating thinks about goods (Grossman & Wisenblit, 1999). Furthermore, color has powerful impact on creating brand image which impacts the person's decision.

### 2.3.3 Meaning of colors

It is not doubt that human perception is influences by color every day. Color is the major aspect which affects individual's interactions. Colors are not only visible features of a product but also they evoke emotions in human mind (Nehzad & Kavehnehzad, 2013). According to Valdez & Mehrabian (1994) colors can be classified by brightness, saturation and hue. Depending on hue, colors distinguished in cool and warm colors. Furthermore, lightness and darkness of color is the feature of brightness of colors. Saturation expresses the purity of color.

Normally it is accepted that, lighter and bright colors related with positive feelings. According to Camgöz, Yener, & Güvenç (2004) darker colors associated with negative feelings.

Madden, Hewett, & Roth (2000) believe that color is an essential part of goods, logos and other things which creates the image of brand. Color affects human psychology, as well as human behavior. Ward (1995), instead of change the workplace asked to repaint the walls with the needed color in order to lower workers stress.

According to Wexner (1954), the color red associated impressing-stimulating, orange color with sad-disturbing, blue color calm, purple with noble- stately, yellow fun and happy, black with strong and powerful.

Cimbalo, Beck, & Sendziak (1978), conducted a survey between collage and primary student about color association. The results of survey for both groups were the same. They agreed that orange, blue and yellow are happy colors and black, brown and red are upset and sad colors

According to Aslam (2006) the association of colors and their symbolism differs from culture to culture. For example: Blue is associated with cold in East Asia, however it is accepted like warm in Holland. However, it means death in Iran. The blue color stands for good quality in U.S., S. Korea, Japan. Red represents negative in Germany and in some African Republics, however it is associated with lucky in Romania, Argentina and China. Some countries like India think red is ambition, but it perceived like love in Japan, America, China. Yellow symbolizes with infidelity in France, but American people accept yellow color like warmth. Accordingly, yellow is considered envy in Russia, happy in Japan, progressive and pleasant in China. Green symbolizes with danger in Malaysia. Moreover, it denotes love, optimism in Japan, however it associates with jealous in U.S. and Belgium. Purple represents anger in Poland and Mexico, fear in Japan. In addition to this, it is love in America and China. Black is associated with sadness in western cultures, fear in Japan, Poland. White represents death in Asia and Japan, however it symbolizes joyful and happiness in New Zealand.

### 2.3.4 Color and shape in consumer behavior

Color has got great influence on visual attributes, recognition of objects. It is obvious that color of product influences the choice of individuals and brand image. Color creates positive and negative thought about products. The perception of colors by consumers, customers and whole world people differs according their gender, religion, culture and ethnicity. The color choice of individuals is learned behavior and changes year by year. It is not doubt that blue is a lovely color of each gender (Akcay, 2012).

There is not a doubt that color can help attract people's attention. As well as, people often spot colorful things. The main reason that we choose these items is their

colorful appearance, which makes them easy detected by our memory. However, there are some cases that using color to catch customer's attention can be hard. It depends on surroundings, where the item is placed to sell. For instance, if we will place a bright green display TV among other the same products that have got the same colorful appearance will make difficult to be noticed our product (Jansson-Boyd, 2010).

According to Bagchi & Cheema (2013), there is a few research about influence of color on consumer behavior. Bellizzi & Hite (1992) stated that red induces more negative outcomes compared with blue. In addition, red decreases buying intense, increases buying postpones and decreases information search. However, blue does opposite. According to authors, the color red is more attractive and arousing compared with blue color, however blue has got more positive values like calm and cool. Furthermore, these values influence consumers perception and behaviors favorable.

According to Jansson-Boyd (2010) there are some findings that, explain marketers how color can be used in order to catch consumers attentions. For instance, there are some basic colors (red, green, blue, yellow and etc.) that can easily identify in different environments.

The researches show that the visual appearance of a goods and products is able to impact the individuals' purchasing decisions and product choices. In other words, it was proven that the shape of a product attracts the consumers' attention and influences their decision making. When customers searching for a product among the brands, they take in account the shape of a product and its appearance too. Sometimes the design of a product affects the person's preference. According to Ricardo (2008), the design of product has got a great influence on consumers' first impression about the brand.

## 3. RESEARCH METODOLOGY AND HYPOTHESIS

Globalizing technology serve us and facilitate our life. Therefore, mobile devices is one of the main part of our everyday life. People want to manage different tasks by using various applications in this devices. Different parameters of these devices such as: being portable or their strong batteries, touchscreeen displays and etc. make them easy using for us. Mobile devices have got significant operating systems. Moreover, recent days the famous operating systems are IOS and Android. Nowadays a huge percentage of world people use mobile technologies and their applications. People are able to solve different problems by using applications. Today applications available in different sectors such as tourism, entertainment, banking, sport, gaming, internet browsing and etc.

### 3.1 Research Metodology

This thesis consists of 2 parts. The first part is literature review while the second part is the survey based on questionnaire. Researcher made survey in order to test the predetermined hypothesistes which took part in this section of research. The survey questions divided to three parts. The first part is about demografic questions. Continuously, the questions in the second and third part is about color and shape (design) of application's logo.

#### 3.1.1 Aim and objectives

The topic of the research is "the effect of color and shape of application logo on online application buying bahavior of university students". The main aim of this research is to find out whether application's logo color and shape effects the university students in online application buying behaviours. And does this influence differ according to gender, age, educational status and applications store preference variables.

The first thing in research is defining population. Population is the totality of the same featured people. Maybe it seems too easy to define universe, however it is one

of the hard thing to do in sampling(Smith & Albaum, 2005). The universe of this study is university students in Istanbul city. When the population is defined the researcher shoud define if he will conduct the survey between all representatives of universe or some of them. As this research's population is about 1500,000 people(approximately number of university students in Istanbul), considering the size of universe researcher chose using sample. It is the faster and cheaper way of collecting information. Sampling is choosing a few part of the population to do a survey in order to investigate the whole population. There are some ways of sampling. The way that researcher chose is convenience sampling. It is the non-random sampling choosing the people that is easiest to recruit. The convenience sampling method is the easy, simple, fast and inexpensive.

The second thing is defining of the sample size. By putting the variables on the formula and calculating it, sample size is defined 271 people with the level of confidence 90% and 5% allowable error.

Our target is university students so this research will explore buying behaviours of university students. To find the impact of color as well as the effect of shape on students' purchasing choises, to identify what influence them to change or make buying decisions, to analyze if this influence differs by age, gender, marital, educational status or other demografic questions.

Contuniously the main objectives of this research will be:

- To find out if the color of application logo has impact on buying behavior
- To identify the role of shape (design) of application logo on buying behavior

### 3.1.2 Data collection

Data collection is important part of research. There were 2 ways of data collection in this research. The first and main data were collected by prepared questionnaire without having the answers in advance. The prepared questionnaire consists of 25 questions. First 7 of the are demographic questions which gather informatin about gender, age, education, income, applicant's favorite color, marital status and application store use. Furthermore, the rest 18 questions are likert scale questions which measure the influence of color and design on respondent's buying decisions. Distribution of questionnaires and data collection procedured face to face with

students. The questionnaire prepared by analyzing and using different scales from master theses and dissertations.

The universe of the research is Istanbul city. Data collection procedure took part in Istanbul Aydin University between university students. The secondary data was collected by using books, articles, journals, researches, internet resources. Collected data analyzed with the help of SPSS 21 program.

### 3.1.3 Hypothesis

The aim of the study is to find out if the color and shape of mobile application logo has impact on university students who buy these applications. Therefore continiously these are 8 main hypotheses:

$H_1$: The effect of application's logo color differs according to gender on buying decisions.

$H_2$: The effect of application's logo color differs according to age on buying decisions.

$H_3$: The effect of application's logo color differs according to education on buying decisions.

$H_4$: The effect of application's logo color differs according to application store preferences of students on buying desicions.

$H_5$: The effect of application's logo design differs according to gender on buying decisions.

$H_6$: The effect of application's logo design differs according to age on buying decisions.

$H_7$: The effect of application's logo design differs according to education on buying decisions.

$H_8$: The effect of application's logo design differs according to application store preferences of students on buying desicions.

## 3.2 Research Findings and Analysis

### 3.2.1 Reliability analysis

In order to calculate the reliabilty of our collected data the cronbach's alpha reliability test were used. The coefficent of the cronbach alpha ranges between 0 and 1. In social sciences normally the coefficent should be above the point 0.7. If the

coefficent of cronbach's alpha closer to 1, it means the reliability of data higher. The given table below shows the reliability coefficients of our data.

**Table 3.11** Cronbach's Alpha Reliability Test

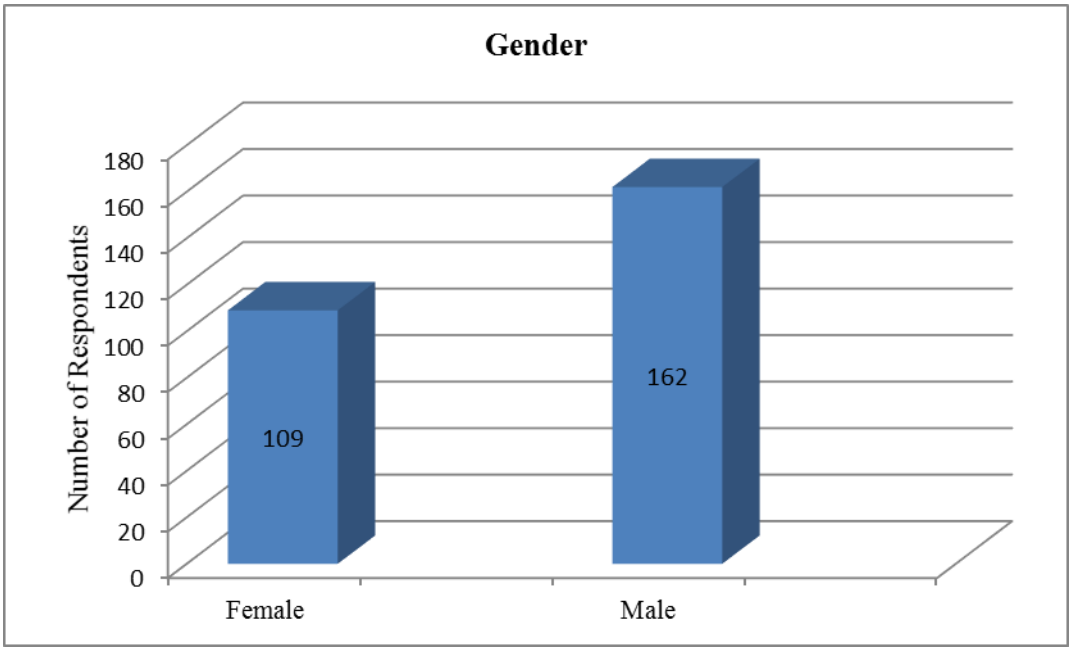
| | Number of variables | Cronbach Alpha |
|---|---|---|
| Coefficent color related variables | 9 | 0.861 |
| Coefficent design related variables | 9 | 0.900 |
| Total | 18 | 0.926 |

It is obvious from the table that all coefficients are higher that needed range 0.7 and the data is reliable according the cronbach's alpha test.

### 3.2.2 Demographic characteristics of the responses

**Table 3.12** Gender

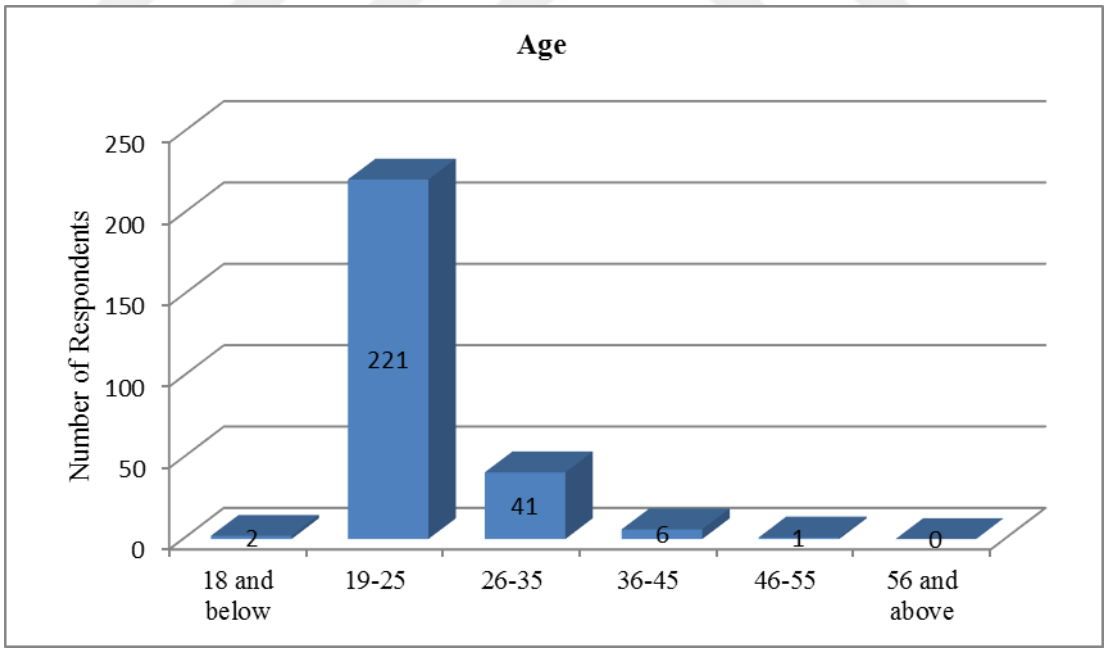
| Gender | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Female | 109 | 40.2 | 40.2 | 40.2 |
| Male | 162 | 59.8 | 59.8 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |



This research questionnaire was surveyed between 271 respondents. The first demographic question was gender. It is obvious from the table that most of the respondents were males. The number of them are 162 persons which occupies 59.8 percent of whole respondents. However, females are only 109 persons. The 40.2 percent of all people are females who answered the survey.

**Table 3.13** Age

| Age | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| 18 and below | 2 | 0.7 | 0.7 | 0.7 |
| 19-25 | 221 | 81.5 | 81.5 | 82.3 |
| 26-35 | 41 | 15.1 | 15.1 | 97.4 |
| 36-45 | 6 | 2.2 | 2.2 | 99.6 |
| 46-55 | 1 | 0.4 | 0.4 | 100.0 |
| 56 and above | 0 | 0 | 0 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |

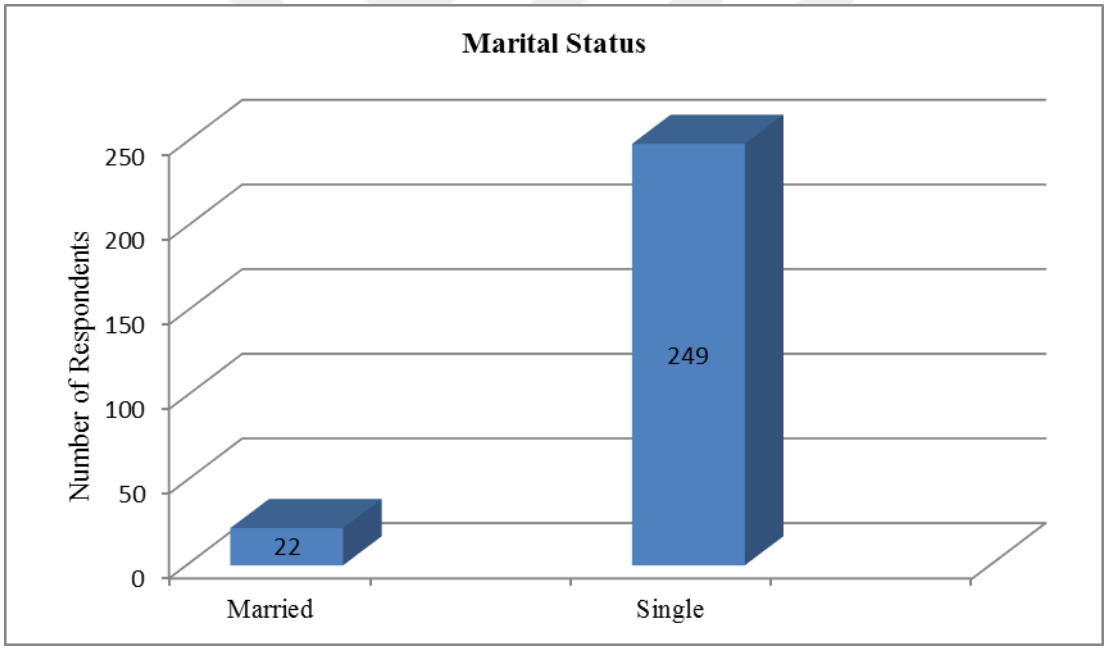



The table illustrates the range of age between the people who answered the survey questions. According to this table the age range divided to 6 levels: 18 and below, 19-25, 26-35, 36-45, 46-55 and 55 and above. The huge number of respondents is 19-25 years. They are 221 persons which occupy 81.5 percent of whole respondents.

As our survey respondents are university students the most of them are young. Following the table, it seems that 41 (15.1 %) of respondents were 26-35 years old. 6 (2.2 %) of respondents were 36-45 years old, while 2 (0.7%) persons who answered questions were 18 years or under. The number of person who was 46-55 years was 1 person (0.4 %). It is obvious from the table that, there was not any person who was 56 or above between people who take part in this research survey.

**Table 3.14** Marital Status

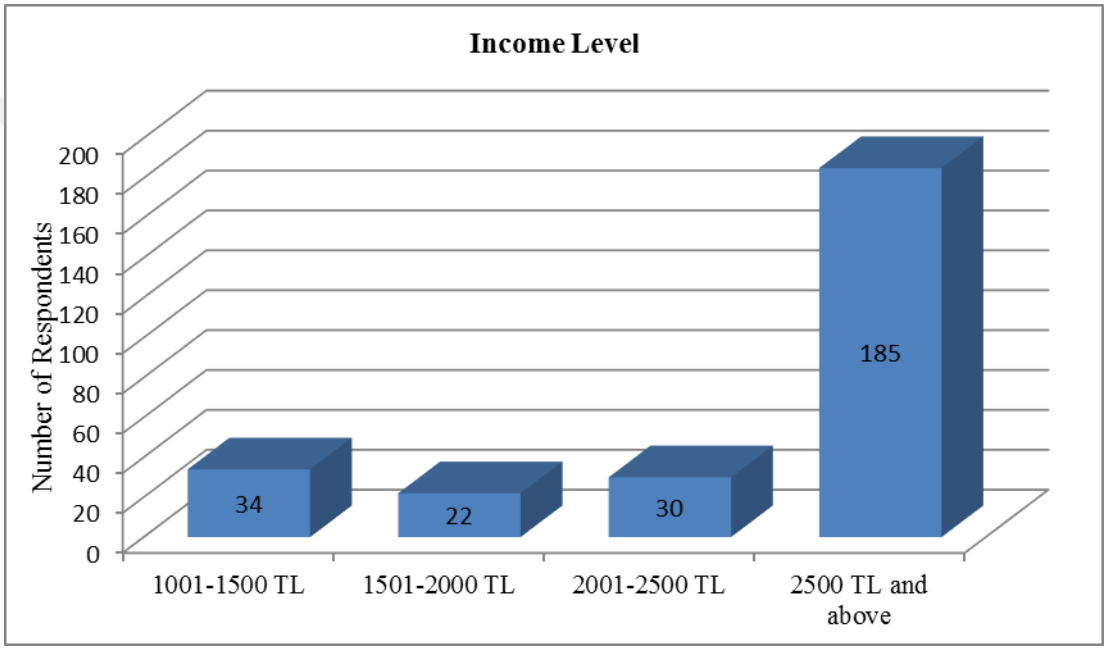
| Status | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Married | 22 | 8.1 | 8.1 | 8.1 |
| Single | 249 | 91.9 | 91.9 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The third demographic variable was marital status. The number of single respondents was 249 and they captured 91.9 % of survey applicants, while the married applicants were just 22 (8.1%) people.

**Table 3.15** Income Level

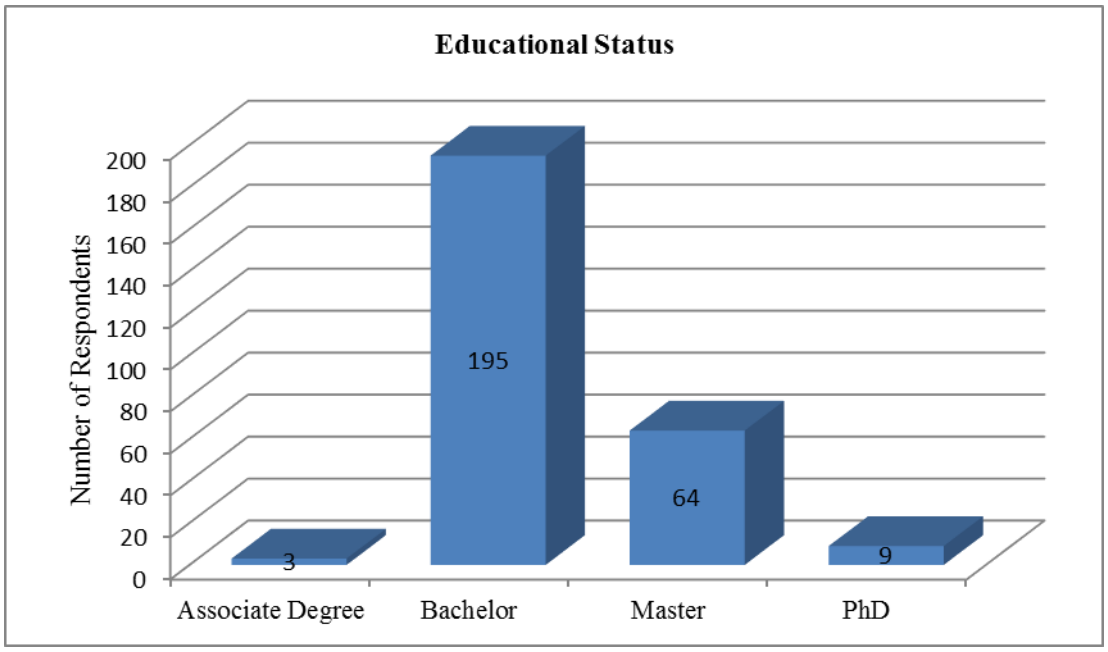
| Income | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| 1001-1500 TL | 34 | 12.5 | 12.5 | 12.5 |
| 1501-2000 TL | 22 | 8.1 | 8.1 | 20.7 |
| 2001-2500 TL | 30 | 11.1 | 11.1 | 31.7 |
| 2501 and above | 185 | 68.3 | 68.3 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Income level table shows us the monthly family income of survey applicants. It shows that most of respondents' family income is 2500 TL and above. In addition to it the number of them is 185 which are 68.3% of all applicants. The people with 2001-2500 TL income are 30 (11.1%) persons. According to table 22 (8.1%) of respondents' monthly income is 1501-2000 TL, while 34 (12.5%) of them getting the lowest income which is around 1001-1500 TL.

**Table 3.16** Educational Status

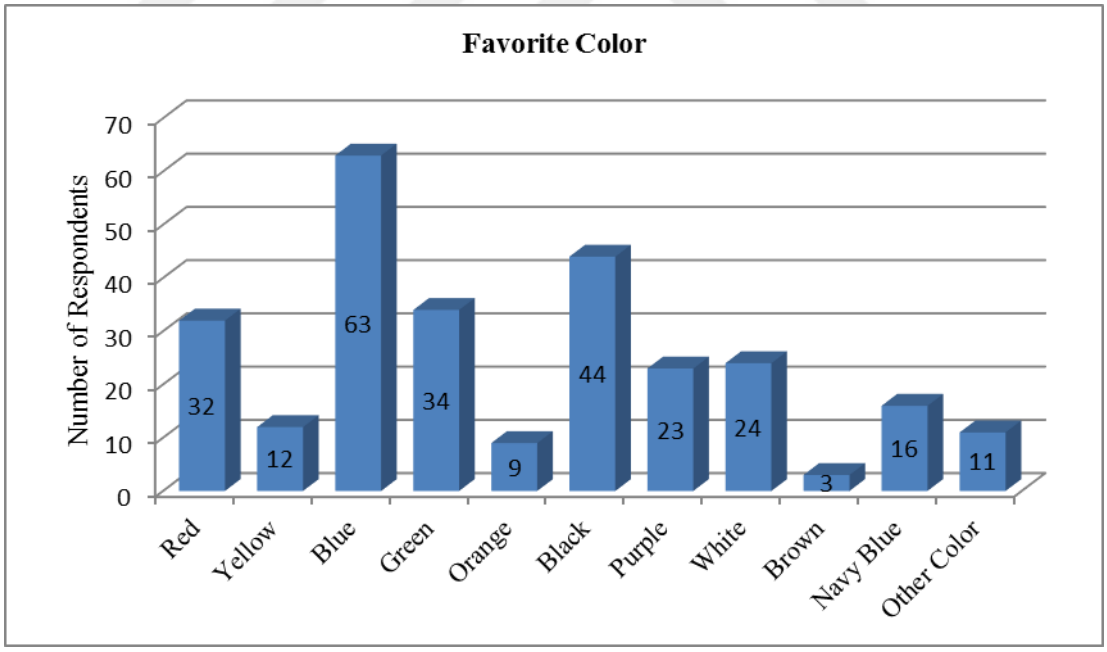
| Educational Status | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Associate Degree | 3 | 1.1 | 1.1 | 1.1 |
| Bachelor | 195 | 72.0 | 72.0 | 73.1 |
| Master | 64 | 23.6 | 23.6 | 96.7 |
| PhD | 9 | 3.3 | 3.3 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The table above illustrates the educational status of respondents. The 3 (1.1%) of applicants have associate degree (2 years degree). However, the most of applicants who answered survey have bachelor degree. Around 195 (72%) of applicants are bachelor students. According to this demographic table 64 (23.6%) have master degree, while 9 (3.3%) of them have PhD qualification.

**Table 3.17** Favorite Color

| Favorite Color | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Red | 32 | 11.8 | 11.8 | 11.8 |
| Yellow | 12 | 4.4 | 4.4 | 16.2 |
| Blue | 63 | 23.2 | 23.2 | 39.5 |
| Green | 34 | 12.5 | 12.5 | 52.0 |
| Orange | 9 | 3.3 | 3.3 | 55.4 |
| Black | 44 | 16.2 | 16.2 | 71.6 |
| Purple | 23 | 8.5 | 8.5 | 80.1 |
| White | 24 | 8.9 | 8.9 | 88.9 |
| Brown | 3 | 1.1 | 1.1 | 90.0 |
| Navy Blue | 16 | 5.9 | 5.9 | 95.9 |
| Other Color | 11 | 4.1 | 4.1 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |

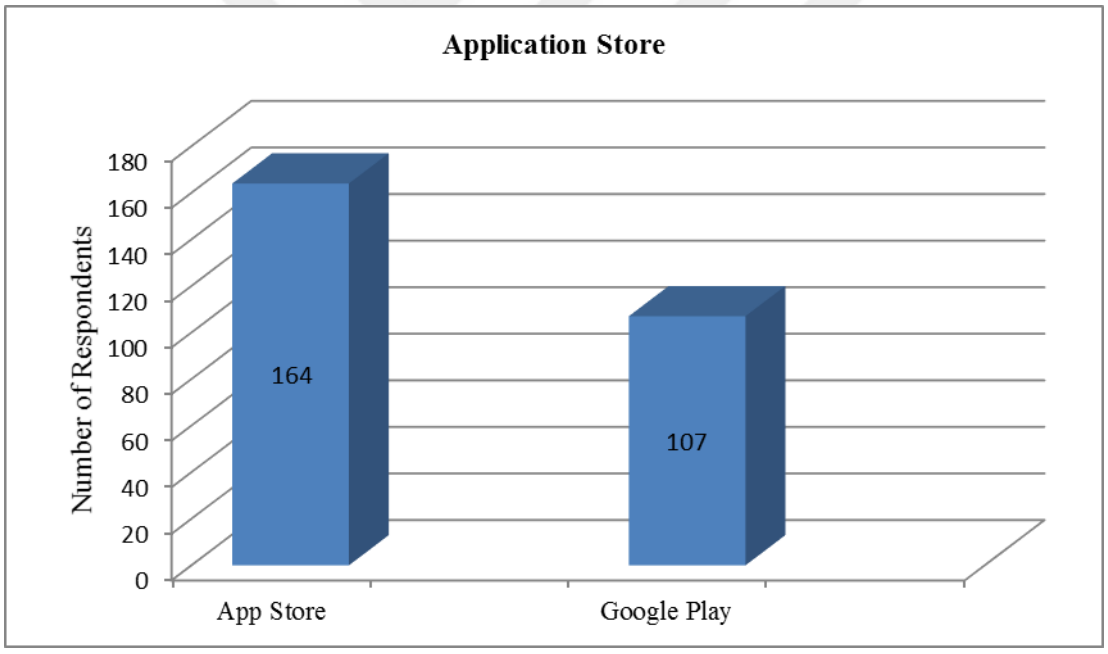



The given table illustrates the favorite color of survey applicants. Moreover, 32 (11.8%) of them stated that red, 12 (4.4%) of them answered yellow color as favorite color. Furthermore, most of the respondents said that blues is their favorite color. The number of them is 63 which is 23.2 % of whole applicants. Apart from that 34 (12.5%) of applicants like green, while 9 (3.3%) of them love orange color. The

second place between lovely color of applicants is black with 44 (16.2%) respondents, however the opposite color of it - white is favorite color of 24 (8.9%) applicants. It seems that 23 (8.5%) of respondents like purple, 3 (1.1%) of them like brown and 16 (5.9%) love navy blue color. 11 (4.1%) applicants of this survey noted that they like other color as there was not the name of their lovely color in our survey list.

**Table 3.18** Application Store

| Application Store | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| App Store | 164 | 60.5 | 60.5 | 60.5 |
| Google Play | 107 | 39.5 | 39.5 | 100.00 |
| Total | 271 | 100.0 | 100.0 | |

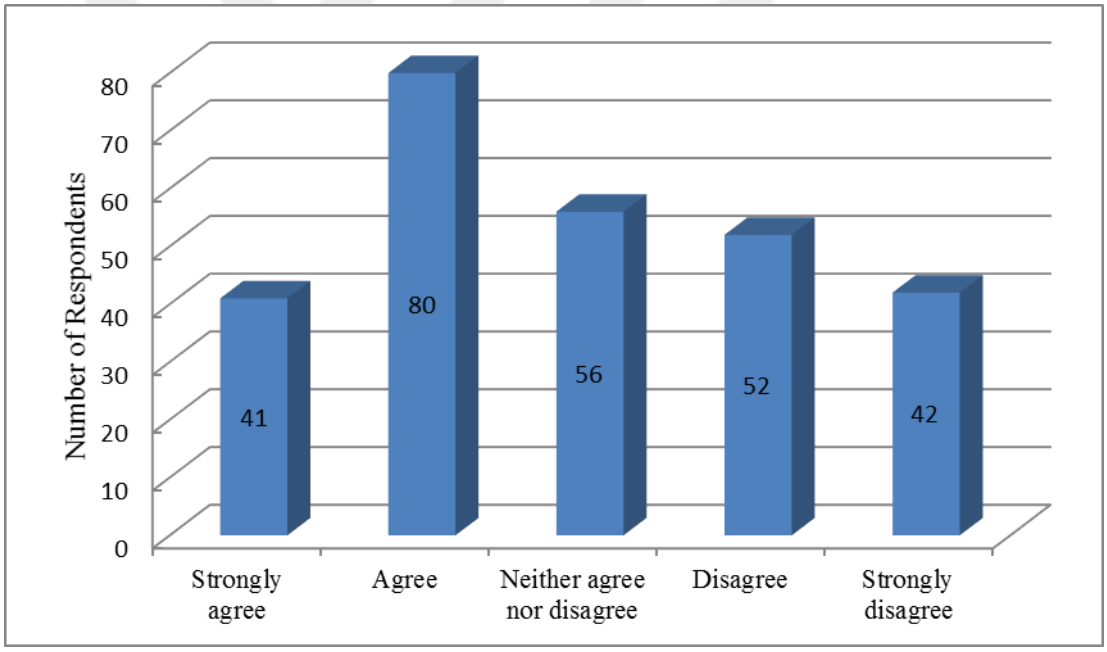



This table shows the applications stores that they use in their devices. Moreover, App Store is suitable for IOS, while Google Play is suitable for the devices which work with Android Operating System. 164 (60.5%) of survey applicants us App Store to download mobile applications to their mobile devices. 107 (39.5%) of respondents use Google Play to download different types of online applications.

### 3.2.3 Responses to the color related questions

**Table 3.19** The color of the mobile application logo effects when I buy the product

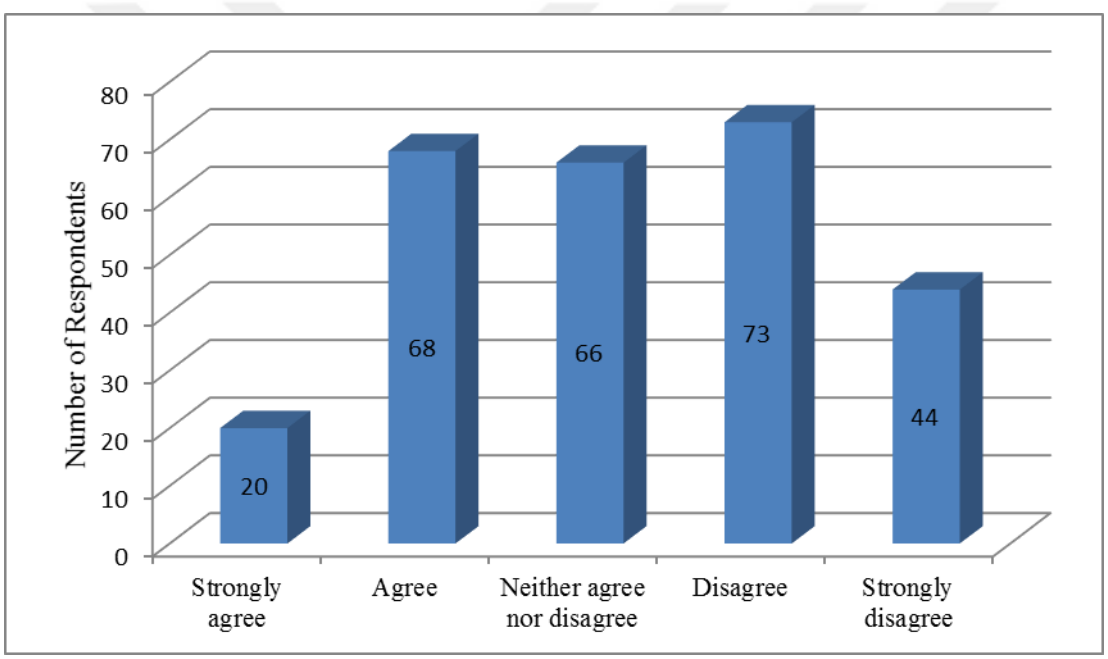
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 41 | 15.1 | 15.1 | 15.1 |
| Agree | 80 | 29.5 | 29.5 | 44.6 |
| Neither agree nor disagree | 56 | 20.7 | 20.7 | 65.3 |
| Disagree | 52 | 19.2 | 19.2 | 84.5 |
| Strongly disagree | 42 | 15.5 | 15.5 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




According to table 80 (29.5%) of people agree that color affects them in buying decisions, while 56 (20.7%) of whole applicants neither agree nor disagree with this. Following the table 52 (19.2%) people's responses were disagree. Furthermore, 42 (15.5%) strongly disagree that color influences in purchasing decisions of them, while 41 (15.1%) of respondents answered strongly agree

**Table 3.20** If I like the logo color of a free mobile application which I see for the first time, it affects me to download the application

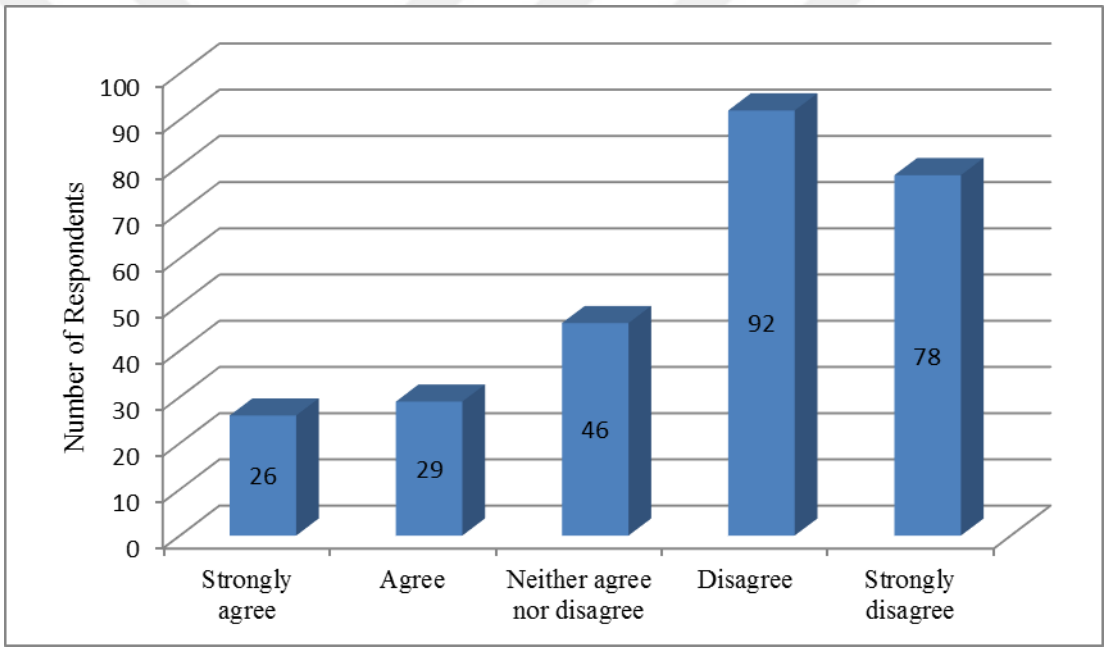
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 20 | 7.4 | 7.4 | 7.4 |
| Agree | 68 | 25.1 | 25.1 | 32.5 |
| Neither agree nor disagree | 66 | 24.4 | 24.4 | 56.8 |
| Disagree | 73 | 26.9 | 26.9 | 83.8 |
| Strongly disagree | 44 | 16.2 | 16.2 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The most applicants' answer to this question was "disagree" with the number 73 (26.9%). However, 68 of respondents agree that color impacts them in free mobile application buying. It is obvious from the table that 66 (24.4%) of people neither agree nor disagree with this question. Following this 44 (16.2%) of applicants strongly disagree during 20 (7.4%) strongly agree with the given question.

**Table 3.21** If I like the logo color of a paid mobile application which I see for the first time, it affects me to download the application

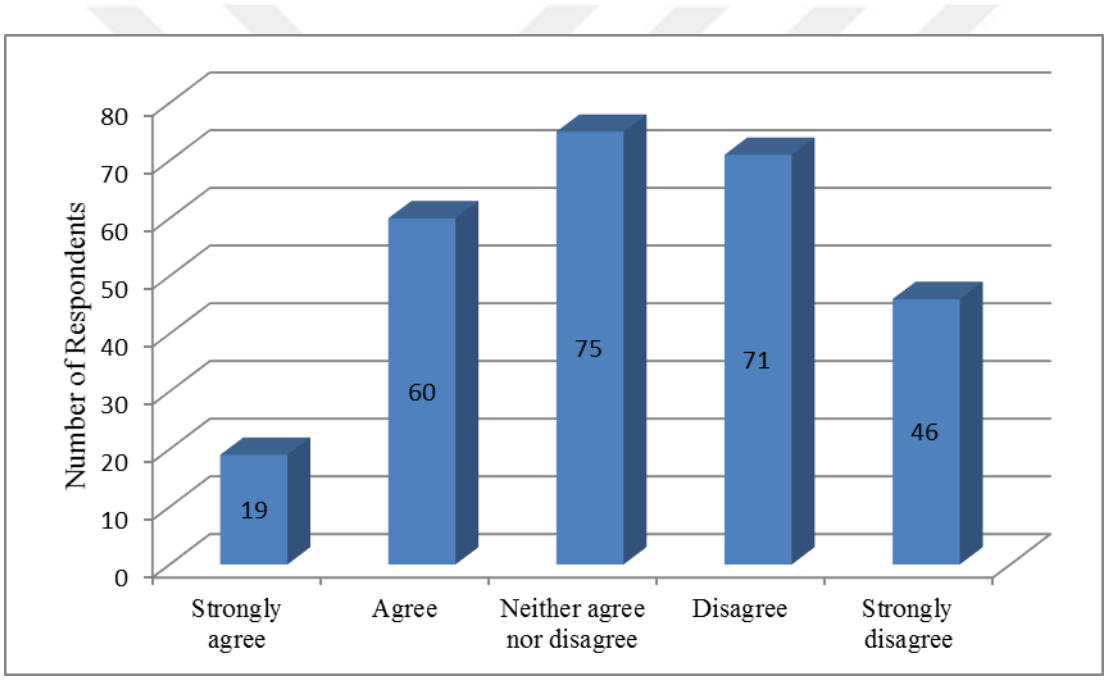
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 26 | 9.6 | 9.6 | 9.6 |
| Agree | 29 | 10.7 | 10.7 | 20.3 |
| Neither agree nor disagree | 46 | 17.0 | 17.0 | 37.3 |
| Disagree | 92 | 33.9 | 33.9 | 71.2 |
| Strongly disagree | 78 | 28.8 | 28.8 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The table shows the answer of the question if the logo color effects applications when they see the application for the first time. The answers were differently compared with the before given question. As the question is about paid mobile applications the most responses were disagree with the number 92 (33.9), which continuous with the answer strongly disagree with 78 (28.8%) responses. According to table 46 (17%) of applicants neither agree nor disagree with this question. The rest answers were “agree” 29 (10.7%) and strongly agree 26 (9.6%) accordingly.

**Table 3.22** The logo color helps me to make buying decisions in applications which are similar or the same priced

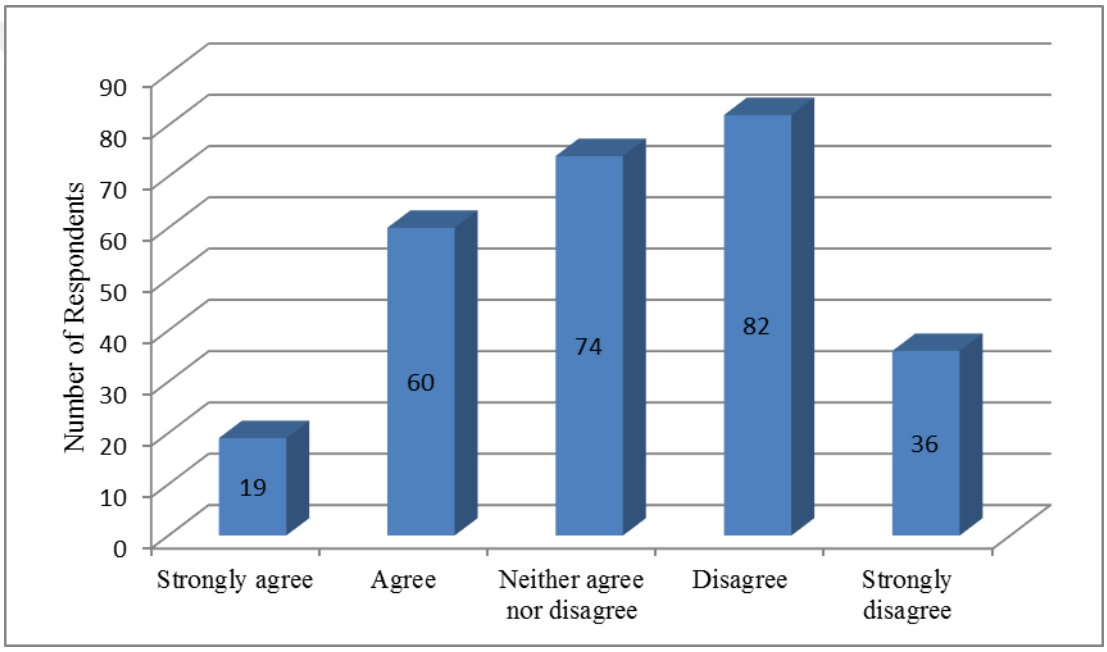
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 19 | 7.0 | 7.0 | 7.0 |
| Agree | 60 | 22.1 | 22.1 | 29.2 |
| Neither agree nor disagree | 75 | 27.7 | 27.7 | 56.8 |
| Disagree | 71 | 26.2 | 26.2 | 83.0 |
| Strongly disagree | 46 | 17.0 | 17.0 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Here the question is if color influence people in buying applications which same priced or similar. 75 (27.7) of applicants neither agree nor disagree with it. However, 71 (26.2 %) of whole people disagree with question, while 60 (22.1%) of respondents agree with it. The number of people who strongly disagree with question is 46 (17%). The rest of applicants which make 19 (7%) people strongly agree that color helps them in this situation.

**Table 3.23** The logo color of applications which I like are high quality applications

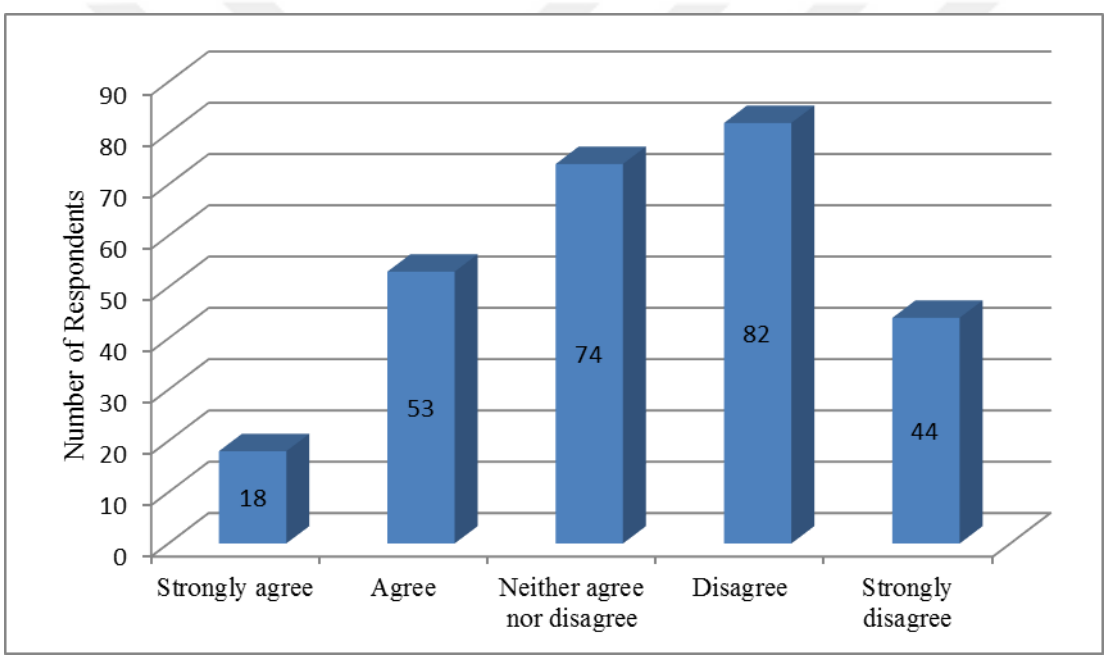
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 19 | 7 | 7 | 7.0 |
| Agree | 60 | 22.1 | 22.1 | 29.2 |
| Neither agree nor disagree | 74 | 27.3 | 27.3 | 56.5 |
| Disagree | 82 | 30.3 | 30.3 | 86.7 |
| Strongly disagree | 36 | 13.3 | 13.3 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The table explains the question about applicants who think that if they like logo color of applications they are high quality applications. Although 82 (30.3%) of responses were disagree and 74 (27.3%) of total people neither agree nor disagree with it. As it seems from the table the third place in this argue is 60 people's answer which agreed with this question. However, 36 (13.3%) of applicants strongly disagree that color of the applications does not say that this app is high quality app. 19 (7%) of applicants strongly agree and they think the color of applications tells about quality of it.

**Table 3.24** If I don't like the logo color of a free mobile application, it has negative effect on my choice to download the application

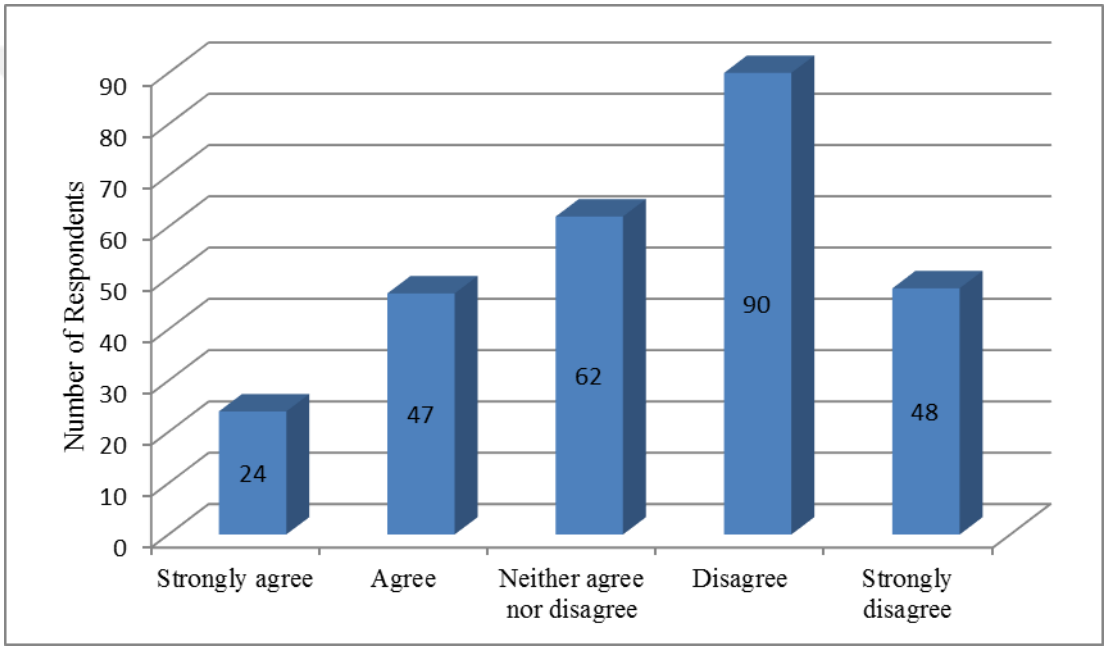
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 18 | 6.6 | 6.6 | 6.6 |
| Agree | 53 | 19.6 | 19.6 | 26.2 |
| Neither agree nor disagree | 74 | 27.3 | 27.3 | 53.5 |
| Disagree | 82 | 30.3 | 30.3 | 83.8 |
| Strongly disagree | 44 | 16.2 | 16.2 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Here the applicants answered the question if they don't like the logo color of free mobile application, this influence them negative and they don't download the free applications. Moreover, 82 (30.3%) of them took first place with the answer disagree, during in the second place, people with the answers neither agree nor disagree. 53 (19.6%) of people agreed with this question. According to the table 44 (16.2%) of applicants strongly disagree and 18 (6.6%) of them strongly agree.

**Table 3.25** If I don't like the logo color of a paid mobile application, it has negative effect on my choice to download the application

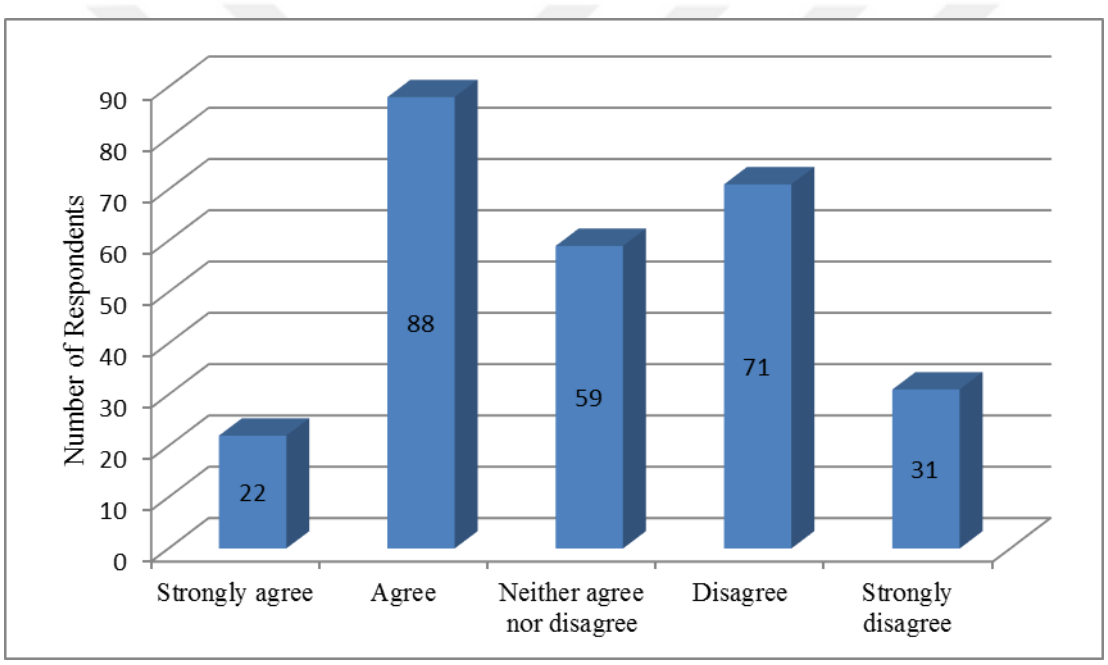
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 24 | 8.9 | 8.9 | 8.9 |
| Agree | 47 | 17.3 | 17.3 | 26.2 |
| Neither agree nor disagree | 62 | 22.9 | 22.9 | 49.1 |
| Disagree | 90 | 33.2 | 33.2 | 82.3 |
| Strongly disagree | 48 | 17.7 | 17.7 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




This table shows the frequencies of applicants who answered the questions if they don't like color of paid mobile app it will has negative effect on buying decision. The most, of the responses were disagree and 90 (33.2%) of people chose this answer. In the second place, applicants answered neither agree nor disagree, who were 62 (22.9%) persons. 48 (17.7%) of respondents strongly disagree while 47 (17.3%) of answers were agree. Furthermore 24 (8.9%) applicants strongly agreed with this question.

**Table 3.26** The logo color of the application is influential on my preference in similar and equally priced applications

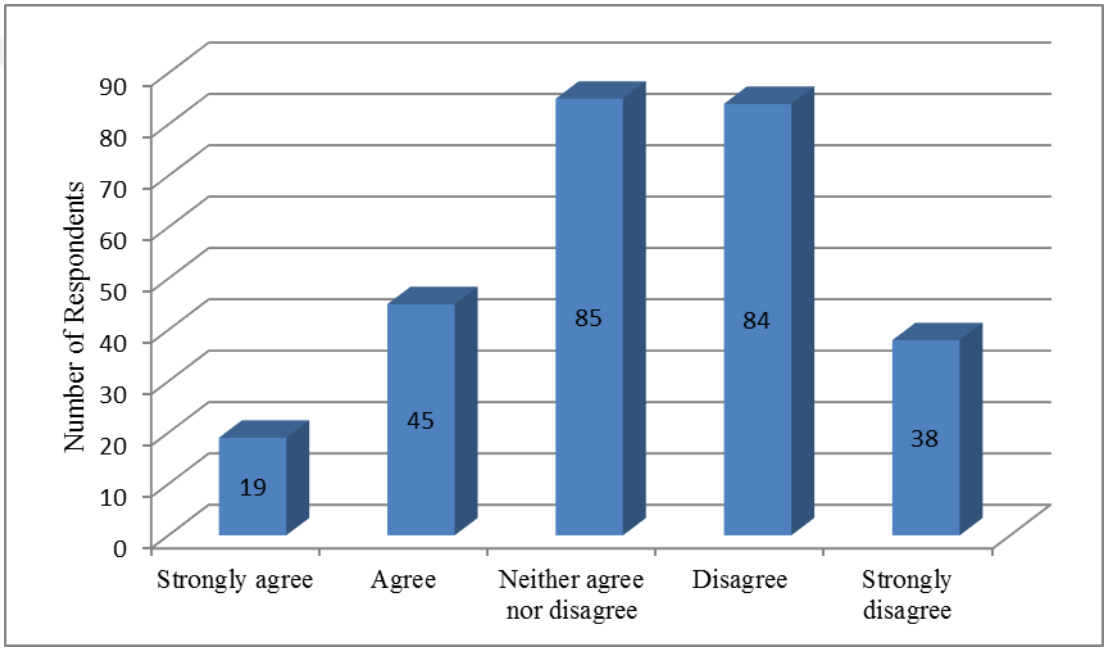
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 22 | 8.1 | 8.1 | 8.1 |
| Agree | 88 | 32.5 | 32.5 | 40.6 |
| Neither agree nor disagree | 59 | 21.8 | 21.8 | 62.4 |
| Disagree | 71 | 26.2 | 26.2 | 88.6 |
| Strongly disagree | 31 | 11.4 | 11.4 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




In this question 88 (32.5%) applicants agree that in similar and same priced applications the color of application logo has an impact on their decision making process. On the other hand, 71 (26.2%) disagree with it. The number of people who neither agree nor disagree is 59 and they took 21.8% of whole participants. Following the table, we can say that 31 (11.4%) of participants strongly disagree, while 22 (8.1%) of them agree with given question.

**Table 3.27** A good logo color can reduce my price sensitivity

| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 19 | 7.0 | 7.0 | 7.0 |
| Agree | 45 | 16.6 | 16.6 | 23.6 |
| Neither agree nor disagree | 85 | 31.4 | 31.4 | 55.0 |
| Disagree | 84 | 31.0 | 31.0 | 86.0 |
| Strongly disagree | 38 | 14.0 | 14.0 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |

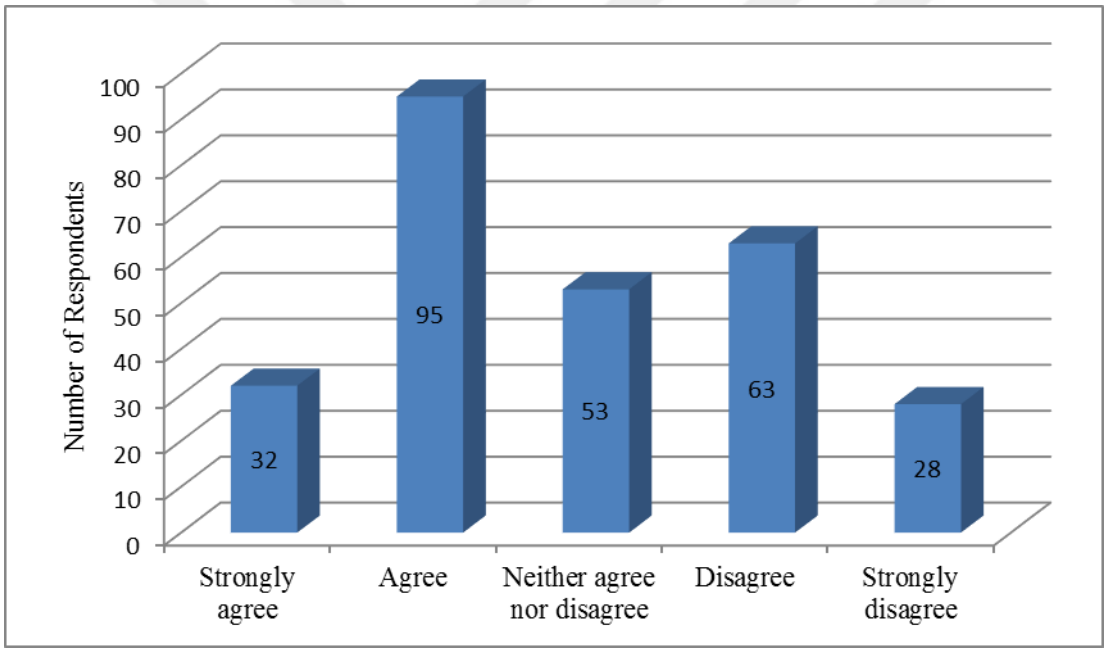



There is price and color relation in this question. Participants were asked to answer the question if a good color of application logo can reduce their price sensitivity. 85 (31.4%) of respondents neither agree nor disagree with it. 84 (31.0%) of applicants disagree with question. 45 (16.6%) of people agree and think that a good color can reduce their price sensitivity. 38 (14%) of survey respondents strongly disagree, however 19 (7%) of them strongly agree.

### 3.2.4 Responses to the design related questions

**Table 3.28** The logo design of the mobile application is influential when I buy the product

| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 32 | 11.8 | 11.8 | 11.8 |
| Agree | 95 | 35.1 | 35.1 | 46.9 |
| Neither agree nor disagree | 53 | 19.6 | 19.6 | 66.4 |
| Disagree | 63 | 23.2 | 23.2 | 89.7 |
| Strongly disagree | 28 | 10.3 | 10.3 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




This table shows the frequencies of the applicants who answered the question if the logo design affects them in mobile application buying. 95 (35.1%) of participants show that they agree, while 63 (23.2%) of them disagree. In the third place standing the people who answered neither agree nor disagree. Table also illustrates that 32 (11.8%) strongly agree, but 28 (10.3%) of whole people strongly disagree.

**Table 3.29** If I like the logo design of a free mobile application which I see for the first time, it affects me to download the application

| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 29 | 10.7 | 10.7 | 10.7 |
| Agree | 90 | 33.2 | 33.2 | 43.9 |
| Neither agree nor disagree | 58 | 21.4 | 21.4 | 65.3 |
| Disagree | 66 | 24.4 | 24.4 | 89.7 |
| Strongly disagree | 28 | 10.3 | 10.3 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |

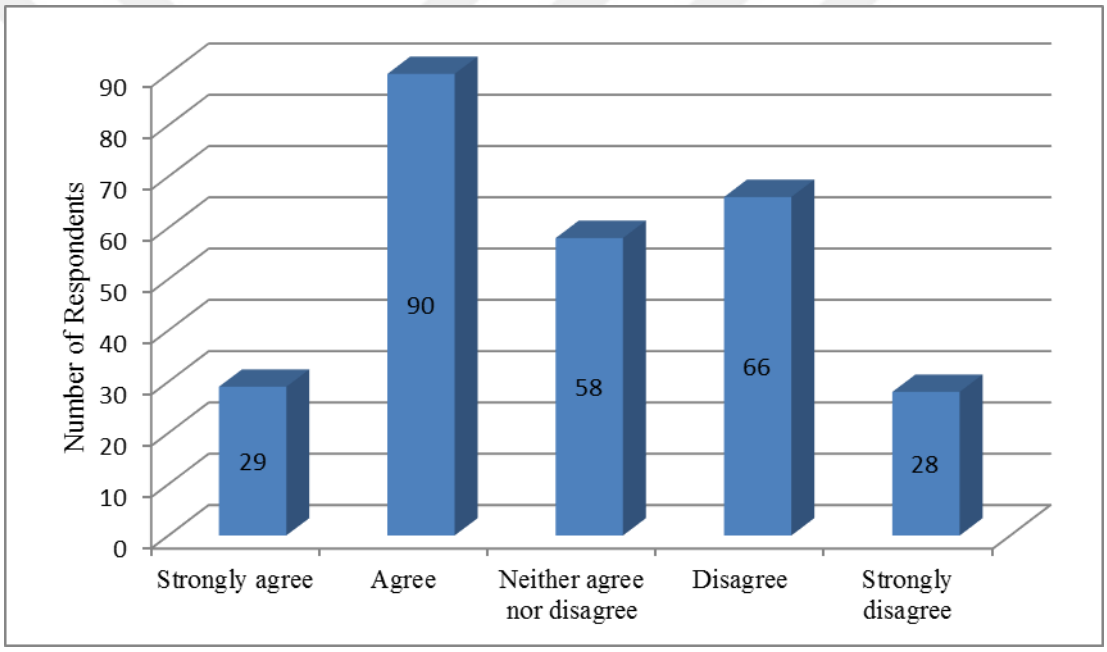



Table illustrates the frequencies of people who answered the question if they like logo design of free mobile application will it impact them to download it or not. It is obvious that 90 (33.2%) of them answered agree, however 66 (24.4%) disagree with it. The number of participants that said neither agree nor disagree is 58 (21.4%). Following the table, we see that 29 (10.7%) strongly agree and 28 (10.3%) strongly disagree.

**Table 3.30** If I like the logo design of a paid mobile application which I see for the first time, it affects me to download the application

| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 17 | 6.3 | 6.3 | 6.3 |
| Agree | 69 | 25.5 | 25.5 | 31.7 |
| Neither agree nor disagree | 67 | 24.7 | 24.7 | 56.5 |
| Disagree | 80 | 29.5 | 29.5 | 86.0 |
| Strongly disagree | 38 | 14.0 | 14.0 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |

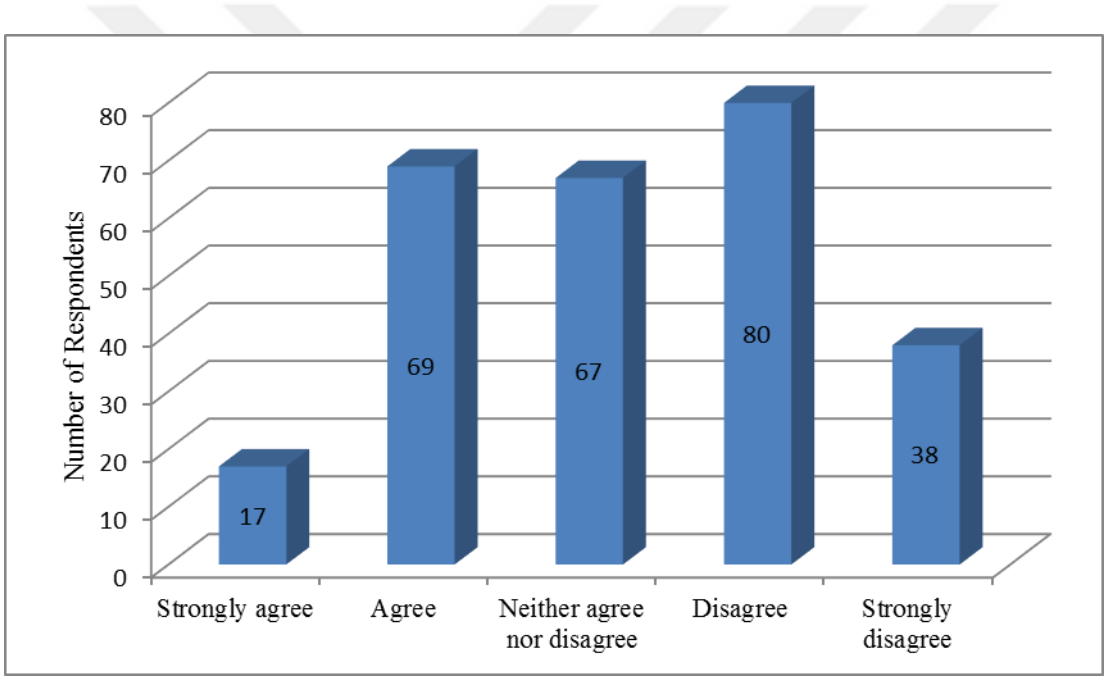
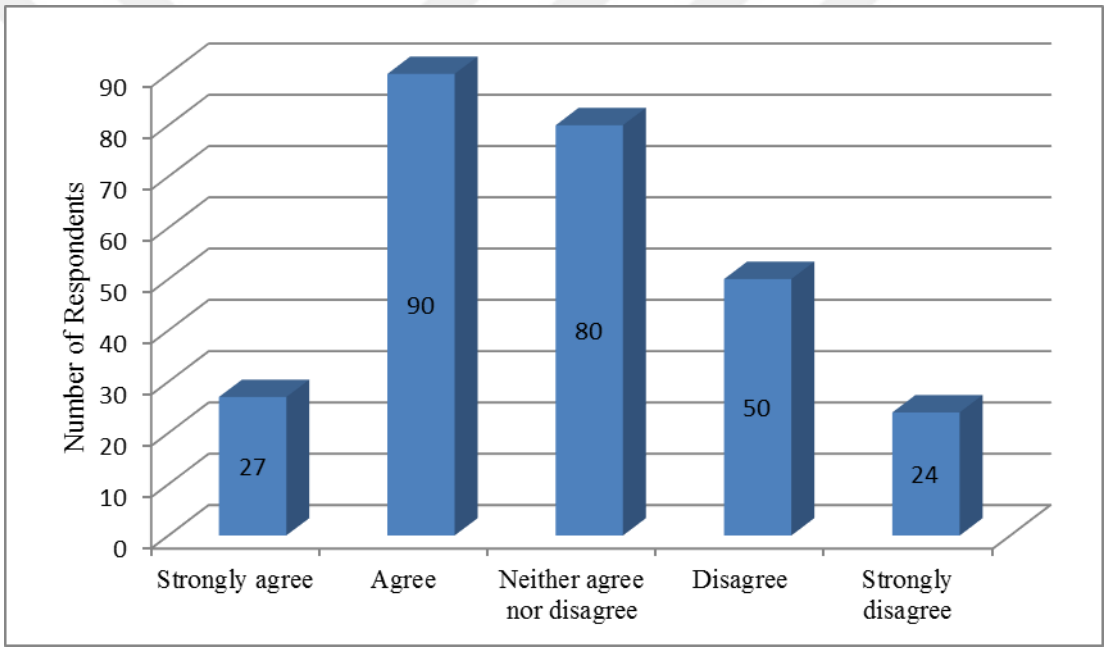



Table illustrates the frequencies of people who answered the question if they like logo design of paid mobile application will it impact them to download it or not. Compared with previous question here 80 (29.5%) applicants disagree, but 69 (25.5%) of them agree. In the third place took place 67 (24.7%) people neither agree nor disagree. 38 (14%) respondents strongly disagree, while 17 (6.3%) strongly agree.

**Table 3.31** The logo design helps me to make buying decisions in applications which are similar or the same priced

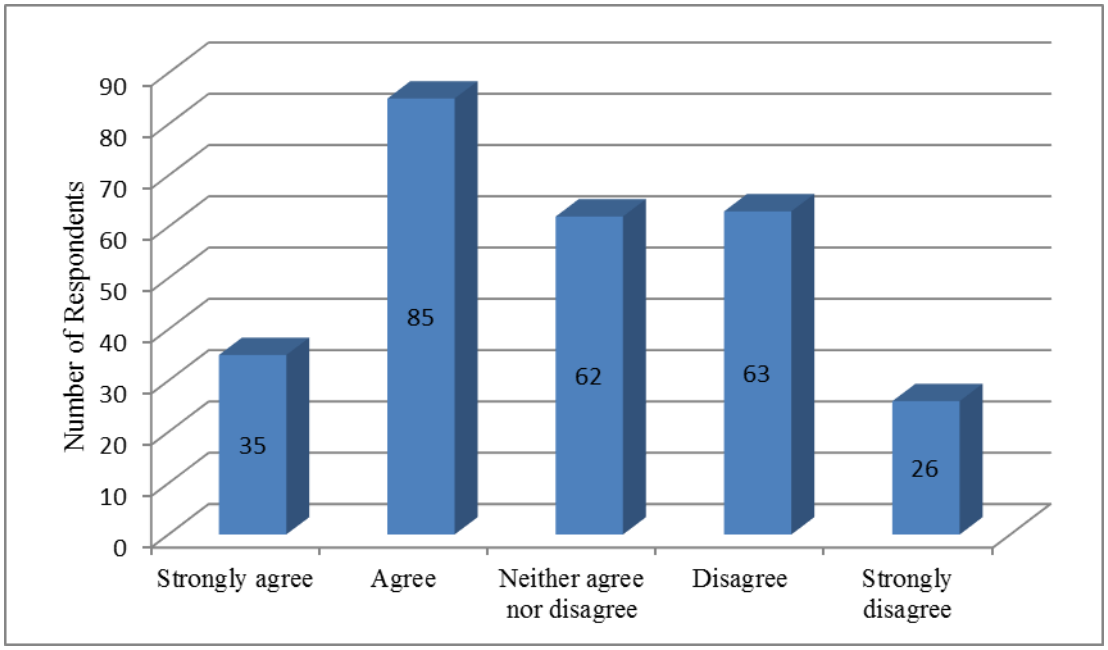
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 27 | 10.0 | 10.0 | 10.0 |
| Agree | 90 | 33.2 | 33.2 | 43.2 |
| Neither agree nor disagree | 80 | 29.5 | 29.5 | 72.7 |
| Disagree | 50 | 18.5 | 18.5 | 91.1 |
| Strongly disagree | 24 | 8.9 | 8.9 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Here the frequencies of the people who answered the question if the logo design help them to make decision in similar or same priced mobile application buying. In the first palace 90 (33.2%) of respondents who said they agree. In the second place 80 (29.5%) of the applicants who answered neither agree nor disagree. The third place, share 50 (18.5%) persons who disagree with question. Following this 27 (10%) participants strongly agree while, the rest 24 (8.9%) strongly disagree.

**Table 3.32** The logo design of applications which I like are high quality applications

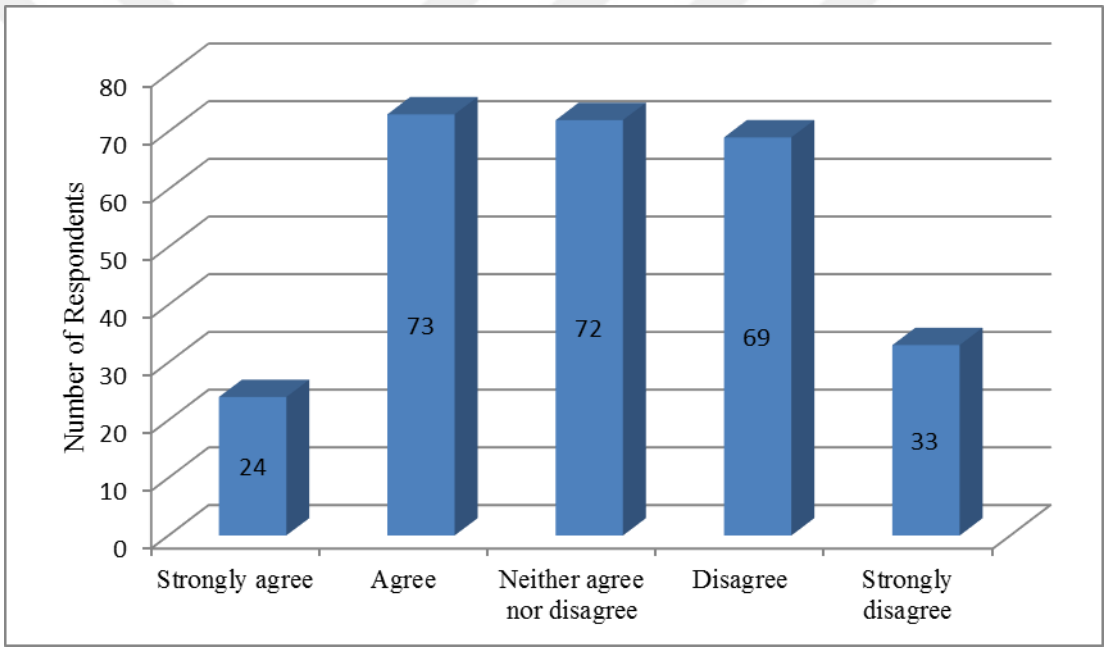
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 35 | 12.9 | 12.9 | 12.9 |
| Agree | 85 | 31.4 | 31.4 | 44.3 |
| Neither agree nor disagree | 62 | 22.9 | 22.9 | 67.2 |
| Disagree | 63 | 23.2 | 23.2 | 90.4 |
| Strongly disagree | 26 | 9.6 | 9.6 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Here people were asked to answer if they like the logo design is it high quality applications or not. According the frequencies, 85 (31.4%) of respondents agree, but 63 (23.2%) of participants disagree. 62 (29.9%) of people neither agree nor disagree with the given question. The rest 35 (12.9%) of respondents said that they strongly agree while other 26 (9.6%) persons answered strongly disagree.

**Table 3.33** If I don't like the logo design of a free mobile application, it has negative effect on my choice to download the application

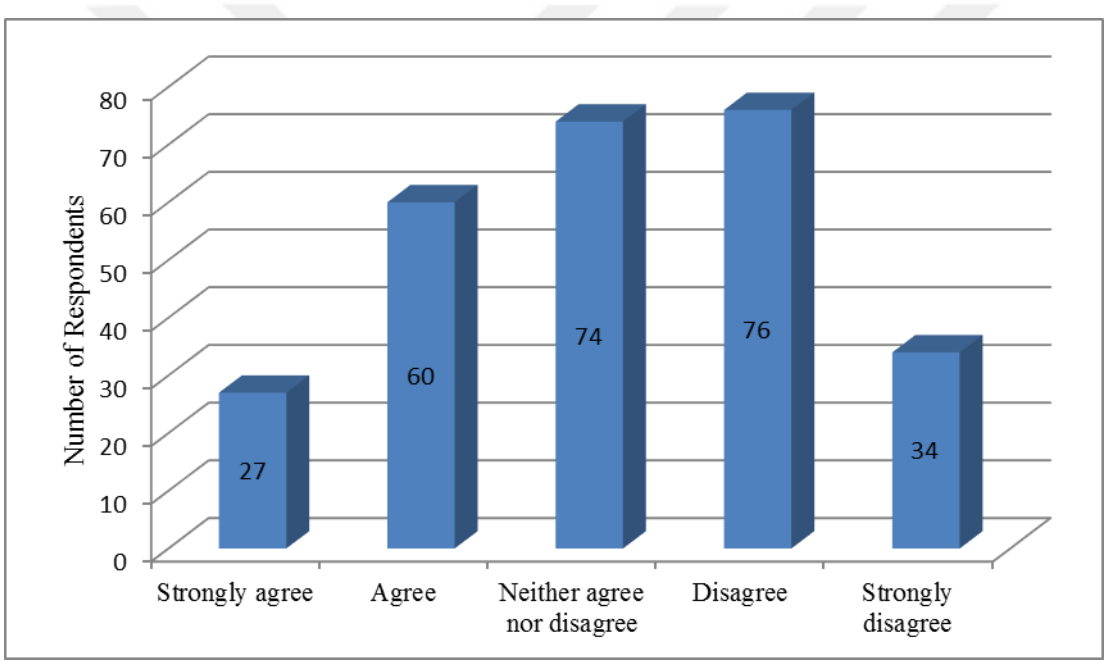
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 24 | 8.9 | 8.9 | 8.9 |
| Agree | 73 | 26.9 | 26.9 | 35.8 |
| Neither agree nor disagree | 72 | 26.6 | 26.6 | 62.4 |
| Disagree | 69 | 25.5 | 25.5 | 87.8 |
| Strongly disagree | 33 | 12.2 | 12.2 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The table shows the people who answered the question if they don't like the logo design of free mobile application it will has negative effect on their buying decision. The first place took 73 (26.9%) people who agreed with it. However, 72 (26.6%) of applicants answered neither agree nor disagree. In the third place, people who disagree with it, they consist 69 (25.5%) persons of whole applicants. It seems that 33 (12.2%) of people strongly disagree while 24(8.9%) of them strongly agree.

**Table 3.34** If I don't like the logo design of a paid mobile application, it has negative effect on my choice to download the application

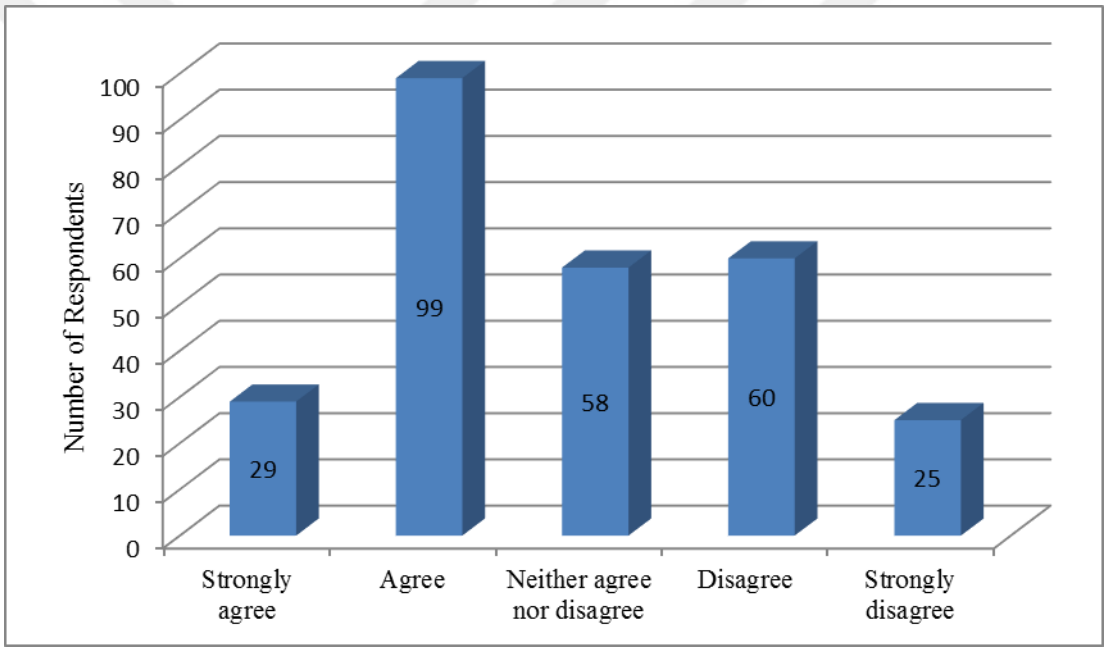
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 27 | 10.0 | 10.0 | 10.0 |
| Agree | 60 | 22.1 | 22.1 | 32.1 |
| Neither agree nor disagree | 74 | 27.3 | 27.3 | 59.4 |
| Disagree | 76 | 28.0 | 28.0 | 87.5 |
| Strongly disagree | 34 | 12.5 | 12.5 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




The table shows the people who answered the question if they don't like the logo design of paid mobile application it will has negative effect on their buying decision. In the first place 76 (28%) of people who disagree with this given view. It is obvious from the table that 74 (27.3%) of respondents neither agree nor disagree with it. Around 60 (22.1%) of people took third place in this question with the answer agree. 34 (12.5%) of the rest participants strongly disagree, but 27 (10%) of them strongly agree.

**Table 3.35** The logo design of the application is influential on my preference in similar and equally priced applications

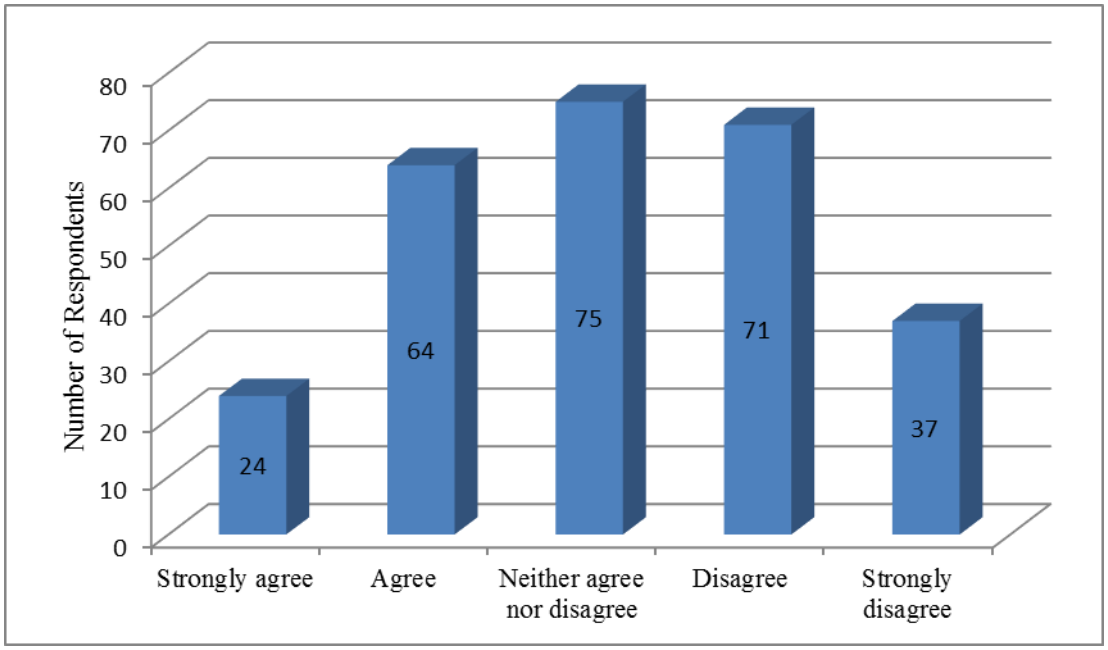
| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 29 | 10.7 | 10.7 | 10.7 |
| Agree | 99 | 36.5 | 36.5 | 47.2 |
| Neither agree nor disagree | 58 | 21.4 | 21.4 | 68.6 |
| Disagree | 60 | 22.1 | 22.1 | 90.8 |
| Strongly disagree | 25 | 9.2 | 9.2 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Given table shows the frequencies of the people who answered the question if the logo design effects the buying decisions in similar or same priced mobile applications. 99 (36.5%) of applicants took place with the answer agree, while 60 (22.1%) of respondents disagree with it. The third place took 58 (21.4%) people who answered neither agree nor disagree. According the given table 29 (10.7%) people strongly agree, while 25 (9.2%) people strongly disagree with question.

**Table 3.36** A good logo design can reduce my price sensitivity

| Likert Scale | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Strongly agree | 24 | 8.9 | 8.9 | 8.9 |
| Agree | 64 | 23.6 | 23.6 | 32.5 |
| Neither agree nor disagree | 75 | 27.7 | 27.7 | 60.1 |
| Disagree | 71 | 26.2 | 26.2 | 86.3 |
| Strongly disagree | 37 | 13.7 | 13.7 | 100.0 |
| Total | 271 | 100.0 | 100.0 | |




Given table illustrates the frequencies of the people who answered the question if good design of logo will reduce price sensitivity of them or not. 75 (27.7%) of people answered neither agree nor disagree. Following the table, we can see that 71 (26.2%) of respondents disagree with it, while other 64 (23.6%) people agree. the number of participants who strongly disagree is 37 (13.7%), however the number of persons who strongly agree is 24 (8.9%).

### 3.2.5 Descriptive statistics

**Table 3.37** Descriptive statistics according to color related variables

| | **Mean** | **Mode** | **Std. Dev.** |
|---|---|---|---|
| The color of the mobile app logo affects when I buy the product. | 2.90 | 2 | 1.307 |
| If I like the logo color of a free mobile application which I see for the first time, it affects me to download the application. | 3.20 | 4 | 1.197 |
| If I like the logo color of a paid mobile application which I see for the first time, it affects me to download the application. | 3.62 | 4 | 1.268 |
| The logo color helps me to make buying decisions in applications which are similar or the same priced | 3.24 | 3 | 1.179 |
| The logo color of applications which I like are high quality applications | 3.21 | 4 | 1.139 |
| If I don't like the logo color of a free mobile application, it has negative effect on my choice to download the application. | 3.30 | 4 | 1.153 |
| If I don't like the logo color of a paid mobile application, it has negative effect on my choice to download the application. | 3.34 | 4 | 1.209 |
| The logo color of the application is influential on my preference in similar and equally priced applications. | 3.00 | 2 | 1.172 |
| A good logo color can reduce my price sensitivity. | 3.28 | 3 | 1.114 |

Table 3.27 shows the descriptive statistics of the answers of respondents to the color related variances. According to the scale the most common value is 4.

**Table 3.38** Descriptive statistics according to design related variables

| | **Mean** | **Mode** | **Std. Dev.** |
|---|---|---|---|
| The logo design of the mobile application is influential when I buy the product. | 2.85 | 2 | 1.205 |
| If I like the logo design of a free mobile application which I see for the first time, it affects me to download the application. | 2.90 | 2 | 1.189 |
| If I like the logo design of a paid mobile application which I see for the first time, it affects me to download the application. | 3.20 | 4 | 1.153 |
| The logo design helps me to make buying decisions in applications which are similar or the same priced | 2.83 | 2 | 1.116 |
| The logo design of applications which I like are high quality applications | 2.85 | 2 | 1.196 |
| If I don't like the logo design of a free mobile application, it has negative effect on my choice to download the application. | 3.05 | 2 | 1.169 |
| If I don't like the logo design of a paid mobile application, it has negative effect on my choice to download the application. | 3.11 | 4 | 1.181 |
| The logo design of the application is influential on my preference in similar and equally priced applications. | 2.83 | 2 | 1.166 |
| A good logo design can reduce my price sensitivity. | 3.12 | 3 | 1.178 |

Table 3.28 illustrates the descriptive statistics of respondents' answers to the design related variances. According to the scale the most common value is 2.

### 3.3 Hypothesis Test

In order to test the given hypotheses, we sum all answers and find mean values of them. After that new variables derived from found mean values. First of the derived values is to test the color related views, the second of variables is to test design related views.

To find the new derived values, we selected "Recode into different variables" in SPSS program. While recoding new variables, there were new values created which are equal to the likert scale answers (from strongly agree to strongly disagree). The recoding range score were selected from the Adıgulez (2016) research. Here the old and new recoding range according to likert scale answers.

**Table 3.39** Recoded likert scale range points

| Points | Range Points | Likert Scale |
|---|---|---|
| 1 | 1.00-1.79 | Strongly Agree |
| 2 | 1.80-2.59 | Agree |
| 3 | 2.60-3.39 | Neither Agree nor Disagree |
| 4 | 3.40-4.19 | Disagree |
| 5 | 4.20-5.00 | Strongly Disagree |

In order to test the hypotheses, we compared new derived variables like color and design with demographic questions such as gender, age, education, application store.

**Table 3.40** Descriptive statistics and frequency of color related recoded variable

| Likert Scale | Frequency | Percent | Cum. Percent | Mean | Mode | Std. Dev. |
|---|---|---|---|---|---|---|
| Str. Agree | 12 | 4.4 | 4.4 | 3.24 | 3 | 1.064 |
| Agree | 58 | 21.4 | 25.8 | | | |
| Neither Agree. nor Disagree | 88 | 32.5 | 58.3 | | | |
| Disagree | 79 | 29.2 | 87.5 | | | |
| Str. Disagree | 34 | 12.5 | 100.0 | | | |
| Total | 271 | 100.0 | | | | |

Table 3.30 show the descriptive statistics and the frequencies of the answers of color related questions after recoded into different variables. The mean of the answers that applicants give is 3.24 and the most common answers is neither agree nor disagree.

**Table 3.41** Descriptive statistics and frequency of design related recoded variable

| **Likert Scale** | **Frequency** | **Percent** | **Cum. Percent** | **Mean** | **Mode** | **Std. Dev.** |
|---|---|---|---|---|---|---|
| Str. Agree | 16 | 5.9 | 5.9 | 2.94 | 2 | 1.054 |
| Agree | 87 | 32.1 | 38.0 | | | |
| Neither Agree. nor Disagree | 87 | 32.1 | 70.1 | | | |
| Disagree | 58 | 21.4 | 91.5 | | | |
| Str. Disagree | 23 | 8.5 | 100.0 | | | |
| Total | 271 | 100.0 | | | | |

Table 3.31 show the descriptive statistics and the frequencies of the answers of design related questions after recoded into different variables. The mean of the answers that applicants give is 2.94 and the most common answers are “agree”.

In order to test the hypotheses there were Mann-Whitney U and Kruskal-Wallis H tests used. Mann-Whitney U test is the non-parametric alternative test to the independent sample t-test. It is a non-parametric test that is used to compare two sample means that come from the same population, and used to test whether two sample means are equal or not. Kruskal-Wallis H test is a nonparametric test which is used to find out is there meaningful difference among 3 or more groups of variables. Kruskal-Wallis H test is developed version of Mann-Whited U test and it is nonparametric substitute to the One-Way Anova test.

**$H_1$:** The effect of application's logo color differs according to gender on buying decisions.

**Table 3.42** The Mann-Whitney U test of color effect according to gender

| Effect of color according to gender | **Gender** | **N** | **Mean Rank** | **Sum of Ranks** | **Z** | **Sig.** |
|---|---|---|---|---|---|---|
| | Female | 109 | 147.92 | 16123.00 | -2.130 | 0.033 |
| | Male | 162 | 127.98 | 20733.00 | | |
| | Total | 271 | | | | |

The Table 3.32 shows the resuls of Mann-Whitney U test. It is shown that the value of Z is -2.130. The test results p=0.033; p<0.05 illustrates that $H_1$ is not rejected. And the effect of application's logo color differs according to gender on buying decisions.

**$H_2$:** The effect of application's logo color differs according to age on buying decisions.

**Table 3.43** The Kruskal-Wallis H test of color effect according to age

| | **Age** | **N** | **Mean Rank** | **$X^2$** | **Sig.** |
|---|---|---|---|---|---|
| Effect of color according to age | 18 and below | 2 | 119.75 | 6.638 | 0.156 |
| | 19 – 25 | 221 | 131.91 | | |
| | 26 – 35 | 41 | 149.33 | | |
| | 36 – 45 | 6 | 181.33 | | |
| | 46 – 55 | 1 | 254.50 | | |
| | 56 and above | 0 | 0 | | |
| | Total | 271 | | | |

The table above describes the Kruskal-Wallis H test results of color influence on buying decisons according to age of respondents. The value of chi-square is 6.638. As $X^2$=6.638; p=0.156 and p>0.05 the test rejects $H_2$. It means the effect of application's logo color does not differ according to age on buying decisions.

**$H_3$:** The effect of application's logo color differs according to education on buying decisions.

**Table 3.44** The Kruskal-Wallis H test of color effect according to education

| | **Education** | **N** | **Mean Rank** | **$X^2$** | **Sig.** |
|---|---|---|---|---|---|
| Effect of color according to education | Associate Degree | 3 | 189.00 | 9.009 | 0.029 |
| | Bachelor | 195 | 127.68 | | |
| | Master | 64 | 155.45 | | |
| | PhD | 9 | 160.22 | | |
| | Total | 271 | | | |

Table 3.34 illustates the Kruskal-Wallis test results of color effect according to education. According to the table the value of chi-square is 9.009. The results show that $X^2$=9.009; p=0.029. The $H_3$ is not rejected because p<0.05 and the effect of application's logo color differs according to education on buying decisions.

**$H_4$:** The effect of application's logo color differs according to application store preferences of students on buying desicions.

**Table 3.45** The Mann-Whitney U test of color effect according to application store preferences of students

| Effect of color according to application store | **Application Store** | **N** | **Mean Rank** | **Sum of Ranks** | **Z** | **Sig.** |
|---|---|---|---|---|---|---|
| | App Store | 164 | 137.09 | 22482.00 | -0.293 | 0.770 |
| | Google Play | 107 | 134.34 | 14374.00 | | |
| | Total | 271 | | | | |

Table above explains the results of Mann-Whitney U test of color effect related to application store preferences. According to the results Z=-0.293; p=0.770, as p>0.05 the $H_4$ hypothesis rejected.

**$H_5$:** The effect of application's logo design differs according to gender on buying decisions.

**Table 3.46** The Mann-Whitney U test of design effect according to gender

| | **Gender** | **N** | **Mean Rank** | **Sum of Ranks** | **Z** | **Sig.** |
|---|---|---|---|---|---|---|
| Effect of design according to gender | Female | 109 | 145.84 | 15896.50 | -1.764 | 0.78 |
| | Male | 162 | 129.38 | 20959.50 | | |
| | Total | 271 | | | | |

Table 3.36 illustrates the results of Mann-Whitney U test of impact of design on purchasing decision according to gender. The value of Z is -1.764 and p=0.078. The value of p that we get is higher than acceptance(p>0.05), therefore $H_5$ hypothesis is rejected.

**$H_6$:** The effect of application's logo design differs according to age on buying decisions.

**Table 3.47** The Kruskal-Wallis H test of design effect according to age

| | **Age** | **N** | **Mean Rank** | **$X^2$** | **Sig.** |
|---|---|---|---|---|---|
| Effect of design according to age | 18 and below | 2 | 183.25 | 2.400 | 0.663 |
| | 19 – 25 | 221 | 133.71 | | |
| | 26 – 35 | 41 | 148.24 | | |
| | 36 – 45 | 6 | 119.08 | | |
| | 46 – 55 | 1 | 147.00 | | |
| | 56 and above | 0 | 0 | | |
| | Total | 271 | | | |

The table above described the test results of Kruskal-Wallis which is examined between design and age variables. The test results are $X^2$=2.400 and p=0.663. The value of p is higher that acceptance (0.05), that is why $H_6$ hypothesis is rejected. According the test the effect of application's logo design does not differ according to age.

**$H_7$:** The effect of application's logo design differs according to education on buying decisions.

**Table 3.48** The Kruskal-Wallis H test of design effect according to education

| | **Education** | **N** | **Mean Rank** | **$X^2$** | **Sig.** |
|---|---|---|---|---|---|
| Effect of design according to education | Associate Degree | 3 | 166.33 | 14.077 | 0.003 |
| | Bachelor | 195 | 127.42 | | |
| | Master | 64 | 165.08 | | |
| | PhD | 9 | 105.11 | | |
| | Total | 271 | | | |

By investigating table 3.38 it is obvious that the value of chi-square is 14.077. Following this $X^2$=14.077; p=0.003. As p<0.05 the $H_7$ hypothesis is accepted. From this point of view the effect of application's logo design differs according to education on students purchasing behaviour.

**$H_8$:** The effect of application's logo design differs according to application store preferences of students on buying desicions.

**Table 3.49** The Mann-Whitney U test of design effect according to application store preferences of students

| Effect of color according to application store | **Application Store** | **N** | **Mean Rank** | **Sum of Ranks** | **Z** | **Sig.** |
|---|---|---|---|---|---|---|
| | App Store | 164 | 136.71 | 22420.00 | -0.191 | 0.848 |
| | Google Play | 107 | 134.92 | 14436.00 | | |
| | Total | 271 | | | | |

Analysing the Mann-Whitney U test describing in the table above it became clear that the value of Z is -0.191. However the value of p(p=0.848) is above acceptance(p>0.05) which means that $H_8$ is rejected. Mann-Whitney U test shows that the effect of application's logo design does not differ according to students' preferences in application stores.

**Table 3.50** The results of the tested hypotheses

| | **Hypothesis** | **Result** |
|---|---|---|
| **$H_1$** | The effect of application's logo color differs according to gender on buying decisions. | Not Rejected |
| **$H_2$** | The effect of application's logo color differs according to age on buying decisions. | Rejected |
| **$H_3$** | The effect of application's logo color differs according to education on buying decisions. | Not Rejected |
| **$H_4$** | The effect of application's logo color differs according to application store preferences of students on buying desicions. | Rejected |
| **$H_5$** | The effect of application's logo design differs according to gender on buying decisions. | Rejected |
| **$H_6$** | The effect of application's logo design differs according to age on buying decisions. | Rejected |
| **$H_7$** | The effect of application's logo design differs according to education on buying decisions | Not Rejected |
| **$H_8$** | The effect of application's logo design differs according to application store preferences of students on buying desicions. | Rejected |

## 4. CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This research is the field study that measure the effect of color and shape on online application buying behavior of university students. The universe of the study is the university students of Istanbul. The research is conducted between 271 students in Istanbul Aydin University. The size of the universe were taken in account in 2016 – 2017 years when the number of population were around 1500.000 students. Sample size is defined 271 people with the level of confidence 90% and 5% allowable error.

There were a lot of foreign and local articles, books, researches, academic magazines investigated in order to collect needed data. In addition, primary data collected with prepared questionnaire which consist from demographic and likert scale questions. The survey conducted between 24.04.2017 – 07.05.2017 dates in Istanbul Aydin University in which respondents were university students.

Analyzing the data it became obvious that 162 of respondents were males and 109 of them were females. Moreover, most of the applicants were 19-25 years old which means lots of applicants were bachelors. The monthly income of 185 participants from 271 were 2501 and above TL. A significant difference was between participants in application store users and more than half of them were using App Store which means most of them Iphone users.

In order to test the hypotheses the researcher applied Mann-Whitney U and Kruskal-Wallis H test in SPSS program and all hypotheses tested with four(gender, age, education,preferred application store) demographic variables.

When looking at the result of the analysis of the $H_1$ it is obvious that the hypothesis is accepted. It means that the value of p which got in Mann-Whitney U statistical test is below the acceptance 0.05. Furthermore, the answers shows that the influence of application's logo color vary according to gender in individual's purchasing decisions. In other words,depending on people gender they give significant

importance to the color of application's logo in final decision making stage of their buying behaviours.

According to the outcome of the testing of $H_2$ rejected. In addition to it statistically the the value of p is above the 0.05 acceptance, in turn which informs that test results deny the hypothesis. The most of applicants were 26-35 years old students. Anyway, Kruskal- Wallis test showed that the effect of mobile application's logo does not differ according individuals' age in their buying decisions.

Analyzing outcomes of the $H_3$ hypothesis it seem that people give serious importance to color according their educational status. The results describes that the rate of p is 0.029 which is below 0.05 acceptance value. Although more than half of applicants were bachelors, Kruskal-Wallis test showed significant according to educational variable.

The $H_4$ hypothesis of research about the effects of application logo differs according to applications store preferences of students rejected. Based on the information, the value of p is above the acceptance 0.05. App Store users are more than Google Play market users. However, it seems that the influence of color of logo does not differ depending on application store preferences.

When evaluating the tests results of $H_5$ it became clear that value of p is above 0.05. In other words, statistically there is no difference in design's impact on students according to gender variable. It seems that the effect of application's logo design does not differ by the gender. $H_5$ is rejected.

Outcomes of $H_6$ showed that the p value is above the acceptance 0.05. People does not pay attention on logo's desing depending their age, so statistically it explains that there were no difference between dimensions according to age variable. Finally, the hypothesis $H_6$ is rejected.

Significat difference were shown in educational variable. Here the p value is below the acceptance. Furthermore, people care about application's logo desing when thake decisions in their buying behaviours. Kruskal-Wallis outcomes explained that $H_7$ is accepted and the impact of application's logo differs according to individual's education.

The final $H_8$ hypothesis of this research about design's influence depending on studens' application preferences rejected, as well. Looking through information that

give us the tests the value of p is above the needed acceptance 0.05. Moreover, the influence of application's logo does not differ according to students' application store preferences.

This research is limited with color and shape of application's logo. Research was applied between university students in Istanbul. For future researches it will be good to explore the whole universities of Turkey. Primary data collected with the questionnaire which was prepared before.

The research can be conducted between different people with different statuses  The same reseach may apply in different countries, even comparing the results of this thesis. The main variables which were taken to determine the influence of color and design on gender, age, education and app store preference. However, it can be other demographic variables such as marital status, income as well. Furthermore, by taking the same features like color and design similar researches could be explore to study consumers' buying behaviours.

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## APPENDIX

Dear participants;
This questionnaire was prepared to provide data for a graduate thesis study which is administered by Asst. Prof. Dr. Ilkay Karaduman in Istanbul Aydin University. The data will only will be used for scientific research and will be kept confidential.
Thank you for your participation.
Elshan Mammadov

**1.Gender**

Female ( )
Male ( )

**2.Age**

18 and below ( )
19-25 ( )
26-35 ( )
36-45 ( )
46-55 ( )
56 and above ( )

**3. Your marital status**

Married ( )
Single ( )

**4. Monthly income of your family**

1001-1500 TL ( )
1501-2000 TL ( )
2001-2500 TL ( )
2501 and above ( )

**5. Educational status**

( ) Associate Degree ( ) Bachelor ( )Master ( ) PhD

**6. Your favorite color**

( )Red ( )Yellow ( )Blue ( )Green ( )Orange ( )Black ( )Purple ( )White ( )Brown ( )Navy Blue ( )Other …….

**7. Which mobile app store do you use?**

a) Apple Store b) Google Play

**Please read the following statements carefully and answer them by choosing next answers. 1. Strongly agree, 2. Agree, 3. Undecided, 4. Disagree, 5. Strongly disagree**

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| The color of the mobile app logo affects when I buy the product. | | | | | |
| If I like the logo color of a free mobile application which I see for the first time, it affect me to download the application. | | | | | |
| If I like the logo color of a paid mobile application which I see for the first time, it affects me to download the application. | | | | | |
| The logo color helps me to make buying decisions in appllications which are similar or the same priced | | | | | |
| The logo color of applications which I like are high quality applications | | | | | |
| If I don't like the logo color of a free mobile application, it has negative effect on my choise to download the application. | | | | | |
| If I don't like the logo color of a paid mobile application, it has negative effect on my choise to download the application. | | | | | |
| The logo color of the application is influential on my preference in similar and equally priced applications. | | | | | |
| A good logo color can reduce my price sensitivity. | | | | | |
| The logo design of the mobile application is influential when I buy the product. | | | | | |
| If I like the logo design of a free mobile application which I see for the first time, it affects me to download the application. | | | | | |
| If I like the logo design of a paid mobile application which I see for the first time, it affects me to download the application. | | | | | |
| The logo design helps me to make buying decisions in appllications which are similar or the same priced | | | | | |
| The logo design of applications which I like are high quality applications | | | | | |
| If I don't like the logo design of a free mobile application, it has negative effect on my choise to download the application. | | | | | |
| If I don't like the logo design of a paid mobile application, it has negative effect on my choise to download the application. | | | | | |
| The logo design of the application is influential on my preference in similar and equally priced applications. | | | | | |
| A good logo design can reduce my price sensitivity. | | | | | |

**Scales used to prepare the questionnaire:**

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**Şen, M.E. (200**9), Consumer Attitudes Related To The Packages And A Practice, Unpublished Master Thesis, Marmara University

**Özcan S.Ç., (2014**), Product Packing The Effect Of Consumer Purchase Decision, Unpublished Master Thesis, Karabük University

**Bahar, T., (2014),** The Influence Of Packaging Of Food Product On Consumer Purchasing Behavior, A Case Study Of Ankara Mamak, Unpublished Master Thesis, Gaziosmanpasha University

**Yazıcı, G., (2009),** Package Color Preferences Depending On Consumers Lifestyle: An Application, Unpublished Master Thesis, Marmara University

Evrak Tarih ve Sayısı: 25/05/2017-9642

T.C.
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Personel Daire Başkanlığı

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SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : 18/05/2017 tarihli ve 9157 sayılı yazı.

Enstitünüz, ***Y1412.130067*** numaralı İşletme Anabilim Dalı İşletme Yönetimi İngilizce Tezli Yüksek Lisans programı öğrencilerinden ***Elshan MAMADOV***'un "*THE EFFECT OF COLOR AND SHAPE OF THE APPLICATION LOGO ON ONLINE APPLICATION BUYING BEHAVIOUR OF UNIVERSITY STUDENTS*" adlı tez çalışması gereği "*Application Logo Survey*" ile ilgili anketi Üniversitemizde uygulaması talebiniz uygun görülmüştür.
Bilgilerinize saygı ile rica ederim.

**e-imzalıdır**
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**RESUME**

**ELSHAN MAMMADOV**

## PERSONAL INFORMATION

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| **Date of Birth** | 20.01.1990 |
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## WORK EXPERIENCE

**2016 – 2017** **Operations Manager**
Deep Hotel Istanbul

**2015 – 2016** **Front Office Supervisor**
Isthouse Rental Agency (Istanbul)

**2013 – 2014** **Office Manager**
Bakinity Distributions (Baku)

**2012 – 2013** **Sales Manager**
Sharks Mobile (Baku)

## EDUCATION

**2014 – 2017** **Master of Business Administration (in English)**
Istanbul Aydin University

**2007 – 2011** **Bachelor of Economics**
Azerbaijan Technical University

## LANGUAGES

**Azerbaijanian** - Native
**English** - Fluent
**Turkish** - Fluent
**Russian** - Fluent

## COMPUTER SKILLS

Windows XP/ 7/ 8
Opera, Chrome, Internet Explorer
MS Word, Excel, Power Point, Outlook
System Hotel Reservation
Imagic Hotel Reservation
SPSS

## DRIVER LICENCE

BC

## PERSONAL SKILLS

Leadership
Supervising
Planning
Organizing
Team building
Motivation
Self-starter
Communicative
Administrative