

**The University Students' Attitudes Towards the Use  
of Mobile Games  
A Case Study of Candy Crush Saga**

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Approval of the Institute of Graduate Studies and Research

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## ABSTRACT

The case study of ‘**The University Students’ Attitudes towards the use of Mobile Games**’ was conducted to examine the usage of mobile technology, to determine and understand the uses and gratification of university students towards mobile games and the reason of choosing candy crush saga mobile game as it is the most preferred and demanded mobile game.

This study has focused on Eastern Mediterranean university students’ attitudes towards mobile game usage to understand their preferences towards mobile game candy crush saga, and also to analyze university students’ gratifications. Also this study focused on the differentiation between addiction and attitude on university students toward Candy Crush Saga mobile game.

By using quantitative research methodology, a survey was conducted over 300 university students in eastern Mediterranean university. Questions have prepared in both English and Turkish and all of the participants have responded the questions. The survey includes 50 questions as 13 multiple and 37 Likert scale types of questions. Students participate the survey were divided into two different categories as foreign student and Turkish `students both were male and female from different age ranges.

The result of the study indicates that 300 students that participate the survey use mobile technology in many different aspects. The research has indicated that students find

mobile phone technology beneficial to use, and increases their motivation and communication skills.

One of the most significant usages that students showed in sense was playing mobile games. Besides, the most preferred mobile game was candy crush saga.

The result of the research showed that university students prefers candy crush saga to fill their free time, to escape from their problems, and the joy like passing the levels, that candy crush saga gives.

**Keywords:** Mobile Games, Candy Crush Saga, Attitude, Students, Technology

## ÖZ

### **‘Üniversite Öğrencilerinin Mobil Oyunların Kullanımına Karşı Davranışları’**

çalışması mobil teknolojinin kullanımını incelemek, üniversite öğrencilerinin mobil oyunların üzerinde kullanımları ve doyumlarını anlamak ve belirlemek, en çok rağbet gören ve talep edilen bir mobil oyunu olan candy crush saga oyununu seçme nedenleri incelemek üzere ele alınmıştır.

Bu çalışma doğu akdeniz üniversitesi öğrencilerinin mobil oyunların kullanımına karşı davranışlarını ve candy crush saga oyununu seçme nedenleri üzerinde yürütülmüştür.

Nicel araştırma methodunu kullanarak, doğu akdeniz üniversitesinde 300 üniversite öğrencisine anket yapılmıştır. anket soruları ingilizce ve türkçe olarak hazırlanmış olup katılımcıların hepsinden dönüş alınmıştır. anket soruları, 13 çoktan seçmeli ve 37 adet Likert ölçekli olmak üzere toplam 50 sorudan oluşmaktadır. ankete katılan üniversite öğrencileri kadın ve erkek olmak üzere, farklı yaşlardan yabancı ve türk öğrencilerden oluşmaktadır.

Yapılan çalışmanın sonucunda, ankete katılan 300 üniversite öğrencisinin mobil teknoloji kullanımını pek çok açıdan tercih ettiğini göstermektedir. araştırma, öğrencilerin mobil teknoloji kullanımını yararlı bulduklarını, iletişim becerilerini ve motivasyonlarını yükselttiğini göstermektedir.

Öğrencilerin mobil teknolojiyi tercih etmesinde en belirgin gerekçe mobil oyunlar çıkmıştır. Bunun yanında, candy crush saga üniversite öğrencileri tarafından en çok oynanan mobil oyun olarak belirtilmişken, boş zamanlarını doldurma,

problemlerinden uzaklaşma, oyun seviyelerini geçmek gibi keyif gerekçeleri de yapılan araştırmada sunmuşlardır.

**Anahtar Kelimler:** Mobil Oyunlar, Candy Crush Saga, Davranışlar, Öğrenciler, Teknoloji

With very special gratitude to all my family

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# **Chapter 1**

## **INTRODUCTION**

Over the past two decades, progressions in technology has been evidently extant in every aspect of lives. Common among these technological tools are blogs, Wikis, and social networking sites and mobile games. These tools have proved to be influential in sectors such as business and economics, advertising, health, politics, entertainment and gaming, to mention but a few. Mobile games or Internet gaming is an important by-product of technology and largely, the availability and affordability of smartphones and computers have exponentially created a major market for online games, which has helped increase online players of such games. Some of the common social networking games are FarmVille, Zuma Blitz, Words With Friends, Mafia Wars, World of Warcraft ONE, SongPop, Candy Crush Saga, Criminal Case, CityVille, YoWorld and The Pioneer Trail. The focus of this study is Candy Crush Saga and it has been named one of the most demanded mobile games. It has been documented that people of different demographics and geographic structure play the game however, just like most popular games, it has been also empirically confirmed that most players of Candy Crush Saga are young adults. They play to gratify various needs (Dredge, 2014).

Researches show that playing mobile games has impact on people's attitudes. However, individuals have many reasons why they choose to play these games. Time spent on these mobile games have been found to have a positive relationship with

addiction which reveals that mobile games can have behavioristic disorders and attitudinal changes on humans (Saaurya, 2012).

Considering that fewer studies have investigated Candy Crush Saga users' comprehensively, this study planarly investigates the attitudes of university students' towards mobile gaming through a quantitative research method of survey among students in Eastern Mediterranean University; a public university in Turkish Republic of Northern Cyprus.

### **1.1 Problem Statement**

This research is based on Candy Crush Saga; a mobile game and, we seek to understand the attitudes of university students towards the game. The study follows a quantitative research method to examine why students play mobile game, specifically, why students play, or prefer to play, Candy Crash Saga.

Previous studies have examined different kinds of issues on Candy Crush Saga game. Foster, (2013) investigated addiction of the game and highlights that Candy Crush Saga can make people waste money and time. Other studies have also investigated this topic and indicated interesting findings. Smith (2014) states that Candy Crush game is created to provide players a source of happiness. This way they can deviate from their real life problems. He also adds that, playing the game doesn't make players to be addict. Smith (2017) posits that Candy Crush Saga can even help kids to learn faster, be good planners and gain adapting abilities.

The research problem of this study can be identified as the attitudes, perception and addiction of university students' towards mobile games; In this case, Candy Crash Saga. Previous studies specifically related to this issue indicated that university students prefer to play Candy Crush Saga game, not because of the fact that they are

addicted to it, but because they like to create a social environment and exist in that environment (Ozkan, 2015).

## **1.2 Purpose of the Study**

Considering that Dredge (2014) mentioned that Candy Crush Saga is the most demanded game, this research examines university students' attitudes towards mobile games (Dredge, 2014). We aim to know how university students are influenced by playing this mobile game. Also, the main reasons why university students prefer to play Candy Crush Saga more than other mobile games would be assessed. While the larger goal of this study is investigating the players of Candy Crush Saga, we also aim to empirically fill the gap in mobile games literature.

A quantitative research method was used in this research to examine student's attitudes towards the use of mobile games in Eastern Mediterranean University. The survey of this research typically consists of Likert type items and few structured (close-ended) questionnaire items. As earlier mentioned, university students at Eastern Mediterranean University were recruited for this study ( $n=300$ ). Participants were of both genders, diverse nationalities and different age ranges. The two variables of this research are; dependent variables- "the mobile phone user" and "mobile games" and the independent variable is "Candy Crush Saga". This structure was significantly instrumental to the formation of the questionnaire.

### **1.2.1 Research Questions**

The research questions of this study are focused on the usage of mobile games; specifically, Candy Crush Saga. With each research question, the predictions of mobile

game usage and attitudinal behavior of young people were focused on in this study.

This study sought to know;

**RQ 1.** Why do university students play mobile games?

**RQ 2.** What kind of games do university students play the most?

**RQ 3.** What is the reason of playing mobile phone games?

**RQ 4.** What is the reason behind using technology?

**RQ 5.** Why do students play Candy Crush Saga?

### **1.2.2 Assumptions**

The major suppositions of this study in respect to uses of Candy Crash Saga by university students are as follows:

- University students use smart phones and play mobile games.
- Candy Crush Saga is most preferred mobile game between university students.
- University students play Candy Crush Saga for attitudinal reasons.
- University students prefer to play Candy Crush Saga purposely; enjoyment and utility reasons.

### **1.3 Significance of the Study**

Previous studies have focused on the addiction of Candy Crush Saga game on Generation Z, university students, and children. While some of the studies emphasize

the disadvantages of playing mobile game on social, educational and daily life, some of the studies has highlighted the positive impact of the game.

The significance of this study is that it examines the main reasons why university students prefer to play Candy Crush Saga mobile game. We emphasize the attitudes of university students towards Candy Crush Saga mobile game as opposed to addictions of the game.

#### **1.4 Limitation**

This research is limited geographically. We also focused on students in Eastern Mediterranean university in Famagusta. Also, another limitation is that only 300 students participated in this survey. This research is also limited by season. It was conducted in 2015-2016 Spring Semester. The study specifically focused on Candy Crush Saga mobile game.

#### **1.5 Definition of Terms**

The following terms are being used in the research and defined below as;

**Smart phone:** A wireless device that has computer functions and internet access. It allows users to access e-mail and Web, music and movie player, camera and camcorder, GPS navigation, voice dictation for messaging and a voice search for asking questions about anything and many other options (Lee, 2014).

**Mobile games:** Games that can be played on compact mobile devices like mobile phones, tablets, personal digital assistants with wireless communication functionality.

Mobile games can be played by using internet or can be downloaded, stored in mobile device software (Jin, 2017).

**Candy Crush Saga game:** It is a free game that requires players to match. It is a puzzle type of mobile game. It can be played through internet or it can be downloaded on a computer or portable mobile device. The game is developed by King Company (Smith , 2014).

**Attitude:** A settled way of thinking or feeling about something or someone. A way of behaving that is caused by cases, situations etc. Attitude can be presented in different

meaning or approaches like in nature, in social psychology, in behavioristic meaning (Anthony, 2014).

## **Chapter 2**

### **LITERATURE REVIEW**

#### **2.1 Media and Society**

The relationship between media and society has been existed since the constitution of media and its tools. Regarding this sense, it is important to know the content of the media, the characteristics of media, the influence of media on society under demographic statements, the sociological structure, the dynamic of the audience and society, and the evaluation of this relationship between media and the society in a historical periodic way (Mughal., 2013). Thus, there is a close relationship between these two words “Media” and “Society”. Also, “Media” and “Society” relations and influences on society, communication plays a role to explore the relations as well.

The word “Communication” carries many dimensions within itself, reinforced through history and had its own shape in today’s life with the growth and developments on technology. By these changes in technology, other terms related with `media` has arrived. Thus, the structure of the audience in terms of their needs, wants, gratifications and expectations has changes (ROY, 2015; Jones, 2016; Mughal., 2013).

For this relation between media and society, many authors and important thinkers had study on this subject and, even more, they created communication theories. Dividedly under positivist or critical aspect, some of these theories claimed audiences as passive and active (Burton, 2004). Before determining these theories, it is important to



emphasize the effects of media in people's lives as member of society. There are mainly four main effects that media creates on society.

These are; message effect, medium effect, ownership effect and active audience effect.

Message effects can be categorized as **cognitive effect** (related with short term learning of information). The amount of learning through media is depends on the motivation level of the audience that consuming the media. **Attitudinal effect** is directly related to audience's attitudes. The basis of media content can develop feelings about a product, an individual or even can change an idea of audiences, whether create a new idea or changing the already existing one (sunilpinto, 2012). **Behavioral effect** is another effect that message sent through media might have strong impact on audiences. Separated than attitudinal effect, behavioral effect focus on the actions like collecting coupons from a newspaper, being enough persuaded from an advertisement and buying that product, or voting for a candidate after seeing his\her propaganda etc. The last message effect is related with **psychological effect** which is related with the joy, fear, happiness or other feelings that the message carries and has effects on audience. The content of the message, like music, violence, sexuality and etc., carries these feelings and creates psychological effect on audiences (sunilpinto, 2012).

Medium Effect is the model of communication was famously known as the sender, the message, the receiver, by the contribution of Marshall McLuhan, after 1950s the importance of the medium became crucial. By the development on communication technology and the existence of various media, the medium that carries the message had an important role on social change (Meyrowitz, 1994). Despite its importance, it

had effect on every level of communication; intrapersonal, interpersonal or mass communication.

Ownership Effect is this message effect focuses on, not the effects of media and its message but the owner of the media as well. According to some scholars, the influences of those who control the media have an important role on affecting the society. Because those who have power to control the media can determine which ideas will be distributed by media, member of society thinks, effects, and reacts to the message that is chosen and represented by the media owner (McCrittins, 2010).

Active Audience Effect is which the audience in today's world, is dynamic and active media user, briefly obtains information from media depend on their needs, wants, gratification and etc., still, they seek information and respond to the messages they

meet on media in a different way. The reactions of audiences differs depends on many basis. Mainly there are three different aspects that divide audiences in this matter.

**Geographic:** different regions, climates shapes people`s living different. And this situation effects on audiences` approaches the way how they perceive the message.

**Demographics:** gender, race, ethnicity background, educational level, income, age determines the differences on audience and how they perceive the message or how they get affected by the message that media carries.

**Psychographics:** values, morals, attitudes, beliefs and this kind of characteristics create significant differences between audiences in terms of how they perceive the message from the media (Schmitz, 2012).

Despite all these circumstances, the relationship between media and society has a reinforced tie in terms of political, economic, educational, and the issues directly related with the society.

## **2.2 The Main Reason for Media Usages**

Mass media are tools for the transfer of information, concepts, and ideas to both general and specific audiences. With the technological development, the definition of media, as it is defined through history, has shifted. However, the usage of media

always existed through history depends on the media tool, the context of this usage shows difference.

There are many different purposes for using media and mass media tools. Not only the personal reasons, but also behavioral, psychological and sociological factors influence the usage of media that carry different characteristics and functions.

Before we outline the main reasons of media usage, it is important to emphasize the “seven mass media” as classification. These are;

**Print:** (books, pamphlets, newspapers, magazines, etc.) from the late 15th Century, Recordings (gramophone records, magnetic tapes, cassettes, cartridges, CDs

and DVDs) from the late 19th century, Cinema from about 1900, Radio from about 1910, Television from about 1950, Internet from about 1990, Mobile phones from about 2000 (Biagi, 2013)

However, each mass medium has its own content types and models. Depends on the uses and gratification, the usage of these different mediums, and how people use the media can be categorized mainly as;

**Social Utility:** "Conversational currency," when the media provides conversation topics; using the media to fill a social void. Media provides two important tasks: entertainment and creating topics of conversation. One of the main reason why people for example watch TV is to be able to have conversations with lots of people, even if they have no other similar hobbies, it is so called decreasing `knowledge gap`. This

means that a gap develops between people who are informed and take part in cultural and perhaps intellectual life and people who are not. (WordPress, Saaurya, 2012)

**Affiliation:** Occurs when the user feels a sense of belonging through the media.

**Cognition:** Using media to gain knowledge. Whether, using the media to keep up with information on current events, or using the media to learn about things in general or things that relate to a person's general curiosity, people use media to obtain information about something in a cognitive way. (Baba, 2015)

**Diversion:** Diversion takes many forms. Mainly identified ones are:

- Stimulation: Emotional/intellectual stimulation, avoiding boredom. Many people report that they watch, read, or listen simply to pass the time.
- Relaxation: An escape from sensory overload, a way to unwind. In this sense for audiences, the media are one source to relief. Simply, watching TV or reading magazine represents a pleasant diversion from the frustrations of everyday life for audiences (Baba, 2015).
- Emotional Release: Feeling empathetic towards characters in media can provide emotional release. And this by itself can be a reason for audience to

use media. It is researched that audience feels comforted when they see others in a dramatic position than them (Shallowhorn, 2014).

**Expression:** Satisfying self-needs to express ourselves through the media

**Withdrawal:** Avoiding responsibilities and/or people by using media (Shallowhorn, 2014).

Thus, these uses and gratifications are determined audience oriented. But sometimes as audience the media can be used specifically. There are some general statements that public, as communicator, use media to achieve their goals, which can be considered as main, reason for using mass media tools. These statements can be divided as;

Advocacy, both for business and social concerns can be considered. This can include advertising, marketing, propaganda, public relations, and political communication.

Entertainment, traditionally through performances of acting, music, sports, and TV shows along with light reading; since the late 20th Century also through video and computer games.

Public service announcements and emergency alerts (that can be used as political device to communicate propaganda to the public).

However, the usage difference a matter, the main characteristic of this usage is identified in terms of uses and gratification. Both sender and receiver, achieves media tools depends on their gratification. Especially today's life, audiences are dynamic

and active. They obtain and receive in a way what they want and how they want. Depends on the current issues carried on media, audience decides of what they will get effected. Although agenda setting theory matters in this point, still, audience is active media users. Despite it is important to note that it is not only media content that determines audience usage, but also the social context within which the media exposure occurs. For instance, reality shows, sitcoms, movies, magazines all contain material that audiences can use for escape purposes (Mughal., 2013).

### **2.3 New Communication Technologies**

Communication technologies are crucial part of the media. The relationship between technology in communication and media directly affects the relationship between audience and how they consume, obtain and gratify from media. Technological developments in communication can be adapted to audience in many ways. However, the most effective orientation can be provided by communicators who send messages through media to audiences (William P. Eveland, 2003).

Despite, communication does not always been provided by communicators. Structurally, there can be different type of communications that might occur in social roles. In each of these social roles we adobe ourselves in daily life are integrated with communication, and connectedly, ties us through communication technologies. Some of these communications are; family communication, global communication, political communication etc. (Flichy, 1995).

Each type of communication we have in our daily life had been constituted within a technological development historically. Over last 30 years, the communication technologies have modified our relations both as public and private. The revolution in

19<sup>th</sup> century towards these technologies, like the telegraph, the radio, the telephone, the motion picture, the gramophone, have brought variety of different usage in terms of communication.

In this matter, most of the new communication technologies can be considered as a result of the development of these communication devices. New communication technologies like television, computer, mobiles, internet, videogames and satellite are invented in late 20<sup>th</sup> and early 21<sup>th</sup> century and are most preferred communication technologies for many purposes like transferring information, entertainments, social concern issues, public advocacy etc. in today's world (Paisley, 1993).

To understand how these statements are placed and how they are brought to public by, it is important to take a look on these technologies historically. We can divide and consider them into six main categories. These are; printing, telegraph and telephone, Radio, Television, digital media and mobile media (Herring, 1996).

Printing: However, it was first Chinese nation came up with printing idea by inventing paper and block painting (characters were carved into wood and was inked and pressed onto paper), Korea with China have made experiment on portable type in the beginning of 15<sup>th</sup> century. In 1450, Johann Gutenberg invented a movable type metal printing press. Subsequently, early newspapers are published in Germany in 1609. This progress had contributed to the development in languages in Europe, growth of



literacy, accessibility of information widely and to consistency of different communication ideas (Herring, 1996).

Telegraph and Telephone: However, the mechanical semaphore was invented in France in 1792, the invention of telegraph was found by Samuel Morse in 1850. Messages were sent through telegraph by `Dots` and `dashes`, which is called Morse alphabet. This development helped public to communicate and get information easily especially during war times. It also gained the idea of `Global Village` (Marshall McLuhan). However, before the invention of telephone, Thomas Edison has found the first voice recorder called *phonograph* (voice was recorded on a wax cylinder) in 1877, telephone was invented by Graham Bell in 1876. Following, in 1884 the first long distance phone calls are made. Transmitting of voice over electrical wires had made even bigger impact on communication in terms of reaching information or contacting in a much faster way. This invention had brought many improvements on the idea of communication. (Weiswasser, 1997)

Radio: After Heinrich Hertz proved radio ways in 1885, Guglielmo Marconi sent Morse codes through radio signal across the Atlantic Ocean in 1901. However, he didn't discover a new principle, he improved and applied Hertz's component. This was known as radio-telegraph and it was used in Titanic in 1912. Reginald Fessenden transmitted radio voice over air and introduced this by broadcasting music and voice in 1906. After Nicola Tesla developed new systems for wireless communication, commercial broadcasting has started in 1920. (Moran, 2010) With these improvements on radio, the idea of broadcasting advertising has raised and radio as a source for news became much more impressive than newspaper for public. Radio helped to constitute

popular culture and it became primary form for news and entertainment. (Herring, 1996)

Television: However, television was first invented by John Logie Baird in 1926, General Electric Company first combined the idea of a device that could show moving images with the technology to wirelessly and broadcast them in 1928. (Boddy, 2013) BBC public broadcasting has begun in 1932 and following that, in 1936 summer Olympics broadcast at first. First TV advertisement broadcasted in 1941. With these developments in television, the cable broadcasting and satellite broadcasting brought new ideas and experiences on people's life. Television became much more popular source and replaced radio for news and entertainment (Herring, 1996).

Digital Media: By the invention of computer the term 'digital' was born and placed in people's life. These computerized systems encode and transmit information in binary computer code (consists of 1 and 0 numbers). The revolution has begun by its first generation in 1940s, improvements in 1960s and produced by IBM Company for business purposes in 1964 (Megan Alicia Winget, 2011). Desktop Computer (called Personal Computer as well) growth and development has started throughout the 1980s and 1990s. Desktop computers became the predominant type, and produced by the Apple Macintosh and following this, portable computers (Laptop Computers) has produced in 1981 and it reached to tablets in millennium age (Megan Alicia Winget, 2011). The alteration in digital media has brought many varieties, and raised new constitutions. By digital media, everybody has able to be a mass communicator. The growth in digital media impacted on new jobs. It became a crucial communication area for politicians, governments and society itself. By itself the digital media became an industry and helped governments' economically in fact (Herring, 1996). The digital

media term is related with the Internet, Web 1.0 and Web 2.0 technologies deeply. Web 1.0 is a general description that includes the applications on which users are included on the internet as the only content that cannot be intercepted or included by the users in any way (Cormode and Krishnamurthy, 2008). So, the development process of Internet technologies for mass crowds started with the Web 1.0 technologies with the early-forms of web sites. The users could not be part of the communication process in Internet in this time and they are in the position as passive receivers of the Internet based messages similarly in the traditional media. Web 2.0 is created with a similar logic to Web 1.0, but is separated from Web 1.0 applications by its structure allowing users to add content. So, the structure of the digital media contents rapidly changed with Web 2.0 technologies.

Furthermore, the birth of the term Web 2.0 took place in 2005 in connection with a brainstorm between O'Reilly Media and Media Live International, and this was taken as a sign of the emergence of a new trend on the Internet (O'Reilly T., 2005). Web 2.0 technologies create a movement path for the user and create an unlimited range of interaction with other users. This leads to the formation of online communities depending due to specific interests or demographic variables. Production process, copying, sharing and editing of content and information are common applications in Web 2.0 technology. More active roles of users, such as content producers, contributors, critics and commentators, make it easy to form communities that are shaped around specific interests in the virtual environment (Constantinides, 2009: 5-11). So, the structure of media has been dramatically changed according to changing role of the receiver as user, creator, and distributor in new media. With the rapid rise of users' generated content in the new media, an alternative public sphere is formed

by the two sides of communication and digital media contents have been started to be produced by users.

**Mobile Media:** The term Mobile media refers to integrated phone and internet usage. After the invention of telephone, the idea of portable telephone, which is called mobile phone, have raised in 1940. The first private mobile communication system has invented and the usage in police car (Detroit, USA) was the first representative. This was considered as the beginning of mobile communication (Goggin, 2011). Federal Communication Commission (FCC) the Bell system established the first public car phone. During 70s and 90s, it was the peak time for the development of mobile technology. The Bell Company developed the advanced mobile phone system. Following this, the cellular network built up and provided the technique for manage and the control of the large size net (Goggin, 2011). Despite of this, internet was found in 1960s with the idea of allowing computers to share information on research developments scientifically and military issues. In 1969, internet was brought online and initially connected to four universities' computers in US. Today, internet is used for almost all kind of purposes in terms of reaching information, connecting to others, self-esteem, and much more. To achieve these, mostly downloading (mainly means to receive data), streaming media (refers to delivering method of the medium, rather than the medium itself), wireless technology (Bluetooth, WI-FI, etc.) are used (Megan Alicia Winget, 2011).

### **2.3.1 New Media**

New media is a terminology that started to use after the development of new communication technologies such as computers, internet technologies, mobile phones, game consoles, iPod or palm, data bank registrars and communicators, in other words all these digital technologies can be collected under the heading of new media. The

distinguishing features of new media which differentiates it from traditional media are interaction and multimedia style (Binark, 2007:21).

If we can talk about a concept which is called new media, the most important driving force for this conceptualization is undoubtedly Internet Environment, in other words the web itself. The basic prototype of the internet first appeared in 1969 as ARPANET as a digital research network developed by the US Department of Defense in order to develop defense resources (Timisi, 2003: 122). The birth and development of the Internet is a result of military strategies, technological cooperation, technical and cultural progress. Internet transferred limited data and continued its existence as a local from the time when it first invented to the 1990's. The improvement in the Internet technologies in 1990's is related with the technological developments in computer sector. In 2000's, a global system based on fiber optic investment began to be built; so, data transmission speed increased and the number of Internet connected devices increased (Castels, 2008: 58-68).

Rapid developments in internet had significant impact on the idea of mediated communication and on the public as a member of the society. The perspective of collecting information, persuading, reaching audiences and behaviorist attitudes like gratifications, entertainment issues, has changed with these developments in technology. The term "New Media" refers to all forms of electronic communication that use internet including podcasts, RSS feeds, social networks, text messaging, blogs, wikis, virtual worlds and etc. New media makes possible for anyone to create, modify, and share content. People of all ages and backgrounds becomes online and using new

media tools for a variety of reasons such as searching for information and connecting with others (Jones, 2016).

Gitelman evaluated the media concept in terms of new communication technologies and defines the "new media" concept as a technological tool and a two-dimensional process shapes around social/cultural practices depending on technological developments (Jenkins, 2006:13-14).

Moreover, new media term can be used to describe simultaneous, dense, high-speed and multimedia environments, communication process and tools which are based on digital coding system different from traditional media. In this context, the term of "new media", which can be expressed as a digital platform, is a phenomenon emerging in all dimensions of everyday life such as Communication, health, entertainment, career, commerce, politics, etc. (Binark, 2007:5).

Also, the new media can include all elements used in building virtual reality from the internet, to web sites, from computer games to DVDs. There is a controversy over whether the new media can include various items such as TV programs shot in digital format, illustrations designed on computers, photographs taken using advertisements or new technologies. In general, new media definitions concentrate on the distribution of information through technological facilities rather than production; computer technology can be evaluated within the concept of product and information produced (Manovic, 2001: 20-21).

### **2.3.2 The Fundamental Features of New Media**

It is known that different theorists have adopted different approaches at the point of determining the characteristics of the new media. Rogers Et. Al (1988) has described

three main features of the new media such as interaction, demassification and asynchrony. With interactivity feature, the can be evaluated according to the communication possibilities which are supplied to the users by new media. The interactive nature of the new media provides reciprocity or multi-layer communication in the field. The second characteristic, “demassification” is described as the transmission of personalized and private messages to specific users, rather than the transfer of the same messages to a large group of people. The last feature in Rogers’s classification is asynchrony. The asynchrony term can be described as the lack of the new media for being synchronous. In the new media system, users demand information at any time that they want and transfer messages easily.

Manovich (2001) determined 5 features of the new media as numerical representation, modularity, automation, variability and transcoding. If we want to explain these features one by one; the numerical representation concept can be defined as the desired phenomenon is that the new media is mathematically identifiable. So, the new media platforms consist of digital codes, mathematical symbols and algorithms. The second feature of media is determined as modularity and this term can be described as a feature which is directly related with the new media usage. According to Manovic (2001), the elements of new media images, sounds etc. These are the collection of different samples of media content. These modules can be separated, reunited and used for different media contents easily.

Another feature that the new media has is automation. Automation term means that the new media content can be formed and produced without the human power. For example, visual effects in the movies can be easily realized with the new communication technologies. Modification principle means that there are unlimited

variations and adaptations of the new media contents. The current object can be confronted with multiple shapes and all written, visual and audio items are automatically combined. The trans code system represents two basic concepts of the new media: social layer and computer layer. The cross-formatting transactions are possible in the new media system. Also, at the same time different formats can coexist. Due to the multimedia feature of new media components, different formats such as image, sound, text and numeric data can be located all together. Thus, for the first time in history, a hypertext and meta-language human communication is formed which includes written, verbal, audiovisual types of data (Castells, 2005: 440).

### **2.3.3 Media Effects**

Contemporarily technological developments in communications brought many new concepts, such as internet, web sites, social media, virtual reality, computer games into the realm of media literature. Also, smart phones play stations, data banks and other computer systems can be added among concepts of new media. Consequently, the definition of new media contains interactive communication tools.

The key differentiating features of the new media from traditional media are that they have interactive and multimedia styles. Despite, new media technologies and the internet cannot be considered as a tool of communication.

New media has more functional effect and more powerful than traditional media in creating public opinion that is more easily accessible (Kotval, 2013). Thus, in today's world, it is undeniable that new media plays an important role in impacting our life



such as culture, economy, lifestyle and our overall view of the world. The user is both influenced and influenced by social media on new media.

Furthermore, new media is a new forum that brings people to exchange idea, connect with, relate to, and mobilize. It has removed communication barriers and created decentralized communication channel and open the door for all to have a voice and participate in a democratic fashion including people in repressive countries. It has a negative impact on our lives because the combination of isolation and global reach has eroded our culture.

**Cultural Impacts:** New media has started the process of digitalization of cultural products. Digitalization of cultural have led to the emergence of new cultural forms such as computer games, virtual worlds, web sites. New media redefined and transformed old cultural forms such as photos, painting and cinema (Manovich, 2001). New communication technologies caused a wider circulation of digitized cultural products, including artworks. A new cultural space has emerged.

Changing of cultural forms has accelerated the globalization process. According to Larrain, globalization can be defined as an increase in the degree of communication and interaction between people, society and states living in different regions of the earth. Having a globalizing influence through the technological features of the Internet has led to the emergence of a homogenous cultural structure (Larrain, 1995).

**Sociological Impacts:** The changes in forms of communication are affected to social relations and social structure. In the same way, the needs of the social structure can trigger technological developments. According to Castells, the development of

information and communication technologies created a network society. Actually, the concept of Social Network is not a new concept. It has existed for many years. But, it has gained a new meaning with the transformation of the internet. Information is the most important feature of this society (Castells, 2005).

Moreover, there is a kind of up-to-date contents, quick feedbacks, uncensored and freely messages are social power of social media. Kuşay suggested the new media has a function like a public space. It also serves as an environment to influence of social movements. In the past Occupy Wall Street, Arab Spring and Occupy Gezi movements organized and directed on social media (Kuşay, 2013).

**Economic Impacts:** The ratio of use of social media tools day goes by people to pay more attention to the area and a huge increase in the number of users seems. This has led to the emergence of a new economy, different consumer behaviors and marketing approach.

Furthermore, Schiller thinks that internet and its telecommunication systems are a milestone in the trans nationalization of economic actions and the internationalization of financial and economic flows brought by globalization (Schiller, 1999). As a new trend, E-commerce activities are one of the most important results of new media and information technologies as e-commerce activities have the feature of the customization.

Furthermore, Social media as social network sites, that is defined a new channel for marketing communications, has become necessary in advertising over the past few years. Thanks to the new media, it became possible for companies to advertise to

consumers everywhere. Also, social media users share their experiences, comments and complaints about the products they have bought. This also affect their sharing's which has causing brands to lose their strength over the customers (Tuten, 2008). The customers have the opportunity to manipulate the perceptions of other customers through social media.

#### **2.3.4 Uses of New Media**

According to Manovich new media has mainly five characteristics: Numerical representation, Modularity, Automation, Variability and Trans coding. From Gutenberg to Zuckerberg, many communication tools have entered in our lives. Developments in computer and media technologies have created new media technologies in terms. New media technologies began in the 1830's with Babbage's Analytical Engine and Daguerre's daguerreotype and continued until the development of modern digital computer in the middle of the 20th century (Manovich, 2001).

In 1950's, Internet was developed that enabled computers to communicate with each other (Ryan, 2010). Web was called Web 1.0 in early periods. It was not possible for the users to interact with Web 1.0 sites. Today, Web 2.0 refers to web sites where content is shared; published and social networking takes place. For example, social media is an application based on Web 2.0 that allows users to produce and share the content (Boyd and Ellison, 2007). Also, the further tools can consider as openness, social graphing practices and user recognition and personalization became important

and Internet got wise by Web 3.0. Virtualization is point of Web 4.0 (Murugesan, 2010).

Nowadays, Internet, multi-media, hypermedia and CMC (computer mediated communication) are positioned as new communication technologies in the current global Internet environment (Özçağlayan, 1998).

New media communication tools are Web 2.0, Social media/networks - Facebook, LinkedIn-, Blogs - Blogger.com, WordPress-, Microblogs - Twitter, Tumblr-, Content communities - Pinterest, Instagram, YouTube-, Virtual worlds - Games, Virtual Reality-, Document sharing - Dropbox, Google Docs-, Wiki - Wikipedia-, Podcasts, Smartphone - Games, Applications-, VR headsets (gaming), Camera technology – HD (Gasparini, 2012). Those new media communication tools have variety of functions according to the type of tools that are technological advancements which considered as the new media as the use of social networking sites.

Internet fulfills all media functions like written communication tools, telephone, communication satellites, audio and visual communication tools, book, photograph, storage techniques. Internet creates commercial opportunities. It provides interactive communication (Aziz, 2008). Furthermore, those commercial opportunities create another kind of communication within virtual world and business opportunity that foster to being successful with entrepreneurship.

Additionally, millions of people can get into interaction by social media called as new media. Sayımer puts in a common framework the definition of social media for online tools, networks, blogs and websites that interact with users by giving them the

opportunity to share information, thoughts, interests, and information (Sayimer, 2008). It is used with motivations such as friendship, fun, fame and sharing ideas about the agenda. Facebook, YouTube, Twitter and Instagram are the most well-known platforms with a high number of users compared to other social networks.

Also, there is an access to new media communication tools which were provided only by desktop and laptop computers in early periods. Apart from desktop and laptop, today we can access to new media on mobile devices such as tablet and smartphones. The latest data suggested that more than 90% of the world's internet users go online via a mobile device. The number of users in the social media is increasing day by day. According to an annual report "Digital in 2017 Global Overview" published by We Are Social which is Analytics Company there are users by 3.77 billion global internets.

There are users by 2.80 billion global social media, 4.92 billion global mobiles, 2.56 billion global mobile social media, and 1.61 billion user's global e-commerce.

There are users by 48 million internets, 71 million mobiles, 48 billion social media, 42 million mobile social media according to Turkey's internet and social media usage statistics. (Vancauver,2017)

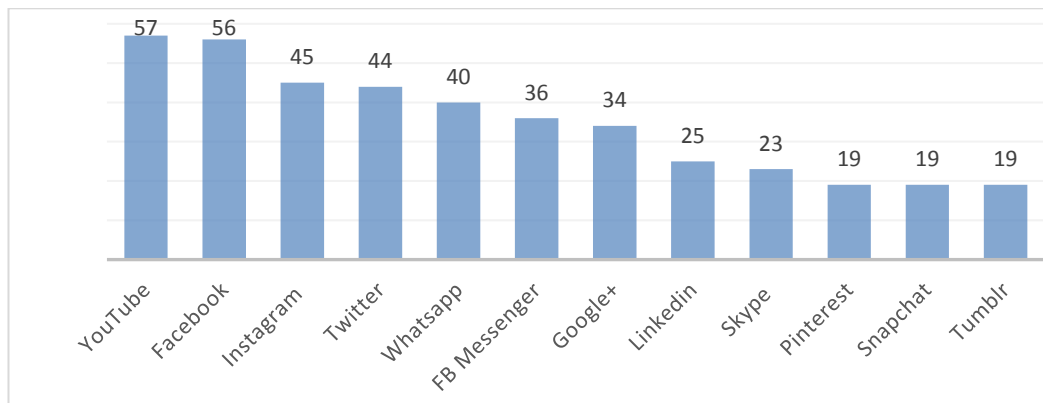


Figure 1: The Social Media Platforms and Usage Rates in Turkey (We are Social, 2017)

## 2.4 Mobile Games Market and Smart Phones

Mobile games market has emerged due to the presence of mobile devices and its increasingly use in today's everyday lives. Smartphones are mobile communication devices that are enhanced by adding **PDA** (Short for personal digital assistant, a handheld device that combines computing, telephone/fax, Internet and networking facilities) features to the characteristics of mobile phones. They work with mobile operating systems. The main possibilities offered by smartphones are quality games and computer-like applications. (Kim and Kim, 2011) Especially the invention of smartphones and being an interactive and measurable platform accelerated to mobile

games marketing. Today, mobile game market has reached a huge size. It is now accounted for half of the entire global digital games market.

The report of Can't Stop, Won't Stop: The 2016 Mobile Games has stunning data, prepared by Super Data Research. According to this report the mobile games market earned \$40.6B in 2016; one in three applications on a smartphone were action games; at 30 minutes a day, mobile engagement was 19% higher in fourth quarter of 2016 than the year before. Android users are 78% of the entire market (Super Data Research, 2017).

#### **2.4.1 The Effects of Smart Phones on the Daily Task**

The computers sphere has started to move to a different platform. Traditional computer applications have begun to transfer to mobile devices because of the rapid developments in mobile technologies. Smartphones are the most practical and most preferred of mobile devices. Smartphones have mobile operating systems (Windows, Android and IOS), graphics processors and hardware features like computers. Apart from talking and messaging, smartphones have many advantages such as browsing the internet, shopping, reaching out information, listening to music, to design and playing games and communicating virtually.

There are key benefits as cost savings and productivity that smartphones provide to businesses and organizational structures. Smartphones provide users a level of mobile convenience that is not matched by the others, increasing user efficiency. This is important with business men, executives and other employees, as smartphones enable them to check email and browse information while they're on the move or away from

office. Also, smartphones portray stylish, a sense of professionalism and efficiency, affecting traits that are viewed positively by clients and potential clients.

Furthermore, other benefits can be listed in that: The feature of video communication reduce phone calls and company visits by the remote access to systems within the enterprise (for example Skype, 4,5 G). People can use smartphones as personal assistant. It offers applications such as email, reminder, and task manager that we can manage many things easily. Also, the Wi-Fi feature allows free internet access and reduces internet costs on travel. They make easier document sharing by the features of taking photo and Bluetooth and Dropbox and WhatsApp applications. Also, navigation applications, the places to be reached are achieved by saving time and cost. Space sharing and tracking can be realized by the GPS function. The use of smartphones enables mobile learning, allowing teaching and learning to extend to spaces beyond the traditional classroom. Also, banking and finance transactions can be done on smartphones (Werdata, 2010).

Moreover, the smartphones give us the power of communicating everywhere, even if people are away from their office or home. Also, people can personalize their data according to their priorities and preferences. So, maintaining the schedule and keeping up to date about the upcoming events and to manage our daily tasks more efficiently. There is no time and space limitation on the Internet and smartphones. These features liberate the person, but it can cause to confusion in business and private life (Altunel & Ulucan, 2016).

Additionally, smartphone addictions can experience memory problems. People who actively use smartphones normally use their phones for daily tasks that they do with

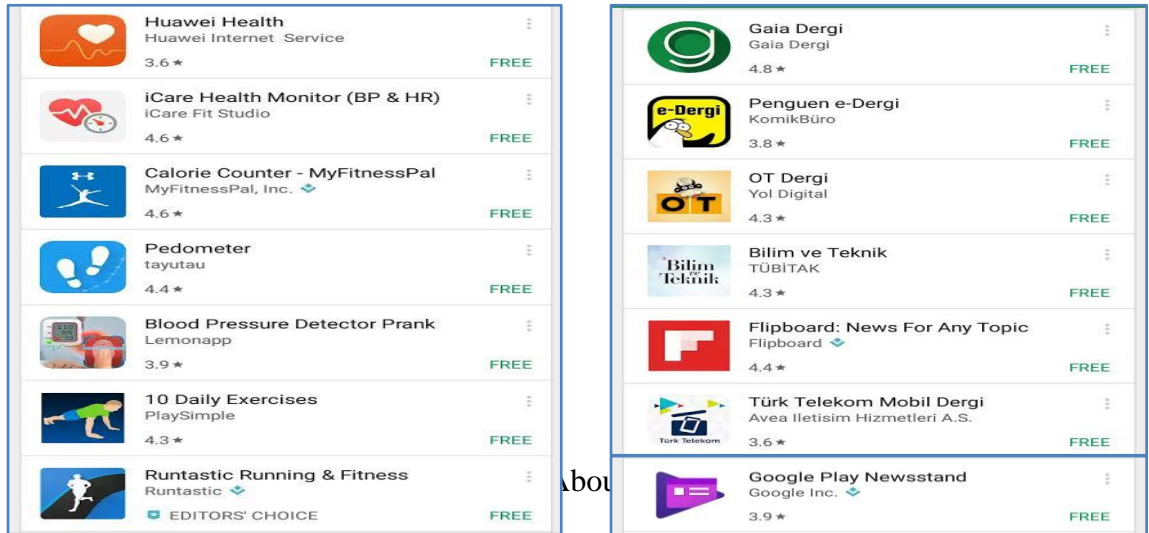


their memory, which can have negative effects over time. Studies in this topic reveal the truth; old-young, woman-man, rich-poor people want both talking and chatting and also manage their social and track their daily routine. Because of these advantages, smartphones have become almost an extension of the body and identity both daily and business life (Hulme & Peters, 2001). This body and identity for the lives of the people as considered a way of life to show the communication model with the use of smartphones.

#### **2.4.2 The Effects of Smart Phones on the Daily Lives**

The prominent areas, where impacts of smartphone are obvious include business, education, health like reading newspaper/book, watching film, browsing, calculating calorie, payments etc. People can communicate more frequently with their families and friends by instant messaging applications. We have more information on daily developments. Distance learning enables students to utilize their time such that they can continue their education without impacting their work and family life. Smartphone use by healthcare workers is growing. One of the greatest advantages of using medical applications on smartphones is the convenient and quick access to medical references. Smartphones have also negative effects on society. Waste of time, inefficiency due to

pay attention to phone, injured personal relationships and an asocial generation. (Nath and Mukherjee, 2015)



## 2.5 Related Communication Theories

### 2.5.1 Uses and Gratification Theory

The approach of uses and gratifications asks the question of what people do with the media not what the media does to people. This approach was first described in a paper wrote by Elihu Katz. In uses and gratifications theory Katz focuses on the preferences, perceptions and attitudes of the media audience in general. (Katz, 1959) The audience makes a conscious and motivated choice among the media contents which are presented. This process refers being interactive, the media content, individual needs, value judgments and social context. (McQuail, 1987)

Rosengren shapes this approach around the individual's social and psychological needs. Rosengren's model has an important place in the theory of use and gratification. It is emphasized that problems and solutions must be perceived in order that the needs

in the model can be transformed into action. The perception of problems and their possible solutions lead to motives. The characteristics of the social structure and the individual qualities are important factors in that the needs are put into practice. (McQuail and Windahl, 1993)

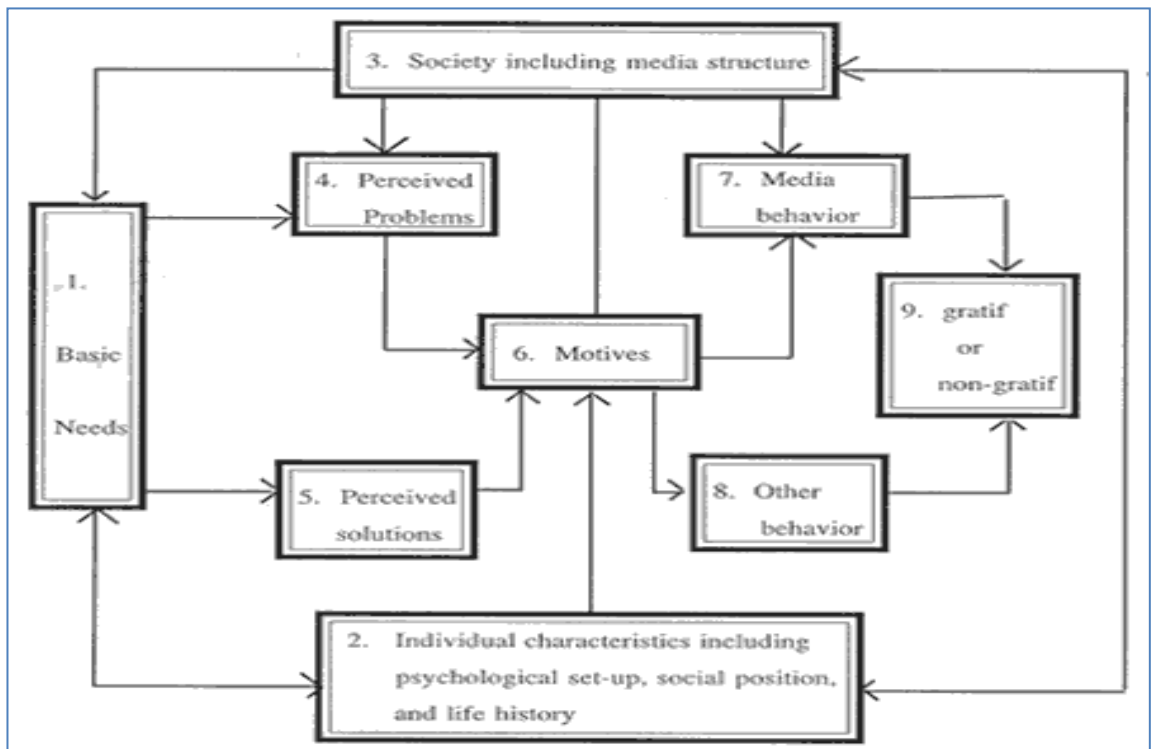


Figure 3: The model of Rosengren Uses and Gratification (McQuail and Windahl, 1993)

According to Yaylagül, the common feature of these studies is that people have social and psychological needs and that they are looking for media content to satisfy their

needs. People can satisfy by consuming specific media content their needs (Yaylagül, 2006).

McQuail (1987) summarizes some of the motivations and satisfactions gained by using media under four headlines:

**Information:** Reaching information about events and conditions in the society and the world. Satisfying curiosity in general interests like Self education.

**Individual Identity:** Finding support for individual values and personal opinions, and behavioral models like creating a basis for daily routines.

**Integration and Social Interaction:** Gaining a sense of belonging like strengthening social relationships. Also refers to companionship, helping to carry out social roles, contacting easily with family, friends or community.

**Entertainment:** Moving away from real world problems by escaping to an imaginary world. It refers to relaxing, enjoying cultural or aesthetic pleasure, killing time or even sexual excitement (McQuail, 1987).

Güngör (2011) explains that people can satisfy their needs more effectively than traditional media that offered by the Internet and social media environment which is evaluated as new media. On the Internet, people can actively participate in a social atmosphere by communicating, talking and chatting groups (Güngör, 2011). Since the Internet allows interaction differently from traditional communication, the uses and

gratification theory has begun to be used as one of the most effective conceptual bases in the examination of this tool from the 90's.

Also, there is some studies that focus on uses and gratification theory According to Uzun, the researches of uses and gratification are about motivations of watching YouTube; satisfactions provided by user-generated media, satisfactions of social media platforms (Facebook, Twitter, Instagram, etc.), gratifications are related emailing, smartphones, SMS and instant messaging and satisfactions provided by mobile devices and social-mobile games (Uzun, 2013).

### **2.5.2 Diffusion of Innovation Theory**

In today, technological innovations have led to changes in the economy, cultural and social structure, communication and forms of information collecting, business life, organizational structure and behavior patterns. At this point, the concepts are emerging such as adoption of innovations, adaptation to innovations, or behaviors of resistance to change. Therefore, various theories and models have been developed which aim to reveal the factors of harmony.

Diffusion of innovations theory is widely accepted among them which are suggested by Everett Rogers. This theory explains the perceived features of innovation and the process of acceptance or rejection of innovation by a certain community.

Moreover, Rogers defines the innovation as an idea, practice or object that is perceived as newly by the people or organization. According to this innovation can be a new product, technology, point of view or solution for people or organizations. Diffusion

is the process that is transmitting of innovation through the members of a social system by certain channels in the time.

Additionally, Diffusion has four main elements; Innovation, Communication Channels; Time and Social System Innovations, briefly, are the things that are perceived of individuals in a particular social structure. Communication channels provide sharing of innovations among the people. The time defines the duration for adoption and acceptance of innovation in the social structure. The social system can be individuals, groups, organizations, or subsystems that have been brought together for a purpose.

Rogers defined the innovation-decision process as “an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation”. Knowledge,

persuasion, decision, implementation, and confirmation are five steps in the Innovation-Decision Process (Rogers, 2003).

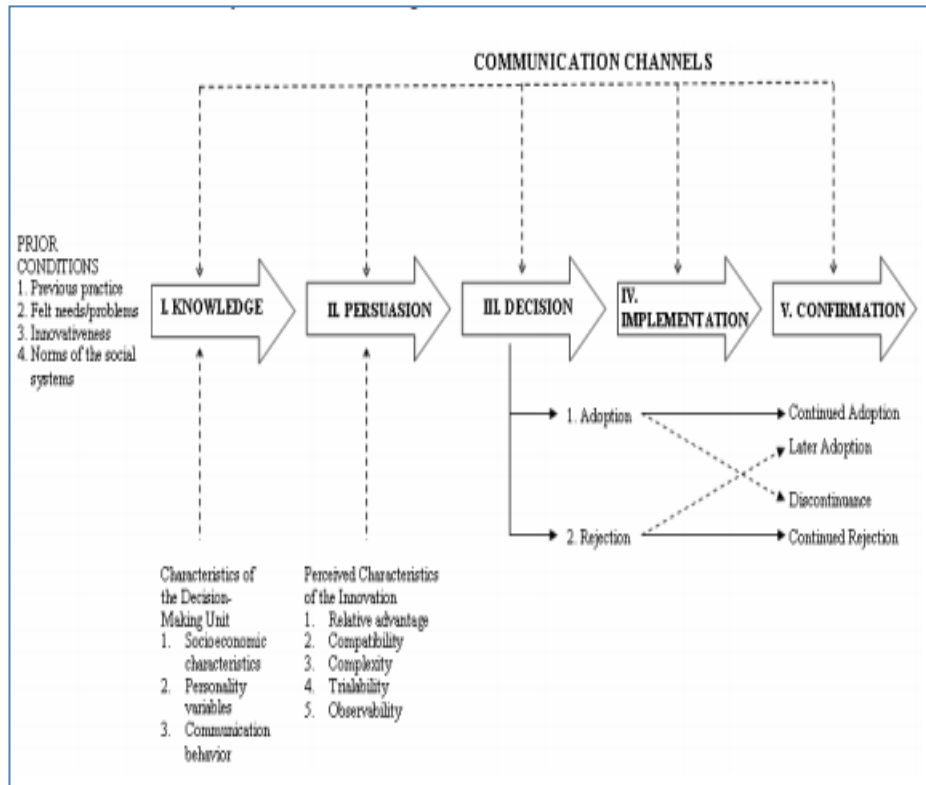


Figure 4: A Model of Five Stages in the Innovation-Decision Process (Rogers, 2003)

There are variants that affect diffusion of innovations in society and its adoption by individuals. Kılıçer has classified them as cultural change, social structure and social norms, opinion leaders and change agents, personality traits, information and communication technologies, innovation characteristics, technology culture and technological propensity, technology policies and technology standards (Kılıçer, 2008).

## 2.6 The Attitudes of Mobile Games Users in Developed Countries

The attitudes of mobile games user in developed countries specially, United States (US) mobile games market is one of the largest and most complex in the world. According to Super Data Research, a gaming analytics company, more

American mobile gamers played puzzle (%58) games than any other genre in 2016. Also, smartphones are most popular among US gamers and they prefer IOS than Android. Pokemon Go and Clash Royale are the prominent mobile games in US. 77% of gamers play at least one hour a week. 68% of gamers are above 18 and older (Super Data Research, 2017).

Additionally, China, Japan and South Korea currently control 90% of Asia's mobile market. The Big Three have 1.2 billion mobile gamers and controls 55% of in worldwide. Android controls 73% of game users in these countries. Japan has the highest average mobile games spending of any major country, but have fewer players than China or the US. Also, the most downloaded free game is Pokemon Go in Japan. The majority of mobile gamers in Japan are males aged between 21 and 35. China has 785 million mobile gamers. King of Glory is the most downloaded free game on the Google Play Store chart in China (Super Data Research, 2017).

Europe is a significant region within the mobile game industry. Germany, England and France have a higher average spend per paying mobile gamer than any other market worldwide. In Germany, the number of mobile players -smartphone and tablet- is 23.2 million. The types of games are; action, adventure and sports games are most popular among mobile game users in Germany. The average of mobile game users in England is 35 old. Fighting and sports games are most popular The British which the gamers are mostly male (newzoo, 2017).

## **2.7 Literature Review; Mobile Game: Candy Crush Saga**

Developments in smartphones, the global mobile applications market has increased dramatically. Especially, mobile games have become extremely popular. Mobile



games are defined as casual games that are created to play on portable devices, and they are often integrated in social networking platforms such as Facebook to facilitate the user's interactions. Compared to the other games in different platforms, mobile games can be characterized as easy to play, less time consuming, facilitating social interaction, and focusing on entertaining. Candy Crush Saga is one of the prominent mobile games. Other mobile games are Fruit Ninja, Angry Birds, Monster Strike, Temple Run, and Fate/Grand Order and Cut the Rope.

Furthermore, the game is defined as a self-generated, non-aiming, free activity that makes people happy (Akin, 2008). Playing game is an ancient behavior and a key leisure activity. Its modality has changed from offline to online, from handheld console to mobile devices. Hamer defined as "a mobile game is often technically focused, and generally moves directly to discuss the implementation of games for mobile phones or mobile devices without clarifying the key concept itself" (Hamer, 2007).

The history of mobile games starts with the introduction of the first handheld electronic games in the late 1970s. Merlin "The Electronic Wizard" is the earlier mechanical toy which was produced in 1978. Gameboy was the leader handheld game console in the 90's which was produced by Nintendo (Akin, 2008). Snake was the early and the most popular mobile game which was delivered by Nokia in 1997 (Wright, 2008). New directions in mobile gaming have started with the advent and introduction of 3G

mobile phones. Also, Rovio's Angry Birds is one of the mainstreams worlds of mobile games.

There are mainly three genres of mobile games: Action, Puzzle, and Simulation. According to Super Data Research gamers prefer action games than any other genre.

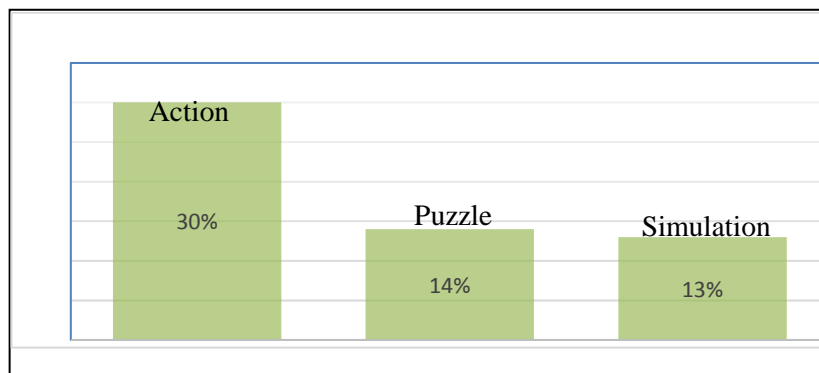


Figure 5: Global Share of Installs By Genre (Super Data Research, 2017)

Candy Crush Saga is one of the most attractive and profitable mobile games in the world. It was released by King Digital Entertainment in 2012 for Facebook, and later the same year for mobile devices. It is a simple puzzle game that easy to understand. Players swipe and match sweets in the same color of three or more to gain point. (King,

2017). The below listed games are Top 10 free Google Play Store games which are downloaded by the users freely through Google Play Store.

Title	Publisher
PES2017	Konami
Clash of Clans	Supercell
Fidget Spinner	Words Mobile
Clash Royale	Supercell
Subway Surfers	Kiloo
A Word Game	<i>Apps Information</i>
Skillful Finger	YOYPO
My Talking Tom	Outfit7
Candy Crush Saga	King
FIFA Mobile Soccer	ELECTRONIC ARTS

Figure 6: Top 10 Free Google Play Store Games (25.05.2017)

## **2.8 A Review of the Attitudes of Candy Crush Saga Users Around the World**

Candy Crush Saga is the most downloaded free game on the Google Play Store chart. According to Think Gaming Candy Crush Saga is played by about 100 million people daily. (Super Data Research, 2017) So it can be seen as a phenomenon. That is easy to play, colorful and funny and friendship are common reason for preference for the player.

Most scholars have applied Uses and Gratifications perspective to examine the game users that social and psychological factors may drive people to play games. Enjoyment, companionship, escapism, self-presentation, achievement, fantasy, challenge, social interaction, killing time, social rewards and competition are characteristic gratifications for mobile game players. (Colwell et al., 1995; Kim and Kim, 2010; Wei and Lu, 2014)

A study adds a factor of continuation desire to these motivations. According to this study the desire is more important the engagement, enjoyment and flow. At the same time the desire also “keep the player want to continue play and the desire that makes the player come back to play the game repeatedly” (Stankevicius , 2015).

The most of research are focused on the concept of addiction that about attitudes of Candy Crush Saga users. The developments in mobile technologies, smartphones, and tablets have only increased our dependence on our devices. Due to the freedom of mobility and high-speed mobile data services, mobile game is increasing popularity of

mobile devices in a short time. Especially young people and women are becoming more addicted to mobile devices and games. (Billieux et al, 2013).

Suggested that nearly 15 million people were addicted to Candy Crush Saga and 69% of them were females. (Billieux et al., 2013)

Alper, Aytan and Ünlü examined this addiction in their study and claimed as the negative aspects of that aggressive behaviors, personality disorders, sense of insensitivity, learning disorders, increasing anxiety level, asocial behaviors, difficulties in human relations, failure in business and education life, getting fat and defect of vision. (Alper, Aytan, Ünlü, 2015).

Furthermore, the users can interact to others such as motivations in the game such as sound and compliments, possibility of playing with one hand, attractive images, unlimited time and space can be among of the addictive reasons of Candy Crush Saga. The study of Bat and Kayacan gives us directly information about this addiction and attitudes of Candy Crush Saga users. In this study, Bat and Kayacan used 5W1H formula and the evaluation scale of Batem (Addiction Treatment Center). Internet addicts in the survey are 17 people, between the ages of 24-56 asked questions about playing Candy Crush Saga. According to this survey:

- Candy Crush Saga is the most popular game for the half of the participants.
- Playing time ranges from 6 months to 4 years.
- Playing time ranges from half an hour to 4 hours in daily.
- The gamers are not alone as a user of Candy Crush Saga in their family.

- The most of participants find entertaining and motivating the effects and sounds on the game.
- For the most of participants it is important that adding new chapters in terms of continuity.
- Only one participant said that paid for "live".
- The game is played generally in office, traffic and at school.
- The most of participants find the game is easy to play.
- The most of participants don't compete with their friends.
- The half of the participants said that the game could recommend (Bat and Kayacan, 2016).

As a summary, Candy Crush Saga is one of the most popular games among young people. They thought that, there are clues for entertainment and motivational tools with the use of game as sounds effects. Also, new chapters play a key role to continue and the people like to play at public sphere as well.

## **Chapter 3**

### **RESEARCH METHODOLOGY**

This chapter consists of research method, data collection, variability and validity. A quantitative research method was used to examine the students' attitude towards the use of mobile games in Eastern Mediterranean University. Indeed, classifying methods are preferred and more effective in order to help define and evaluate the understanding of participants' opinion about a particular issue or issues. While researching about the attitudes of students toward the use of mobile games, a survey was designed for this research to help provide answers to the research questions through appropriate statistical analysis. The survey was created for only students who are the respondents in this study. The students who participated in the survey were divided into two categories; International students and Turkish students, both of which consisted of males and females as well as, variety of age groups. The questionnaire was grouped into demographics and other items that measured other research questions.

#### **3.1 Research Design & Procedure**

To analyze the perception of students about their interaction with mobile games and Candy Crush Saga on smartphones, quantitative research method was used. This study was carried out between July and November 2016 in Eastern Mediterranean University. The questionnaire consisted of fifty items. The respondents were asked questions with regards to their feelings, thoughts, opinions in relation to interaction with mobile games and Candy Crush Saga on smartphones. A pilot study was initially carried out with ten people before the final distribution of the questionnaire to the main

respondents ( $n=300$ ). This was used to analyze the effectiveness of the questions and the design of the questionnaire. With the help of the pilot study, the necessary changes were made in order to finalize the format and structure of the questionnaire. Thus, the first four questions for the respondents were targeted at identifying the demographics of participants while items between 5-13 were structured to acquire information about frequency of smartphone usage.

These questions include:

- 1) What is your gender?
- 2) What is your age?
- 3) What is your current level of education?
- 4) What is your salary range?
- 5) How many times in a day do you check your smartphone?
- 6) For what do you use your smartphone the most?
- 7) How many hours do you spend daily in mobile gaming?
- 8) What kind of games do you like to play most?
- 9) Which mobile game do you play?
- 10) What is the purpose of playing game on smartphone?
- 11) Which one do you prefer?
- 12) Did you ever purchase a game from Google Store or Apple Store?
- 13) What is your monthly budget for games?

The statements between 14-50 were 5-point Likert scale items (Strongly Agree, Agree, I have no Idea, Disagree, and Strongly Disagree.) and they were designed in order to examine student's attitude towards the use of mobile games.

- 14) Using mobile phone technology is an excellent idea
- 15) Using mobile phone technology is a pleasant experience



- 16) Using mobile phone technology is beneficial to me
- 17) Using mobile phone technology increases my knowledge in my field
- 18) Using mobile phone technology increases my motivation towards work.
- 19) Using mobile phone technology increases my communication with colleagues and friends
- 20) Playing game helps me forget my problems
- 21) I become relaxed while playing games on my mobile phone
- 22) I like to play candy crash saga
- 23) When I am alone, I do not perceive myself lonely with playing Candy crash saga
- 24) Candy crash saga is a great place to connect with friends and make new friends
- 25) I like to play game with my friends
- 26) I prefer to play game with people who are not in my list
- 27) When I am bored, Candy crush saga helps me to pass time
- 28) Playing candy crush saga helps me fill my free time
- 29) Candy crush saga could help improve my problem-solving skills
- 30) Candy crush saga has powerful tools to improve my attention and cognitive strengths
- 31) I can learn new things from Candy Crush Saga
- 32) Playing game changes time managements skills
- 33) Candy crush saga helps me to learn how to play strategy game efficiently.
- 34) Mobile gaming is a habit for me
- 35) Playing mobile game is very easy
- 36) Mobile gaming platform is a place which I can reach to computer games
- 37) I can take necessary information about games from Candy crush saga
- 38) I like to send request to my friends from Candy Crush Saga

- 39) I enjoy and become happy while playing someone
- 40) Playing mobile game is problem for me
- 41) When I cannot pass a new level, I develop anxiety
- 42) I continue play Candy Crush Saga to pass levels
- 43) When I meet with my friends I continue to play Candy Crush Saga while taking to them
- 44) I get motivated to pass level and pass my friends
- 45) I like to play Candy Crush Saga before sleeping
- 46) I like to play Candy Crush Saga during my free time
- 47) When I wake up I try to pass one or two levels on Candy Crush Saga
- 48) If I cannot pass the levels I stop play Candy Crush Saga for a while
- 49) I am very good in Candy Crush Saga
- 50) I finish all levels and wait upgrade of levels on Candy Crush Saga

### **3.2 Population and Sample**

The population of the study are students of Eastern Mediterranean University who were registered in the 2015-2016 academic year. Population size was 16000 while Sample size was 300 of the study. According to sample size calculator, sample size 300 was suitable with +/- 5.6 confidence interval with 95% confidence level. A simple random sampling approach was further used to collect data.

### **3.3 Data Collection**

Primary data is collected for this study. The survey created for this study was carried out between July and November 2016 at the Eastern Mediterranean University and I sought to analyze the feelings, opinions and thoughts of 300 students. The students who participated in this survey had different characteristics and demographics in terms of age range, gender, religion, area and preferences relevant of mobile games. The

survey used the prime tool for data gathering to achieve this objective. The survey was improved to appraise the factors by using the Statistical Package for Social Science soft wear.

Furthermore, 5-point Likert Scale part interval categorization is based on Balci's intervals was adopted. Balci (2004) classified the scales in different statistical forms (1.00-1.79, Strongly Disagree); (1.80-2.59, Disagree); (2.60- 3.39, I have no idea); (3.40-4.19, Agree); (4.20-5.00 strongly Agree).

### **3.4 Validity and Reliability**

Measuring the tool of data collection is an important part of research. We assessed the validity and reliability of this study to ascertain legitimate result. As shown in Table 4, Cronbach's Alpha of the study is 0.934. This was proven with an analysis of 37 items on the questionnaire. 0.934 indicates a very high reliability.

Table 4: Reliability

Cronbach's Alpha	N of Items
.934	37

### **3.5 Data Analysis**

This section gives information about the statistical analysis used in this study. All analysis was conducted on SPSS. Overall, descriptive and inferential statistics were

conducted. Descriptive statistics are; frequency table, cross tabulation analysis while Chi-square and Pearson Correlation are the inferential analysis done. Mostly, Frequency tables were used and they gave information about all of the questions asked on the use of mobile games. Chi-square and Pearson correlation were used to understand the differences and relationship between variables.

## Chapter 4

### ANALYSIS OF FINDINGS

This chapter focuses on the analysis of the questionnaires administered to International and Turkish students in Eastern Mediterranean University. This analysis is based on the demographics of the sample and all items concerning the main research questions.

#### 4.1 Findings of the Respondent's Demographics

Table 4.1 shows the mean and attitude of Likert scale questions which indicate the attitudes of participants with the categorization of Balci's categorization of Likert scale.

Table 4.1: Mean and Attitude Table of Likert Scale Questions

Statements	Mean	Attitude
Using mobile phone technology is excellent idea	4.3810	Strongly Agree
Using mobile phone technology is pleasant experience	4.1905	Agree
Using mobile phone technology is beneficial to me	4.1497	Agree
Using mobile phone technology increases my knowledge in my field	3.8904	Agree
Using mobile phone technology increases my motivation towards work.	3.6164	Agree
Using mobile phone technology increases my communication with colleagues and friends	3.8225	Agree
Playing game helps me to forget my problems	3.6553	Agree

I become relax while playing the game	3.8532	Agree
I like to play candy crash saga	3.8510	Agree
When I am alone, I do not perceive myself lonely while playing Candy crash saga	3.5664	Agree
Candy crash saga is a great place to connect with friends and make new friends	3.2617	I have no idea
I like to play game with my friends	3.8577	Agree
I prefer to play game with people who are not in my list	3.3707	I have no idea
When I am bored, Candy crush saga helps me to pass time	3.6357	Agree
Candy crush saga playing helps me to fill my free time	3.5837	Agree
Candy crush saga could help improve my problem-solving skills	3.1776	I have no idea
Candy crush saga is a powerful tool to improve my attention and cognitive strength	3.1699	I have no idea
I can learn new things from Candy crush saga	2.8842	I have no idea
Playing game changes time managements skills	3.2934	I have no idea
Candy crush saga helps me to learn how to play strategy games efficiently	3.4047	Agree
Mobile gaming is a habit for me	3.5019	Agree
Playing mobile games is very easy	3.5039	Agree
Mobile gaming platform is place which I can reach to computer games	3.5388	Agree
I can take necessary information about games from Candy crush saga	3.4131	Agree
I like to send requests to my friends from Candy crush saga	2.8996	I have no idea

I enjoy and become happy while playing someone	3.5155	Agree
Playing mobile game is a problem for me	2.8482	I have no idea
When I cannot pass the level I feel anxiety	3.3794	I have no idea
I continue playing Candy crush saga to pass levels	3.5620	Agree
When I meet with my friends I continue to play Candy crush saga while talking to them	3.0270	I have no idea
I am motivated to pass level and pass my friends	3.5465	Agree
I like to play Candy crush saga before sleeping	3.4375	Agree
I like to play Candy crush saga during my free time	3.6139	Agree
When I wake up I try to pass one or two levels on Candy crush saga	3.3411	I have no idea
If I cannot pass the levels I stop play candy crush saga for a while	3.3463	I have no idea
I am very good in Candy crush saga	3.1299	I have no idea
I have finish all levels in Candy crush saga and I am waiting the update for new levels	2.1892	Disagree

As summarized in Table 4.1, result shows that 22 statements were agreed to. Respondents were motivated, they like to play, and they are happy while playing Candy Crush Saga. They agreed that playing helps them gratify certain needs. Out of 300 participants, most students accede that that they prefer to play Candy Crush Saga.

Demographic characteristics such as gender, age, current education level and salary range of respondents ( $n=300$ ) were assessed.

Table 4.2: Frequency Distribution of Gender of Responsive

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	170	56.7	56.7	56.7
	Male	130	43.3	43.3	100.0
	Total	300	100.0	100.0	

Table 4.2 shows that most of the respondents were female as 56.7%, 170 of 300 people, and male respondents were as 43.3%, 130 of 300. We distributed our questionnaire by



availability of students in Eastern Mediterranean University, and our female participants were more than male.

Table 4.3: Respondents Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16-20	40	13.3	13.3	13.3
	21-25	140	46.7	46.7	60.0
	26-30	76	25.3	25.3	85.3
	30+	44	14.7	14.7	100.0
	Total	300	100.0	100.0	

In table 4.3, most of our respondents were with in age group 21-25 years with 46.7% of total, then age group were 26-30 years were next with 25.3% of total, then with 14.7% are the group with age more than 30 years, then we have group with minimum

participate 13.3% were the group with 16-20 years old. This result shows that students with highest number were the students in the age group of 21-25.

Table 4.4: Respondents Current Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate	207	69.0	69.0	69.0
	Master	67	22.3	22.3	91.3
	PhD	21	7.0	7.0	98.3
	Other	5	1.7	1.7	100.0
	Total	300	100.0	100.0	

Table 4.4 is a display of analysis of the participant's educational level. The table shows that there were a high number of undergraduate students with 69% of the sample, then the second group was Master students with 22.3% of total and at the end, third group

was PhD students with 7% of total. The result showed that there was a wide gap in the percentage between the undergraduates compared to masters and doctorate students.

Table 4.5: Respondents Salary Range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	500-1000 TL	74	24,7	26,0	26,0
	1000-1500 TL	88	29,3	30,9	56,8
	1500-2000 TL	62	20,7	21,8	78,6
	2000 TL	61	20,3	21,4	100,0
	Above				
	Total	285	95,0	100,0	
Missing	9,00	15	5,0		
Total		300	100,0		

At Table 4.5 shows participants' salary range. The table shows that there was a high number of salary range 1000-1500 TL with 88 respondents represented 29.3% of the sample, followed by the 500-1000 TL salary range with 74 respondents represented 24.7 % and 1500-2000 TL salary range with 62 respondents represented 20.7% and closely followed by 2000 TL and above with 61 respondents representing 20.3%. However, 15 respondents did not answer this question with 5%.

## 4.2 Analysis of Smartphone Use and Game Habits

This research is largely based on the use of smartphones as earlier mentioned. The survey respondents were asked how many times in a day they check their smartphones and for what purpose. They were also asked about the kinds of games they like to play the most.

Table 4.6: How Many Times in A Day Do You Check Your Smartphone?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Twice a day	33	11.0	11.0	11.0
	Every hour	99	33.0	33.1	44.1
	Often	151	50.3	50.5	94.6
	Other	16	5.3	5.4	100.0
	Total	299	99.7	100.0	
Missing	9.00	1	.3		
Total		300	100.0		

The response in Table 4.6 shows that 151 (50.3%) respondents check their smartphone often. 99 (33.0%) respondents check their smartphones every hour. Besides, 33 (11.0%) respondents checked their smartphone twice in a day, 16 (5.3%) respondents

checked the smartphone at other times. 1(.3%) respondent did not answer the question.

Result shows that most users checks their device often times.

Table 4.7: For What Do You Use Your Smartphone Most?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Social Networking	178	59.3	59.9	59.9
	Taking Photos	25	8.3	8.4	68.4
	Listening to Music	25	8.3	8.4	76.8
	Mobile Gaming	45	15.0	15.2	91.9
	Other	24	8.0	8.1	100.0
	Total	297	99.0	100.0	
Missing	9.00	3	1.0		
Total		300	100.0		

In Table 4.7, Social Networking has the highest value with 178 (59.3%) participants followed by mobile gaming with 45 participants (15.0%). Taking photos and listening to music were accessed at 8.3% respectively. Lastly, 3 (1%) respondents did not respond to this item. Result shows that students use social networking more.

Table 4.8: How Many Hours Do You Spend Daily in Mobile Games?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 hour	127	42.3	44.6	44.6
	1-2	93	31.0	32.6	77.2
	3-4	38	12.7	13.3	90.5
	5-6	18	6.0	6.3	96.8
	7+	9	3.0	3.2	100.0
	Total	285	95.0	100.0	
Missing	9.00	15	5.0		
Total		300	100.0		

In table 4.8, the results show that 127 participants represented 42.3% spend less than 1 hour on mobile games daily, closely followed by 93 participants represented 31.0% of the regular spend 1-2 hours on mobile games. 38 participants represented 12.7% play games for 3-4 hours in a day. 18 participants represented 6% spend 5-7 hours on mobile games, and 9 participants represented 3.0% spend 7+ on mobile games, and lastly 15 participants represented 5.0% did not answer the questions. This result also relates well with the past result of the number of time the respondent's checks on their



smartphone. This table shows that the participants mostly spend less than 1 hour on mobile games.

Table 4.9: What Kind of Games Do You Like to Play the Most?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Action	50	16.7	17.7	17.7
	Open world games	38	12.7	13.5	31.2
	Role playing	34	11.3	12.1	43.3
	Sports	33	11.0	11.7	55.0
	Online Grand strategy	41	13.7	14.5	69.5
	Puzzle	54	18.0	19.1	88.7
	Other	32	10.7	11.3	100.0
	Total	282	94.0	100.0	
Missing	9.00	18	6.0		
Total		300	100.0		

In Table 4.9, result for type of games played shows that Puzzle game was accessed highest (18%). 16.7% of sample said Online Grand Strategy type of games (13.7%), 12.7% said Role Playing games and 11% said Sport games. 10% of them said they like playing other types of games. 6% did not answer this question. In summary, we found

that most students like to play puzzle games more than other types of games and this explains why Candy Crush Saga is one of the most demand game because it falls in that category.

Table 4.10: Which Mobile Game Do You Play?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clash Royale	24	8.0	8.5	8.5
	Subway Suffers	26	8.7	9.2	17.6
	Candy Crush Saga	111	37.0	39.1	56.7
	Clash of Clans	40	13.3	14.1	70.8
	Temple Run	1	3	4	100.0
	Other	82	27.3	28.9	99.6
	Total	284	94.7	100.0	
Missing	9.00	16	5.3		
Total		300	100.0		

Table 4.10 shows that most participants play Candy Crush Saga (37.0%). The second game that has high percentage is other kind of games (27.3%). Clash of Clans was accessed next (13.3%). 8.7% said Subway Suffers and 8% said Clash Royale. Those who said Temple Run were 3%. 5.3% did not respond to this question. Result shows that Candy Crush Saga was accessed higher than other games.

Table 4.11: What is the Purpose of Playing Games on Smartphone?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The high score	103	34.3	36.3	36.3
	Beating the Game	54	18.0	19.0	55.3
	Role-Playing	37	12.3	13.0	68.3
	Discovery	41	13.7	14.4	82.7
	Relationships	12	4.0	4.2	87.0
	Other	37	12.3	13.0	100.0
	Total	284	94.7	100.0	
Missing	9.00	16	5.3		
Total		300	100.0		

In Table 4.11, result shows that those who play mobile games to have high score were assessed higher (34.3%). The other reasons are Beating the Game (18%), Discovery with 13.7%, role playing and other reason with 12.3% each and 16 students represented 5.3% did not answer the question. At the end reason for playing game is relationships with 4% of total. So highest number was that they have motive to play game have high score.

Table 4.12: Which One Do You Prefer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Free game	212	70,7	74,4	74,4
	Paid game	4	1,3	1,4	75,8
	Both	62	20,7	21,8	97,5
	None of them	7	2,3	2,5	100,0
	Total	285	95,0	100,0	
Missing	9,00	15	5,0		
Total		300	100,0		

In Table 4.12, the result shows that most of participants preferred free games (70.7 %).

Respondents who accede that they prefer paid games were 1.3% of the entire sample.

20.7 % of the participants preferred both. Those who accede to “none of them” were

2.3% of the sample. 5.0% of them didn't respond to this item. Result shows that most of students do not prefer to pay for games.

Table 4.13: Did You Ever Purchase A Game from Google Store or Apple Store?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	75	25.0	26.4	26.4
	No	209	69.7	73.6	100.0
	Total	284	94.7	100.0	
Missing	9.00	16	5.3		
Total		300	100.0		

Table 4.13 shows respondents assertion to “Did you ever purchase a game from Google store or Apple store? 69.7% of the participants accede that they don't want to buy game from Google or Apple store however 25.0% of participants accedes that they like to buy games. Those who didn't accesses this question at all were 5.3 % of the sample. Result shows that students do not to buy games from Google or Apple store.

Table 4.14: What is Your Monthly Budget for Games?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	218	72.7	76.8	76.8
	Less than 10 TL	26	8.7	9.2	85.9
	10-20 TL	19	6.3	6.7	92.6
	20-30 TL	12	4.0	4.2	96.8
	More than 30 TL	9	3.0	3.2	100.0
	Total	284	94.7	100.0	
Missing	9.00	16	5.3		
Total		300	100.0		

In Table 4.14, result shows that 218 (72.7 %.) respondents don't have any budget for games. 26 (8.7%) respondents have less than 10 TL budgeted for games in a month. 19 (6.3%) participants budget 10-20 TL for games. 12 (4.0%) participants budgets 20-30 TL for games monthly. Those who budgets more than 30 TL were 3.0%. Lastly, 16 (5.3%) participants did not respond to this item. Result shows that most respondents budget nothing for games monthly.

Table 4.15: Using Mobile Phone Technology is An Excellent Idea

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	.7	.7	.7
	I have no idea	16	5.3	5.4	6.1
	Agree	144	48.0	49.0	55.1
	Strongly Agree	132	44.0	44.9	100.0
	Total	294	98.0	100.0	
Missing	9.00	6	2.0		
Total		300	100.0		

Table 4.15 shows students response to “Using mobile phone technology is an excellent idea”. Majority of the students agree that using mobile phone technology is an excellent idea (48%). 44% have no idea about this statement (5.3%). 0.7% of participants didn’t agree. 2% didn’t respond to this question. Result shows that the sum of those who affirms this assertion were 92%.



Table 4.16: Using Mobile Phone Technology is A Pleasant Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	3	1.0	1.0	1.4
	I have no idea	30	10.0	10.2	11.6
	Agree	165	55.0	56.1	67.7
	Strongly Agree	95	31.7	32.3	100.0
	Total	294	98.0	100.0	
Missing	9.00	6	2.0		
Total		300	100.0		

In Table 4.16, respondents were asked if using mobile phone technology is a pleasant experience. Majority of the respondents agree that using mobile phone technology is a pleasant experience (55%). Those who strongly agreed were 31.7% of the sample. Those without an idea were 10% of sample and 1% participants disagreed. 3% of participants strongly disagreed and 2% didn't respond to this item. Result shows that 86.7% of the respondents agreed (Sum of Agree and Strongly Agree) to this statement.

Table 4.17: Using Mobile Phone Technology is Beneficial to Me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	5	1.7	1.7	2.0
	I have no idea	39	13.0	13.3	15.3
	Agree	153	51.0	52.0	67.3
	Strongly Agree	96	32.0	32.7	100.0
	Total	294	98.0	100.0	
Missing	9.00	6	2.0		
Total		300	100.0		

In Table 4.17, most of the participants agree that using mobile phone technology is beneficial to them (51%). 32% of sample strongly agree with the statement. 13% of participants have no idea. Those who didn't agree (Sum of Strongly Disagree and Disagree) were 2%. 2% of participants didn't respond to this question. were not answered the questions. 83% of the respondents agreed (Sum of Strongly Agree and Agree).

Table 4.18: Using Mobile Phone Technology Increases My Knowledge in My Field

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	19	6.3	6.5	6.5
	I have no idea	73	24.3	25.0	31.5
	Agree	121	40.3	41.4	72.9
	Strongly Agree	79	26.3	27.1	100.0
	Total	292	97.3	100.0	
Missing	9.00	8	2.7		
Total		300	100.0		

Table 4.18 shows that 40% of participants agree that using mobile phone technology increases their knowledge about their discipline. 26.3% of them strongly agreed with the statement. 24.3% of the students have no idea and, 6.3% disagreed. 2.7% of participants did not respond to this item. answered the questions. So, 66.6% agreed (strongly agreed and agree) to this assertion.

Table 4.19: Using Mobile Phone Technology Increases My Motivation Towards Work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.3	2.4	2.4
	Disagree	36	12.0	12.3	14.7
	I have no idea	87	29.0	29.8	44.5
	Agree	94	31.3	32.2	76.7
	Strongly Agree	68	22.7	23.3	100.0
	Total	292	97.3	100.0	
Missing	9.00	8	2.7		
Total		300	100.0		

Table 4.19 shows that 31.3% of participants agree that using mobile phone technology increased their motivation towards work. 22.7% of participants strongly agreed with this statement. 29% of the participants have no idea and 12% of participants disagreed. 2.3% of participants strongly disagreed. Lastly, 2.7% of participants didn't respond to this item. Result shows that majority of the respondents agreed with this assertion.

**Table 4.20: Using Mobile Phone Technology Increases My Communication with Colleagues and Friends**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	2.0	2.0	100.0
	Disagree	33	11.0	11.3	98.0
	I have no idea	51	17.0	17.4	86.7
	Agree	120	40.0	41.0	69.4
	Strongly Agree	84	28.0	28.6	28.6
	Total	293	97.7	100.0	
Missing	9.00	6	2.0		
Total		300	100.0		

In Table 4.20, respondents were asked if using mobile phone technology increases their communication with colleagues and friends. 40% agreed with the statement. 28% strongly agreed; 17% of them have no idea. 2.0% of the sample strongly disagree and those who disagreed were 11.0% of the total number participants. 2.0% didn't respond to this item. Result shows that most of the participants agreed that mobile phone technology increases their communications with others.

### 4.3 A Game Analysis for Attitude Change based on Candy Crush Saga

The analysis below shows the items measuring how participants feel about playing mobile games specifically, Candy Crush Saga.

Table 4.21: Playing Game Helps Me to Forget My Problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.0	3.1	3.1
	Disagree	46	15.3	15.7	18.8
	I have no idea	66	22.0	22.5	41.3
	Agree	88	29.3	30.0	71.3
	Strongly Agree	84	28.0	28.7	100.0
	Total	293	97.7	100.0	
Missing	9.00	7	2.3		
Total		300	100.0		

Table 4.21 shows that 29.3% of sample agree that they play games and it helps them to forget about their problems. 28% of participants strongly agree to this assertion. 22% have no idea if playing games helps them to forget about their problems or not, 18.3% of participants didn't agree (Sum of Strongly Disagree and Disagree) with this statement. Those who didn't answer were 2.3% of participants.

Table 4.22: I Become Relax While Playing the Game

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.0	3.1	3.1
	Disagree	28	9.3	9.6	12.6
	I have no idea	51	17.0	17.4	30.0
	Agree	114	38.0	38.9	68.9
	Strongly Agree	91	30.3	31.1	100.0
	Total	293	97.7	100.0	
Missing	9.00	7	2.3		
Total		300	100.0		

Table 4.22 shows that 38% of them agreed that they become relaxed when they play game. 30.3% strongly agreed with this assertion. 17% had no idea about this statement. Those who strongly disagree were 3%. 68.3% agree (Sum of Strongly agree and Disagree) with this statement. 2.3% of participants did not answer the questions.

Table 4.23: I Like to Play Candy Crush Saga

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.0	3.5	3.5
	Disagree	20	6.7	7.8	11.4
	I have no idea	39	13.0	15.3	26.7
	Agree	119	39.7	46.7	73.3
	Strongly Agree	68	22.7	26.7	100.0
	Total	255	85.0	100.0	
Missing	9.00	45	15.0		
Total		300	100.0		

Table 4.23 shows that 39.7% of participants agree that they like to play Candy Crush Saga. 22.7% of participants strongly agree.13% participants said that they have no idea. 6.7% of participants disagree. 3% of participants strongly disagree and lastly 15% of participants did not answer respond to the item.

Table 4.24: When I am Alone, I do not Perceive Myself Lonely While Playing Candy Crash Saga



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	4.3	5.1	5.1
	Disagree	31	10.3	12.1	17.2
	I have no idea	56	18.7	21.9	39.1
	Agree	110	36.7	43.0	82.0
	Strongly Agree	46	15.3	18.0	100.0
	Total	256	85.3	100.0	
Missing	9.00	44	14.7		
Total		300	100.0		

Table 4.24 reveals participants' response "When I am alone, I do not perceive myself lonely while playing Candy Crash Saga". 110 (36.7%) respondents agreed with this statement. 46 (15.3%) respondents strongly agree. 56 (18.7%) respondents have no idea about this statement. 31 (10.3%) of respondents disagree. 13 (4.3%) respondents strongly disagree and 44 (14.7%) respondents did not answer the questions. So according to these results, majority accede that they do not perceive themselves to be lonely while playing Candy Crush Saga.

Table 4.25: Candy Crash Saga is A Great Place to Connect with Friends and Make New Friends

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	24	8.0	9.4	9.4
	Disagree	42	14.0	16.4	25.8
	I have no idea	66	22.0	25.8	51.6
	Agree	91	30.3	35.5	87.1
	Strongly Agree	33	11.0	12.9	100.0
	Total	256	85.3	100.0	
Missing	9.00	44	14.7		
Total		300	100.0		

Table 4.25 shows that 30.3% of participants agreed that Candy Crash Saga is a great place to connect with friends and make new friends. 11% of the participants strongly agreed. 22% of participants said that they have no idea. 14% of participants disagree. Those who strongly disagree with the assertion that Candy Crush Saga is a great place to connect with friends and make new friends were 8%. Lastly, 14.7% of participants did not respond to this item.

Table 4.26: I Like to Play Game with My Friends

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.7	3.1	3.1
	Disagree	16	5.3	6.2	9.2
	I have no idea	50	16.7	19.2	28.5
	Agree	117	39.0	45.0	73.5
	Strongly Agree	69	23.0	26.5	100.0
	Total	260	86.7	100.0	
Missing	9.00	40	13.3		
Total		300	100.0		

Table 4.26 shows the result of the item, “I like to play game with my friends”. 117 (39%) respondents agreed that they do like to play with friends. 16 (5.3%) didn’t agree with this assertion. 50 (16.7%) respondents accede that they have no idea. 69 (23%) strongly agreed. 8 (2.7%) respondents strongly disagree. 40 (13.3%) respondents did not respond to this item. So result shows that most of students like to play games with their friends.

Table 4.27: I Prefer to Play Game with People Who are Not in My List

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	4.0	4.6	4.6
	Disagree	31	10.3	12.0	16.6
	I have no idea	98	32.7	37.8	54.4
	Agree	85	28.3	32.8	87.3
	Strongly Agree	33	11.0	12.7	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.27 shows that 28.3% of participants agree they prefer to play game with people who are not in my list. 11% of participants strongly agree and most of participants (32.7%) have no idea about this. Those who disagree were 10.3% of the sample. 4% of participants strongly disagree. Also 13.7% of participants did not answer the question. So, findings showed that most participants have no idea about that they were confused to play a game with people who are not in their list.

Table 4.28: When I am Bored, Candy Crush Saga Helps Me to Pass Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	3.7	4.3	4.3
	Disagree	22	7.3	8.5	12.8
	I have no idea	66	22.0	25.6	38.4
	Agree	110	36.7	42.6	81.0
	Strongly Agree	49	16.3	19.0	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

In Table 4.28, 36.7% agree that when they are bored, Candy Crush Saga help them to pass time. 7.3% disagree with this statement. 22% have no idea.16.3% strongly agree to this statement. 3.7% strongly disagree with this assertion and 14% did not answer the question. Result shows that Candy Crush Saga helps them to pass time when they are bored.

Table 4.29: Candy Crush Saga Paying Helps Me to Fill My Free Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.0	3.5	3.5
	Disagree	28	9.3	10.9	14.4
	I have no idea	78	26.0	30.4	44.7
	Agree	88	29.3	34.2	79.0
	Strongly Agree	54	18.0	21.0	100.0
	Total	257	85.7	100.0	
Missing	9.00	43	14.3		
Total		300	100.0		

Table 4.29 reveals that most students agree that playing Candy Crush Saga helps them to fill their free time up (29.3%). 9.3 % of students disagree with this statement. 26% of students had no idea. 18% strongly agree. 3% strongly disagree to this statement. Those who didn't answer were 14.3%. So according to findings, most students play Candy Crush Saga to help them fill up their time.

Table 4.30: Candy Crush Saga Could Help Improve My Problem-Solving Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	5.0	5.8	5.8
	Disagree	53	17.7	20.5	26.3
	I have no idea	95	31.7	36.7	62.9
	Agree	63	21.0	24.3	87.3
	Strongly Agree	33	11.0	12.7	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Tables 4.30 problem-solving skills of Candy Crush Saga. 21% respondents agree that Candy Crush Saga can help one improve on problem-solving skills. 17.7% disagree. 31.7% had no idea. 11% strongly agreed and 5% strongly disagreed. Those who didn't respond to this question were 13.7% of the sample. The findings show that most of respondents had no idea if Candy Crush Saga could help improve their problem-solving skills or not.

Table 4.31: Candy Crush Saga is Powerful Tool to Improve My Attention and Cognitive Strengths

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	5.7	6.6	6.6
	Disagree	63	21.0	24.3	30.9
	I have no idea	77	25.7	29.7	60.6
	Agree	63	21.0	24.3	84.9
	Strongly Agree	39	13.0	15.1	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.31 showed that most students didn't know that Candy Crush Saga is a powerful tool that can help one improve his attention and cognitive strengths (25.7%). Those agree were 21% of the sample. 13% of students strongly agree while 21% of students disagree. Those who strongly disagree were 5.7% and those who didn't answer 13.7%. Findings show that majority have no idea that Candy Crush Saga is a powerful tool that can improve player's attention and cognitive strengths.



Table 4.32: I Can Learn New Things from Candy Crush Saga

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	26	8.7	10.0	10.0
	Disagree	85	28.3	32.8	42.9
	I have no idea	64	21.3	24.7	67.6
	Agree	61	20.3	23.6	91.1
	Strongly Agree	23	7.7	8.9	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.32 shows that 20.3% of participants agreed that they can learn new things from Candy Crush Saga. 7.7% of participants strongly agree with this idea. 21.3% of participants had no idea they could learn new things from Candy Crush Saga or not, and 28.3% of participants disagree. 8.7% of participants strongly disagree. Those who didn't answer were 13.7%. Result shows that most of participants didn't agree that one could learn new things from Candy Crush Saga.

Table 4.33: Playing Game Changes Time Management Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	4.3	5.0	5.0
	Disagree	57	19.0	22.0	27.0
	I have no idea	66	22.0	25.5	52.5
	Agree	87	29.0	33.6	86.1
	Strongly Agree	36	12.0	13.9	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.33 shows that 29% of participants were agree with this idea also 12% of participants were strongly agree with that they think playing game changes their time management skills, 22% participants said that they have no idea about this statement, 19% of participants were disagree, they do not think playing game can change their time managements skills, followed this statement by 4.3% of participants were strongly disagree and lastly 13.7% of participants were not answered the questions. The result that most people believe playing game can change their time management skills.

Table 4.34: Candy Crush Saga Helps Me to Learn How to Play Strategy Games Efficiently

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.7	3.1	3.1
	Disagree	48	16.0	18.7	21.8
	I have no idea	74	24.7	28.8	50.6
	Agree	86	28.7	33.5	84.0
	Strongly Agree	41	13.7	16.0	100.0
	Total	257	85.7	100.0	
Missing	9.00	43	14.3		
Total		300	100.0		

Table 4.34 shows that 86 respondents representing 28.7% agree to candy crush saga helps them to learn how to play strategy games efficiently. And this followed by 74 respondents represented 24.7% who have no idea and 48 respondents represented 16% who disagree. Besides 41 respondents represented 12.7%, followed by 8 respondents represented 2.7%. And lastly 43 respondents representing 14.3% were not answered the questions. According the result, most of participants were think that candy crush saga helps them to learn how to play strategy games efficiently.

Table 4.35: Mobile Gaming is a Habit for Me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.7	3.1	3.1
	Disagree	43	14.3	16.6	19.7
	I have no idea	71	23.7	27.4	47.1
	Agree	85	28.3	32.8	79.9
	Strongly Agree	52	17.3	20.1	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.35 presented a statement that 85 respondents representing 28.3% agree, closely followed by 71 respondents representing 23.3% have no idea about this issue, however 52 respondents representing 17.3% were strongly agree and 43 respondents representing 14.3% disagree, also 8 respondents representing 2.7% strongly disagree. Except those 41 respondents representing 13.7 did not answered the questions. The result of this statement said that the people keep playing game because as we can see from this data mobile gaming is a habit for the majority.

Table 4.36: Playing Mobile Games is Very Easy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	3.3	3.9	3.9
	Disagree	42	14.0	16.3	20.2
	I have no idea	67	22.3	26.0	46.1
	Agree	86	28.7	33.3	79.5
	Strongly Agree	53	17.7	20.5	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

Table 4.36 presented that 28, 7% of participants were agree with this idea and 3.3% of participants were strongly agree to playing game is very easy for them, 22.3% participants said that they have no idea about this statement, 14% of participants were disagree, they do not think the mobile games is very easy for them, followed this statement by 3.3% of participants were strongly disagree and lastly 14% of participants were not answered the questions. This result showed that most of participants think playing game is very easy for them.

Table 4.37: Mobile Gaming Platform is a Place Which I can Reach to Computer Games

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.3	2.7	2.7
	Disagree	29	9.7	11.2	14.0
	I have no idea	81	27.0	31.4	45.3
	Agree	100	33.3	38.8	84.1
	Strongly Agree	41	13.7	15.9	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

In table 4.37 showed that 33.3% of samples were agree that mobile gaming platform is a place which I can reach to computer games, also 13, 7% of participants were strongly agree with this and 27% have no idea about this argument, 2.3% of participants were disagree with it and they do not think mobile gaming platform is a place which I can reach to computer games also 2.3% of participants were strongly disagree. However, 14% of participants did not answer the questions. In the end, we can realize that most of participants believe that mobile platform is a way to reach computer games.

Table 4.38: I can Take Necessary Information About Games from Candy Crush Saga

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.0	3.5	3.5
	Disagree	49	16.3	18.9	22.4
	I have no idea	66	22.0	25.5	47.9
	Agree	96	32.0	37.1	84.9
	Strongly Agree	39	13.0	15.1	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.38 shows that most participants in table agree with the statement, they thought they can take necessary information about games from candy crush saga with 32% of total. Followed by 22% of participants have no idea about this argument, 16.3% of participants were disagreed with the statement. Also 13% of total were strongly agree with this statement. On the other hand, 3% of participants were strongly disagree and 13.7% of participants were not answered the questions. So, 45% of participants were agreed and strongly agree that they thought they could take necessary information about games from Candy Crush Saga.

Table 4.39: I Like to Send Request to My Friends from Candy Crush Saga

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	47	15.7	18.1	18.1
	Disagree	62	20.7	23.9	42.1
	I have no idea	54	18.0	20.8	62.9
	Agree	62	20.7	23.9	86.9
	Strongly Agree	34	11.3	13.1	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

In table 4.39 as shown that which 62 students represented 20.7% agree too, followed by 62 students represented 20.7% who disagree to send request to their friends from candy crush saga. A total of 54 respondents represented 18% have no idea about this statement, 49 students represented 11.3% strongly agree, while 47 students represented 15.7% strongly disagree. Also 41 students represented 13.7% did not answered the questions. The result shows that the students who like to send request to their friends from candy crush saga and who do not like to send requests had same value.

Table 4.40: I Enjoy and Become Happy While Playing Someone



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	4.7	5.4	5.4
	Disagree	32	10.7	12.4	17.8
	I have no idea	59	19.7	22.9	40.7
	Agree	113	37.7	43.8	84.5
	Strongly Agree	40	13.3	15.5	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

The response in table 4.40 showed that 113 respondents represented 37.7% were agree that they enjoy and become happy while playing game with someone. This followed by 59 respondents represented 19.7% who have no idea about this statement, 40 respondents represented 13.3% were strongly agree on the other hand 32 respondents represented 10.7% were disagree that they do not think they can enjoy and become happy while playing someone in the game. Also 14 respondents represented 4.7 were strongly disagreed and they shared same ideas with top of 10.7%. In the end 42 respondents represented 14% did not the questions. In the results, most people enjoy and happy while playing game with someone.

Table 4.41: Playing Mobile Game is Problem for Me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	31	10.3	12.1	12.1
	Disagree	72	24.0	28.0	40.1
	I have no idea	80	26.7	31.1	71.2
	Agree	53	17.7	20.6	91.8
	Strongly Agree	21	7.0	8.2	100.0
	Total	257	85.7	100.0	
Missing	9.00	43	14.3		
Total		300	100.0		

Table 4.41 showed, which 53 respondents represented 17.7% agree to followed by 72 respondents represented 24% who disagreed that playing mobile games is problem for them. A total of 80 respondents represented 26.7% have no idea about this statement, 21 respondents represented 7% strongly agree, while 31 respondents represented 10.3% strongly disagree and 43 respondents represented 14.3% did not answered the questions, the result shows that most of respondents had no idea about playing game is a problem or not for them.

Table 4.42: When I cannot Pass the Level, I Feel Anxiety

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	4.3	5.1	5.1
	Disagree	54	18.0	21.3	26.5
	I have no idea	55	18.3	21.7	48.2
	Agree	86	28.7	34.0	82.2
	Strongly Agree	45	15.0	17.8	100.0
	Total	253	84.3	100.0	
Missing	9.00	47	15.7		
Total		300	100.0		

In table 4.42, 86 respondents represented 28.7% agree that they feel anxiety when they cannot pass the level. Also 55 respondents represented 18.3% have no idea about this statement. This closely followed by 54 respondents represented 18% were disagreed. However, 45 respondents represented 15% were strongly agree with it. And 13 respondents represented 4.3% were strongly disagree. Lastly 47 respondents represented 15.7% were not answered the questions at all.

Table 4.43: I Continue Play Candy Crush Saga to Pass Levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	5.0	5.8	5.8
	Disagree	41	13.7	15.9	21.7
	I have no idea	49	16.3	19.0	40.7
	Agree	90	30.0	34.9	75.6
	Strongly Agree	63	21.0	24.4	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

Table 4.43 showed that 90 respondents representing 30% agreed that they continue play candy crush saga to pass levels. And 63 respondents representing 21% strongly agree with it. Also 49 respondents representing 16.3 had no idea about this statement, closely followed 41 respondents representing 13.7 disagree and 15 respondents representing 5% were strongly disagree with that. Lastly 42 respondents represented 14% did not answer the questions. So the result of this table shows that 51% of the respondents through that they continue play candy crush saga to pass levels.

Table 4.44: When I Meet with My Friends I Continue to Play Candy Crush Saga While Taking to Them

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	33	11.0	12.7	12.7
	Disagree	63	21.0	24.3	37.1
	I have no idea	58	19.3	22.4	59.5
	Agree	74	24.7	28.6	88.0
	Strongly Agree	31	10.3	12.0	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Table 4.44 showed that 24.7% of participants were agree with this idea and 10.3% of participants were strongly agree with that when they meet their friends they still continue to play candy crush saga while taking to them .19.3% participants said that they have no idea about this statement, 21% of participants were disagree, they do not agree this argument, followed this statement by 11% of participants were strongly disagree and lastly 13.7% of participants were not answered the questions. The result shows that 35% of the participant's feels that they could play candy crush saga a while when they meet their friends. And 32% feel they could not, while 19.3% participants could not decide if they could nor not.

Table 4.45: I Motivated to Pass Level and Pass My Friends

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	5.0	5.8	5.8
	Disagree	36	12.0	14.0	19.8
	I have no idea	50	16.7	19.4	39.1
	Agree	107	35.7	41.5	80.6
	Strongly Agree	50	16.7	19.4	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

Tables 4.45 displayed that which 107 respondents represented 35.7% agree too, followed by 36 respondents represented 12% who disagree to believe that they motivated to pass level and pass their friends. A total of 50 respondents represented 16.7 % have no idea about this argument, 50 respondents represented 16.7% strongly agree, while 15 respondents represented 5% strongly disagree. At lastly 42 respondents represented 14.7% did not answered the questions. The findings show that 52.4 of participants feel that they motivated to pass level and pass their friends. And 17% of participants feel opposite, while 16.7% participants could not decide if it is motivated or not.

Table 4.46: I Like to Play Candy Crush Saga Before Sleeping

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	22	7.3	8.6	8.6
	Disagree	41	13.7	16.0	24.6
	I have no idea	44	14.7	17.2	41.8
	Agree	101	33.7	39.5	81.3
	Strongly Agree	48	16.0	18.8	100.0
	Total	256	85.3	100.0	
Missing	9.00	44	14.7		
Total		300	100.0		

Table 4.46 shows that presented a statement which 111 respondents represented 33.7% agree to, followed by 48 respondents represented 16% who strongly agree that people like to play candy crush saga before sleeping. A total of 44 respondents represented 14.7% have no idea about this statement, 41 respondents represented 13.7 disagreed, while 22 respondents represented 7.3% strongly disagree. And 44 respondents represented 14.7% did not answered the questions. The result shows that 49, 7% of students like to play Candy Crush Saga before they sleep.

Table 4.47: I Like to Play Candy Crush Saga During My Free Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	4.7	5.4	5.4
	Disagree	36	12.0	13.9	19.3
	I have no idea	46	15.3	17.8	37.1
	Agree	103	34.3	39.8	76.8
	Strongly Agree	60	20.0	23.2	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

In table 4.47 shows that 103 respondents like to play Candy Crush Saga during their free time with 34.3%, this followed by 60 respondents represented 20% who like to play more. Closely followed 46 participants represented 15.3% have no idea for that argument. Moreover 36 participants represented 12% do not like to play candy crash saga for their free time. Also 14 participants represented 4.7.0% were strongly disagree, at last 41 participants did not answered the question with 13.7%. In this case we can realize that the participants like to play candy crush saga during their free time.

Table 4.48: When I Wake Up I Try to Pass One or Two Levels on Candy Crush Saga



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	5.7	6.6	6.6
	Disagree	55	18.3	21.3	27.9
	I have no idea	50	16.7	19.4	47.3
	Agree	95	31.7	36.8	84.1
	Strongly Agree	41	13.7	15.9	100.0
	Total	258	86.0	100.0	
Missing	9.00	42	14.0		
Total		300	100.0		

Table 4.48 shows that 31.7% of participants were agreed with this idea also 13.7% of participants were strongly agreed with it they thought when they wake up they try to pass levels on candy crush saga, 16.7% participants said that they have no idea about this argument, 18.3% of participants were disagreed, they do not think that were not play candy crash after they wake up, followed this statement by 5.7% of participants were strongly disagree and lastly 14% of participants were not answered the questions. The results showed that majority of the participants liked to play Candy Crush Saga after waking up with 45.4 %.

Table 4.49: If I cannot Pass the Levels I Stop Play Candy Crush Saga for A While

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	19	6.3	7.4	7.4
	Disagree	47	15.7	18.3	25.7
	I have no idea	50	16.7	19.5	45.1
	Agree	108	36.0	42.0	87.2
	Strongly Agree	33	11.0	12.8	100.0
	Total	257	85.7	100.0	
Missing	9.00	43	14.3		
Total		300	100.0		

Table 4.49 showed that most of students were agreed about this idea with 36%. Follow this statement by 16.7% who have no idea about that and 15.7% of students were disagreed to think if they cannot pass the levels they stop play candy crush saga for a while. And 11% of students were strongly agreed to give up for candy crush a while. Also 6.3 % of students were strongly disagreed with this statement. And 14.3% of students did not answer the questions. The findings show that a top of 47% believe that if they fail on candy crush saga a few times they would not continue to play game for a while.

Table 4.50: I Am Very Good in Candy Crush Saga

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	24	8.0	9.4	9.4
	Disagree	57	19.0	22.4	31.9
	I have no idea	65	21.7	25.6	57.5
	Agree	78	26.0	30.7	88.2
	Strongly Agree	30	10.0	11.8	100.0
	Total	254	84.7	100.0	
Missing	9.00	46	15.3		
Total		300	100.0		

Table 4.50 showed that 26% of participants were agreed that they thought they were very good in Candy Crush Saga and 10% of participants were strongly agree about this idea, also 21.7% of participants have no idea about that they did not know where they good or not in candy crush, and 19% of participants were disagreed they thought they were not good in candy crush saga, besides 8% of participants were strongly disagree. And lastly 15.3% of participants were not answered the question, so most of participants were agreed with this idea with 36%.

Table 4.51: I Finish All Levels and Wait Upgrade of Levels on Candy Crash Saga

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	86	28.7	33.2	100.0
	Disagree	100	33.3	38.6	66.8
	I have no idea	30	10.0	11.6	28.2
	Agree	24	8.0	9.3	16.6
	Strongly Agree	19	6.3	7.3	100.0
	Total	259	86.3	100.0	
Missing	9.00	41	13.7		
Total		300	100.0		

Tables 4.51 showed that 100 respondents represented 33.3% disagree, followed by 86 respondents represented 28, 7% who strongly disagree about this question. However, 30 respondents represented 10.0 % have no idea about this argument, And 24 respondents represented 8.0% agree with this argument, 19 respondents represented 6.3% strongly agree. At lastly 41 respondents represented 13.7% did not answered the

questions. The analyses show that most of participants with 39.6 feel that they do not think they could finish all levels and wait any new upgrade for candy crash saga.

#### 4.4 Findings of Crosstabulation Analysis

The below section covers cross tabulation analysis with Chi square is less than 0.05.

Table 4.52: Gender and For What Kind of Games do You Like to Play the Most

			What kind of games do you like to play the most						Total	
			Action	Open world games	Role playing	Sports	Online Grand strategy	Other		9.00
What is your gender	Female	Count	28	21	23	11	30	31	17	161
		your gender	17.4%	13.0%	14.3%	6.8%	18.6%	19.3%	10.6%	100.0%
		% within What kind of games do you like to play the most	56.0%	55.3%	67.6%	33.3%	73.2%	57.4%	53.1%	57.1%
Male		Count	22	17	11	22	11	23	15	121
		your gender	18.2%	14.0%	9.1%	18.2%	9.1%	19.0%	12.4%	100.0%
		% within What kind of games do you like to play the most	44.0%	44.7%	32.4%	66.7%	26.8%	42.6%	46.9%	42.9%
Total		Count	50	38	34	33	41	54	32	282
		your gender	17.7%	13.5%	12.1%	11.7%	14.5%	19.1%	11.3%	100.0%
		% within What kind of games do you like to play the most	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

According to Table 4.52, gender and for what kind of games do you like to play the most questions cross tabulation analysis; the respondents who prefer action are 56% female and 34% male, the respondents who prefer open world games are 55% female and 45% male, the respondents who prefer role playing games are 68% female and 32% male, the respondents who prefer sports are 33% female and 67% male, the

respondents who prefer online grand strategy games are 73% female and 27% male, the respondents who choose other option 57% female and 43% male.

Table 4.53: Gender and Which Mobile Game do You Play

			Which mobile game do you play						Total
			Clash Royale	Subway Suffers	Candy Crush Saga	Clash of Clans	Other	9.00	
What is your gender	Female	gender	15	16	83	12	36	1	163
		%	9.2%	9.8%	50.9%	7.4%	22.1%	.6%	100.0%
		within game	62.5%	61.5%	74.8%	30.0%	43.9%	100.0%	57.4%
	Male	gender	9	10	28	28	46	0	121
		mobile game do you play	7.4%	8.3%	23.1%	23.1%	38.0%	.0%	100.0%
			37.5%	38.5%	25.2%	70.0%	56.1%	.0%	42.6%
Total	Count	gender	24	26	111	40	82	1	284
		mobile game do you play	8.5%	9.2%	39.1%	14.1%	28.9%	.4%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

According to Table 4.53, gender and which mobile game do you play questions cross tabulation analysis; the respondents who prefer Clash Royale are 63% female and 38% male, the respondents who prefer Subway Suffers are 62% female and 38% male, the respondents who prefer Candy Crush Saga 75% female and 25% male, the respondents who prefer Clash of Clans 30% female and 70% male, the participants who choose other option 44% female and 56% male.

Table 4.54: Gender and Which do You Prefer

			Which one do you prefer					Total
			Free game	Paid game	Both	None of them	9.00	
What is your gender	Female	Count	135	2	23	2	1	163
		your gender	82.8%	1.2%	14.1%	1.2%	.6%	100.0%
		% within Which one do you prefer	63.7%	50.0%	37.7%	28.6%	100.0%	57.2%
	Male	Count	77	2	38	5	0	122
		your gender	63.1%	1.6%	31.1%	4.1%	.0%	100.0%
		% within Which one do you prefer	36.3%	50.0%	62.3%	71.4%	.0%	42.8%
Total	Count	212	4	61	7	1	285	
	your gender	74.4%	1.4%	21.4%	2.5%	.4%	100.0%	
	% within Which one do you prefer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

According to Table 4.54, gender and which one do you prefer questions cross tabulation analysis; the participants who prefer free games are 64% female and 36% male, the respondents who prefer paid games are 50% female and 50% male, the participants who prefer both of them are 38% female and 62% males.

Table 4.55: Gender and did You Ever Purchase a Game from Google Store or Apple Store

			Did you ever purchase a game from Google store or Apple store		Total
			yes	no	
gender	Female	Count	33	130	163
		% within What is your gender	20.2%	79.8%	100.0%
		% within Did you ever	44.0%	62.2%	57.4%
	Male	Count	42	79	121
		% within What is your gender	34.7%	65.3%	100.0%
		% within Did you ever purchase	56.0%	37.8%	42.6%
Total	Count	75	209	284	
	% within What is your gender	26.4%	73.6%	100.0%	
	% within Did you ever purchase	100.0%	100.0%	100.0%	

According to Table 4.55, gender and did you ever purchase a game from Google store or Apple store questions cross tabulation analysis; the respondents answered as yes are 44% female and 56% male, the respondents answered as no are 62% female and 38% male.



Table 4.56: Gender and What is Your Monthly Budget for Games

			What is your monthly budget for games					
				less than 10 TL	10-20	20-30	more than 30 TL	
gender	Female	Count	138	13	7	2	2	162
		% within gender	85.2%	8.0%	4.3%	1.2%	1.2%	100.0%
		% within budget	63.3%	50.0%	36.8%	16.7%	22.2%	57.0%
	Male	Count	80	13	12	10	7	122
		% within gender	65.6%	10.7%	9.8%	8.2%	5.7%	100.0%
		% within budget	36.7%	50.0%	63.2%	83.3%	77.8%	43.0%
Total	Count	218	26	19	12	9	284	
	% within gender	76.8%	9.2%	6.7%	4.2%	3.2%	100.0%	
	% within budget	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

According to Table 4.56, gender and what is your monthly budget for games questions cross tabulation analysis; the none answers are 64% female respondents and 34% male respondents, the respondents answered as less than 10TL are 50% female respondents and 50% male, the respondents answered as between 10 to 20TL are 37% female and 63% male, 17% female respondents and 83% male and the respondents answered as more than 30TL is 22% female and 78% male.

#### 4.5 Pearson Correlation Analysis

This section covers Pearson Correlation Analysis to determine the relationship between each research question's related statements of the Research Questions in the thesis. Pearson Correlation with 0.01 is used to understand the relationship. According

to Person Correlation analysis, each research question related questions are analyzed to understand the correlation among the statements for each research question.

Table 4.57: Pearson Correlation for RQ1

	When I am bored. candy crush saga helps me to pass time	When I am alone. I do not perceive myself lonely while playing candy crash saga
When i am bored candy crush saga helps me to pass time Sig. (2-tailed) N	1  300	.510** .000 300
When i am alone. I do not perceive myself lonely while playing candy crash saga Sig. (2-tailed) N	.510** .000 300	1  300

\*\*. Correlation is significant at the 0.01 level (2-tailed).

For RQ1. Why do university students play mobile game, there is positive linear relationship with the above statements with 300 sample sizes with 0.01.

Table 4.58: Pearson Correlation for RQ2

	What kind of games do you like to play the most	For what do you use your smartphone the most
What kind of games do you like to play the most	1	.147*
Pearson Correlation		
Sig. (2-tailed)		.014
N	282	281
For what do you use your smartphone the most	.147*	1
Pearson Correlation		
Sig. (2-tailed)	.014	
N	281	297

\*. Correlation is significant at the 0.05 level (2-tailed).

For RQ2. What kind of Games University students plays the most, there is very weak positive linear relationship with the above statements with 300 sample size and correlation is significant at the 0.05.

Table 4.59: Pearson Correlation for RQ3

	Candy crush saga playing helps me to fill my free time	I like to play game with my friends	I become relax while playing the game
Candy crush saga playing helps me to fill my free time	1	.382**	.377**
Pearson Correlation			
Sig. (2-tailed)		.000	.000
N	257	256	255
I like to play game with my friends	.382**	1	.391**
Pearson Correlation			
Sig. (2-tailed)	.000		.000
N	256	260	258
I become relax while playing the game	.377**	.391**	1
Pearson Correlation			
Sig. (2-tailed)	.000	.000	
N	255	258	293
Playing game helps me to forget my problems	.289**	.246**	.643**
Pearson Correlation			
Sig. (2-tailed)	.000	.000	.000
N	255	258	293
Mobile gaming platform is place which i can reach to computer games	.355**	.378**	.343**
Pearson Correlation			
Sig. (2-tailed)	.000	.000	.000
N	256	256	256
I enjoy and become happy while playing someone	.323**	.446**	.352**
Pearson Correlation			
Sig. (2-tailed)	.000	.000	.000
N	256	256	256

\*\* . Correlation is significant at the 0.01 level (2-tailed).

For RQ3. What is the reason of playing mobile phone games, there is positive linear relationship with the above statements with 300 sample sizes with 0.01.

Table 4.59: Pearson Correlation for RQ3 Continue

		Playing game helps me to forget my problems	Mobile gaming platform is place which i can reach to computer games	I enjoy and become happy while playing someone
Candy crush saga playing helps me to fill my free time	Pearson Correlation Sig. (2-tailed) N	.289** .000 255	.355** .000 256	.323** .000 256
I like to play game with my friends	Pearson Correlation Sig. (2-tailed) N	.246** .000 258	.378** .000 256	.446** .000 256
I become relax while playing the game	Pearson Correlation Sig. (2-tailed) N	.643** .000 293	.343** .000 256	.352** .000 256
Playing game helps me to forget my problems	Pearson Correlation Sig. (2-tailed) N	1  293	.241** .000 256	.286** .000 256
Mobile gaming platform is place which i can reach to computer games	Pearson Correlation Sig. (2-tailed) N	.241** .000 256	1  258	.275** .000 257
I enjoy and become happy while playing someone	Pearson Correlation Sig. (2-tailed) N	.286** .000 256	.275** .000 257	1  258

\*\* . Correlation is significant at the 0.01 level (2-tailed).

For RQ3. What is the reason of playing mobile phone games, there is positive linear relationship with the above statements with 300 sample sizes with 0.01.

Table 4.60: Pearson Correlation for RQ4

	Using mobile phone technology is an excellent idea	Using mobile phone technology is a pleasant experience	Using mobile phone technology is beneficial to me
Using mobile phone technology is an excellent idea Pearson Correlation Sig. (2-tailed) N	1  294	.482** .000 294	.384** .000 294
Using mobile phone technology is a pleasant experience Pearson Correlation Sig. (2-tailed) N	.482** .000 294	1  294	.545** .000 294
Using mobile phone technology is beneficial to me Pearson Correlation Sig. (2-tailed) N	.384** .000 294	.545** .000 294	1  294
Using mobile phone technology increases my motivation towards work Pearson Correlation Sig. (2-tailed) N	.133* .023 292	.290** .000 292	.288** .000 292
Playing game changes time management skills Pearson Correlation Sig. (2-tailed) N	.101 .106 258	.051 .417 258	.011 .865 258

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.60: Pearson Correlation for RQ4 Continue

	Using mobile phone technology increases my motivation towards work	Playing game changes time management skills
Using mobile phone technology is an excellent idea	Pearson Correlation Sig. (2-tailed) N	.133* .023 292
Using mobile phone technology is a pleasant experience	Pearson Correlation Sig. (2-tailed) N	.101 .106 258
Using mobile phone technology is beneficial to me	Pearson Correlation Sig. (2-tailed) N	.290** .000 292
Using mobile phone technology increases my motivation towards work	Pearson Correlation Sig. (2-tailed) N	.051 .417 258
Using mobile phone technology increases my motivation towards work	Pearson Correlation Sig. (2-tailed) N	.288** .000 292
Using mobile phone technology increases my motivation towards work	Pearson Correlation Sig. (2-tailed) N	.011 .865 258
Using mobile phone technology increases my motivation towards work	Pearson Correlation Sig. (2-tailed) N	1 .169** .007 256
Playing game changes time management skills	Pearson Correlation Sig. (2-tailed) N	.169** .007 256
Playing game changes time management skills	Pearson Correlation Sig. (2-tailed) N	1 259

\*\*. Correlation is significant at the 0.01 level (2-tailed).

For RQ 4. What is the reason behind using technology, there is positive linear relationship with the above statements with 300 sample size. Some of the statements correlation is significant at 0.01 and some of them are 0.05.

Table 4.61: Pearson Correlation for RQ5

		Which mobile game do you play	I become relax while playing the game	Candy crash saga is a great place to connect with friends and make new friends
Which mobile game do you play	Pearson Correlation	1	.147*	.074
	Sig. (2-tailed)		.014	.242
	N	284	282	250
I become relax while playing the game	Pearson Correlation	.147*	1	.196**
	Sig. (2-tailed)	.014		.002
	N	282	293	255
Candy crash saga is a great place to connect with friends and make new friends	Pearson Correlation	.074	.196**	1
	Sig. (2-tailed)	.242	.002	
	N	250	255	256
When I am alone. I do not perceive myself lonely while playing candy crash saga	Pearson Correlation	.110	.270**	.572**
	Sig. (2-tailed)	.081	.000	.000
	N	250	255	256
When I am bored. candy crush saga helps me to pass time	Pearson Correlation	.220**	.295**	.207**
	Sig. (2-tailed)	.000	.000	.001
	N	252	256	256
Candy crush saga helps me to learn how to play strategy games efficiently	Pearson Correlation	.164**	.329**	.286**
	Sig. (2-tailed)	.009	.000	.000
	N	251	255	254



Candy crush saga Pearson Correlation	.205**	.377**	.276**
playing helps me to fill my free time Sig. (2-tailed)	.001	.000	.000
N	251	255	255
When I cannot pass the level I feel anxiety Pearson Correlation	.168**	.328**	.301**
Sig. (2-tailed)	.008	.000	.000
N	247	251	251

Table 4.61: Pearson Correlation for RQ5 Continue

	When I am alone. I do not perceive myself lonely while playing candy crash saga	When I am bored. candy crush saga helps me to pass time	Candy crush saga helps me to learn how to play strategy games efficiently
Which mobile game do you play Pearson Correlation	.110	.220**	.164**
Sig. (2-tailed)	.081	.000	.009
N	250	252	251
I become relax while playing the game Pearson Correlation	.270**	.295**	.329**
Sig. (2-tailed)	.000	.000	.000
N	255	256	255
Candy crash saga is a great place to connect with friends and make new friends Pearson Correlation	.572**	.207**	.286**
Sig. (2-tailed)	.000	.001	.000
N	256	256	254

When i am alone . I do not perceive my self lonely while playing candy crash saga	Pearson Correlation Sig. (2-tailed) N	1  256	.510** .000 256	.350** .000 254
When I am bored. candy crush saga helps me to pass time	Pearson Correlation Sig. (2-tailed) N	.510** .000 256	1  258	.523** .000 256
Candy crush saga helps me to learn how to play strategy games efficiently	Pearson Correlation Sig. (2-tailed) N	.350** .000 254	.523** .000 256	1  257
Candy crush saga playing helps me to fill my free time	Pearson Correlation Sig. (2-tailed) N	.558** .000 255	.754** .000 257	.541** .000 255
When I cannot pass the level I feel anxiety	Pearson Correlation Sig. (2-tailed) N	.362** .000 251	.337** .000 253	.290** .000 252

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Table 4.61: Pearson Correlation for RQ5 Continue

	Candy crush saga playing helps me to fill my free time	When I cannot pass the level I feel anxiety
Which mobile game do you play	Pearson Correlation Sig. (2-tailed) N	.205** .001 251
		.168** .008 247

I become relax while playing the game	Pearson Correlation	.377**	.328**
	Sig. (2-tailed)	.000	.000
	N	255	251
Candy crash saga is a great place to connect with friends and make new friends	Pearson Correlation	.276**	.301**
	Sig. (2-tailed)	.000	.000
	N	255	251
When I am alone. I do not perceive myself lonely while playing candy crash saga	Pearson Correlation	.558**	.362**
	Sig. (2-tailed)	.000	.000
	N	255	251
When I am bored . candy crush saga helps me to pass time	Pearson Correlation	.754**	.337**
	Sig. (2-tailed)	.000	.000
	N	257	253
Candy crush saga helps me to learn how to play strategy games efficiently	Pearson Correlation	.541**	.290**
	Sig. (2-tailed)	.000	.000
	N	255	252
Candy crush saga playing helps me to fill my free time	Pearson Correlation	1	.373**
	Sig. (2-tailed)		.000
	N	257	252
When I cannot pass the level I feel anxiety	Pearson Correlation	.373**	1
	Sig. (2-tailed)	.000	
	N	252	253

\*\* . Correlation is significant at the 0.01 level (2-tailed).

For RQ5. Why students play candy crush saga, there is positive linear relationship with the above statements with 300 sample size. Some of the statements correlation is significant at 0.01.

## **Chapter 5**

### **CONCLUSION**

This part of the study consists of three parts. The first part is the summary of the study which is the brief information of the case study bases on the data analyses. The second part is including conclusion drawn from the study which is the part answers the main research question for this study. The results and founds for the relevant research questions will be explained in this part. And the third part is the recommendations for further research for researchers. Recommended research methodologies, the critics about mobile games and the other alternative research subjects are mentioned in this part.

#### **5.1 Summary of the Study**

This research study mainly focused on the usage of Candy Crush Saga mobile game and attitudes of university students towards mobile gaming. In this study it is examined what kind of reasons of playing mobile games and in addition to this, the preference of candy crush saga mobile game. Also the influences of the mobile games in student's life is studied.

Quantitative research method was used to examine the student's attitude towards mobile games and the candy crush saga mobile game as the most preferred one. The

research was conducted in university students in Eastern Mediterranean University. 50 questions were asked to 300 students. Among 300 students, both Turkish and foreigner students with different demographics answered the research questions. The participants' lifestyle, needs, likes, dislikes and their interaction with mobile games were analyzed with the research questions. The data from the survey was analyzed through SPSS program. The results and findings were analyzed by using frequency table, crosstabs and descriptive methods.

## **5.2 Conclusions Drawn from the Study**

The results of this case study were descriptive statistic, analyzed in frequency table. Among 300 students participated, 56.7 % of them were female and 43.3% of them were male students. The ranges of the participants were unplanned as the survey was conducted based on their availability.

The conclusion of this case study is explained in detailed in earlier chapters. Five research questions were asked in this study which is mentioned in introduction part, research question part. Research questions will be answered based on the results and findings of the research conducted.

### **RQ1.) Why do students play mobile games?**

The answer of this question was resulted by multiple Likert scale type of questions. Students answered 36 questions by using agreement measurement. 36 questions asked

in the survey were guiding RQ1. The answer of the participants for these questions are constitutes the result of this question.

The result of the answers for RQ1 was as; 81% of the students prefer to play mobile games when they are bored and mobile game helps them to pass their time. 82% of the participants mentioned they play mobile games when they are alone and they don't perceive themselves alone when they play mobile game.

For RQ1. Why do university students play mobile game, there is positive linear relationship with the above statements with 300 sample size with 0.01.

**RQ2.)** What kind of game students play mostly?

Based on the multiple choice survey questions, the answer for RQ2 was determined. In the survey, the question for the usage of smart phone is asked. Out of the options like social networking, taking photos, listening to music, mobile gaming and others, 91% of the participants answered mobile gaming. Different type of mobile game sections like action, open world games, role playing, sports, online grand strategy puzzle, others were given as options in a question and 88% of the participants answered as puzzle type of mobile games as the most preferred section. However social network

was the second most preferred answer, participants also play mobile games through social media tools.

For RQ2. What kind of Games University students plays the most, there is very weak positive linear relationship with the above statements with 300 sample size and correlation is significant at the 0.05.

**RQ3.)** What is the reason of playing mobile phone games?

However RQ1 and RQ3 looks similar kind of questions, participants' tendency towards mobile game usage (RQ1) and their specific reasons (RQ3) differs as it can be seen in the results. 76% of them prefer to play mobile games in their free time, and 81% of the participants prefer to play mobile games before they go to sleep. 68% of the participants said they become relax while they are playing mobile games and 71% of the participants prefer to play mobile games to forget about their problems. Despite, 79% of the participants declared that mobile game is a habit for them and 84% of them said they enjoy and become happy when they play mobile game. With these answers of the participants, this research study shows that the usage and the preference of playing mobile games is mostly based on of uses and gratification reasons. While

passing their free time can, participants can choose this time as before they go to sleep as preference.

For RQ3. What is the reason of playing mobile phone games, there is positive linear relationship with the above statements with 300 sample size with 0.01.

#### **RQ4.) What is the Reason Behind Using Technology?**

Out of 50 questions, the answers for 7 questions that participants gave were reflecting RQ4. The question of what is the most reason for smart phone usage is answered as 59% of the students uses for social network, %15 of them uses for mobile gaming, and 8% of them for listening to music and taking photos. 48% of the participants were strongly agree that using mobile phone technology is an excellent idea and 55% of them were agree on using mobile technology is a pleasant experience. Also 51% of them think that usage of mobile technology is beneficial. Related to this, 40% of them believe that it increases their knowledge. 31% of the participants said that it increases their motivations on their work and 40% of them were agree that using mobile technology helps in increasing their communication skills. After all these results, it can be said that however students have their own reasons like using social media or using the benefits of mobile technology like listening to music, taking picture, the side



benefits like mobile technology helps to improve their communication skills, helps them to motivate...etc. constitutes the reasons behind using technology.

For RQ 4. What is the reason behind using technology, there is positive linear relationship with the above statements with 300 sample sizes. Some of the statements correlation is significant at 0.01 and some of them are 0.05.

#### **RQ5.) Why Students Play Candy Crush Saga?**

Despite of participants prefer to play mobile games to fill their free time, or to forget about their problems or finding it as a solution for their loneliness, students find playing candy crush saga enjoyable. In the surveys, it is asked that what is the most demanded mobile game that students play, 37% of them answered as candy crush saga. Despite of psychographic reasons, behavioristic reasons are also found as results. 73% of the participants said that they like to play candy crush saga. Out of candy crush players, 87% of them think it is a great place to connect with friends and making new friends. Despite of 82% of the participants play candy crush saga to fill their loneliness, 81% of them plays when they get bored and 79% of them play to fill their free time. 84 % of the participants finds candy crush saga helpful to learn how to play strategy games efficiently. On the other hand, 30% of the participants plays candy crush saga

to pass the levels and 28% of the candy crush player's feels anxiety when they cannot pass the level.

For RQ5. Why students play candy crush saga, there is positive linear relationship with the above statements with 300 sample size. Some of the statements correlation is significant at 0.01.

As a conclusion, this thesis gives another way of thinking to the communication field with the use of mobile games especially Candy Crush Saga. It creates another kind of communication model virtually which is the people have chance to communicate, share, play and help to each other with the help of games. People start to communicate and become virtual friends through mobile games which can be considered as motivational tool and they can feel happy. The uses and gratifications of users and diffusion of innovation theories give detailed information about the mobile games specially Candy Crush Saga as a selected game for the study, to foster the communication in terms of to create virtual friendship with the help of mobile games.

### **5.3 Recommendations for Further Research**

This study covered the attitudes of students towards mobile games and examined candy crus saga mobile game as it is the most demanded one. By the technological improvements, new communication tools are replaced in our life. The usage of these tools like mobile phone technology has brought many uses and gratifications as well as its benefits. Students use mobile technology for many purposes but also for their

conscious needs, want and likes. In this matter, the usage of mobile games can be studied and examined in different aspects for further studies.

This case study was researched and examined in eastern Mediterranean university and questions were asked to 300 students. As it was the limitations of this study, it can be studied in larger areas and research can be conducted to larger number of participants. However, 50 questions were selected to conduct this research, the number questions can be enlarged and can be more specified. The question types in this study were multiple choice and Likert scale type. However, Quantitative methodology is used;

other research methods can be conducted. Qualitative research methodology can be combined with quantitative methodology to examine and analyze the study subject.

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## **APPENDICES**

## **Appendix A : English Version of the Survey**

### **The University Students' Attitudes towards the use of Mobile Games**

A case study of Candy Crush Saga

Survey question for master's thesis by  
Bahrican Yenikurtulus

Supervisor  
Assist. Prof. Dr. Umut Ayman

This questionnaire was prepared to research the student's attitudes towards the use of mobile games in Eastern Mediterranean University. Result only will be used for a master's thesis in communication by Bahrican Yenikurtulus. The participation to this questioner is entirely voluntarily. Participant may choose not to take the survey, to stop responding at any time, or to skip any questions that you do not want to answer and Please do not write your name or put any other identifying information on the survey

1) What is your gender?

a) Female    b) Male

2) What is your age?

a) 16-20    b) 21-25    c) 26-30    d) 30+

3) What is your current education level?

a) Undergraduate    b) Master    c) PhD    d) Other .....

4) What is your salary range?

a) 500-1000 TL   b) 1000-1500 TL   c) 1500-2000 TL   d) 2000 TL -above

**If you are using smartphone, please answer the questions below**

5) How many times in a day do you check your smartphone?

a) Twice a day   b) every hour   c) More than often   d) Other .....

6) For what do you use your smartphone the most?

a) Social Networking

b) Taking Photos

c) Listening to Music

d) Mobile Gaming

e) Other .....

**If you are playing games on mobile devices, please answer the following questions**

7) How many hours do you spend daily in mobile games?

a) Less than 1 hour   b) 1-2   c) 3-4   d) 5-6   e) 7+

8) What kind of games do you like to play the most?

a) Action

b) Open world games

c) Role playing

d) Sports

e) Online Grand Strategy

f) Puzzle

g) Other.....

9) Which mobile game do you play? (Chose only one)

- a) Clash Royale
- b) Subway Suffers
- c) Candy Crush Saga
- d) Clash of Clans
- e) Temple Run
- f) Other.....

10) What is the purpose of playing games on smartphone?

- a) The High Score
- b) Beating the Game
- c) Role-Playing
- d) Discovery
- e) Relationships
- f) Other.....

11) Which one do you prefer?

- a) Free game   b) Paid game   c) Both   d) None of them

12) Did you ever purchase a game from Google store or Apple store?

- a) Yes   b) No

13) What is your monthly budget for games?

- a) None   b) less than 10 TL   c) 10-20 TL   d) 20-30 TL   e) more than 30 TL

Following statements are about the mobile phone technology and mobile gaming, Please select on how much you agree or disagree with following	Strongly Agree	Agree	I have no idea	Disagree	Strongly Disagree
Using mobile phone technology is an excellent idea					
Using mobile phone technology is a pleasant experience.					
Using mobile phone technology is beneficial to me.					
Using mobile phone technology increases my knowledge in my field					
Using mobile phone technology increases my motivation towards work.					
Using mobile phone technology increases my communication with colleagues and friends					
Playing game helps me to forget my problems					
I become relax while playing the game					
<b>Following part requires the questions about Candy Crush Saga</b>					
I like to play candy crash saga					
When I am alone, I don't perceive myself lonely while playing candy crash saga					
Candy crash saga is a great place to connect with friends and make new friends					
I like to play game with my friends					
I prefer to play game with people who are not in my list					

When I am bored, candy crush saga helps me to pass time					
Candy crush saga playing helps me to fill my free time					
Candy crush saga could help improve my problem-solving skills					
Candy crush saga is a powerful tool to improve my attention and cognitive strength					
I can learn new things from Candy Crush Saga					
Playing game changes time management skills					
Candy crus saga helps me to learn how to play strategy games efficiently.					
Mobile gaming is a habit for me					
Playing mobile games is very easy					
Mobile gaming platform is a place which I can reach to computer games					
I can take necessary information about games from mobile gaming platform					
I like to send requests to my friends from Candy Crush Saga					
I enjoy and become happy while playing someone					
Playing mobile games is a problem for me					
When I cannot pass the level I feel anxiety					
I continue playing Candy Crush Saga to pass levels					
When I meet with my friends, I continue to play Candy Crash Saga while talking to them					
I am motivated to pass level and pass my friends					
I like to play Candy Crush Saga before sleeping					
I like to play Candy Crush Saga during my free time					
When I wake up I try to pass one or two levels on Candy Crush Saga					

If I cannot pass the levels I stop play Candy Crush Saga for a while					
I am very good in Candy Crush Saga					
I have finish all levels in Candy Crush Saga and I am waiting the update for new levels					

Thank you for your time and participation in these questions



## Appendix B: Turkish Version of the Survey

### Üniversite Öğrencilerinin Mobil Oyunların Kullanımına Karşı Davranışları Candy Crush Saga üzerine bir çalışma

Anket soruları Bahrican Yenikurtulusun master tezi için hazırlanmıştır

Danışman  
Yrd.Doc. Dr. Umut Ayman

Anket soruları Üniversite Öğrencilerinin Mobil Oyunların Kullanımına Karşı öğrencilerin davranışlarını ölçmek üzere Doğu Akdeniz Üniversitesinde yapılmıştır. Anket sonuçları sadece master tezi için kullanılacaktır. Katılımcılar ankete gönüllü olarak katılabilir ve istedikleri noktada anketi sonlandırabilmektedirler. Anket üzerine isim veya size tanımlayabilecek terimler yazmaktan kaçınınız.

14) Cinsiyetiniz Nedir?

a) Kadın b) Erkek

15) Yaşınız nedir?

a) 16-20 b) 21-25 c) 26-30 d) 30+

16) Eğitim durumunuz nedir?

a) Lisans b) Yüksek lisans c) Doktora d) Diğer .....

17) What is your salary range?

a) 500-1000 TL b) 1000-1500 TL c) 1500-2000 TL d) 2000 TL -above

**Akıllı telefon kullanıyorsanız lütfen aşağıda ki sorulara cevap veriniz**

18) Gün içerisinde telefonunuzu kaç kere kontrol ediyorsunuz?

- a) Günde iki defa    b) Her saat başı    c) Çok sıklıkla    d) Diğer.....

19) Telefonunuzu hangi amaç için kullanıyorsunuz?

- a) Sosyal Ağlar  
b) Fotoğraf Çekmek  
c) Müzik Dinlemek  
d) Mobil Oyunlar  
e) Diğer .....

**Akıllı telefonunuzla oyun oynuyorsanız lütfen aşağıda ki sorulara cevap veriniz**

20) Günde kaç saat telefonunuzla oyun oynuyorsunuz?

- a) Bir saatten az    b) 1-2    c) 3-4    d) 5-6    e) 7+

21) Genellikle hangi tür oyunları oynamayı tercih edersiniz?

- a) Aksiyon  
b) Açık dünya oyunları  
c) Role model  
d) Spor  
e) Online akıllı strateji  
f) Pازل  
g) Diğer.....

22) Hangi oyunu oynuyorsunuz? (Birtane seciniz)

- a) Clash Royale
- b) Subway Suffers
- c) Candy Crush Saga
- d) Clash of Clans
- e) Temple Run
- f) Diger.....

23) Akilli telefonunuzda mobil oyunlari oynamanizda ki amac nedir?

- a) Yuksek skor elde etmek
- b) Oyunu kazanmak
- c) Role burunmek
- d) Kesfetmek
- e) Iliski kurmak
- f) Diger.....

24) Hangisini tercih ediyorsunuz?

- a) Bedava oyun   b) Ucretli oyun   c) Ikiside   d) Hic biri

25) Google store yada Apple store uzerinden hic oyun satin aldiniz mi?

- a) Evet   b)Hayir

26) Aylik oyunlara ayirdiginiz butceniz nedir?

- a) Hic   b) 10 TL den az   c) 10-20 TL   d) 20-30 TL   e) 30 TL den daha fazla

Asagidaki cumleler mobil oyunlar ve molbile teknoloji ile ilgilidir lutfen nekadar katildignizi belitriniz	Kesinlikle katiliyorum	Katiliyorum	Hic bir fikrim yok	Katilmiorum	Kesinlikle katilmiorum
Mobile telefon teknolojisi mukemmel bir fikirdir					
Mobil telefon kullanmak guzel bir deneyim katar					
Mobil telefon kullanmak hoc bir deneyim saglar					
Mobil telefon kullanmak bilgi duzeyimi arttirir					
Mobil telefon kullanmak isteki motivasyonumu arttirir					
Mobil telefon kullanmak arkadaslarimla olan iletisimimi gelistirir					
Oyun oynamak problemlerimi unutmami saglar					
Oyun oynayinca rahatlarim					
<b>Asagida ki sorular Candy Crush Saga ile ilgilidir</b>					
Candy Crush saga oynamayi severim					
Candy Crush oynarken yalniz kalsam bile yalniz oldugumu hissetmiyorum					
Candy crash saga insanlarla iletisim kurmak ve yeni arkadaslar edinmek icin guzel bir yer					
Arkadaslarimla oynamayi seviyorum					
Kisi listemde olan arkadaslarimla oynamayi tercih ediyorum					
Sikildigim zamanlar Candy Crush zamanin gecmesinde bana yardım ediyor					
Candy Crush Saga zaman gecirmemi sagliyor					
Candy crush saga problem cozme yetenegimi gelistiriyor					
Candy crush saga benim dikkat ve kognitif dusunce anlayisimi gelistiriyor					
Candy Crush Saga dan yeni seyler ogrenebilirim					
Oyun oynamak iletisim becerilerimi degistiriyor					
Candy crus saga bana nasil strateji oyunlarinin oynandigini gosteriyor					
Mobil oyunlar benim icin bir hobidir					
Mobil oyunlari oynamak cok kolaydir					
Mobil oyunlar bana eski bilgisayar oyunlarına ulasmak icin sans verir					
Oyunlar hakkında onemli bilgileri mobil oyunlardan edinebilirim					
Arkadaslarima Candy Crush saga oyun istegi gondermeyi severim					
Biriyle oynadigim zaman keyif aliyorum					
Mobil oyunlar benim icin bir problemdir					

Bolumleri gecemeyince kaygili hissediyorum					
Bolumleri gecene kadar Candy Crush saga oynamaya devam ediyorum					
Birileriyle bulussam bile candy crush oynamaya devam ediyorum					
Arkadaslarimi gececegime dair kendimi motive ediyorum					
Uyumadan once Candy Crush saga oynamayi seviyorum					
Bos zamanlarimda Candy Crush saga oynamayi seviyorum					
Uyandigim zaman bir iki el Candy Crush saga oynamayi seviyorum					
Bolumleri gecemedigim zaman Candy Crush saga oynamayi birakiyorum					
Candy Crush Saga da cok iyiyim					
Tum bolumleri bitirdim ve yenilerini bekliyorum					

Katiliminiz icin tesekkur ederim

## Appendix C: Scientific Research and Publication Ethic Committee Report

 <b>Doğu Akdeniz Üniversitesi</b> "Uluslararası Kariyer İçin"	<b>Eastern Mediterranean University</b> "For Your International Career"	P.K.: 99628 Gazimağusa, KUZEY KIBRIS / Famagusta, North Cyprus, via Mersin-10 TURKEY Tel: (+90) 392 630 1995 Faks/Fax: (+90) 392 630 2919 bayek@emu.edu.tr
Etik Kurulu / Ethics Committee		
Sayı: ETK00-2016-0129		
28.06.2016		
Sayın Bahrican Yenikurtuluş İletişim Fakültesi Yüksek Lisans Öğrencisi		
Doğu Akdeniz Üniversitesi Bilimsel Araştırma ve Yayın Etiği Kurulu'nun <b>20.06.2016</b> tarih ve <b>2016/29-09</b> sayılı kararı doğrultusunda <b>"The University Students' Attitudes Towards Use of Mobile Games: A Case Study of Candy Crush Saga"</b> konulu çalışmanız Bilimsel ve Araştırma Etiği açısından uygun bulunmuştur.		
Bilginize rica ederim.		
 Doç. Dr. Sükrü Tüzmen Etik Kurulu Başkanı		
ŞT/sky.		
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