# The Effects of New Communication Technologies on Teenagers: The Case Study of Computer Games

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## Abstract

*This study investigates the effects of computer games on teenagers in Famagusta, Turkish Republic of Northern Cyprus. Most games are inspired from other media as books, TV, films, etc. For this kind of media entertainment, the term 'passive entertainment' is used. However, computer games and video games are considered as 'interactive entertainment'. Computer games are interactive because they make people to feel that they are inside the story. 400 teenagers, 200 boys and 200 girls participated in this research from four different schools in Famagusta. Two of the*

*schools are high schools and two others are secondary schools. Each participant completed a questionnaire with 35 closed-ended questions. The data were collected and analyzed by using SPSS 10.00 program. Using the data gathered with the questionnaire, whether playing computer games affects the children's school performance; whether decreases their participation on social activities; whether evokes aggressive behavior; and whether causes the feeling of loneliness is discussed.*

***Key words:** communication, new media technology, popular media, entertainment, computer games*

## 1. Introduction

This study focuses on children between ages 11 to 18 years old who play computer games. Computer has become a learning environment through games that tells story to those children who play the game and putting themselves as the main character of that story. Andrew Rollings & Ernest Adams (2003), argue that all games tell a story. The complexity and depth of that story depends on the game. At the other extreme, is the player who tells the story by the act of playing (p.10). "Computer games have some sort of story, where the story integration is dependent on the type of game and the player imagination takes care for developing the story" (Rollings & Adams, 2003, p.89). Those games "presents good and bad, happy and sad, powerful and weak and lets them know who or what is successful or a failure" (Singorelli & Morgan, 1990, p.14). The audiovisual mass media are extremely influential for young generation where not only TV or films, but also computer provides a pictorial presented model that influences their behavior and social norms (Bandura & Walters, 1963, p.49).

Most of the games are inspired from other media like books, movies, TV and other media entertainment. For example, "the smash-hit game The Sims was partly influenced by a nonfiction book called A Pattern Language, which is about the way people's live are affected by the design of their house" (Rollings & Adams, 2003, p.31). Media provide passive and interactive entertainment, where all of us are participant of media like TV, radio and computer. Reading and watching are part of passive entertainment because we are enjoying in passive way, we watch and actors act. At interactive entertainment, we are active participating, we are involved in game because we play, we watch, we are inside the game at least this is the feeling that computer game gives to you.

> "When people play a game, they are entertained by actively participating. Although we use the term interactive entertainment to refer to computer games and video

games, any game is interactive if you are taking part in it, whether it is softball or postal chess. Active forms of entertainment are slowly gaining ground over passive forms; people are starting to play online role-playing games instead of watching TV. People love the feeling of involvement and empowerment that gaming gives" (Rollings & Adams, 2003, p.34).

The only direct instructions that children and adolescents take when they are playing is just the instructions of how to play the game, how to change the guns and nothing educative. Rollings & Adams (2003), argue that computer games generally allow you to try anything you want; you can presume that anything you can do, you are allowed to do. When you are playing game, especially board game and computer games, you are often playing a role of some sort (p.35).

Computers has become an important source in our life, it is a link which eliminates all the boundaries between different cultures, ages, regions, religions, sexes, where you can collect information, or you can play multiplayer games through internet with people from different countries. Unsworth & Ward (2001), reported that children are entertaining themselves with computer games that may have an antisocial effect on young players. Computers can be a powerful force in the socializing process, of the young generation (Singorelli & Morgan, 1990.). According to Kaiser Family Foundation (2005), children who have their own media at their bedroom are more influenced that those who do not have. Spending too much time playing computer game affects school performance negatively. The lowest grade students spend more time playing computer game than those with highest grades (p.24).

As we know, 11 to 18 years in people's life are delicate, sensitive, and important ages, and is the time that slowly the children are building their character. It is the time of development of personality and the time that parents should be more influential than mass media by locating the child behavior in more educative programs related with their ages and making them to live in a real life and not imagined one. *"This generation truly is the media generation, devoting more than quarter of each day to media"* (Kaiser Family Foundation, 2005, 39).

Many studies have been conducted in relation with this topic. Kaiser Family Foundation conducted its first study on media and children in 1999 and in 2005 they repeated the same study to learn if there was a change in media use. From their results, children in 2005 have increased the amount of time spent on more than one media. They called the children in new millennium as *"media multitaskers"*. The number of children having their own media in their bedrooms is increased. "For example in 1999, 21% have computer at their room, in 2005 became 31%, 49% in 1999 have a multiple video game console, in 2005 became 56% etc. (Kaiser Family Foundation, 2005, p. 37). According to their research, 98% of young people use computer and engage in on computer for playing games.

Numerous studies have documented that boys spend more time than girls playing computer and video games; boys spend more time online, surfing the web and playing violent games, while girls spend their time online in social interaction, like chatting, watching film, etc. In most of the cases, boys and girls have described the same online desires. According to Buchman and Funk (1996), "fourth grade girls (59%) and boys (73%) report that the majority of their favorite games are violent ones". Even if girls and boys spent equivalent amounts of time online, previous research suggested that, they might display 'gender-stereotypical preferences' in their choices of Internet activity.

Subject of this research is the case study of computer games: how these games can affect teen's social life, school success, and if there is a gender differences for playing games and how the parents act when children use computer, etc. Since 1946, there is a belief that violent computer games lead to aggressive violent behavior (Nielsen & Smith, 2003, 27): "Some researchers think they have found clear signs of aggressive behavior caused by computer games, some other have not been able to replicate their results and still others have been strongly critical of methods used in the study".

We live in a mass mediated society and this is an important subject especially when we are talking about the new generation. The purpose of this study is to investigate issues related to computer use of the school students from 11-18 years old by including interferences with social life and academic performance. Are these children spending too much time in front of the computer to play games than doing anything else or studying and sleeping? The objective of this study is to find out the possible effects of playing computer games on children.

Through education, the younger generation has a wider and easier access to the technology and computer, especially computer games. They more frequently use games. The uses of computer games have increased over the years. The computer games and its effect to players have been discussed widely in recent years (Kaiser Family Foundation Study, 2005; Olson & Kutner & Warner, 2008; Nielsen & Smith, 2004; Lucas & Sherry, 2004; Dill,et.al (2005), Colwell & Kato, 2005; Anderson & Bushman, 2001; Anderson, 2002).

It is suspected that the school students in Famagusta, Turkish Republic of Northern Cyprus spend too much time playing computer games but are they considering its negative effects on their life? Therefore the present study sets out to explore the time spent playing computer games and how this can affects their social life, aggressive behaviors and school grades.

This study examines whether new communication technologies in general and the computer games in particular affects players negatively. Computer games can be accessed online through internet and teens can easily pay these games at school, at home, at internet cafes.

According to Olson, Kutner, Warners (2008), children take some advantages while playing computer games like social activity by playing online games with other children, social interaction, or motivating them to think more creatively for solving problems. Internet has a great role in researching the technological developments, the effect and the use of new technology in our life. In other words, can computer games create a new imagined world in teen's life?

The present study is the first study focused on the computer games effects on the school students in Famagusta, in Turkish Republic of Northern Cyprus.

Aim of the study is to explore and compare the feelings of the school students who play aggressive, violent computer games who study in secondary and high schools in Famagusta. This study focused in the role that computer games play on teenagers and if there is any differences between boys and girls while playing this games. In different research are argued that while teens play aggressive, violent computers games they are affected and acting in the (as it is described at their games) same way in real life (Anderson, C. A. 2001; Anderson, C. A. 2002; Bandura, A. & Walters, 1963; Colwell & Kato, 2005). Cultivation theory is seen as suitable theory for study the effects of aggressive, violent games on those children who play. Cultivation theory was used for the first time to study the effects of aggression and violence of TV. How the people can be affected from the TV violence and can they use in their life the observed violence and aggression from TV?

The present study aims at answering several questions related with the subject of study, like:

- What are the favorite games?
- With whom are they playing games?
- Why are they interested in spending time on internet instead of doing something else?
- What are their three favorite activities while using internet? Playing game, searching, chatting, downloading music, downloading photo, or watching film

This research will base on the survey research method. In the questionnaire consisted of 35 close-ended questions. Participants provided demographic data (age, gender, and class), background information on Internet use, and dispositional measures of psychological adjustment (social support, depression, family support, and loneliness).

SPSS program was used to analyze the questions.

## 2. Literature review

Literature review of the present study consists of three sub-sections. Firstly, the research identifies computer as a new tool for communication, gives a brief history of its invention and uses. Knowing about the computer invention is important. As we will see, computer was just a women job but in nowadays computer is playing important role. We can not do any job in our works without computer. However, for children is also important because they can download games in their homes and internet cafes. Secondly, it gives the meaning of 'game' why it was invented and the way to play the game and genres of games. Thirdly, goes on with a brief history of violent computer games. Moreover, it details the theoretical framework used for the present study.

### A Brief History of Computer

The term "computer" was first used to refer those people, especially women, who performed repetitive calculations for such things as navigational tables, tide charts and planetary positions for astronomical almanacs. For this kind of jobs, *abacus* was used for mathematical computations, which has the same speed with calculator. Abacus was first used by Babylonians since 300 B.C. and is still used in Far East today (Kopplin, J. (2002) "An Illustrated History of Computers".

In 1617 a Scotsman, John Napier invented *logarithms,* a technology that allows multiplications to be performed via addition, originally obtained from a printed table. Now is called Napier's bones. In 1632 *slide rule* comes, built in England and used later in 1960 from NASA for Apollon programs (Kopplin, J. 2002).

The German professor Wilhelm Schickard built the first gear-driven calculating machine in 1923 known as a *calculating clock* (Kopplin, J. 2002).

In 1642 Blaise Pascal, invented *Pascaline,* one function calculation, but it was not so accurate. The odometer portion of car's speedometer used the same mechanism as the Pascaline. A few years after Pascal, the German Gottfried Wilhelm Leibniz, known as the first advocate use of the binary number systems, which is fundamental to the operation of modern computer, built a four-function calculator, called *stepped reckoner* (Kopplin, J. 2002).

In 1801, the Frenchman Joseph Marie Jacquard invented *punched card.* These cards will play an important role in later inventions of computer. In 1822, the English mathematician Charles Babbage proposed a steam driven calculating machine in the size of room, which he called *Difference Engine.* This machine would be able to compute tables of numbers as logarithm tables. Babbage's *Difference Engine* soon

became the most expansive government founded project. However, this device never finished. Later he came with another proposal, *Analytic Engine*, large as house and powered by 6 steam engines, would be more general purpose, because it would be programmable from Jacquard's punched card for a storage mechanism. Two main parts of this Engine were "Store" and "Mill" used for the same functions as "memory unit" and "central processing units" in modern computers. *Analytic Engine* distinguish computer from calculators.

In 1890, Herman Hollerith invented card reader named as the Hollerith desk by using Jacquard's punched card and Pascal mechanism. He converted this punch card from read only to read/write technology. Hollerith built a company, the Tabulating Machine Company that after few buyouts became International Business Machine known today as IBM (Kopplin, J. 2002).

In 1936, Germany's Konrad Zuse named as Z1 created the first electrical binary programmable computer. In 1937, Prof. John Vincent Atanasoff and his student Cliff Berry developed the first digital computer known as Atanasoff-Berry Computer or short ABC and continue to be developed until 1942. In 1943, the ENIAC was invented but until 1946 was not yet complete. ENIAC was also a digital computer and because ABC was not fully functional, ENIAC was known as the first digital computer created for the war against German forces from U.S Army.

Later on in 1949, EDSAC a British computer was known as the first stored program electronic computer, and it was the first computer that ran for graphical computer games. Year 1949 is the year of computer developments: Claude Shannon builds the first machines that play chess at the Massachusetts of Institution of Technology; The first computer company was found, Electronic Controls Company founded by J. Presper Eckert and John Mauchly, who helped to create the ENIAC computer; The Australian computer CSIRAC began operating. (http://www.computerhope.com/issues/ch000984.htm).

In 1971, Kenback-1 was introduced as the first personal computer and in 1975; Ed Roberts introduced Altair 8800 as the first personal computer. In 1974, was the revolutionary of computer, a fully functional computer with mouse, windows menus and icons was developed and Xerox was introduced as the first workstation. Workstation is "a name given to a single computer that is connected to another computer network".

The first Apple computer was released in 1976 known as Apple I, designed from Steve Wozniak. Later on Adam Osborn introduced the first portable computer or laptop known as Osborn I. In 1984, IBM PCD released the first IBM Think Pa 775CD as the first notebook with CD ROM, which is necessary for playing audio CDs and computer data CDs. IBM in 1981 introduced the first electric personal computer as IBM PC and in 1983; PC clone was developed from Compaq known as "Compaq portable". In 1992, the first multimedia computer was released from

Tandy Radio Shack Companies. (http://www.computerhope.com/issues/ch000984.htm).

From this history, we can understand that at beginning computer was just a job who performed numerical calculations using mechanical calculators and later was planned to replace these human beings with a mechanical device. That is how the name computer from a simple job starts to be developed in a mechanical object for making the complicated jobs that humans would not solve much simple.

Game is used as an entertainment activity and some of the games are used to educate children. Computer games are designed as a type of computer software.

*"Game development lives in its own technical world. It has its own idioms, skills, and challenges"* (Ian Millington, 2006, p.3).

## *First graphical computer game and first computer game*

In 1952 Alexander Sandy Douglas invented the first graphical computer game, which is "OXO" a variant of the Tic-Tac-Toe game created for EDSAC computer. He wrote his PhD degree on Human-Computer interaction. It looks that this game was invented for his PhD degree. (http://www.computerhope.com/issues/ch001007.htm).

In 1962, "Space war" became the first computer game programmed by Steve Russell (http://www.computerhope.com/issues/ch001007.htm).
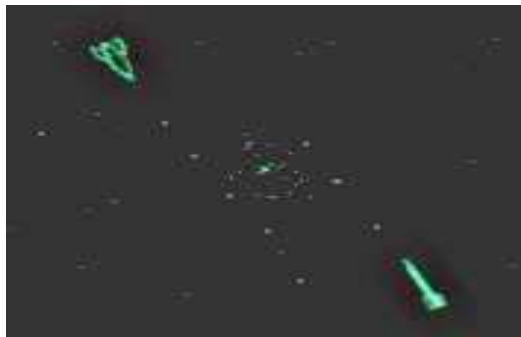


**FIGURE 1;** First computer game 1962 by Steve Russell

*"The game ran on the DEC PDP-1 computer and consisted of two spaceships that maneuvered around a star that affected and pulled at ship with its gravity. The objective of the game was to avoid colliding with the star while trying to shoot the other ship with missiles. The player controlled the game using control switches or a control box and had the ability to rotate the ship clockwise or counterclockwise, provide the ship with thrust, fire missiles, and go into hyperspace"* (http://www.computerhope.com/issues/ch001007.htm).

*Games Play Mode*

Victory condition is part of the game that pushed player to be the winner of the game. According to how you want to play the game, computer games are categorized in different play mode as competitive, cooperative, a team game, multiplayer, single player or solitaire game (Rollings & Adams, 2003).

Competitive is when the first player achieves the victory condition, is the winner and others are the losers. Cooperative is that all players must work together to achieve the victory condition. Team-game is if groups of players work together against other groups of players. Most non-computerized games and many computerized games as well are multi-player games. Games played by one player alone it is a single player or solitaire games (Rollings & Adams, 2003, p. 35).

As we have victory condition in one side, there is also loss condition in other side. Loss condition is founded in simulation games like "Sims City" and single player arcade games like "Tetris". While playing the game it gets harder and harder. You know that you will lose the game, but the aim is to collect as much points as you can against the previous players. There is the victory condition, but you can never actually win the game (Rollings & Adams, 2003, p.36).

*The Genres of Games*

All the computer games are designed according to different genres as action games, adventure games, strategy games, real world simulation, etc.

*Action games:*

Action games are the oldest genre games and are divided in two subgenres as shooter and non-shooter games. Moreover, shooter games tend to appeal more to male demographic and non-shooters as female games. Both use a number of common elements. Shooter games make up most of the games, violence is the major point and usually shooters used different kinds of weapon like guns, different models of guns, knives, and a small portion of this games are fighting games like "Street Fighter" game. Non-shooters games were designed more for children and as a non-violent game seem to appeal more too female demographic (Rollings & Adams, 2003, p.289-297).

*Strategy game:*

This game's origin is rooted from board games and most of them are released for the PC console efforts. Strategy game has diversified into two main forms, first, turn-based strategy and second, real time strategy game. It is one of the easiest games to play. The pure strategy game is turn-base games and real time was developed after the turn-base games. "Strategy games tend to include strategic,

tactical, and logistical, challenges, in addition, to the occasional economic ones" (Rollings & Adams, 2003, p.42).

*Real World Simulation games:*

This kind of games tries to create the feeling of driving or flying a vehicle, real or imaginary. Simulation games have almost close relationship to reality. These machines characteristics should be similar to reality so while you are playing the game gives the feeling that everything is real. At these games, the player role is changeable. In racing-oriented driving games, the player's role is that of racing driver, or mechanic, in boats and ships is the fantasy with water, with tanks is to fight against others by using the guns. In construction and management, the players' goal is to build something within the context of an ongoing process (Rollings & Adams, 2003, p.395-439). Simulation games "include sports games and vehicle simulations, including military vehicle; they involve mostly physical and tactical challenges" (Rollings & Adams, 2003, p.43).

*Adventure games:*

The origin of adventure games comes from a text. The player was an explorer looking for treasures in caves. The object of the game was to collect all the treasure and bring them out of the cave. Adventure was the first game who gave to the player the first illusion of freedom, and this is a point that the designer of the game is trying to protect. In the past few years, adventure games were not so popular but with invention of 3D, their position changed, and a combination of action-adventure games developed. They were faster and become popular than adventure games. The role of player in these games it depends in what the story requires (Rollings & Adams, 2003, p.443-476).

*Online games:*

Online games are seen more as a technology than a game genre. These games are known as MMORPG (massively multi player online role-playing games). In online games, you can find different genre of games and different play mode. At online games, we can find advantages and disadvantages. One of the advantages, is that offers opportunities of social interactions by chatting that just few games can have this opportunity because is difficult to chat and play in the same time, other things is by speaking and videos are included in some games, so the players can see each other online. These kinds of games are more than games. Are mostly like clubs, café's, casinos where people gathering. According to the authors this kind of games are more followed from females as they like more social interactions.

Moreover, in single player games, the player play against the computer, so computer has an artificial intelligence to be a good opponent. In this aspect, we see that human intelligence plays against artificial intelligence. As we have advantages in one side, in other side we have disadvantages, which is the most important "playing games over a network, especially the internet, creates technical challenges that single-player or local multi-player games don't face. Playing with anonymous

strangers can cause social friction and if you provide an online game, you might have a serious legal obligation to make sure people don't use it to abuse children" (Rollings & Adams, 2003, p.500-502).

*Puzzle games:*

Many of the puzzle games are single player games. However, you can find puzzle games inside other game genres like adventure, action etc. Puzzle games are game that are primary about puzzle solving. To be a commercial success puzzle games should be enjoyable while playing with it and visually attractive (Rollings & Adams, 2003, p.487).

## *A Brief History of Violent Computer Games*

The first video games emerged in the late 1970s and contained relatively little violence. The violence that existed in those early games was mostly abstract, such as shooting alien spaceships. However, when graphics have become better, and profits have increased, more frequent and more graphic violence began to appear on the games. For example, Super Mario Brother's game included the capacity to destroy harmful creatures that got in the way of the main characters by jumping on top of them or by throwing fireballs at them. Truly violent video games came of age in the 1990s with the killing games Mortal Combat, Street Fighter and Wolfenstein 3D (*Anderson*, 2002, p.101-102).

*The 1993 Mortal Kombat, and its later versions, entails a series of fights to the death between the game players various opponents.*

*Another game Counterstrike for the first time released in 1999.*



**FIGURE 2;** Counter-Terrorists (CTs) Move-Out

*"Team-oriented online shooter pits terrorist and counter terrorist against one another in round-based combat set all over the world by using the power of the "Source" engine, and the later version was upgraded graphics, levels, and the implementation of a new physics engine. Counter Strike is about as close as you'll ever got saving the world; or destroying it!" (http://planethalflife.gamespy.com/cs/).*

This sentence "Counter Strike is about as close as you'll ever got saving the world; or destroying it!" is used from the game designer as the story of the game. Some of the story games used just one sentence as this and the other part of story after the sentence it depends on the player how he/she will act.

In relation with this game, an event happened in Erfurt, Germany (2002), where the school pupils shot and killed many their fellows' pupils. (Nielsen & Smith, 2004)

Other games like Resident Evil released in 1998 and Age of Empire released in 1997 for the first time. All this games after taking the attention of children every year are upgrading their graphics for making the game more attractive and creating new serial of the game.

In his writing, Craig Anderson gives example of two students Eric Harris and Dylan Klebold the Columbian High School students affected from the bloody video game Doom in 1999 that they were frequently playing.

> "These students murdered 13 and wounded 23 in Littleton before killing themselves. Harris created a customized version of Doom with two shooters, extra weapons, unlimited ammunition, and victims who couldn't fight back, features are eerily similar to the actual shootings" (Anderson, A. C. 2002, p.103).

Children learn behavior through observing others, as it happens at these games. For the first time, learning behavior was study by Bandura by using "Bobo doll", illustrates the way in which children reproduced the learning behavior from the model showed to them (Bandura & Walters, 1963, p.62). Anderson & Bushman (2001) come in conclusion that "violent video games increase aggressive behavior in children and young adults" (p.353). They argue that violent video games do have a significant effect on aggressive level. According to Nielsen & Smith (2003), those who play more violent video game like "Wolfenstein 3D" which it is same with Doom or Counter Strike in the violence level, exhibited more violent behavior in the real world (p. 17). Rollings & Adams argue that the essence of most games is conflict, and conflict is often represented as violence in varying degrees of realism. The only way to remove violence from game play would be to prohibit most of the games in the world because most contain violence in some more-or-less abstract forms (p.79).

*Gender Differences in Computer Games:*

Lucas and Sherry called computer games as boys' toys and boys are those who discourage the female players from playing computer games. As it is citied from Grodal's writing (2000) video games have long been designed to capitalize on masculine hunting abilities.

Research indicates that *"men and boys are better at such tasks as mental rotation of three-dimensional objects, navigation through a route or maze, and target directed motor skills (e.g., guiding or intercepting projectiles). In contrast girls are better at landmark memory (remembering details of objects seen along a route), objects displacement (identifying if an object is missing or has been moved), and perceptual speed (rapidly identifying matching items based on visual cues)"* (Lucas & Sherry, 2004, p.508-509).

Unsworth & Ward found no gender differences and no so much aggressive behavior when boys and girls are playing together in-group, but when they are playing in their own boys are more aggressive (p. 186).

In 2008, another research done from neuroscientist at the University of Pennsylvania in Philadelphia, found that the brain images between male and female work different. "Men are from Mars and women from Venus".

> *"Men responded with increased blood flow to the right prefrontal cortex, responsible for 'fight or flight' known as the 'stress response'. Women had increased blood flow to the limbic system, which is also associated with more emotional response and the stress response lasted longer in women"* (http://www.sciencedaily.com/videos/2007/0710brain_scans_of_the_future.htm).

Nielsen & Smith found that boys play more violent games than girls do, and they show behavior that is more aggressive and crime. However, those children who play more violent computer games show more aggressive behavior than those who play nonviolent video game or do not play at all. As they argue, from the violent game children who have an aggressive personality can be more affective from these games. *"Aggression could be caused by the violent games or the preference for violent games could be caused by the person's aggressive tendencies"* (p.25)

Olson, Kutner, Warner (2008) found that boys play violent games for few reasons: a) to express fantasies of power and glory, b) to explore and master what they perceived as exciting and realistic environment and c) as a tool to work out their feelings of anger and stress (p.69).

Gender differences and social influence may lead to patterns of particular games play. Lucas & Sherry argue that a computer game can be more attractive for girls if it is designed in a way, which it will be more mystery to be solved so they will have the sense for controlling the game environment. However, a game like this *"will increase their mental rotation skills, their navigation ability, and their confidence in managing a complex and competitive virtual world"* (Lucas & Sherry, 2003, p.519).

Lucas & Sherry have seen computer games as a communicative phenomenon. Another research found that children take some advantages like social activity by playing online or social interaction or motivating them to think more creatively

for solving their problem (Olson, Kutner, Warners, 2008, p.70). As is written above girls are discourage from to play computer games frequently so they are not enjoying these advantages that boys do in terms of early socialization to computer technology.

Kaiser Family Foundation (2005), argue that boys are playing more computer games than girls are, while girls prefer to listen more music than boys do. Therefore, we can understand from their findings that boys are affected from computer games more than girls. Those children who have their own media at their bedroom are more influenced that those who do not have. At the same time, they found that those who spend more time playing computer game have low grades in school.

Albert Bandura (1962), who made a few experiments, argued that children who had observed aggressive models like kicking, shooting, etc. responded in the same aggressive way. Children learn from observing others like computer games, which make them to learn how to behave in aggressive way through imitation and identification of what they have observed. While they are playing, they pay much attention for learning everything in detail and they can remember their favorite games so they can have the ability to reproduce the learned behaviors in the real life after they are motivated to imitate these behaviors.

*Violence development*

According to Unsworth & Ward (2001), children can very easy develop aggressive behavior. Violent games can shape children's behavior through reward and punishment. The game logic is easy for them to understand and play. The role of player is to kill as much as he/she can before being killed and scoring much point by killing others for passing to the next level.

It is assumed that these children have enough knowledge to use computer very well. They know how to download the online games. Therefore, they can play alone or against other people. Sometimes they are unknown people. This is another effect, which makes them to show their higher anger or violence than when he/she is playing against known friends (Unsworth & Ward, 2001, p.187).

Moreover, age is also a critical factor in relation with games effects. Dill et. al. (2005) concluded that media affect children and young people, but children under seven years old are more under risk because they have difficulties to differentiate between fantasy and reality. However, "those children who do not have good imagination skills may find it increasingly difficult to distinguish between the portrayal of violence in video games and violence in the real world" (Unsworth & Word, 2001, p.187).

Rollings & Adams (2003), argue that computer games are about bringing fantasies to life, enabling people to things in make-believe that they couldn't

possibly do in the real world. But make-believe is a dangerous game if it is played by people for whom the line between fantasy and reality is not clear (p.80).

According to Bushaman & Anderson (2001, p.353-359), children in every age can be affected from media violence and specially playing violent computer games will increase aggressive behavior. Effects of violent video games will be seen in physiological arousal like *systolic blood pressure, diastolic blood pressure, and heart rate*, which will be increase, aggression related to thoughts and feelings, difficulties to distinguish between the real life and imagination and decrease social behavior.

The learning behaviors through violent computer games influence the players to use aggressive acts in real world. Computer games are interactivity "giving the player something to do that he cannot do in real world. He must be allowed to decide for himself what to do within that world, or there is no point in playing" (Rollings & Adams, 2003, p.115)

By giving pain to the game's characters, they take pleasure because they win, same thing they can do in real life by giving pain or injuring, killing their friends, and taking pleasure from this act because they are strong, they can fight against others, and they win. From Unsworth & Word's research was from Griffiths & Hunt (1995) research. "They asked adolescents if they thought that playing violent games made them more aggressive. The result showed that not only did the adolescents agree that the games made them more aggressive, but also that their attitudes were significantly correlated with the frequency of game play" (p. 185). Therefore, the frequency of game play plays an important role in children's aggressive, violence level in real world.

Anderson & Bushman (2001) suggest that violence computer games increase aggression in male, female, in children and adults, and in the same time correlate with aggression in the real world. Violence computer games may also increase aggression by increasing feelings of anger and hostility (p.357-358).

Rene Weber, assistant Professor of Communication and Telecommunication at Michigan State University, together with his colleagues, did research on violent video game. They used a Functional Magnetic Resonance Imaging (FMRI).

FMRI *"uses radio waves and a strong magnetic field rather than X-rays to take a clear and detailed picture of internal organs and tissues for identifying regions of the brain where blood vessels are expanding, chemical changes are taking place, or extra oxygen is being delivered"* ( http://www.sciencedaily.com/videos/2007/0710-brain_scans_of_the_future.htm).[2]

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[2] "Brain Scans of the Future" is a scientific project done from Dr. Rene Weber.
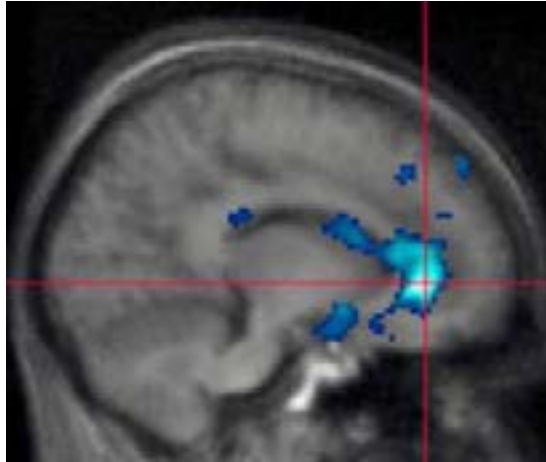
**FIGURE 3;** Brain activity images during video game play in characteristic regions of interest

"This brain mapping is achieved by setting up an advanced MRI scanner in a special way so that the increased blood flow to the activated areas of the brain shows up on functional MRI scans" (http://www.sciencedaily.com/videos/2007/0710-brain_ scans_of_the_future.htm).

The brain was measured throughout game play and physiological measures were taking. They claim that violent video games lead to brain activity characteristic of aggression, such as aggressive cognitions, aggressive behavior, which they based their ideas in neurological level. Rene Weber claims that violent video game led to brain activity characteristic of aggression (http://www.sciencedaily.com/videos/2007/0710-brain_scans_of_the_future.htm).

Unsworth & Ward suggest that parents and teachers can use some software or internet filtering, which enable them to select the appropriate material for their children to use at homes and materials for students to use in school's computer access or block the site, which contain sexual or violent material.

*Cultivation theory*

Gerbner began his study of cultivation theory in 1960 and it is a socio psychological theory related with the culture that we live in.

*"Cultivation is what culture does. Culture is the basic medium in which humans live and learn. Brings change except between generations and regions or among styles of life" (Singorielli & Morgan, 1990, p.249).*

*"Culture is a system of messages and images that regulates and reproduces social relations"* (Singorielli & Morgan, 1990, p.250).

*"Culture is a symbolic organization that cultivates our conceptions of existence, priorities, values and relationship. Culture is a system of stories and other artifacts-increasingly mass produced that mediates between existence and consciousness of existence and thereby contributes to both"* (Singorielli & Morgan, 1990, p.251).

James Shanah & Michael Morgan, 1999, argue that cultivation is the theory of storytelling, not simply a theory of TV as technology or medium, which allow us to see the technological form on the content and meaning of message (p. 200).

According to Gerbner the storytelling process shapes the mainstream of cultural environment in which we live. He explains the stories in three different functions 1) how things work 2) what things are 3) what to do about them, both stories check and balance each other. The cultural environment in which we live becomes the byproduct of marketing (Shanah & Morgan, 1999). If this storytelling relates to the games (as we know computer games tells story). First how things work, is the information that we took from game how to play the game, second, what things are is the story that game tells and third what to do about them, is the question related with the players imagination. In a way, this is the storytelling process of a game.

Cultivation analysis as a field of research *"is the study of television's independent contribution to viewers' conceptions of social reality"* (Shanah & Morgan, 1999, p. 4). The best way for measuring cultivation is to collect observations from individuals. By using the survey methodology, questions posed to samples of children, adults, or adolescents (Signorielli and Morgan, 1990, p. 19), for providing the average numbers of hours spent for playing computer games every day, how many different games they play in one day, their favorite genre of game and so on. The differences between the players in hours spent or in other information, differences are known as 'cultivation differential'.

During the late 1960s and 1970s, TV was dominated the media environment and this theory is based on television violence, study the violence and aggression from TV. Public's fear about the television violence was that the viewers would imitate what they saw and would hurt or kills other people (Shanahan & Morgan, 1999, p. 45). As something, as this was supposed in 70s about television, in later years in 1999 and 2002 happened with computer games that many children died from their schoolmates because they wanted to imitate their superheroes of computer games. So, the literature used for the present study considered on TV and movie violence and aggression more than games violence.

Authors like Gerbner suggest that television cannot be compared with other Medias. Of course, that before TV was like this, but in nowadays we can say computer is not compared with other Medias, they are taking time away from TV.

Computers are seen as "unlimited potential for expanding global communication, enriching culture, enhancing education, and ensuring understanding, prosperity, and peace (Shanahan & Morgan, 1999, p. 199).

Via internet, you can use computer in the place of TV, watching your favorite programs when you do not have TV, or watching films in VCD or DVD. You can use for listening to music or checking the radio stations through internet. Now you do not need to buy newspaper because you can read them online or you can talk in phone with a very cheap fee by using SKYPE program or other similar programs via internet. These are things, which adults are doing mostly, but even for teens is the same thing. Computer games especially with 3D effects is more enjoyable for them because quality of is better than watching film, playing games gives the feeling that you are inside of that story, and you must win. At the same time, teens can download games through internet connection or playing online multiplayer games. Therefore, computer games are the most frequented media not compared with other media. As Gerbner argues "New technologies are dawning new freedoms, typically penetrate new markets and eventually concentrate money, power, and choices. To that extent, they may intensify rather than dilute the central thrust of the cultivation process" (Singorielli & Morgan, 1990, p. 260).

Nevertheless, in nowadays computer games industry is the biggest private business. "Media its cultural arm is dominated by the private establishment, despite its use of the public airways" (Shanah & Morgan, 1999, p. xii). Computer games also tell stories. "The story is the form of communication whose purpose is the assignment and structuration of social meaning" (Shanah & Morgan, 1999, p. 194). Some of the games are based on films story or vice verse, like "Doom", "Resident evil" etc. As is written mentioned above most of the games are inspired from other media like books, movies, TV, and other media entertainment. This is a kind of business that game companies do because designing a game based on a film like "007" or "Harry Potter" will be more interested game for people to play and putting their self in James Bond or Harry Potter place and living same adventures as them, than designing a new game that no one has an idea how it will be. Therefore, in this way the game company will sell more copy and will win more money.

Jocelyn McDonnel argue that "the other forms of media in our society such as video games and the internet and what impact they may have in cultivating perception of reality" (2006, p. 6). Therefore, this computer games can be testing the cultivation effects since they are widespread in society may be more than TV. However, many of these violence and aggression theories, literatures also apply to video games (Bushman & Anderson, 2001, p.354). Children directly express their aggressive feelings different from TV, while playing computer games (Olson, Kutner, Warner, 2008).

According to Hawkins and Pingree (1982), in the psychological process for cultivation results "learning" is playing an important role. Teens, who play

computer games, learn the actions and characteristics of games, and start to accept those images as representative of the real world (Singorielli & Morgan, 1990, p. 36). Same with Bandura's finding learning from observing others. Many studies do indicate that playing violent computer games can reproduce aggressive behavior. If the aggressive behavior is not shown in the childhood time while playing these games, than will be shown ten or more years later. In relation to the evidence taken from different studies children who are faced more with violence are more likely to behave more aggressive.

According to Wober (1986), results of cultivation, media reflects society and *"children develop preferences and ambitions based on the nature of things motivates together with direct observation through families, friends, school and real world of who does what and of their own options"* (Singorelli & Morgn, 1990, p. 216).

Family, friends, school friends are seen as socialization agents. Gerbner called socialization agent as agents of cultivation (Reimer & Rosengren, 1986, p. 183).

> *"Cultivation may be regarded as special case of socialization…Socialization is seen as a process, where in a complex network of relations, individuals as acting subjects interact with other subjects and with socialization agents toward a goal that is always predetermined"* (Reimer & Rosengren, 1986, p. 182).

Cultivation analysis used to analyze the violence in media. "In regard to media use, entertainment is highly related to the materialist values orientations whereas high culture is related to the post-materialist value of orientation" (Reimer & Rosengren, 1986, p. 189).

*"Violence is legitimate, effective, gripping, tried and true component of storytelling and has been a device in all cultures throughout history"* (Shanahan & Morgan, 1999, p. 43). However, computer games will show in this aspect that violence is necessary component of interest. When violence exists in game it is mostly sold because it is the most attractive game and holds more customers.

According to Signorelli and Morgan cultivation analysis is to determine the whether the difference in the attitudes, beliefs, and actions of players reflect differences in habits, independent of the social, cultural and personal factors (p.17). They argue that cultivation analysis looks at those messages as an environment within which people live, define themselves and others, and develop and maintain their beliefs and assumptions about social reality (p.18).

> *"As in case of violence, cultivation provides an alternative way of thinking. Individuals understand themselves and their world in relation to the symbolic environment and that reality is therefore a social construction, cultivation research is concerned with patterns in the symbolic system we all share"* (Elizabeth Hall Preston, p. 109).

Cultivation theory can help to see the communication problems between computer games and the real world we live, as computer games are a kind of communication. But as Mc Donnel argue "cultivation does not help us understand many aspects of communication such as what genuine dialogue entails, the machine-like aspects to communication systems, or how power dynamics can distort communication outcomes" (p. 7).

Morgan and Signorreli argue, *"Cultivation is part of continual, dynamic ongoing process of interaction between messages and context"* (p. 21). Children who play more computer games are always ready to answer questions related with games but at the same time, the game play relates in different groups' life and worldview. According to Reimer and Rosengren a certain lifestyle leads to specific media use and this media use cultivates a person's values (p. 189).

Cultivation theory it is still uncertain whether (or to what extent) games affect the player's perception of the world (Nielsen & Smith, 2004, p. 15). According to this "video games can change the player's perception of the real world" (Unsworth & Ward, 2001, p.187). According to Signorielli and Morgan (1990), heavy players "will be more likely to perceive the real world in the ways that reflect the most stable and recurrent patterns of portrayals in the" game world (p. 10).

In relation with George Gerbner's theory of cultivation with the role of computer games play in children's life, it is seen that children who spend hours a day playing computer games might be expected to pick up thing or something and to think about life and the world in ways different from teens that play rarely. According to Shanahan and Morgan (1999), parents and teachers frequently complain about children that by imitating the aggressive behavior of whatever superheroes, they are having no attention in classroom.

Cultivation is not one-way contribution but the interaction between the medium and its publics is dynamic and reciprocal ways. As is written above children become aggressive while playing computer games. It is assumed that aggressive teens play more to maintain their aggressively, to express the aggressive behavior in front of the person that is playing and to cultivate the aggressive behavior (p. 34).

Teens learn how to interpret the messages from the systems, which sends those messages and later construct them. Learning is that part of where information taken from games are stored and influence in attention toward game and later all these stored information come together and the individual construct the image of the world based on his/her own skills, influence, socialization agents and so on.

According to Shapiro and Lang the construction of learned messages reflects to "systematic errors" in reality. However, computer games "can affect reality perception because people forget that what they see while playing is not real" (cited at Shanahan and Morgan, 1999, p.186)

# 3. Research Methodology and Design

The methodology of the present study is quantitative. According to Bouma and Atkinson (1995), quantitative research is *"structural, logical, measured, and wide"* (p. 208). The quantitative method allows us to collect data from the respondents, to take objective answers and using the Statistical Package for the Social Science (SPSS) to perform the descriptive statistical analyses.

*"Quantitative methods are those which are based on numerical information or quantities, and they are typically associated with statistical analyses"* (Jone Stockes, 2003, p.2).

Quantitative methods include survey research, which is the research used for collecting information about certain people, very detailed interviews or questionnaires are used to get information from a large number of participants. *"A useful method for finding out about individual opinions, attitudes, behavior and so on towards a whole range of topics and issues"* (Cottle, Hansen, Negrine, Newbold, 1998, p. 225).

For the present study questionnaire is used. There are different ways of administrating questionnaires. Therefore, the way applied here is administrating the questionnaires face-to-face (p.223).

The research design for the present study is the comparison. Bouma and Atkinson argue, *"The comparison involves comparing one measure of two or more groups"* (p.117). The research measure will take at the same time, which is also ideal for the research (p.117).

The present study provides comparisons of the attitudes of the student's study at high schools and secondary schools about the computer activities, computer games, and internet cafes, schools, etc. in other words, the present study sets out to investigate whether there are any significant differences between the attitudes of these different group age of teens. The reasons for selecting these group age from 11-18 is their point of view toward the computer games. Moreover, another comparison of the ideas of students is by their gender and family income, schools as secondary and high schools.

## Research Context

The present study has been carried out at two high schools "Namik Kemal lycee" which is one of the oldest schools in Cyprus and currently it is one of the biggest high schools. With the capacity of 650 students. This high school is using modern equipments for teaching the students. Every year this school is preparing good

students for entering in university as well as in culture and sports field. The other high school is "Turk Maarif College" with the capacity of 543 students. Moreover, two secondary schools are "Çanakale secondary school", which is a new school with 620 students and "Canbulat Secondary School" where the total student number is 706 students. Even these two secondary schools are in Famagusta, Turkish Republic of Northern Cyprus.

## Population and Sample

This questionnaire was administered to the students, between the ages 11-18 years old. However, it is impossible to distribute this to all teens in Famagusta, so a sample was selected for this research.

Sampling is an important part of the study. Sample is "part of the whole studied, and the results are taken to be an accurate reflection of the whole" (Bouma & Atkinson, p.137). Samples are taken from population, used for analyzing people and institution, to make generalization of all people. The sample studied will show to represent larger population results of all study of the sample taken to give the reliable information about the larger population.

 Population of the study includes everybody that is within the concern of the study. In the present study, pupils of high schools and secondary schools both constitute the population. In this context, the total number of students studying in the selected high schools is 1.193 students. The total number of students studying in the selected secondary schools is 1.326**.** Moreover, the total number of students is 2519 and the selected sample is 100 pupils from each school so it that the total selected sample will be 400 pupils that will draw the conclusion about 2519 pupils.

For the present, research Random sampling will be used, which "provides the greatest assurance that the sample drawn accurately represents the population" (Bouma, & Atkinson, 1995, p.144). There are three different basic random sampling but that that will be used here is stratified random sampling. At this sample "each sub-section or stratum of the population to be studied is identified and enumerated and elements drawn from it by a random sampling procedure" (Bouma, & Atkinson, 1995, p.150).

So that, the research population divided into sub population and 100 pupils from each school has been selected, divided as 50 boys and 50 girls. From 11-14 years old are students from Canbulat and Çanakkale secondary school and from the age 14-18 are students at high schools Türk Maarif College and Namik Kemal Lise. All this schools are governmental schools in Famagusta.

In the present study, disproportional stratified random sampling has been used and equal numbers of pupils are selected from all schools. At the same time, the number of pupils in terms of gender base is also equal.

# 4. Analysis

According to six hypothesis that we have we will test them if our data support this hypothesis or not and we will have the discussion part.

Do those students who spend too much time playing computer games receive low grades in their courses?

According to their average grade taken last year, we categorized them in five different levels, as poor where just 0.5% of the students are those who have an average under five, 13.3% of the students have below average that is 5 to 6.99. Students that have above average, which is 7 to 7.99 takes 15.3% and 15.8%, have a good average, which is 8 to 8.99 and the last one is the outstanding group that is 18.8% of the students with an average between 9 and 10.

**TABLE 1:** What is your average grade last year?

| What is your average grade last year? | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Poor | 2 | ,5 | ,8 | ,8 |
| | Below average | 53 | 13,3 | 20,9 | 21,7 |
| | Above average | 61 | 15,3 | 24,0 | 45,7 |
| | Good | 63 | 15,8 | 24,8 | 70,5 |
| | Outstanding | 75 | 18,8 | 29,5 | 100,0 |
| | Total | 254 | 63,5 | 100,0 | |
| Missing | 99,00 | 146 | 36,5 | | |
| Total | | 400 | 100,0 | | |

Moreover, we should not forget that 36.5% of these students are students that did not wrote anything about the average grade of last year. One of the students wrote that he failed last year and some of them wrote that they do not remember their grades. According to this, we can think that those students can be part of poor or below the average groups that they do not remember because if their grades were high, they could remember.

| What is your gender? * What is your average grade last year? Crosstabulation | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | What is your average grade last year? | | | | | Total |
| | | | Poor | Below average | Above average | Good | Outstanding | |
| What is your gender? | male | Count | 2 | 36 | 24 | 33 | 31 | 126 |
| | | % within What is your gender? | 1,6% | 28,6% | 19,0% | 26,2% | 24,6% | 100,0% |
| | female | Count | | 17 | 37 | 30 | 44 | 128 |
| | | % within What is your gender? | | 13,3% | 28,9% | 23,4% | 34,4% | 100,0% |
| Total | | Count | 2 | 53 | 61 | 63 | 75 | 254 |
| | | % within What is your gender? | ,8% | 20,9% | 24,0% | 24,8% | 29,5% | 100,0% |

From this table we can see that there is a gender differences between girls and boys of different ages regarding to their average grades taken last year. Girls are studying more than boys do.

In questionnaire there is also a question how students are evaluating their selves. According to results, 13.8% of students evaluate themselves as hard-worker students, 37.5% above average students, 39.5% of students are good students. There are also students who evaluate themselves as below average, which take a place of 4.8% of all students and 2.0% are lazy students. Therefore 97.5% evaluate themselves. A group of 2.5% who did not evaluate themselves. It is assumed that this group of 2.5% of students is lazy or they have below average. We compare the time spend of their study between girls and boys.

Most of the girls spend one to two hours in a day for studying at home that is a group of 54.5% of girls and 54.0% of boys spend the same amount of time for studying at home just that 8.0% of boys never study at home and 3.5% of girls never study at home. Therefore, here we see almost equality between boys and girls for their study time.

81.8% of these students have their own computer at home and 18.3% do not have. However, 69.0% have internet connection, 30.8% do not have, and just 0.3% of students we do not know because they did not answer to this question. Even if they have computer and internet connection in their homes, still they spend time in internet café. We ask them if they go every day in internet café where 4.3% of students go, 9.3% goes four to six days in a week, and 30.0% goes one to three days in a week. Also 55.8% of students who answered as they never go and 0.8% did not answer at all. 40.3% of students spend one to two hours in internet café, 10.0% spends three to four hours in internet café, 39.8% spends five to six hours and the

population who spends seven hours and more takes 8.0% of the students and just 2.0% of students did not answer to this question. However, those students in the same time have their own computer and internet connection in the same time.

Their activities in internet café and in their homes in front of computer is playing games, watching films, online shopping, chatting and some of the teens are doing all of these activities in same time. There is also 20.0% of the students who did not answer to this question, 21.0% of them just play games, 18.0% just chat, 23.0% are doing other things that mention above. 36.0% of those students do all the activities.

When we look at this results that we took we can say that those students are trying to keep their average grade in the middle. As we have students from different categories. In one question they evaluate their self, 18.8% of them are outstanding student. As is written above 36.5% of them are missing from this question and we do not know. However, we can assume that are students of poor or below average grades. At another question, we evaluate them according to their answers and we find out that 39.5% of them, which is the biggest part, are good students. Here we have just 2.5% of students missing. Therefore, those students who did not answer to the first question answer to this one. We can say that computer games affect students but, in a way, they try to keep their average in the middle. Another thing is that the highest population does not agree that computer games negatively affect their school success.

*Are those students who spend too much time playing computer games antisocial?*
We found that 87.3% of teens like playing computer games, 12.3% of them do not like and 0.5% did not answer. All these students are going in internet café alone, with school friends or with their quarter friends. The highest part of students prefers to go with their friends in internet cafe. In other side, 51.5% they like to play computer games alone and what remains prefer to play with their friends and some of them play games with unknown online people and in the same time sometimes, they prefer to play alone and with their friends. Those who prefer more to play alone are girls. 73.2% of them play alone

**TABLE 3:** do you like playing computer games?

| Do you like playing computer games? | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Yes | 349 | 87,3 | 87,7 | 87,7 |
| | No | 49 | 12,3 | 12,3 | 100,0 |
| | Total | 398 | 99,5 | 100,0 | |
| Missing | 99,00 | 2 | ,5 | | |
| Total | | 400 | 100,0 | | |

**TABLE 4:** The differences between boys and girls. Do you like computer games?

| What is your gender? * Do you like playing computer games? Cross tabulation | | | | | |
|---|---|---|---|---|---|
| | | | Do you like playing computer games? | | Total |
| | | | Yes | No | |
| What is your gender? | male | Count | 187 | 13 | 200 |
| | | % within What is your gender? | 93,5% | 6,5% | 100,0% |
| | female | Count | 162 | 36 | 198 |
| | | % within What is your gender? | 81,8% | 18,2% | 100,0% |
| Total | | Count | 349 | 49 | 398 |
| | | % within What is your gender? | 87,7% | 12,3% | 100,0 |

Playing computer games with unknown online people is seen as a disadvantage from Rollings and Adams that it cannot be safety for the children. However, makes them to show their anger or violence may be higher than when he/she is playing towards known friends or computer (Unsworth & Ward, 2001, p.187).

In addition, we can say that playing computer games alone influenced more than playing with friends and this makes them antisocial. According to them, 55.5% does not agree that computer games can negatively affect their social life, 22.5% do not have any idea about this and 20.0% agree that playing computer games negatively affect their social life, but 2.0% of them are missing. Some of these students at the same time think that playing computer games helps them to develop the friendship. 14.0% and 17.5% strongly agree and agree, 27.5% have no idea, 3.0% not answering and what remains strongly disagree and disagree.

Moreover, playing computer games alone is a reason that makes them to be antisocial. Like this, they cannot learn how to act, communicate with people in real life. After a while, they see that the only thing that they can do is just playing games and nothing else and not being in social activities with others.

*Do those students who spend too much time playing computer games confuse real life with their imaginations?*

The most favorite games of those children are strategy games that 11.8% of them likes, action/adventure games are the most favorite one from a part of 32.8% of teens; car racing is played from 14.5% of students this is the static when they prefer to play just one game as their most favorite one. However, the other part of teens prefer this kind of games and in the same time, they have more than one favorite game that they play like simulation games, puzzle games, MMO (massive multiplayer online), poker, platform games, etc. The most important subject figure out from this research is that 16.0% of these teens think that the characters in game are real. It is a small population

but still is important because is not something normal. As is written above Unsworth & Ward (2001), argue that those children who do not have good imagination skills may find it increasingly difficult to distinguish between the portrayal of violence in video games and violence in the real world (p.187). Moreover, some other researchers have same opinion that for those children who have problem to distinguish between reality and imaginary can be at risk. In other side, we have 80.8% that does not think like, and 3.0% that we do not know their opinion and 0.3% of them who think both sides as real and as imaginary.

**TABLE 5:** Differences between boys and girls.
How do you treat the characters in the game?

| What is your gender? * How do you treat the characters in the game? Cross tabulation | | | | | | |
|---|---|---|---|---|---|---|
| | | | How do you treat the characters in the game? | | | Total |
| | | | As Real | As Imaginary | Both | |
| What is your gender? | male | Count | 47 | 147 | 1 | 195 |
| | | % within What is your gender? | 24,1% | 75,4% | ,5% | 100,0% |
| | female | Count | 17 | 176 | | 193 |
| | | % within What is your gender? | 8,8% | 91,2% | | 100,0% |
| Total | | Count | 64 | 323 | 1 | 388 |
| | | % within What is your gender? | 16,5% | 83,2% | ,3% | 100,0% |
| | | % of Total | 16,5% | 83,2% | ,3% | 100,0% |

When we compare boys and girls, 8.5% of girls and 23.5% of boys treat the characters of games as real but the other part of them treats the characters as imaginary. In another comparison that we did between high schools and secondary schools we found 15.8% of secondary school students think that characters in game are real and 17.2% of high school students treat them as real. The most influenced age is 13 to 15 years old teens.

**TABLE 6:** Class differences

| In which class are you? * How do you treat the characters in the game? Cross tabulation | | | | | | |
|---|---|---|---|---|---|---|
| | | | How do you treat the characters in the game? | | | Total |
| | | | As Real | As Imaginary | Both | |
| In which class are you? | Secondary School | Count | 31 | 164 | 1 | 196 |
| | | % within In which class are you? | 15,8% | 83,7% | ,5% | 100,0% |
| | High School | Count | 33 | 159 | | 192 |
| | | % within In which class are you? | 17,2% | 82,8% | | 100,0% |

| Total | Count | 64 | 323 | 1 | 388 |
|---|---|---|---|---|---|
| | % within In which class are you? | 16,5% | 83,2% | ,3% | 100,0% |
| | % of Total | 16,5% | 83,2% | ,3% | 100,0% |

As we can understand from this table there is a difference between schools in how they treat the characters of games and the most influenced ones are high school students, where 17.2% of them treat the characters of game as real. As I have wrote before founded from the previous research the effects of games can be shown in years later if cannot be shown immediately. The point here is that the secondary school students are not influenced now but the high school students look more influenced as they have more experienced in playing computer games.

*Do boys spend more time playing computer games than girls?*

As is mentioned above Kaiser Family Foundation did the first study called the children in New Millennium *"media multitaskers"* on media and children in 1999 and in 2005 they repeated the same study for learning if there is changing in media use or not. Children in 2005 have increased the amount of time spending more than one media at the same time. The number of children having their own media in their bedrooms is increased. *For example in 1999 21% have computer at their room, in 2005 became 31%, 49% in 1999 have a multiple video game console, in 2005 became 56% etc.*(p. 37). However, at the present research we found in Cyprus that 79.5% of the girls have their own computer at home and 20.5% does not have and 84.0% of the boys have their own computer but 16.0% does not have. However, if we compare for the internet connection at home, 68.5% of the boys have internet connection at home but 69.5% of girls also have it. So, if we compare the research that media used or personal computer used from children with years is increasing. Furthermore, boys frequent the internet cafes more than girls do and they spend more time in internet café than girls do. Moreover, the percentage of girls who have computer and internet connection at home is higher than boys do. We have a gender difference regarding to game play in internet cafes, because boys frequent internet cafes more than girls did. Therefore, if boys spend time in internet café, girls spend the same time at home in front of computer. However, when we compare their desires for playing games, is almost same.

*Do boys use internet to play games while girls prefer to chat online?*

In this research, we asked about their favorite activities in internet café, most of the girls like 30.5% of them prefer to do some other work rather than playing, watching film, chatting or online shopping, 25.0% of them prefer chatting, 8.5% of them prefer playing computer games. However, we have 27.5% of the girls that did not answer to this question. Nevertheless, the other part of the girls prefers all the

mentioned activities. 33.5% of the boys' preferences, is to play computer games, 17.0% of them prefer to do other activities than mentioned ones, 11.0% of them like chatting and we have 12.5% of them who did not answer, and the other part of boys prefer all the activities like playing games, chatting, watching film and other at the same time. Therefore, this group does not have a special preference.

Previous studies have documented that boy spend more time than girls playing computer and video games i.e., that boys spend more time online, surfing the web and playing violent games, while girls spend their time online in social interaction, like chatting, watching film, etc. In most of the cases, boys and girls have described the same online desires. According to Bushman and Funk (1996), even if girls and boys spent equivalent amounts of time online, previous research suggested that they might display 'gender-stereotypical preferences' in their choices of Internet activity and something similar we can see in this research. They strongly agree and agree that computer games are very excited, but some students think that computer games are too boring and waste of time.

Regarding to the violence in computer games, most of girls as 41.5% cannot understand the violence even 27.0% of boys cannot understand the violence in games. In other side the other part of boys and girls, few of them agree about the violence but most of them disagree. They like to play computer games and most of them play computer games, but in other side, they already know that playing games is waste of time. Even if 8.5% of girls prefer to play computer games in internet café but in other side 81.0% of those girls, like to play computer games and 93.5% of boys also like playing computer games.

In addition, we found that girls same with boys prefer to play computer games and there is not so much time differences between boys and girls spends for playing computer games. However, both prefer same game genres, but boys have one gamer extra that likes to play, as it is football games. Both boys and girls like to play game with each other more than with same sex. There is a statistically significant difference on seeing "playing computer games as a waste of time" between secondary school and high school students. While 54 percent of secondary students agree with this statement, the agreement drops to 43 percent among high school students. This research supports the hypothesis because boys' favorite activity in internet cafes is playing games. However, when girls go in internet cafes, they prefer chatting than playing games. In other side, their favorite activity at home is playing games because girls like to play games in their own alone.

*Do parents allow children to spend too many hours in front of computer?*
Some of the parents allow their children to play computer games for long hours, which are 22.0% of students and 73.5% of them, are not allowed from their parents to play and 45% of students are not answering. Most of the parents know what kind

of games their children plays and some of them allow their children to play violent computer games, which takes a place of 43.8% of the students.

In addition, parents of both boys and girls know what rather games their children plays, they do not allow them to spend too much time in front of computer, to play computer games for long hours, and they know what kind of games they are playing. Parents of 67% of girls do not allow them to play violent computer games but parents of 58.0% of boys allow them to play violent computer games. From this, we can understand that parents of girls are more careful about their children activity while playing computer games and most of them do not allow them to play violent computer games. This can be related with their parents' jobs, 58.0% of girl's mother are housewife and 48.0% of boy's mother are housewife. May be this can be the reason for being more careful about their children computer games because they can spend their time at home and having more time for their children.

## 5. Discussions

Unsworth & Ward (2001) reported that children are entertaining themselves with computer games that may have an antisocial effect on young players. As we test the hypothesis, most of those children like to play computer games and their preferences with whom to play alone or with friends, they prefer to play alone. Even if they go in internet café with friends, their preference for playing games is to play alone. An action like this, loneliness makes the people antisocial in every age, adults, and teens. Nevertheless, when the subject is teens is more important because they can be more influenced from loneliness. Playing alone, it means to share everything with computer, as their frequented activity. Some of those teens agree that playing computer games negatively affect their social life.

As Kaiser Family Foundation (2005) argue, children who have their own media at their bedroom are more influenced that those who do not have. From this research, we found that 81.8% of all teens have their own computer at home and just 69.0% do not have internet connection. However, they spend time in internet café also. Internet connection is not a barrier for not playing games if they do not have at home because they can buy the game and very easy downloading in computer.

According to Kaiser Family Foundation (2005), the lowest grade students spend more time playing computer game than those with highest grades. We found that students are not having very bad average but not even a very good; they try to keep a middle average. Moreover, something like this we cannot prove because the data that we have is not completed. 36.5% of those teens did not answer to this question, which makes us to think that they can have a bad average. All these

students spend almost equal amount of time for playing computer games. Kaiser Family Foundation (2005), called this generation as the media generation.

At present research, we tried to find out if boys spend more time playing computer games than girls do. As it documented from many studies boys spend more time online surfing the web and playing violent computer games, while girls spend their time online in social interaction, like chatting, watching film, etc. in this research is not showing a big difference for their computer activity preferences. However, both boys and girls prefer or like to play computer games; that is one of their favorite activities. We have 81.0% of girls that prefer to play computer games and 93.5% of boys prefer to play computer games. Between boys and girls, there are also teens that they like all computer activities. Therefore, from a general analyzing with boys and girls together, 87.3% of them like playing computer games.

According to Buchman & Funk (1996), even if girls spend equivalent amount of time online, is suggested that they might display 'gender-stereotypical preferences in their choices of internet activity. Nielsen & Smith found that boys play more violent games than girls do and they show more behavior that is aggressive. However, at present research both boys and girls are playing same games and the most favorite ones are action/adventure games, strategy games, and simulation games. For boys there is one more game, which is football, and for girls there is one more favorite activity, which is chat that comes after playing computer games. Moreover, they like to play games with each other, boys, and girls together.

It is argued, thoughts, and findings signs of aggressive behavior that violent computer games lead to aggressive behavior. From the present research, we found that all computer games include violence inside. Albert Bandura (1962) argued that children who had observed aggressive models responded in the same way because children learn from observing others. This fact is related also with those children who confuse real life with their imagination. Dill et. al (2005) concluded that media affect children and young people, but children specially who have difficulties to differentiate between fantasy and reality. Unsworth & Ward (2001) found that those children who do not have good imagination skills might find difficulties to distinguish between the portrayals of violence in video games and violence in the real world. In addition, in present research we found that 16.0% these teens thinks that the characters of the games are real. When we compare boys and girls, 8.5% of girls and 23.5% of boys think that characters of games are real. Therefore, those who have problem with their imagination skills more, are boys and from 11 until 18 years old teens have problem with this subject. As Bushaman & Anderson (2001) argues that children in every age can be affected from media violence and especially playing violence computer games will increase aggressive behavior. Some of the parents allow their children to play computer games for long hours. Most of them know what kind of games their children plays and some of parents allows them to play violent computer games.

# 6. Conclusion

One of the most favorite activities of teens in Famagusta is playing computer games. This kind of entertainment is called 'interactive entertainment'. Children are active participating in game. They are involved inside the game, because they play and put all their feelings there, different from other media entertainment that you just watch, listen, or read.

Games are used to entertain and educate people and computer game is a type of software. Previous games social games were educated and entertained but in nowadays, computer games are just entertained. Computer games are mostly inspired by other media and tell a story.

Both boys and girls like to play computer games even they know it is a waste of time. Most of the students do not agree that playing computer games negatively affect their school success. However, there is a population of 36.0% of students who did not answer about their average grade taken last year. Moreover, there is a gender differences regarding to the grades taken last year, which shows that girls are more successful student, both secondary and high school girls. Students do not agree that playing computer games affect their social life, but they see computer games as a very exciting activity, not boring and most of them agree that computer games are too violent. They feel good when they win the game but in other side, they feel angry, sad, and nervous when they lose the game and when the internet is disconnected. Internet here related with online multiplayer games that are mostly frequented from girls. Online are seen as a communicative phenomenon, as social interaction, or motivating teens to think more creatively. Some of these games are by speaking and videos are included, so the players can see each other online. However, playing with anonymous people can cause social friction, you might have serious legal obligation to make sure people do not use it to abuse children like children's porno.

The highest part of students prefers to go with their friends in internet café. In other side, 51.5% they like to play computer games alone and what remains prefer to play with their friends and some of them play games with unknown online people and at the same time, they prefer to play alone and with their friends. There is a gender differences for time spend in internet café. Boys frequent internet cafes more than girls do. Boys like to play computer games in internet cafes more than girls do. Boys like to play computer games in internet café while girls prefer to chat. As I found from this research, girls in Cyprus, prefer to play games alone at home. 73.2% of them play alone. Moreover, no difference is founded between boys and girls for the games that they like to play. Their most favorite games are 'Strategy games', 'Action/Adventure games', 'Car Racing games' and 'Football games'.

One of the subjects that we want to study is the aggressive behavior in children. Since 1946, there is a belief that violent computer games lead to aggressive violent behavior. Media affects children and young people, computer games are about bringing fantasies to life, making people to think things that they could not possibly do in the real world. However, those children who do not have good imagination skills may find difficult to distinguish between the violence in game and violence in real world. Therefore, they can be more affected from media than others can. May be not too much but important number we found at the present research in Famagusta. 16.0% of teens in here have problem with their imagination. Those who have more problems are high school students and most of them are boys. From computer games, teens learn by observing actions and characteristics of games and they start to accept those images as representatives of the real world. Teens learn how to interpret the messages from the system, which sends those images and later construct them as they imagined.

In addition, the story that computer games tell pushed the children to play and for catching that victory condition, for being hero of the games they play more and more. At the present study, teens of Famagusta while they lose the game, they cannot catch the victory condition they become aggressive, violent, they feel bad and nervous. Moreover, people show their aggressive behavior more when they are playing with unknown people. Playing alone make the teens to be antisocial in other side. The only way to remove the violence from game play would be to prohibit most of the games in the world because most of them contain violence in some more and in some less. However, in nowadays, computer games industry is the biggest private business. Violence is necessary component of interest. When violence exists in game it is mostly sold because it is the most attractive game and holds more customers.

Family, friends, school friends are seen as socialization agents, but when children play, alone they have the chance to be antisocial. As we found out, most of children in Famagusta prefer to play alone and their entertainment is playing games, which lets them far from society, social life. Parents of these children in Famagusta know what kind of games their children play. Most of the parents do not allow their children to spend too much time in front of computer and playing games for long hours. However, not much difference is between the parents that allow their children to play violent games and do not play violent games. Parents of secondary school students are more careful in this subject; parents of high school students allow their children to play violent computer games. Moreover, is a gender differences because parents of girls are those who do not allow their daughters to play violent computer games, but parents of boys allow them to play violent computer games. This can be because most mothers of girls are those who are housewives and another reason why the girls prefer to play alone it can be

because of their parents are not allowing them to spend much time playing games and especially violent games. Moreover, this can be also a reason for the boys to spend much time in internet café.

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