



School of Economics  
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## **The effects of demographics and relations in children's video and computer game selection**

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## Abstract

For the last three decades, many things have changed around us. New businesses have grown up and new fields have emerged. One such field is video games which are liked by children. There is already research, which proves that children often like to play violent games which affect their personality and make their behavior violent (Rathus, 2004; Anderson & Dill, 2000; Crawford, 2003; Walsh, 2001) rather than playing educational and IQ games which increase their learning abilities.

Our work is about what are the factors which affect the game selection in children. Main parameters for the research were demographic factors and relations. These two parameters are part of their whole environment and have different impact on the game preference; we have explored affect of these parameters in our paper. Under these two parameters we have focused relations with sibling and friends. Children demographics of age, gender and ethnicity were studied. To collect data, detailed interviews were conducted with children from three different ethnicities (Danish, Pakistani and Arabic) to see the relations between demographic factors and relations to game preferences. The collected interview data is then analyzed to draw conclusions.

Gender influences the game preferences. Tendency to play fight games was more in boys than girls. Being not the dominant in sibling rivalry was a factor in behavior towards violence games in Pakistani and Arabic children. Danish children were influenced by friends rather than siblings. Ethnicity also affects the game selection. As the child age increases he tends to play more strategy oriented games.

## Keywords

Demographic factors, video games, computer games, game selection, children game preference, effects of demographics, effects of relations, siblings, relations

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# 1. Introduction

Overview-----

In this chapter we are going to start by providing the background of our research area, followed by the problem space. These work as a ground to understand the research question. Afterwards, we will present our research question and explain the purpose of our research. At the end, we will discuss what will be the expected outcome from this research and the research delimitations.

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## 1.1 Background

Until the 1950's there was no concept of video games. Instead children used to play physical games like football, cricket, tennis etc (Demaria and Wilson, 2003). Video games started with "Tennis for 2" in 1958 (Hunter, 2000) and gained popularity with time. The number of video games and players is increasing with the passage of time (Williams, 2002). Now the video game market has reached \$20 billion (Taylor, 2005). These games are available in different forms like game consoles (e.g. Playstation), computer games and online games (Demaria and Wilson, 2003). In a survey published in the "Journal of Adolescence" in 1995 it was observed that 77.2 % of children play video games. In another survey it was discovered that in the USA 67 % of households with children own video game systems, 70 % of the video game player children play for 1 to 4 hours a day while 12% play 5 to 9 hours a day (Taylor, 2005).

Over the past 30 years, a lot of research has been conducted to see the effects of these video games on children (Gentilea et al., 2004). As a result of this, some positive effects of video games have been identified like problem solving and logic development (Singer and Singer, 2001), entertainment and fun (Vorderer and Bryant, 2006), creativity (Valkenburg, 2004) and a way of education (Fisher et al., 2004). But on the other hand there are several drawbacks like addiction (Valkenburg, 2004), social isolation (Smith et al., 2003; Singer and Singer, 2001), health problems (Taylor, 2005), adult material in games (Reichert and Lambiase, 2005), problems for children to understand the difference between fantasy and reality (Fromberg and Bergen, 1998), children behavior towards violence (Crawford, 2003; Rathus, 2004; Anderson and Dill, 2000) and poor performances in school from these games (Gentilea et al., 2004). These researches mostly focused on positive and negative effects of playing video games on children.

## 1.2 Problem Space

These drawbacks of video and computer games are a real concern for society as they have negative impacts on children's attitude and learning (Douglas, 2004; Verenikina et al., 2003; Anderson and Dill, 2007; Harris, 2001; Griffiths et al., 2007). Children's attraction towards violence games is making their attitude more aggressive (Griffiths and Hunt, 1998).

Actually, this is not the game itself that creates the problems but the type of game which children play, for example playing violent video game results in aggressive behavior in children (Rathus, 2004; Anderson and Dill, 2000; Crawford, 2003; Walsh, 2001)

All children have distinct personalities and behavior patterns (Ronit, 2002). Moreover they have different interests and enjoy different things; some children like to draw, while others may prefer to play baseball or go camping (Daniel, 2004). Similarly, every child has different attraction to play games of different natures (Vorderer and Brynant, 2006), some children like, for example, racing games, others like fighting games or puzzle games. This difference in choice is due to demographic factors and the relations that every child experiences (Griffiths et al., 2004).

According to Lamb and Brian (1982), the child's intellectual and personality characteristics are shaped by his interactions with siblings. According to Slee (2002) child behavior and personality is shaped by his friends. This concept creates motivation for us and we have focused our field of work in children's relationships with siblings and friends. The second part of our work will focus on the important demographical factors that shape children's behavior: Age, gender (Gunter, 1998; Lamb et al., 1982), and ethnicity (Weiner et al., 2003).

There is already some research on how demographical differences shape children's behavior towards game selection. For example, in the Norwegian report of 2004 by Endestad et al. (2004) cited in Smith (2007), researchers focused their attention on the difference between male and female video game players. This study gives an understanding of the tendencies of children towards different game genres and how it differs between male and female players. It shows that boys have a greater tendency towards sports, action and fighting games. The data collected in that study gives us an understanding that violent games are more attractive for male players and that female players are not interested as much in such games as in other games categories. Similarly, the tendency of male players towards sports and racing games is greater than of female players. This information gives us an understanding that the likings and disliking of the players in real life plays an important role in their game selection. Researchers have also explored the possibility that differences in frequency of video game playing as well as preference for particular types of video games might be explained by personality factors (Gunter, 1998).

### 1.3 Research Question

The intention of this research is to answer the following question:

- **Do demographics and relations with siblings and friends affect children's video and computer game selection?**

The research will have focus on:

- The demographical factors of age, gender and ethnicity
- Children's relations with siblings and friends

## **1.4 Purpose of Research**

This is an exploratory study to find out and compare how demographics and relations affect the game selection of Danish, Pakistani and Arabic children, which will provide us trends for their game preference. Our aim during this research is to study how the relationships with siblings and friends and demographical characteristics of children lead them to select a specific game genre. We know that the demographic characteristics of a child cannot be changed, like age and gender (Daugherty and Kammeyer, 1995). But the second phase of our research, i.e. children's relation with their friends and siblings, can play an important role for children in game selection. An increasing trend of children playing violent games is a concern of the society because they have a large impact on children's attitude and learning (Douglas, 2004; Verenikina et al., 2003; Anderson and Dill, 2007; Harris, 2001; Griffiths et al., 2007).

## **1.5 Expected Outcome**

We expect that after the completion of this thesis, we will come to know that children with specific demographic properties and relations with their siblings and friends have the tendency to play different game genres. We believe that our research will provide guidance to parents, friends and siblings to make their behavior more productive in order to help children to select a good game.

## **1.6 Research Delimitation**

This research is limited to children only. Although adults also like to play video games, our focus is on children. The age group in question are 4-12 yrs. Children's relations with parents, teachers and other type of relations except friends and siblings are not studied in this study because according to Lamb (1982) relations with siblings is a factors which shape a child's behavior; While Slee (2002) explains that friends is also a factor which shapes behavior of children.



## 2. Literature Study

### Overview-----

In this chapter we are going to focus on the demographic factors and the relations that we have considered for our research each followed by its importance in the study. Next, we will explain why there are different game selections in children and what those different game genres are. Followed by that, we are going to explore the benefits and drawbacks of games. In the last section of the chapter, we are going to present our results from literature study.

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### 2.1 What are Demographic Factors?

Demography is a scientific study of the size and composition of, and change in human population (Hofmeyr et al., 1998). According to Cambridge online dictionary (Cambridge, 2008), the definition of demography is: *“The demography of an area is the number and characteristics of the people who live in an area, in relation to their age, sex, whether they are married or not, etc: The increase in the number of young people leaving to work in the cities has had a dramatic impact on the demography of the villages”* (Cambridge, 2008, p.1).

Demographics are the statistical study of human population that involves numerous characteristics depending upon the purpose of the study (Arkebauer, 1994). There are several demographic variables which refer to different things, depending on the particular population under consideration (Daugherty and Kammeyer, 1995).

Characteristics of population may include age, sex, race (black, white Asians and others) or religion (Protestants, Catholics, Muslims, and others), residence (rural or urban) etc. (Daugherty and Kammeyer, 1995). Studying the demographic factors will help us analyze children from different dimensions and with the help of which we can find the causes of the preference in their selection of game genre.

### 2.2 Focused Area of Demographics

Age and sex are biological attributes common to every person in every population, so every population can be described in terms of its age and sex compositions (Daugherty and Kammeyer, 1995). As demographics depends on purpose of the study (Arkebauer, 1994), in case of children, important demographic variables for our study are age, gender, ethnicity, number in household etc. For example, we can skip the variable marital status because it is irrelevant to our study (Arkebauer, 1994).

Electronic games seem to have an especially important place in the lives of boys (Singer and Singer, 2001). Boys play electronic games more often and more regularly than girls do (Fromme, 2003). In a study, general entertainment games became more frequently preferred with the increase in age, among both boys and girls, moreover sports games were better liked by boys. This is showing that both gender and age distinguished game theme preferences (Gunter, 1998). In another study, Roberts and Kaiser (1999) found that, in younger children the choice of games fall into the action, adventure and sports categories whereas older children play these games more than their younger counterparts, which shows that the age difference plays a role in frequency of game playing time.

Ethnic background affects in different situations, for example according to Weiner et al. (2003) ethnic match between child and teacher is associated with more positive relationships.

### 2.3 What we meant by relations

In our research, we are considering relation as a main factor in game selection. This involves relations of siblings and friends. As human being we need to interact with each other and socialize; we need other human beings for approval support, friendship and information, we do need people and most of us are starving for a simple conversation or a chance to be heard (Mautner, 2003). Our family, peer group provide us environment to interact, whereas we learn by ourselves through this interaction (Trotzer, 1999).

In his book *'The Counselor and the Group'* Trotzer (1999, p.64) states: *"Our relationships have a socializing effect on our lives, not only shaping our behavior to conform to the standards of society, but also having a differentiating impact that enables each person to develop a unique personality, self-concept, and identity"*.

In their book *'Handbook of closeness and intimacy'* Mashek et al. (2004, p.215) states: *"Each of us encounters many other people in day-to-day activity: parents, siblings, friends, acquaintances, neighbors, teachers, shopkeepers, business associates, and so on. No one perceives or expects all these social contacts to be equally responsive to their needs and moreover, most people do not expect all others to be responsive in the same way. For example, most people expect their mothers to be more responsive to their needs than their neighbors."*

This relation covers all the people to whom we interact daily and is not bound to their home, neighbors and friends, but in our research we are only considering them because they are the most important ones. Example of other relations could be their relation with the teachers in the school, etc. Video and computer games are mainly connected to peer relations, while parents or other adults only participate in the margins (Fromme, 2003).

**Sibling relationship:** Interaction between the siblings is unique, and is very special; children without siblings may either develop social skills quite differently, or may have to find substitutes for relationship with a sibling (Lamb and Sutton-Smith, 1982). Age of sibling is also expected to affect the child's behavior because this factor includes age and birth-order differences and both might affect patterns of interaction (Lamb and Sutton-Smith, 1982). Two different features of sibling relationship can be mentioned as follows:

**Sibling Rivalry:** A simple sibling rivalry involves a sibling weakness on a dimension and rival's strength on the same dimension, and there exists a comparison on value judgment by self or the other person (Lamb and Sutton-Smith, 1982). In the case of siblings, children cannot choose as they can choose their friends, so their lie some challenges, limitations and unique sources of influence (Fromberg and Bergen, 1998). Smaller age differences lead to greater sibling rivalry and more aggressiveness (Lamb and Sutton-Smith, 1982).

**Sibling Dominance:** Elder children have more dominant behavior towards younger siblings and them more likely to accept it (Fromberg and Bergen, 1998). It is found from the research that first-born sibling playing with the second-born sibling likely to assume dominant roles like teacher and manager and the younger sibling more likely to accept it (Fromberg and Bergen, 1998). This is also true between any two siblings that being elder, means to be dominant.

**Friends:** Friendship is one of the best relations for a person. When children are in the middle age, they develop ability to look at things from others' perspectives. Learn skills like cooperation and problem solving in peer group, close friendships which facilitates understanding and promote trust and reciprocity (Hutchison, 2003). Children have friends that have common interests like watching same television program and the changes in friendship status could occur because of not liking the same games (Blatchford, 1998). Neighborhood or interpersonal environment surrounding the family's residence can be seen as an important setting for young peer relations (Parke and Ladd, 1992). In the social environment of children, friends and peers available in neighborhood has a powerful impact on children's time use (Munger, 2005). Parent choice of neighborhoods, and their policies regarding neighborhood activities, represent another form of peer management and may have an important bearing on children's social opportunities and experiences (Parke and Ladd, 1992).

## 2.4 What and Why Children behavior?

Media technologies like video games occupy children's time and have the potential to affect their thoughts and behaviors (Anand and Krosnick, 2005). Playing violent video games cause aggressive behavior in children (Rathus, 2004; Anderson and Dill, 2000; Crawford, 2003; Walsh, 2001) and why children attract towards violent video games than other games; which

factors cause their selection towards a certain type of game genre. Video games have become a focus of concern due to the high level of violence they contain and the fact that children are active participants in the violence, rather than passive observers, as they are with television (Stoff et al., 1997).

Games like *Mortal Kombat*, *Doom* are rich in violent material (Brown and Merritt, 2002) and such games can cause an increase in the person's aggressive behavior because they are very interactive in the violence, showing blood and killing (Crawford, 2003). Two studies published in April 2000 issue of American Psychological Association's (APA) *Journal of Personality and Social Psychology* states:

*"The present research demonstrated that in both a correlational investigation using self-reports of real-world aggressive behaviors and an experimental investigation using a standard, objective laboratory measure of aggression, violent video game play was positively related to increases in aggressive behavior."* (Anderson and Dill, 2000, p. 16)

*"Students who reported playing more violent video games over a period of years also engaged in more aggressive behavior in their own lives."* (Anderson and Dill, 2000, p. 16)

Walsh (2001) from National Institute on Media and the Family explains the violent video games towards aggressive behavior in the following manner:

*"Studies measuring emotional responses to playing violent video games (compared with emotional responses to non-violent games) have shown that violent games increase aggressive emotions. Adolescents themselves often seem to recognize this. When asked to name the "bad things" about computer games, many students reported that they make people more moody and aggressive (Griffiths and Hunt, 1998). In this study, students who were more "addicted" to video games were significantly more likely to be in a bad mood before, during, and after play than were non-addicted students."* (Walsh, 2001, p.1)

## 2.5 Why Game Selection

Playing video games is an activity of great importance in children's culture and social life (Kafai, 1995). Young children while doing drawing have different interest and learning styles, they do not all get excited by drawing a square, a house or a screen full of circles (Maddux, 2001). It is same in case of games, some children like fighting games whereas other children think playing a sports game is more fun. Gender differences seem to play a role in the choice of game themes (Kafai, 1995).

Some children simply play video games to learn and improve their English language (Nunan et al., 1988), others like to learn history as in *Civilization III* (Kafai et al., 2004) or learn geography

as in *SimCity* (Butt, 2002), and this really depends on the interests of the child intending to play the game.

In a research study Kafai (1996) asked girls and boys to design and implement their own video games and found that the games designed by girls differs significantly from those designed by boys according to use of violent feedback, characters, and game genre (Cassell and Jenkins, 1998). Girls would like action and adventure games and enjoy more feelings of mastery if the games tapped into their cognitive strengths (Evra, 2004).

Sometimes parents might treat their children differently, children are sensitive to those differences and could influence their personality development. Elder Sibling in family has different experience than a sibling who has an older brother or sister (Crozier, 1997). Selection of computer games certainly depends on many factors like situational factors (e.g., time resources), technological factors (e.g., system infrastructure), and individual factors (e.g., motivation) (Vorderer and Bryant, 2006).

Additionally, according to Vorderer and Brynant (2006) also three personality factors have a combined effect on computer game exposure: personality general action tendencies, mental beliefs and self-beliefs.

## 2.6 Types of Games

In early research on electronic games there was quite little attention paid to the kind of games children were playing and games were just categories as violent or non violent because of simple nature of the games. As the advancement of graphics in games with movie-quality and virtual reality technology, this becomes necessary to evaluate game content from participants' perspective. Result was development of game categories from children perspective (Strasburger et al., 2002). Computer game genres are not static, but do represent fundamental abstractions of forms of game play (Vorderer and Bryant, 2006).

According to game genres defined by Herz (1997) and Poole (2000) cited in Kerr (2006, p.40), we have categorized them into the following genres representing the majority of computer games developed.

### **Fighting /Action**

Description: These are two-person games in which each player controls a figure on the screen, using a combination of moves to attack his/her opponent and defend against his opponent's attacks. Viewed from side perspective, and each session lasts only a few minutes (Bates and Bates, 2004). Typical interaction in action games is to shoot at and kill multiple enemies in pursuit of some goal (Vorderer and Bryant, 2006). The basic aim of both types of the games is same to kill or hit the opponent.

Characteristics: complex buttons, combinations, motion capture, power-ups etc.

Examples: Tekken, Mortal Kombat, Street Fighter, Art of Fighting, Spacewar, Half-life, Doom, Quake, Counter-Strike, Unreal etc.

### **War and Strategy**

Description: Game play most often consists of using many units and exterminating enemies, have minimal graphics and animation when compared to other games (Vorderer and Bryant, 2006).

Characteristics: game play and goals generally abstract, often multiplayer, time element in real-time strategies, logical thinking etc.

Examples: Civilization, Age of Empires, Command and conquer etc.

### **Puzzle / Board / IQ**

Description: Puzzle games are typically the simplest games to pick up and play, and are aimed at the most casual players. These games present the players with one or more puzzles to be solved (Vorderer and Bryant, 2006).

Characteristics: exercises in logic, finding the right steps and the right corner etc.

Examples: Tetris, Chess, Myst, Bejeweled etc.

### **Simulation**

Description: Attempt to faithfully simulate some real-world activity or an extension of some activity. Enables the player to do something they could not do otherwise through the simulation of a familiar series of events in a compressed time and physical context (Vorderer and Bryant, 2006).

Characteristics: simulation of real-world environments and activities, realism etc.

Examples: Flight Simulator, SimEarth, Theme Hospital, Roller Coaster Tycoon, Crimson Skies, SimCity etc.

### **Sports**

Description: Simulate known activities ranging from realistic professional baseball fly-fishing, or snowboarding, follow the rules and faithful real-world physics (Vorderer and Bryant, 2006).

Characteristics: combination of action and simulation, celebrity athletes, celebrity commentators, realism etc.

Examples: Pong, NBA Inside Drive, Tiger Woods Golf, Pro Evolution Soccer, Jonah Lomu rugby, Madden NFL 2003, Tony Hawk's Pro Skater 4 etc.

### **Racing**

Description: In these games, a player has to drive a vehicle like car or motorbike in fastest manner possible. The goal is to drive the vehicle and reach the finish line before your opponents (Poole, 2000).

Characteristics: speed, acceleration, correct simulation and graphics etc.

Examples: Need for speed, Gran turismo, Project Gotham Racing, Moto Racer, Moto GP, Road Rash, Manx TT etc.

When computer games started it was seen just as entertainment but with the passage of time many positive and negative consequences of playing video games were observed. A lot of debate and discussion has been done and available about these benefits and drawbacks of playing video and computer games, which are described in detail in later sections.

## 2.7 Benefits of playing games in general

Following benefits of playing video and computer games, which are taken from National Institute on Media and Family (2006) and further described using Gibson et al. (2007), Vorderer and Bryant (2006), Valkenburg (2004) and Castronova (2005):

- **Problem Solving and Logic Development.** Video games offer children with intellectual challenge situations, where different levels offer varying difficulty, and children look to master one level and move to more challenging level (Gunter, 1998). This is being viewed as benign activity with great potential to promote children's problem-solving skills (Singer and Singer, 2001). Johnson (2006) argues in his book 'Everything Bad Is Good For You' that video games are in fact demand far more from a player than games like Monopoly. During the game play the player forms a variety of sub goals, performs actions, solves specific puzzles, and has to cope with conflict situations. These sub goals always follow a player's primary objective throughout the game (Friedl, 2002). When a player becomes frustrated with being stuck on a certain level, he/she will struggle many times to by coming back again and again (Gibson et al., 2007).
- **Entertainment and Fun.** One of the most important reasons of why children want to play games and love to get addicted with it is that it is source of entertainment for them. For people, video games are an entertainment that they prefer to choose over other media when forced to choose between them. Compare to other media for entertainment, games not only provide escape from their real world, but allow players to become actively involved in the world they escape into (Vorderer and Bryant, 2006). Friedl (2002, p.24) states: "*Clearly, the primary objective is heavily dependent on the game, and part of a player's decision of what game and genre he favors: hitting the high score, reaching the end of the game, saving the planet from a threat, or expanding one's empire by collecting resources, building troops and buildings*".

- **Creativity.** Traditionally, games are played by following the predetermined rules which make children less creative, but there are some games, in which children are able to give their imaginations free power, and they can for example make drawings, compose music, and write creative stories (Valkenburg, 2004). Many educational computer games in particular so-called adventures or fantasy role-playing games are designed to foster imagination. It is also possible that educational computer games designed to foster imagination have a potential to encourage children's creative capacities (Singer and Singer, 2001).
- **Games as a way of learning.** Because of educational potential of some genres, such as puzzle and adventure games, the playing of video games has evolved from a largely recreational activity to one under consideration for academic practice (Fisher et al. 2004). Games play very much on curiosity of the player; players want to know how the story will end just like in television and books (Valkenburg, 2004). Game environment provides the player an opportunity for learning and exploring aspects from broad spectrum of different disciplines and contexts (Friedl, 2007). While playing a game, the player is in conflict with a complex electronic system that he needs to master and then attempt to control throughout the entire process (Friedl, 2007). To a lesser or higher degree, a learning aspect is present in all types of computer games.
- **Introduction to Computer Technology.** When personal computer were first introduced, it provided an opportunity to play games in your own room at drastically lower prices because of which more and more household bought computers (Castronova, 2005). Along with other media, video games serve as a way to expose to computers in children (Maddux, 1985). Video and computer games seem to have a universal appeal to children (Valkenburg, 2004). Video games often provide the first opportunity for children to interact with computer technology (Fisher et al., 2004) serving as a gateway between children and computers, because computer games and internet have become an increasingly important part of children's leisure activities (Valkenburg, 2004). In order to play the game, they have to understand how to use a mouse and keyboard and which program they have to open in order to run the game etc., such simple tasks help them shape their basic understanding of computers. Games keep on forcing them to engage with computers and learn more about them. Moreover, with the increased demand of online game play, children are using more the Internet. When they play online games, they learn how to use internet and perform different important tasks like opening a website, searching for a game from a search engine, save a website in favorite list etc.

## 2.8 Drawbacks of games in general

Following are the drawbacks of playing video and computer games, which are taken from National Institute on Media and Family (2006) and further described using Essau (2008), Taylor



(2005), Derevensky et al. (2004), Vorderer and Bryant (2006), Fromberg and Bergen (1998), Berk (2001), Comstock and Scharer (2007) and Reichert and Lambiase (2005):

- **Addiction.** Latest generation of computer games provides action, speed, appealing music, good sound effects, and graphics of film etc which keeps children glued to the screen for long hours (Valkenburg, 2004). Game playing addiction is just like any other addiction and consisted of a compulsive behavioral involvement, a lack of interest in other activities and association mainly with other addicts (Essau, 2008). Another reason of why children wants to keep on playing is that most games are easy at start but becomes increasingly difficult throughout the course of the game, greater the challenge a player manage to overcome the greater satisfaction they feel (Valkenburg, 2004). This behavior is also quite challenging for the parents as they try to help their children out of this addiction specially if children are playing too long and not concentrating on their studies and other routine tasks.
- **Social Isolation.** There is a concern that time spent on electronic media will negatively affect the time spent on organized sports and social activities (Singer and Singer, 2001), because interactive media take too much time away from other activities, such as home work, reading and sports (Valkenburg, 2004). Children will be spending more time staying home in front of their game, which depends on the addiction level of playing games, if a child is playing for several hours and without any breaks it does show a negative indication towards their social behavior. Video games can play a role in development of social isolation, as many video games are played alone (Taylor, 2005). Playing games at home alone will cause a decrease in the social behavior of children, they might be less active to go out and play with friends and prefer to stay home and enjoy living in their fantasy worlds. There exists several addictive games that force children to play games for long hours because of which parents sometimes fear that playing videos games leads to social isolation (Smith et al. 2003).
- **Negative effects on child's health.** It is not rare to find that children playing games for long hours. This is because of the addiction to playing games, a child started the game and now he/she is not interested to stop playing unless he/she manage to achieve the final goal of the game. Too much game playing keeps children from engaging in activities and having experiences that would encourage their health and development (Taylor, 2005). Research shows that excessive video game play exhibit some form of negative consequences and there are evidences of serious acute adverse effects on health from moderate play (Derevensky et al., 2004). Playing games for long hours causes them to skip their sleeping hours. Sleep loss affects physical health and some of affects are increased somatic complaints, changes in weight, self-reported increases in stress level, accidents and injuries (Nash and Goldfarb, 2005). Science shows that sleep loss have strong affects on one's health and it is advised that one should sleep properly at night.

"The National Sleep Foundation recommends 14 to 15 hours of sleep per 24 hours for infants (3 to 11 months), 12 to 14 hours for toddlers, 11 to 13 hours for preschoolers, and 10 to 11 hours for school-aged children." (Schenck, 2007 p.7).

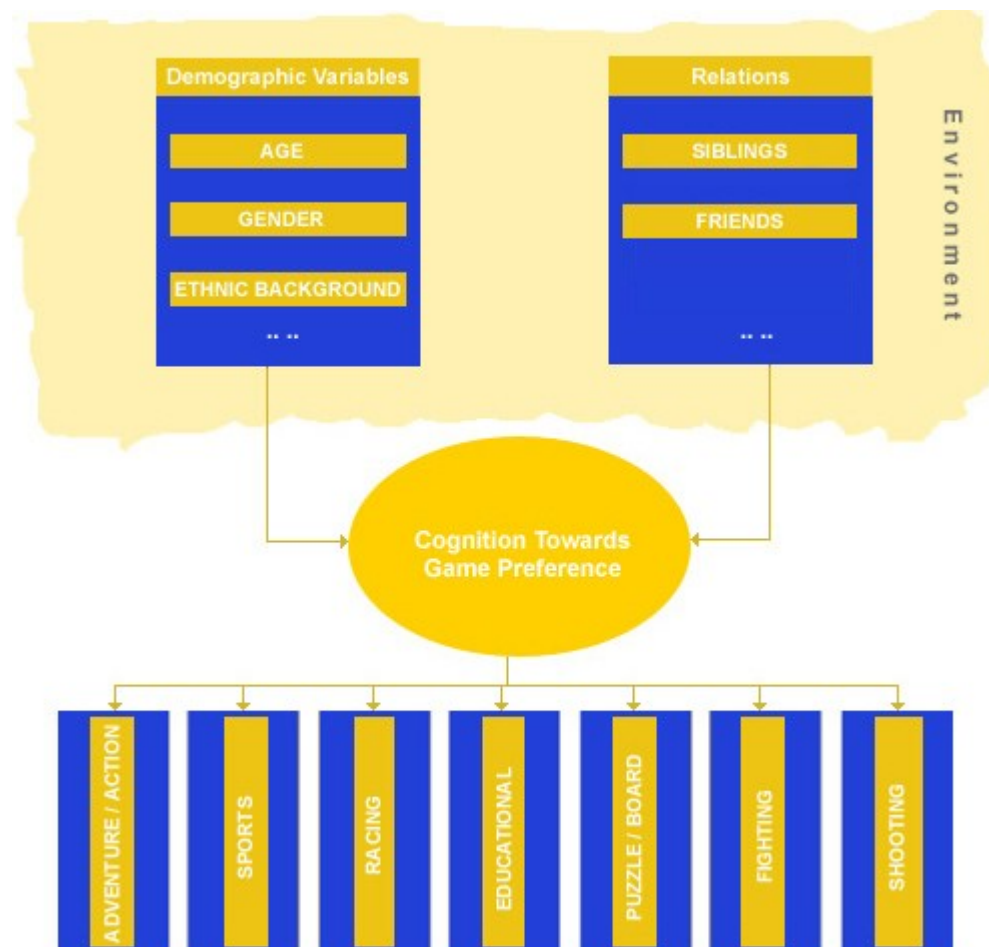
- **Aggressive towards violence.** Video games are potentially most dangerous form of entertainment violence, in which children are given opportunity to direct and control the violence (Cornell, 2006). Violence in first-generation of video games consisted of fighting animated, cartoon like characters. But in modern games, they offer much more realistic representation of violence (Vorderer and Bryant, 2006). Nearly a third of the top video games contain violent content (Parrott, 2000). Many video games require children to become increasingly adept at killing off characters with the use of special weapons or superpowers (Newman et al., 2005). In several games, homicides are shown in detail and realistic graphics (Vorderer and Bryant, 2006). Also trying to overcome obstacles is an activity increases the level of arousal in children (Valkenburg, 2004). In *Mortal Kombat*, a player earns extra points by ripping out the opponent's heart or decapitating him. In some versions of the game *Manhunt*, the player must simply approach an opponent from behind and press a button. The longer the player holds down the button, the more gruesome the killing appears (Vorderer and Bryant, 2006).
- **Confusion between reality and fantasy.** Fantasy and imagination help children project their thoughts into the future. It helps them to think about a variety of possibilities for themselves (Fromberg and Bergen, 1998). Sometimes in adventure and fantasy role-playing games, children are given opportunity to give free power to their fantasies and ideas e.g., they can draw, compose music and create stories. But nobody would recommend that parents replace all real-life drawings and stories with computer-generated ones. So there is little reason to assume that these computer games hinder children's creativity through a lack of practice in divergent thinking tasks (Singer and Singer, 2001).
- **Use of weapons and gender biasness.** Games in which children advance by shooting with weapons like gun and evading the enemy are yet another fantasy pursuit that largely appeals to boys (Berk, 2001). This newer medium consistently conveys a message that promotes female passivity and male activity as norms (Comstock and Scharer, 2007). Video games display discrepancies in the number of male compared to female characters and it is rare for a single main character to be female, moreover educational computer games under represent women and girls (Comstock and Scharer, 2007).
- **Adult material in games.** Video game content is male-dominated and when female are shown, it is often in a secondary and sexualized context (Reichert and Lambiase, 2005). In *Grand Theft Auto: Vice City*, for example, the player maybe rewarded for having sex with a prostitute and kicking her to death to avoid payment. M-rated games (Mature,

which means for individuals age 17 and older only) may contain "sexual violence," "blood and gore," or "intense violence" as listed on the Internet homepage of the Entertainment Software Rating Board (Game Ratings and Descriptor Guide), whereas T-rated games (for Teens, which mean for individuals age 13 and older) (Vorderer and Bryant, 2006).

## 2.10 Results from literature study

Personality of the child has an effect on computer game exposure (Vorderer and Brynant, 2006). Additionally Pankin (1982 p. 69-70) states: "any environmental or socialization variables facilitatory to cognitive development should also have a determinant effect upon game preference."

From the above literature study, we have found that demographic variables (section 2.2) and relations (section 2.3), which are part of environment play a role in cognitive development of children towards selection of different types of games (section 2.6). We have illustrated it in *figure 2.1*.



*Figure 2.1 Basic illustration showing demographic variables and relations affects the game preference (own figure)*

In the above *figure 2.1*, we have illustrated the basic flow of factors affecting the game preference in children. Briefly it means that demographic variables, and relations are correlated and they affect the selection between different types of games. These factors of its environment has affects towards the game preference, which is not constant, instead it varies from different situations; for example, if a child has more friends and he spends more time with them let's say in the school, and he plays same sports (e.g.; football) with them. It is more likely that relations will have more effects on his/her game preference than demographic factors. However the overall end result of game selection is a combination of these two domains.

# 3. Methodology

Overview-----

In this chapter we are going to present the methods and the process of collecting and analyzing empirical data. We describe our research approach. Moreover, we discuss the research quality as well as related ethical concerns.

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## 3.1 Research Approach

Research can be conducted using either a quantitative approach or a qualitative approach (Creswell, 2007). Qualitative data usually is in the form of words rather than in numbers, these words can be in the form of written text, which can be obtained using a qualitative method like interviews and the qualitative data is mostly used in the fields of social sciences like anthropology, history, and political science (Miles and Huberman, 1994). We have selected qualitative approach in our study because we want to study the children in their daily life environment. Also qualitative approach is more suitable for collecting data about people which helps us to obtain details about the experiences in daily life.

Miles and Huberman (1994) states: *“qualitative data are a source of well-grounded, rich descriptions and explanations of processes in identifiable local contexts”* (p.1). They further states: *“the findings from qualitative studies have a quality of undeniability”* (Miles and Huberman 1994, p.1).

## 3.2 Data Collection Procedure

When it comes to selecting respondents for qualitative studies the aim is to search individuals with a variety of skills. The selection should thus be heterogeneous to a certain extent (Trost, 1997). Since in this research, we rely on investigating the children in their real world for their game preference. We have conducted interviews from three different ethnicities to collect data. Children from three ethnicities were selected for their differences, as they live in same country and speak the same language.

### Choice of population and place of study

Computer games have been the subject of a certain amount of media debate in Denmark and Danish children and young people are among the most avid gamers in Europe (Egenfeldt-Nielsen and Smith, 2003). As we want to investigate how ethnicity influences

children game preference, that's why we decided to consider children living in the same city; in fact children living in different cities could be exposed to different inputs that could affect the choosing behavior. In Denmark 8 percent of the population are immigrants and the descendants of immigrants (BBC News, 2005). Because Copenhagen is a quite big city (and in general it is the capital of the country) and Denmark is one the technologically advanced countries in the world where children have access to very fast internet (Nadreau and Popov, 2001). We presumed that it attracts people coming from different countries and with different ethnicities. Moreover, we choose the Danish Pakistani and Arabic ethnicities; in fact in order to better understand how ethnicity affects the game selection, we thought that considering two quite similar ethnicities (Arabic and Pakistani in some characteristics) could be useful for our study.

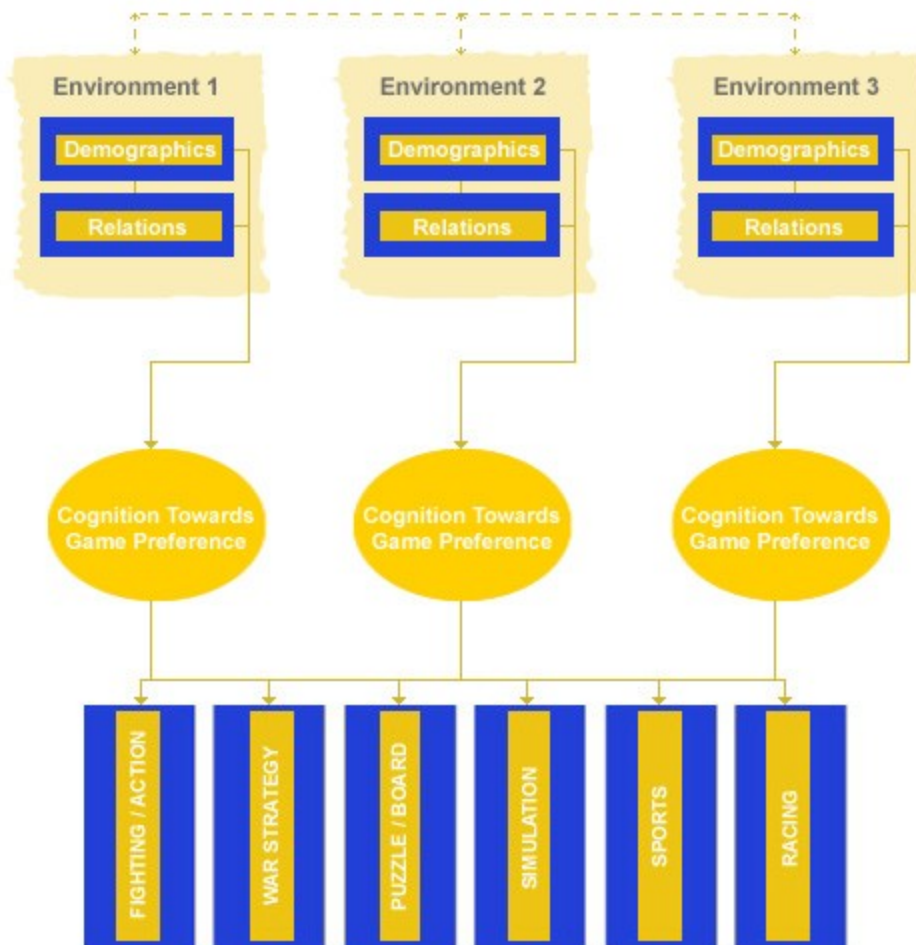


Figure 3.1 Basic illustration shows three environments building individual cognitions towards the game preference (own figure)

Figure 3.1, represents three different environments in our research; so each environment has own relations, demographics factors that help developing their cognition towards certain types of game genres.

Environment 1: Danish children whose parents are natives of Denmark.

Environment 2: Pakistani children whose parents or grand parents migrated to Denmark.

Environment 3: Arabic children whose parents or grand parents migrated to Denmark.

The research work is divided into three ethnicity groups and then compared for differences in game playing preferences. First ethnic group belongs to the children from the Denmark, second group consist of children from Pakistan, but living in Denmark, third group contains the children from Arabic countries background living in Denmark as well. These children are living in the same country, they study together and play together, and so what is going to affect their game playing habits? Or cultural background and environment in the home have strong impact on their game selection?

### 3.2.1 Interviews

According to Seale (1999), in order to maintain the richness and quality of the research and support the discussion points, various data gathering techniques can be used. That's why we have gone for the basic data gathering technique i.e. Interviews (Miles and Huberman, 1994). We have used internet as a secondary data gathering technique. So the major part of this thesis is based on the interviews that we have conducted with children. It is also very useful to interview children playing in different environment provided by parents or by the state.

As there are four main types of interviews; unstructured, structured, semi-structured and group interviews (Preece et al., 2002). Our aim is to obtain both an overall understanding and answers about specific issues concerning the game selection according to the choice of different children. That is why we decided to conduct semi-structured interviews. At this point we were totally agreed with (Preece et al., 2002), that semi structured interviews are best fit to get data from children. We have conducted interviews with pre-planned questions and then probe the interviewee to say more until no new relevant information is forthcoming (Preece et al., 2002). Interview Questions were prepared according to the interview guide given by Vasquez (2007) which is specifically designed for interview with children. We have followed approach suggested by Vasquez (2007), who urges to use storytelling method which is useful in data collection from children.

Each interview took approximately 20 minutes and was performed at the interviewee's activity center or his own place. The informants provided us with explanation of their interests and experiences regarding their daily life and video game playing. An interview guide (see appendix 1) has been developed that contains the questions, and purpose of the interview, in order to guide us throughout the interview session (Kvale, 1996). After the interviews, each interview has been transcribed in the form of written text so that they can be analyze and verified.

### **Interview Language**

In this study, interviews were most important to form the empirical foundation of the study and as an essential source for research (Yin, 2003). The interviews that we have conducted with different children were in Danish language. We were unable to speak Danish language so we used interpreter to help us. The activity center administration and instructors helps us lot in this concern to interpret each question from English to Danish that we have asked, because children can only understand Danish language. But interview with few children was bit easy as they can also speak and understand English language. While conducting interviews with Arabic children we are thankful to our friend Zohaib for his help in conducting and translating interview. In the case of Pakistani children, we had no problem with language while interviewing them, because we can speak Urdu. After getting data from each and every interviewer we have written it in transcripts.

As we have not conducted interview directly with children so we still have a question mark on the reliability of interview data. But this is the risk we must have to take for our research. We have managed this phase very carefully.

### **3.2.2 Literature Reviews**

We have used internet and literature review as secondary data source. We used initially to create pre-understanding because of its relative ease of gathering. While primary data rests on this foundation with the aim of increasing the likelihood of gathering a total amount of data enough to answer the research question. Kvale reasons regarding the planning of an interview investigation to answer the “What?”, “Why?” and “How?” (Kvale, 1996). The purpose of the study “Why” needs to be made explicit before the study of children and video and computer game selection. The “What?” provides the pre-knowledge about the outcome of the documentation gathering phase. The last point “How” provides knowledge about how to conduct interviews and how to use other resources like supervisor, literature and previous research in this area (Kvale, 1996).

We have reviewed relevant literature from 1960 to 2008 to get insight into the topic. Psychological theories were also reviewed. Keywords used during search were child psychology, day dreaming, articles on video and computer games, demographical factors and video games, children behavior, violent game, gender and games, age and games, ethnicity and games and many others.

Our approach has been to collect literature from authors and universities with the research on children, game types, playing behavior, demographics, relations with siblings and relations with friends. We have collected dozens of academic literature about our main issue, children, demographics characteristics, games, children psychology, games benefits etc.



Also when searching for the concepts of terms like children behavior, demographic, relations and child psychology we have found many literature sources and internet articles providing similar definitions and concepts to the term, thus our approach has been to sharpen, focus, organize and discard the data in such a way that conclusion can be drawn and verified.

### 3.3 Data Analysis

We have data in summary form but still we have followed the analysis technique defined by Miles and Huberman (1994). According to them qualitative data analysis is consisting of three concurrent flows of activity: data reduction, data display, and conclusion drawing or verification. For qualitative studies it is important to start the analysis as soon as possible. This aids the ongoing process of creating strategies for collecting data of enhanced quality by the iteration by the researcher between the data at hand and the data to come (Miles and Huberman, 1994). In this section we aim at describing how our work has emerged through these three flows of activities.

According to Trost (2005) it is not good to make summary of the data collected during the interviews. That's why we have documented all the data from the interviews of children. This documentation process has provided us many advantages when we were in analysis phase. But opposite of this Kvale (1996) points out that it's approved to use interpretive questions. The reason behind this step is that, there is always a difference between speech and written material. At this point decisions regarding the data reduction also concerns the mode of transcription of the interviews. These are assumed to be compressed by excluding non-relevant data such as introductory talk with activity center teachers or with administration, lines of thought that occur but that are more of a conversational nature, rather than focused at the topic of inquiry. As the interview we have conducted with children was semi structured but we have tried to do in storytelling manner. So that more and more information can be collected from children. We have made transcripts but during interview the transcripts are also modified from spoken-language to more coherent readable language to make the conclusion drawing and verification less strenuous. This choice has been made with Kvale's (1997) thoughts on transcription and adapting explains the "style" of transcription to the purpose of the study.

According to Miles and Huberman (1994) generally the display of data is an organized, compressed assembly of information that permits conclusion drawing and action. We have used text as a form of display of the collected interview data.

In order to generate meaningful results, we have been analyzing the transcribed interview data using the grounded theory coding technique. We have followed Allan's (2003) guidelines for

implementing grounded theory coding. According to Allan (2003), first step is to generate codes. For this we have to think which code technique we should use. As in our case we have interviewed children, who give answers with small description instead of detailed one, due to this we decided to use key point coding technique. After the codes next step is to generate concepts from these codes. By comparing similar codes we will have a higher order commonality called concept. Then by comparing concepts through constant comparison technique we have categories and finally these categories are combined to generate theory.

### 3.4 Research Qualities

According to Miles and Huberman (2002) and Kvale (1997) both the quantitative and qualitative methodologies are generally concerned with the quality of collected data in terms of objectivity, validity, reliability and accuracy. The quality of our research is determined by trustworthiness (Lincoln and Guba, 1985), so in our research we have tried to maintain quality of study and research in terms of all these components.

- **Objectivity:** As qualitative research interview are based on human reflection and ideas that often lacks objectivity. But the main point which comes in our mind is what does objectivity means in scientific research? If the meaning of objectivity is the only task of the researcher. Then it is important to reflect the nature of the object, and simply and disregard his personal impressions. Then it is possible to state that the qualitative research does not reach objectivity. The researcher always has his own theoretical frameworks, and tries to make own interpretations accordingly (Lincoln and Guba, 1985).
- **Validity and Reliability:** In scientific research validity and reliability is often important and clearly mentioned. In some aspects it is true that validity and reliability do not play a decisive role in research interpretation. But we still consider the description of these components. We have tried to have in mind that we are measuring the right thing in a reliable way (Thuren, 1998). As we have focused on getting empirical evidences from children's attitude, behavior and their interaction with siblings and friends, to whom they interact and play.

At this point, we agree with Svensson and Starrin (1996), that the validation of qualitative research, method and analysis include control of the trustworthiness, an assurance that there is empirical evidence and that one has made a reasonable interpretation. The validity is also influenced by investigating the right issues. It is important, therefore to get as much knowledge of the related theoretical background to see the context and connection behind, which we tried to do. We are convinced that interview method is a powerful tool to measure the views and issues concerning a larger population; though we

have always inspected critically the answers and results. We can conclude that we are satisfied with them; actually, they seem to be much reasonable.

### 3.5 Research Ethics

An important issue in any research is ethical considerations. According to Israel and Hay (2006) no research can be perfect if it is conducted in a way that it contradicts to ethical values and standards. Our topic is directly related to the society and we are writing about a very important and charming part of society (children), and on a very important social issue. So in our work, ethical considerations are very important. Ethical values are very important as according to Israel and Hay (2006), ethical behavior helps protect individuals, communities, and environments and offers the potential to increase the sum of good in the world. Ethical research conduct assures trust and helps protect the rights of individuals and communities involved in our investigations. It ensures research integrity and, in the face of growing evidence of academic, scientific and professional corruption, misconduct and impropriety

- **Confidentiality:** As researchers, we are always expected to keep the confidentiality about the people from whom they got information. But there are many cases in which other parties would like to get the confidential information for further research or other such purposes. So we have tried to do research in such a methodological way that it would not remain possible of leakage of information. We have confidential private data in our research. For example it is confidential information about children that his or her behavior leads him towards violent games. There are chances that he or she could be violent in actual life. The ethical standards of confidentiality imply from us that such private data identifying the children have not been reported. We have changed the names of children in such cases. *"If a study involves publishing private information potentially recognizable to others, the subject needs to agree to the release of identifiable information. In such cases this should be stated explicitly in a written agreement. The protection of subject's privacy by changing their names and identifying features is an important issue in the reporting of interviews"* (Kvale, 1996, p.114). As children can not understand the concept of confidentiality so their parents or guardians are the persons to agree on the release of specific information when ever any other researcher asks for the data.
- **Informed Consent:** The second important issue is informed consent. According to Kvale (1996), the content should be informed. It means that the participant needs to comprehend and agree to the nature of the research voluntarily and he should know about his role in the research, (Israel and Hay, 2006). This research has been conducted only when the responsible persons (children) agreed. If somewhere even after our research any

other ethical issue arises, we will consult relevant literature and will evaluate that issue not only in moral terms but also according to the general ethical standards.

### **3.6 Biasness**

According to Hammersley and Gomm (1997), bias is the researchers' tendency to consciously or unconsciously produce or interpret data in the sense that supports his or her interests and therefore leads to erroneous conclusions. Research is a human activity which might be subjected to errors and bias like any other human activities (Norris, 1997). In some cases researches are biased in the sense that their data is produced and interpreted to meet their own desires. Being biased is a natural human tendency and there are many cognitive and motivational determinants behind a biased behavior (Ehrlinger et al., 2005).

# 4. Empirical Findings

Overview-----  
 In this chapter we have presented the data collected from children by means of interviews and the analysis of each interview. This chapter shows children’s behavior and intention for different types of games in accordance with their demographic factors and relation. Hence this chapter shows our findings and their interpretation without any personal reflection.  
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## 4.1 The research objects

The research objects for our study was the children with age from 4-12 yrs having different demographics. The focused geographical area that we have selected was Copenhagen which is a big city and is the capital of Denmark. Here we have found children with different ethnicity like Danish, Pakistani, and Arabic for our study. We have found different and diversified behavior of game selection among different children, having same ethnicity, and also the same behavior of game playing with different ethnicity.

## 4.2 Data collection Plan

We have collected data by means fourteen interviews with children. Following table shows the data collection plan and schedule. This plan consists of data collection type, date, respondents and purpose of interview. We have started data collection from children who are ethnically Pakistani. As we feel more easy to get data from them due to same language. For Pakistani children we used two of our group member’s family relative children living in Copenhagen Denmark to conduct interviews.

Method	Date	Respondents	Purpose
Interviews	17 <sup>th</sup> & 18 <sup>th</sup> April	Pakistani children (5 children)	Want to know their environment and family affect in playing a specific type of game.
Interviews	14 <sup>th</sup> May	Danish Children (4 children)	Want to know their environment and family affect in playing a specific type of game.
Interviews	16 <sup>th</sup> May	Arabic Children (4 children)	Want to know their environment and family affect in playing a specific type of game.
Interview	16 <sup>th</sup> May	Danish Child (1 Child)	Want to know their environment and family affect in playing a specific type of game.

Table 4.1

### 4.3 Interviews with Danish Ethnic Children

We have conducted five interviews with Danish children; one interview with a Danish child has been conducted in May while visiting Park at Sydhaven Plads (Copenhagen) and four interviews with children in Copenhagen Kommunes Integrerede institution "*Brandstationen*" Adelgade 115. Although we have got different view from different children while interviewing and each interview was more than 20 minutes. During this time we have found different things which motivated them to play a specific type of game. We have changed the name of children to avoid personal conflicts and activity center administration was also insisted to hide children original names. The general view of each child is given below:

#### **Interview One: Danish Child – 12 years, Male (Dan 1)**

I live with my mom and I am the only kid of my parents. Most of the time of the day, I spent in school and with my friends. I like to play games with friends and also with strangers via internet. I only play games to fun and for relax. It's not a matter for me that I am playing alone or with a friend, in both cases I enjoy the game but I like to win from the people I know. I also plays with strangers it gives me a chance to make new friends. The reason why some children fight with their brothers and sister is that they wants to prove their superiority, power and to feel on the top of them. I like the fighting and war games world of War Craft, Counter Strike and Grand Theft Auto most and often play strategy and puzzle games but rarely like racing games. I like the people who follow the rules either in real life or in game. I don't like people who break rules or try to be if I could have a chance to change something I would like to change my mom's anger.

#### **Interview Two: Danish Child – 10 years, Male (Dan 2)**

I live with my mother and father. I have one younger brother and one younger sister. I spent a typical day by going to school, then coming home or at activity centre, at home I plays with other kids, but if I am alone I play world of war computer games with strangers because my friends don't like the same game. If I had a magic wound in my hand I would not like to change any thing about my family every thing is perfect for me. Playing online games is fun for me.

My mom and dad never ask my about the games what so every I play. I like to play war and shooting games, and first time I select this game from shop because its title was looking so good. I enjoy the game while shooting others and making deals about strategy of playing. I like to chat with people who are playing by using chat function of the game, and this helps me to learn English that I like most. When I am in home I like to play alone and never played with my sister or with parents. While when I am in activity center I like to play with friends. I don't like to play with my sister because her choice is different. I like to play games most with my friend Tobias because I want to win from him. I like war, strategy, role playing and counter strike games and don't like puzzle

game so much .I like war craft because it is a combination of strategy and war, world of war craft because in this game I can explore new things, languages etc and battle field because in this we can surprise others and be surprised by others.. I like the situation in football playing because during play all are striving for a single goal. I like the people who are active, speedy and argue for strategy making in games.

### **Interview Three: Danish Child – 10 years, Male (Dan 3)**

I live with my parents. I have one younger sister who is 8 years old. Most of the time I spent by watching television, playing football in ground and with computer. I would like to become world best soccer player. I like to play games and like to win every time. When I win the game I start teasing the looser. I like most to learn English while playing by using chat function of the game. I feel pleasant when I win the game and then make a new deal by chatting. Sometimes I like the social games but not so much. I have clear the level 70 of war craft and I want to pass more levels while playing with friends instead of strangers. My cousin has created interest in me for war games. He is very expert in war craft and I always learned from him. A time comes when I will win from my cousin. My mom and dad refer me to play world of war craft and not counter strike games. My sister doesn't like war games, she likes to play puzzle and also like to play Barbie type games. We both have different liking of game playing habits that's why I don't play with her. I never argue with my friends and class fellows. In my opinion children fight due to age and character differences between them. I don't like donkey and lazy children. I like to make strategies in "battle field". I like to explore more things in game and like to know cheat codes. Everything seems perfect to me i would not like to change any thing with magic wound.

### **Interview Four: Danish Child – 10years, Male (Dan 4)**

I live with my mom and with her boyfriend. I have one younger brother. I like to play computer games with more exploring nature. I spent my day at school and at activity center. I like to use my imagination in games and try to search game features using my perception, in this why I enjoy more and feel excitement when I found a good scene and image. I like to play alone not with friends because when I play alone and have no competition then I explore the world and game in a good way as I like. I like to win a game but it's not fair that when you loose and others start teasing you. As I don't like to play in groups as well with friends so I have no much feeling of excitement when I win the game. I never argue with my younger brother and only harmony at home and a lot of talks. I like to play discovering, role playing and strategy games. I only argue with others when I consider that I am right and stubborn.

### **Interview Five: Danish Child – 9 years, Female (Dan 5)**

I live with my parents. I have one younger brother. I spend a typical day in going to school and play with my friends and my little brother. I never played with dolls. If I had a magic wand I will not like to change any thing in my family. Playing games is fun; I like it and play it everyday. I like to play alone but I also play with my brother and sometimes with my friends too. In some games we fight with each other I do not like it. It is not good thing to do. I like to win games from my brother and friends. I do not know why some children fight with each other. I only like to play Dragon Fable and Age of Empire because I like to play fighting and war games. I do not like to play Puzzle and Barbie type games. I only like fighting games. I never fight with my brother, he always play with me and never fight. I never fight with anyone but if someone tries to fight with me, I fight too. I do not like children who are rude with me.

## **4.4 Interviews with Pakistani Ethnic Children**

We have conducted interviews with children who are living in Denmark by birth but ethnically they are Pakistan, it was very easy for us to conducted interviews with Pakistani children,

### **Interview Six: Pakistani Child – 12 years, Male (Pk 1)**

I live with my mom dad and uncle. We are three brothers and no sister and I am the eldest one. My age is 12. My parents belong to Pakistan and we go back to visit Pakistan at least once in two years and I like to go to Pakistan and meet my relatives and see different cities. I spent a typical day in the activities like going to school, mosque, playing football and games on play station and computer. I like to play football and football games. My favorite football club is F.C. København. I often wear its shirt showing its logo. Whenever there is a match on television, I like to watch it. I also play football with my friends and it is the best sports to play, it is so much fun. I like to play football game with my brothers and friends; it is more fun to play when I play with them. I feel every thing perfect in my life about people around me (mom, dad, brothers) and don't want to change any thing about them. Playing online games is always a fun especially with the people I know. I am unlike other boys not so much found of playing fight games but when they play I share with them and play with them. I like to win from the people I know but never mind if I lose any game. But I don't like children who tease others on losing the games. As brother we often fight with each other but I never start fight but always win because I am stronger. In addition to play the football games I am interested in playing HABBO now days. It's a virtual world, where you can do any thing which you do in real world. Like having a home, making friends, parties etc.

### **Interview Seven: Pakistani Child – 10 years, Male (Pk 2)**

I live with my mom dad and uncle. I am 10 years old. We are three brothers and no sister and I am in middle. My parents belong to Pakistan and we go back to visit Pakistan at least once in two years my grand mother who lives in Pakistan loves me too much and



takes care of me but because I was born here so I also loves to live here. I spent a typical day in the activities like going to school, mosque, playing football and games on play station and computer. I like to win from the children i know. I like to play fighting and sports games but I like the car racing the most. One reason for this is I am very fond of cars and often insist my papa to buy a new car because the previous one is not so fast. If I have a chance to change any thing about people around me I would like to change my mothers anger when we (siblings) fight with each other. I like to play games with others as it is great fun and you have the opportunity to make new friends. When I play games with others I do not always win but surely it is a better feeling to win rather then losing. I don't know why often children fight or argue with each other. But as far as I am concerned, I don't like cheating. When some body cheats me I argue with him and some times this argue converts in to fight specially with my younger brother.

### **Interview Eight: Pakistani Child – 8 years, Male (Pk 3)**

I live with my mom dad and uncle. I am 8 years old. We are three brothers and no sister and I am the youngest. My parents belong to Pakistan and we go back to visit Pakistan at least once in two years. I spent a typical day in the activities like going to school, mosque, playing games and playing with my cousins and brothers. If I would have a magic wand I would like to change my elder brother's anger. I love to play fight games. I love to win from my elder brother. I think children fight or argue due to conflicts between them. But I never start fight. I play a lot with my brothers but we fight also and because I am younger I am beaten by elder brother. Playing online game is fun and I always like to play with others. I like to play fighting and sports games but enjoy fighting games more. I like to win from the people I know. I like to win from my elder brother. We often play with each other. Most of the times I win the game I play but some time lose. But wining a game gives me more pleasure. I do not like children who fight or argue with others.

### **Interview Nine: Pakistani Child – 7 years, Male (Pk 4)**

I live with my mama and papa, I study in class one. I have one elder brother and one elder sister. I like to go to Pakistan with my parents and meet my cousins and grandparents. After coming back from school I spent my time with my friends. I don't like the children who fight with each other. I think children fight or argue with each other when they are angry. If I have a magic wand, I want to change my younger sister, she always annoy me. I like to play 'Bomber man' and 'Street Fighter'. I like to win games from my siblings. When ever i play fight games with others, I like to win from others as it gives me excitement. I always win "street fighter" from my brother and sister. When i lose i do not disappoint. I tries to win next time. Mostly I like to play alone on computer most of the time, but sometimes also likes to play with my sister and brother. She fights with me when she loses the game.

**Interview Ten: Pakistani Child – 7 Years, Female (Pk 5)**

I live with my parents. I have two elder brothers. I spent most of the time of day in school and by playing with my friends. If i would have a magic wand I will not like to change any thing around me. I enjoy playing video games with my brothers, but his choice of playing is different. I don't like to play fight games. I like to play puzzle, singing and makeup games, which he doesn't like. I enjoy more to play in school with my friends rather than playing on computer. I am very happy when I win from my brother. I don't know why children often fight with each other. I do not dislike like ant type of children. I like to play "Picross " and "Two memories". I really enjoy when I solve the puzzle in "Picross". My favorite game of makeup is "A Vivacious Look".

## 4.5 Interviews with Arabic Ethnic Children

We have conducted interviews with children in Mjølnerparken (Copenhagen) who are living in Denmark by birth but ethnically they are from Middle East. Following are the interviews detail from those children.

**Interview Eleven: Arabic Child – 10 years, male (Ar 1)**

I live with my mother and father; I have two elder brothers and one younger sister. After coming back from school I spent my time with my mom, sister and with elder brother who is 2 year older to me. During weekend I spent my time with my friends in Valby ground by playing football, but not every weekend. I like to play games with my brother and some times with friends. I some times fight with my brother, but mostly we argue with each other. When we fight and if he beat me, mama always favor me then I become happy. I like to play shooting and strike game. I feel pleasant to win the fight in game from my friends especially from my brother. If I have a magic wand I will build a beautiful home in Syria for myself, where I want to live with my mother and father. Off course playing game is fun and we can enjoy our free time. I enjoy most to play with my brother. I like to beat others in game, but often my friends win the game. I only fight with my brother when he cheats in game. I like “Beyond Good & Evil”, “Elite Beat Agents” and some times like world of war craft. I only argue with my friends when they cheat or tease me when they when.

**Interview Twelve: Arabic Child – 5 years, female (Ar 2)**

I live with my mom and dad. I have one brother who is elder to me. My parents belong to Palestine. I spent a typical day in going to born heaven, playing with other kids, watching cartoons on TV and playing games. I like fight and war games but I also like girls' games. My favorite game is the Simpson's hit and run because it is a cartoon type of game and is fun to play. I also like Cooking Mama. This game is fun to play. This also gives me the opportunity to learn cooking recipes. If I would have a magic wand I would

not like to change any thing. I like every thing around me. Playing games is fun and a good way to pass the time. I like to play games online also. I like to play online with others. I like to win from the kids I know but losing is not a matter for me. I try to win for the next time. I think children fight when they cheat each other. But my brother is very good he never cheats so we never fight.

### **Interview Thirteen: Arabic Child – 9 years, female (Ar 3)**

I live with my mother and father. I have one younger sister. Once in a year I go to Iraq with my mother and uncle. Iraq is my mother's homeland. Most of the time of the day, I spent with my friends living in my community. I often spent my weekend at my uncle's home. Along with my cousins I often play video and online games. Mostly the games I like to play are "The Staff of Dreams", "Harvest moon" and "Pokémon". I rarely play fight games. But when I play I like to win and beat others. I feel happy by wining. I never fight with my sister. She is so younger of only age 3 year, so we don't play together. I like beautiful scenes. I like to live in desert. I like to make strategy in "Pokemon" and want to defeat my opponent. I like greener and beautiful nature scenes in "Harvest moon". I don't like the people who fight and argue with each other like my neighbor. I like to win games from my best friend Alima. .If I had a magic wound i would not like to change any thing around me.

### **Interview Fourteen: Arabic Child – 11 years, male (Ar 4)**

I live with my mom and dad. I have one brother who is elder to me. My parents belong to philistine. I spent a typical day by going to school, playing football with other kids, watching TV and playing video games. If I would have a magic wound I would like to change my father's anger. Playing video game is fun and good tool to learn new things. I like fighting and war games. My favorite games are age of empire, empire earth and Grand Theft Auto. The earlier two games are very interesting because you make the strategy and involve your mind to win a war from your opponent. Playing video game with others is more fun then playing alone because it is more interesting and gives you opportunity to make new friends. I feel at the top when I win but I do not disappoint when I lose the game. I feel more excited to win from the people who are better players then me. I think children fight or argue with each other is due to conflicts between them. I don't like children who fight with others. It's OK if they argue but fight is not a good habit.

## **4.6 Data Analysis using Grounded Theory Coding**

We have chosen grounded theory coding technique to analyze our data, collected by means of interview. For the grounded theory coding we have followed the key point coding by Allan (2003). Following are the codes derived from each interview. In following coding tables there

are three columns, first column contains code number, second column represents key point derived from interview data and third column represents codes that will be used in further analysis. In code ID column we have used "Dan" for Danish Ethnicity, "Pk" for Pakistani ethnicity and "Ar" for Arabic ethnicity.

#### **4.6.1 Codes Derived from Danish children interviews Data**

The interview regarded as important to the investigation were identified in transcripts (at the end). In above table codes are in the same order as interview data has been mentioned. Like in Dan1.1, “Dan” indicates it’s from Danish child, “1”before point indicates its first interview and “.1” indicates code number. A, b and c are used for subsequent pass of data. For example “Dan3.4a” means it is 4<sup>th</sup> code from 3rd Danish child’s interview and ‘a’ represents that it is a sub pass of data related to code 3.4.

<b>Code ID</b>	<b>Key Points</b>	<b>Code</b>
Dan 1.1	I like the fighting and war games world of war craft, counter strike and Grand Theft Auto.	Complex and strategy oriented games
Dan 1.2	I am the only kid of my parents	No Sibling rivalry
Dan2.1	I have one younger brother and sister	Sibling Dominancy
Dan2.1a	No play with them	No Sibling rivalry
Dan2.2	When I am in activity center I like to play with friends.... I like to play games most with my friend Tobias	Strong friends relation
Dan2.3	I like to chat with people who are playing by using chat function of the game, and this helps me to learn English that I like most..... I like war craft because it is a combination of strategy and war, world of war craft because in this game I can explore new things, languages etc and battle field because in this we can surprise others and be surprised by others.	Game purpose is Learning English, explore new things, surprise
Dan 2.4	I like to play war and shooting games.....I like war craft because it is a combination of strategy and war, world of war craft because in this game I can explore new things, languages etc and battle field because in this we can surprise others and be surprised by others.. I like the situation in football playing because	Complex and strategy oriented games

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	during play all are striving for a single goal.	
Dan3.1	War craft, Battle field	Complex and strategy oriented games
Dan3.2	I have a younger sister	Sibling dominancy
Dan3.2a	No argue with her , I don't play with my sister because she like to play girls games	No Sibling rivalry
Dan3.3	My cousin has created interest in me for war games. He is very expert in war craft and I always learned from him. A time comes when I will win from my cousin.	Friend relation effect on game selection
Dan3.4	Playing football in ground and with computer. I would to become world best soccer player.	Like Football
Dan3.4a	Playing football in ground and with computer.	Like football games
Dan3.5	I like most to learn English while playing by using chat function of the game..... I like to explore more things in game and like to know cheat codes.	Game purpose is Learning English and to explore new things
Dan4.1	I have one younger brother.	Sibling dominancy
Dan4.1a	I never argue with my younger brother and only harmony at home and a lot of talks.	No sibling rivalry
Dan4.2	I explore the world and game in a good way as I like.	Game purpose is explore new things
Dan4.3	I like to play discovering, role playing and strategy games	Complex and strategy oriented games
Dan5.1	I have one younger brother.	Sibling dominancy
Dan5.1a	I never fight with my brother, he always play with me and never fight.	No Sibling rivalry
Dan5.2	I only like to play Dragon Fable and Age of Empire	Complex and strategy oriented games

**Table 4.2**

#### 4.6.2 Codes Derived from Pakistani children interviews Data

The following table shows the emergence of codes, that we have derived from the children who are ethnically Pakistani. Codes are in the same order as interview data has been mentioned. Like code: Pk2.4, “Pk” indicates it’s from Pakistani child, “2” indicates its second interview and “.4” indicates code number.

Code ID	Key Points	Code
Pk1.1	We are three brothers and no sister and I am the eldest one.	Sibling dominancy
Pk1.1a	As brother we often fight with each other start fight but always win because I am stronger.	Sibling dominancy in sibling rivalry
Pk1.2	My favorite football club is F.C. København. I often wear its shirt showing its logo. Whenever there is a match on television, I like to watch it. I also play football with my friends and it is the best sports to play, it is so much fun. I like to play football game with my brothers and friends; it is more fun to play with them.	Like Football
Pk1.2a	Like to play football games	Like Football games
Pk1.3	In addition to play the football games I am interested in playing HABBO	Simple games
Pk2.1	Argue converts in to fight specially with my younger brother.	Sibling dominancy in sibling rivalry
Pk2.2	Very fond of cars and often insist my papa to buy a new car because the previous one is not so fast.	Like Cars
Pk2.2a	like the car racing games the most	Like Car racing games
Pk3.1	We are three brothers and no sister and I am the youngest.	No Sibling dominancy
Pk3.1a	We (siblings) fight also and because I am younger I am beaten by elder brother.	No Sibling dominancy in sibling rivalry
Pk3.1b	If I would have a magic wand I would like to	Wants to change sibling behavior

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	change my elder brother's anger.	
Pk3.1c	I love to play fight games. I love to win from my elder brother.	Wants to defeat sibling rival In fighting games
Pk3.2	I do not like children who fight or argue with others..... I never start fight.	Dislike fighting
Pk3.2a	I love to play fight games.	Like fighting games
Pk4.1	I have one elder brother and one elder sister.	No Sibling dominancy
Pk4.1a	She fights with me when she loses the game.	No Sibling dominancy in sibling rivalry
Pk4.1b	If I have a magic wand, I want to change my younger sister, she always annoy me.	Wants to change sibling behavior
Pk4.1c	I like to play 'Bomber man' and 'Street Fighter'. I like to win games from my siblings.	Wants to defeat sibling rival In fighting games
Pk4.2	I don't like the children who fight with each other.	Dislike fighting
Pk4.2a	I like to play 'Bomber man' and 'Street Fighter'. I like to win games from my siblings.... I like to win from others as it gives me excitement. I always win "street fighter" from my brother and sister.	Like fighting games
Pk4.3	I like to play 'Bomber man' and 'Street Fighter'.	Simple games
Pk5.1	I have two elder brothers.	No Sibling dominancy
Pk5.1a	If I would have a magic wand I will not like to change any thing around me	Satisfied with parents and siblings
Pk5.2	Play makeup games	Gender Effect in game selection
Pk5.3	I like to play "Picross" and "Two memories"... My favorite game of makeup is "A Vivacious Look".	Simple games

**Table 4.3**

**4.6.3 Codes Derived from Arabic children interviews Data**

## The effects of demographics and relations in children's video and computer game selection

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Following table shows the emergence of codes that we have written after transcribing interview data from children who are living in Denmark but ethnically are Arabic

Code ID	Key Point	Codes
Ar1.1	I have two elder brothers and one younger sister.	No Sibling dominance
Ar1.1a	I some times fight with my brother, but mostly we argue with each other.	Sibling rivalry
Ar1.1b	I only fight with my brother when he cheats in game.	Effects of sibling
Ar1.1c	I like to play shooting and strike game. ....I feel pleasant to win the fight in game from my friends especially from my brother.	Wants to defeat sibling rival in fighting games
Ar1.2	I like to play shooting and strike game. I like "Beyond Good & Evil", "Elite Beat Agents" and some times like "world of war craft".	Complex and strategy oriented games
Ar2.1	I have one brother who is elder to me.	No sibling dominance
Ar2.1a	I never fight with my brother because he is very nice.	No sibling rivalry
Ar2.2	I like cooking mama. This also gives me the opportunity to learn cooking recipes.	Preference in real world
Ar2.3	I like girls' games.	Gender Effect
Ar2.4	I like cooking mama. This also gives me the opportunity to learn cooking recipes.	Preference in real world
Ar2.5	I like fight and war games but I also like girls' games. My favorite game is the Simpson's hit and run because it is a cartoon type of game and is fun to play. I also like Cooking Mama.	Simple games
Ar3.1	I have one younger sister	Sibling Dominance
Ar3.1a	I never fight with my sister. She is so younger of only age 3 years.	No sibling rivalry
Ar3.2	Mostly the games I like to play are "The Staff of Dreams", "Harvest moon" and "Pokemon"	Simple games



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Ar4.1	I like fighting and war games. My favorite games are age of empire, empire earth and Grand Theft Auto.	Complex and strategy oriented games
Ar4.2	I have one brother who is elder to me.	No sibling dominancy
Ar4.2a	My elder brother always beat me so I fight with him.	Sibling rivalry
Ar4.3	I don’t like children who fight with others.	Dislike fighting
Ar4.3a	I like fighting and war games.	Like fighting/war games

**Table 4.4**

**4.6.4 Emergence of concepts for case X (Danish Ethnicity)**

Followings are the concepts which we have draw from Table 4.2. The code “Strong parents and Friends relation” emerged from Dan1.1. The codes from all other key points were compared with this and if found commonality then those common are also placed under same concepts like we have put other three code Dan5.2, Dan 4.3, and Dan 3.6 under this concept. Same we have done with other concepts.

Friend’s relation Dan2.2, Dan 3.3
Games for learning Dan 2.3, Dan 3.5, Dan 4.2
No sibling rivalry Dan 1.2, Dan 2.1, Dan 2.1a, Dan3.2, Dan3.2a, Dan4.1, Dan4.1a, Dan5.1, Dan5.1a
Preference in real world leads to preferences in video games Dan 3.4, Dan 3.4a
Complex and strategy oriented games Dan5.2,dan4.3,Dan3.1,Dan1.1,Dan2.4

**Table: 4.5**

**4.6.5 Emergence of Concepts for case Y (Pakistani Ethnicity)**

**The effects of demographics and relations in children’s video and computer game selection**

After getting the codes from case Y (Table 4.3), following are the concepts drawn for case Y.

Gender effect on game selection Pk5.2
Sibling rivalry with no dominancy Pk3.1, Pk3.1a, Pk3.1b, Pk3.1c, Pk3.2, Pk3.2a, Pk4.1, Pk4.1a, Pk4.1b, Pk4.1c, Pk4.2, Pk4.2a
Sibling rivalry with dominancy on game selection Pk1.2, Pk1.2a, Pk2.1
Preference in real world leads to preferences in video games Pk1.2, Pk1.2a, Pk2.2, Pk2.2a
Simple games Pk5.3,Pk4.3

**Table 4.6**

**4.6.6 Emergence of Concepts for case Z (Arabic Ethnicity)**

After getting the codes from case Y (Table 4.4), following are the concepts drawn for case Y.

Gender effect on game selection Ar2.3
Sibling rivalry with no dominancy Ar1.1, Ar1.1a, Ar1.1b, Ar1.1c, Ar4.2, Ar4.2a, Ar4.3, Ar4.3a
Sibling rivalry with dominancy on game selection Ar2.2, Ar2.2a, Ar3.2, Ar3.2a
Preference in real world leads to preferences in video games Ar2.4
Complex and strategy oriented games Ar1.2,Ar4.1
No sibling rivalry Ar2.1, Ar2.1a, Ar3.1, Ar3.1a
Simple games Ar2.5,Ar3.2

**Table 4.7**

From these concepts we have derived the categories for three ethnicities which are explained below:

#### 4.6.7 Emergence of Categories for case X (Danish Ethnicity)

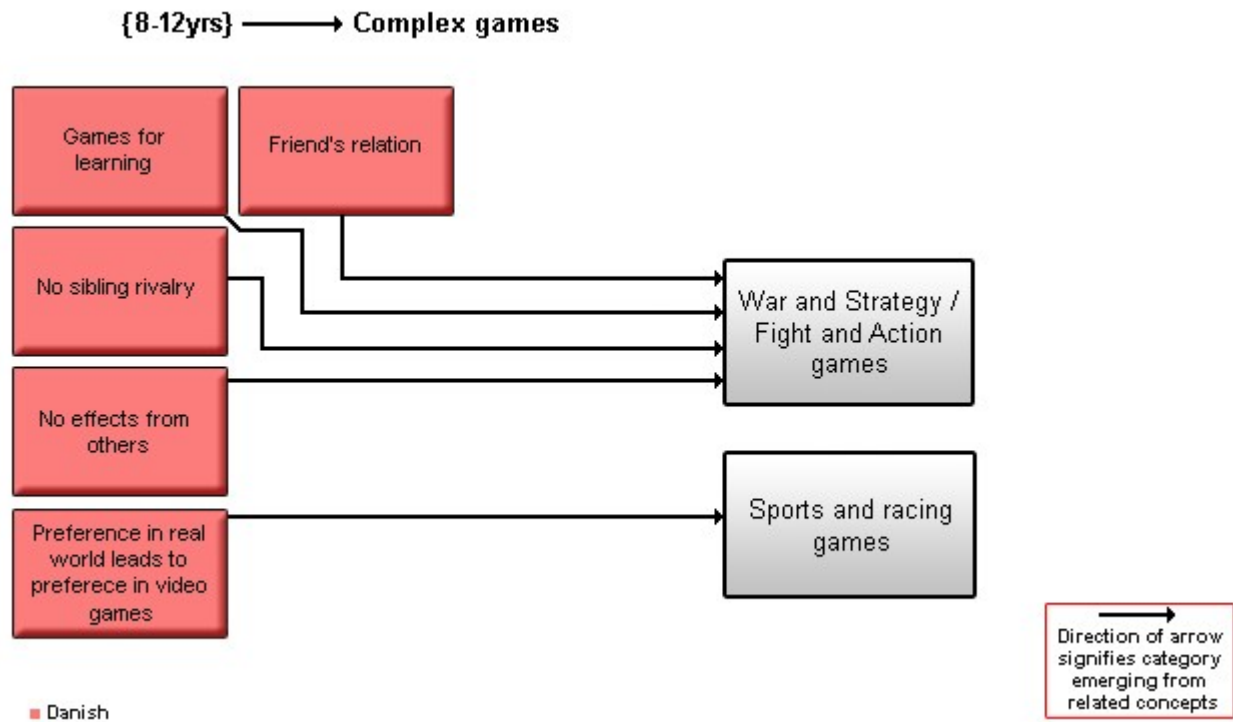


Figure 4.1 Illustration of the categories for case X (own figure)

Danish children have tendency to play war and strategy and fight and action games. No sibling rivalry exists in these children and relation with sibling does not effect the game selection in these children. In the figure 4.1 we have shown that no sibling rivalry exists in sibling but they tend to play fight games. But relation with friends does effect their game selection as in case of Dan2 and Dan3. The preferences and liking in real life also effects game selection as in case of Dan3. Children play games for learning purpose like Dan2, Dan3 and Dan4.

#### 4.6.8 Emergence of Categories for case Y (Pakistani Ethnicity)

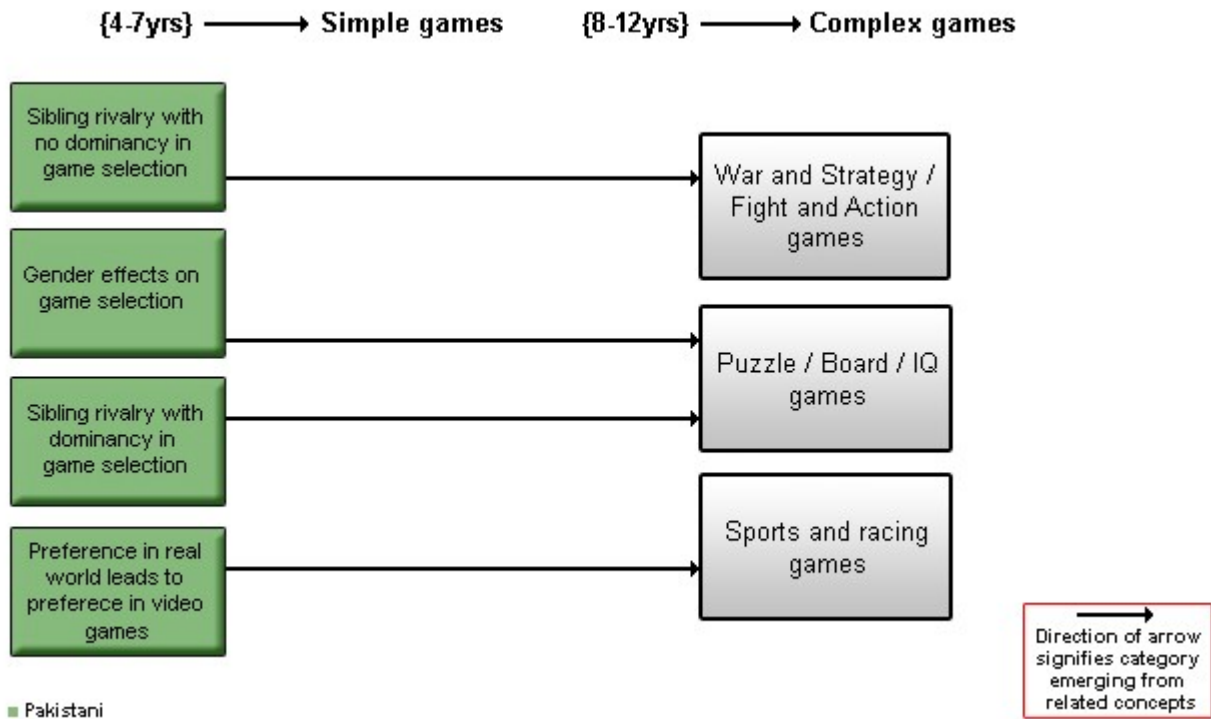


Figure 4.2 Illustration of the categories for case Y (own figure)

Pakistani children have effect of their sibling on game selection. Younger children who are often beaten by their dominant elder siblings tend to play fight games and like to win in fight from their elder siblings. Siblings who are not beaten by elders do not have interest in fight games. Gender also affects the female children in game selection. As Pk5 who is a female tends to play games which are made for girls. Like Danish children, in children from Pakistani ethnicity preferences in real life leads them towards preferences in video games. Like Pk1 tends like to play football also like to play football games. Child Pk2 that have interest in cars likes to play car games.

#### 4.6.9 Emergence of Categories for case Z (Arabic Ethnicity)

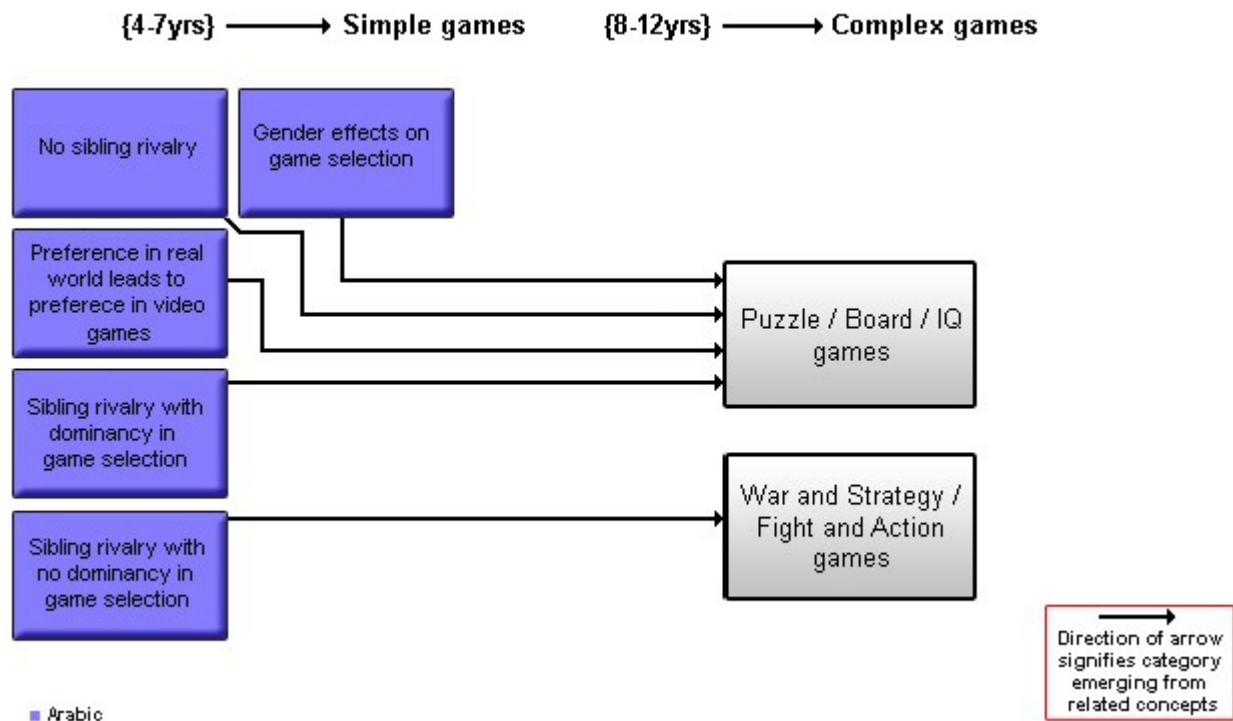


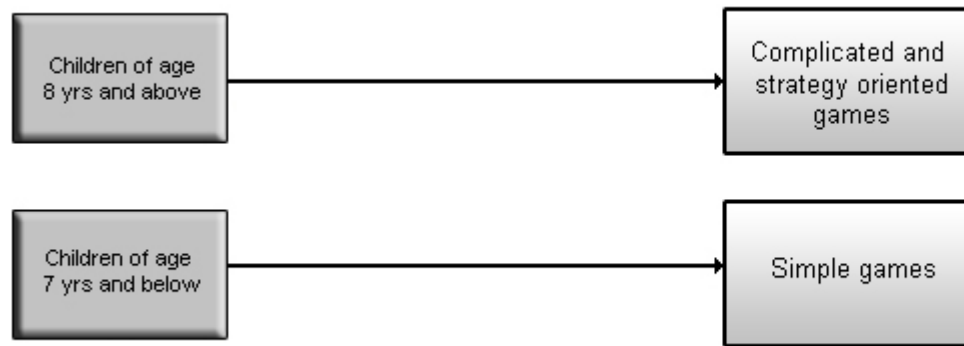
Figure 4.3 Illustration of the categories for case Z (own figure)

Like Pakistani ethnicity Arabic Children have impact of sibling relation on game selection. Younger children who are often beaten by their dominant elder siblings tend to play fight games and like to win in fight from their elder siblings as compared to siblings who are not beaten by elders tend to play other types of games. Gender also effects game selection as in case of Ar2. Like Danish and Pakistani ethnicity preferences in real life leads to preferences in video games.

#### 4.6.10 Generalize results of demographics and relations

##### Age

Among all the children regardless of their ethnicity age was observed as an important factor in game selection. Children of age group less than eight years were more interested in simple games as compared to children of age eight years or more who tends to play more complex and strategy oriented games. For example Ar2 (5 years), Pk4 (7 years) and Pk5 (7 years) liked simple games like Pokemon and street fight. Dan 1, Dan2 and Ar4 who liked to play more strategy oriented and complex games like world of war craft and Age of Empire.



*Figure 4.4 Illustration of the generalized result of age in Danish, Pakistani and Arabic ethnicities (own figure)*

### **Gender**

Gender is factors which affect the game selection of children. In our empirical findings we found that females tend to play more gender oriented games. We interviewed four female children; two of them (Pk5 and Ar2) were playing gender based games typically designed for girls. Girls were less interested in playing war and shooting games as compared to boys.

### **Ethnicity**

Children belonging to different ethnicities have different game preferences in game selection. Children who are ethnically Pakistani and Arabic differ in game choices from Danish children. Danish children like to play fight and war games more then other ethnicities in study. They are affected by friend's relation in game selection while other ethnicities are affected by siblings.

### **Relations with Siblings**

Pakistani and Arabic children are influenced by their siblings for their game selection. Sibling rivalry with no dominancy is a cause of fighting games selection for example in case of pk3, pk4, Ar1 and Ar4.

Danish children are not influenced by relation with their siblings also no sibling rivalry was observed in Danish children.

### **Relations with friends**

Danish children are more influenced by relations with friends. Their game preferences have some effect from their friend's preferences and they like to win from their friends as in case of Dan2 and Dan3. Other ethnicities in our studied were not affected by their friend's preferences in game selection.

### 4.6.11 Theory

Children attitude towards game selection is affected by the factors in their environment. Children belongs to different ethnicities behave differently in their game selection. Children from Pakistani and Arabic ethnicities show similar behavior in game selection and have similar factors effecting their game selection. Sibling rivalry is an important factor affecting game selection in Pakistani and Arabic children. In contrast to that in Danish children game selection is influenced by friends. Danish children are like fighting and war games which are strategy oriented as compared to Pakistani and Arabic children. They play for learning purposes.

As the age increases game preferences in children moves from simple and cartoon type games to more complex and strategy oriented games. Gender also affects game preferences. Girls like to play gender oriented games like make up games. Boys like to play fight and war type games more then girls. Preferences in real world lead the children towards preferences in gaming world.

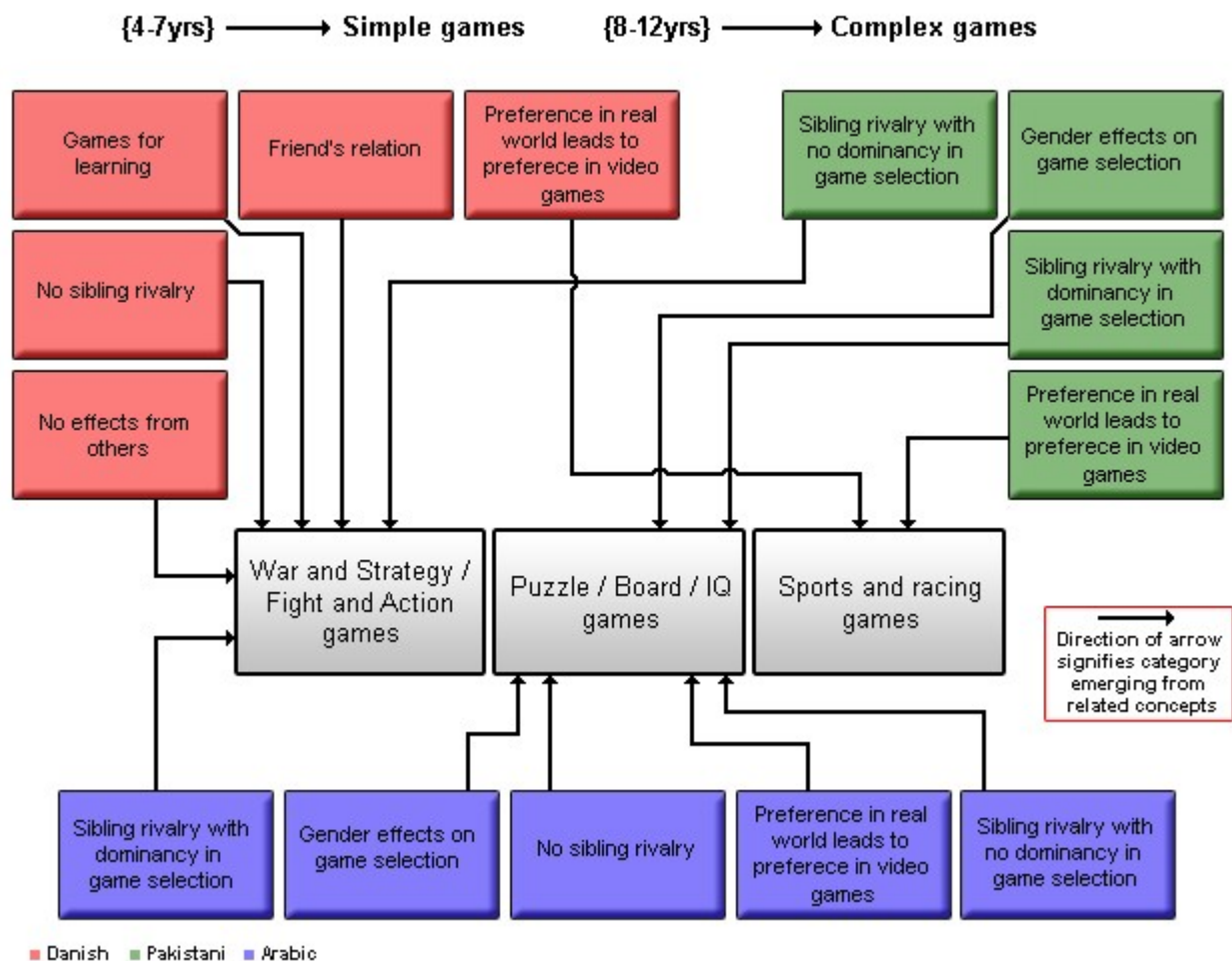


Figure 4.5 Emergent categories derived through grounded theory coding technique after analysis of interview data in Danish, Pakistani and Arabic ethnicities (own figure)

# 5. Discussion

Overview-----  
In this chapter we have discussed the theory (section 4.6.11) which was generated at the end of empirical finding chapter. We have also explicitly stated that how demographics of children affect their habits of video game playing. We have discussed how demographic factors and relational matters lead to the choice of video and computer games. We have also discussed that how psychological and behavioral factors affects the choice of game selection.

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## 5.1 General Information

Theory (section 4.6.11) that we have described in chapter 4 shows that factors that affect the game choice in children are different from child to child because each has different demographic characteristics, and it differs especially from ethnicity to ethnicity. Considering the demographic and relational factors in game playing choices, ethnicity is an important factor that affects the choice of game (*figure 4.5*). Here we have discussed the most important factors that affect the choice of games.

## 5.2 Demographics

In our study with children, we have limited the demographic factors up to age, gender and ethnicity. In our concern age group that we have focus from 4-12 yrs old is an appropriate target who play video games and in this age group children also starts social interaction with friends and strangers.

During the research, we have found that all the children in our selected age group were attracted towards the games. Moreover, we have found that, when the young girls start to interact with the video games, they are more interested towards the doll type makeup games (*figure 4.5*, see Pakistani and Arabic ethnicity). They are choosing such games because of their home environment or the friends that play with them. They like to tell each other about dolls and makeup. Generally, young girls try to do fake makeup at each others, so when they get a chance to have more interaction in the form of game, they try to explore and work on it in their virtual worlds (Gunter, 1998).

Additionally, age does change game preferences. According to our findings as shown in *figure 4.4*, children with age 4 to 7 yrs likes to play simple puzzle and cartoon type games that does not requires much skills to play. But with the increase in age children likes to play more complex



games that require more attention and reaction time. From the age of above 7 years, they get more involved in the high skill demanding games like world of war craft etc.

Game genres are attracted by gender differently (Section 4.6.10), as we have already observed in a Norwegian 6th graders research (Smith, 2004) that girls are more attracted towards certain type of games as compared to boys. We have interviewed one Danish girl, she was not interested in gender based games but one interview is not enough to perceive that Danish girls have no gender influence on game selection. In case of Pakistani and Arabic girls we have found that gender influence the game preferences. Girls tend to play games which are typically made for females, like make up games. Their tendency to play action or fight games is not as much as it is found in boys. In comparison, boys like to play more action and sports games.

There is another factor of the ethnic background; well this is one of the important demographic factors in their game selection. In our research we have found that children from different ethnicities behave differently (Section 4.6.11). Children from Denmark like to play fight and war games more than other ethnicities. They are playing such games for learning English language and exploration. They are not concerned about the relations with siblings but they are influence from their friends in their game selection. When their friends like war games they also liked those games. Children from Pakistan and Arabic background tends to play different types of games for learning or to show their dominance on opponent. For them wining from the child they know especially from dominant sibling is more important than the strangers. This is due to their ethnicities.

People have a strong impact of the environment they live in and the cultural background they belong to (Bloom et al., 2000). In this study we have found that ethnic background has more influence in game playing. We have found that children living in Denmark from different ethnic backgrounds have different liking and disliking of game playing.

## 5.3 Relational Matters

We have found that relationship between the children is also very important, when we say relationship that means we are considering their siblings and friends with whom they spend their time. Relationship between children does shape their game preferences. We have found that relations with siblings and friends both affect game preferences but interesting factor is it's diversification along with the ethnicity.

### 5.3.1 Friends

The empirical findings shows that the children with Danish ethnicity have least impact of relations in game selection, but often they show involvement of friendship relationship in game selection (Section 4.6.10). We have found that the relationship between friends is more involved

in game selection rather than relation among siblings in Danish children. They grew up in same environment and usually get same parental treatment but have different choices of friends which make their behavior different from sibling (Zuckerman, 1991). An interesting fact is all Danish children were interested in war and fight games. But some of them have chosen these games due to influence from their friends.

### 5.3.2 Siblings

We have not found any relation between game preferences and sibling relations in Danish children but children with Pakistani and Arabic ethnicity have more influence of sibling relation instead of friends. Younger children who have a rivalry with their elder sibling and who are often beaten by elder brother like to play and win fight games from their elder brother.

Because what he can't do in reality (that is winning the fight) he tends to do that virtually. The other brother will have fewer tendencies to play fight games as compared to his brother because he is not beaten by his brother.

### 5.3.3 Why sibling rivalry leads to fight games

An important question arises here, that why sibling rivalry leads to fight games. This is linked to two important psychological theories; psychoanalytic theory and day dreaming theory.

Psychoanalytical theory explains why children play games: *"During the preschool years, children begin to assert their power and control over the world through directing play and other social interaction"* (Wagner, 2006, p.1).

Psychoanalytic theories explain in the following manner: *"play reduces anxiety by giving children a sense of control over their world"* (Harris et al., 2003, p.7).

During the preschool years, children begin to assert their power and control over the world through directing play and other social interaction. The child who is beaten by other children is often frustrated and in the feelings of anxiety. To reduce his anxiety and dissatisfaction of losing the fight from others, when he plays games he chooses to play fight games. He feels a sense of control over his world when he plays fight games because now he wins the fight (not realistically but at least virtually).

Also supports our findings. Day dreaming theory (Singer et al., 1962) which says that what you can not do in reality you tends to do that in the form of day dreaming which may include your future plans also supports our findings. In this case as the children is unable to win the fight games from other children so what he can not do in reality he tends to do that virtually in the form of games. We can relate both of these topics because the reasons and environment of day dreaming and playing fight games are the same.

In our findings, we have found that children with Pakistani and Arabic ethnicity are living in Denmark by birth. So we can't say that all three types of data samples (Danish, Pakistani and Arabic) we have chosen have too much difference in place of living. But still Arabic and Pakistani children has some rivalry or arguing behavior with their siblings and friends. If we keep the environment constant for all three types of data samples, Danish one is not showing arguing or rivalry behavior but other two have rivalry or arguing behavior.

## 5.4 Preferences in Real Life vs. Preferences in Video Games

Although in our research, we were not looking for this aspect but as in our research we have found interesting findings about relationship between likings in real world with liking in virtual world. We have found that children regardless of their ethnicities attention towards game preferences is also affected by his their liking in real world. For example a child who likes to play football also likes to play football games.

## 5.5 Ethnicity and Genes

As we have seen in our results that ethnicity effects game selection in children. Human genes are very important parts of its ethnicity. So we think that we should discuss this also in our discussion part. An important question which arises here is whether genes affect the child behavior in game selection? Although genes never shapes the whole behavior of a human being but they surely affect some part of it. Richard Lewontin (1992) in his book 'Biology as Ideology: The Doctrine of DNA' states: "*we are not determined by our genes, although surely we are influenced by them*" (p.25, 26). "*We differ in fundamental abilities because of innate differences, that those innate differences are biologically inherited*" (p.23). When we discuss children of different ethnicity we can say that some of their behavior in game selection is shaped by their genes and rest of that is influenced by the environment. But it is hard to predict that what percentage is influenced by genes and what percentage is influenced by culture (Plomin et al., 2001). But despite from this, it is clear from above discussion that there exist a relationship between child behavior and its genes but we can ever predict how much genes have influence child in his game selection.

In his book 'Nature-nurture Interplay', Michael Rutter (2006) also supports our point of view about genes:

*"To a degree, all behavior is influenced by social context and social forces, but that does not mean that it is not also influenced by genetic factors. It would be truly absurd to suppose that, although there are genetic influences on everything else, susceptibility to the environment is unique in not being influenced by genetic factors. Evolutionary concepts make clear that genes*

*are very much involved in adaptation to different environments, and the empirical evidence provides demonstrations of such gene-environment correlations and interactions." (p.12)*

So in short genes affect child behavior but we can never be sure to what extent he is influenced by it. Because in addition to genes there are others factors which affect his behavior.

## 6. Conclusion

Overview-----

In this chapter we have answered the research question. We have presented some general conclusion and then we have presented specific conclusion in three different cases with respect to the difference in ethnicity, namely Danish, Pakistani and Arabic.

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We have found that game preference is affected by demographics and relations with siblings and friends, so the answer to our research question is “yes” demographics and relations affects the video and computer game selection in children. The influence of relations with siblings on Pakistani and Arabic children is more than in Danish children. Sibling rivalry plays an important role in child's selection of games but only in the case of Pakistani and Arabic ethnicity. Danish children are influenced by their friends in game selection. Children over 7 years of age like to play more complex and strategy oriented games while children less than 8 years play simple games (*figure 4.4*). Gender plays an important role in game selection in children. Children's preferences in real life like football, cars also affect game selection. They like to play such games in which they see their preferences like football games and car racing games. Most children play games for fun and enjoyment but they also use even war games for learning purpose like English language. Following are the conclusions that we have made with respect to three different ethnicities.

From the study of different ethnicities (section 4.6.11) we have concluded different aspects and factors that affect game selection in children. In our research we have found that usually children with no sibling dominance play fighting games; however it seems that Danish children represent an exception. As we were conducting the qualitative research, from the data sample we have found, it is not possible to generalize data collected from demographics aspect of same age (3 participants were of age 10, one of age 9 and one of 12) but supports evidence that children of age over 8 years likes to playing strategy oriented and complex games.

*Figure 4.5* shows that Pakistani and Arabic children are much concerned about relation with siblings and this affects their game selection. If sibling rivalry exists between children, their game playing behavior is shaped by their dominance level in rivalry. If a child whose sibling dominance does not exist and if often lost the fight (physical or argue) from others tends to play the fight game more than others and always likes fight games. On the other hand, a child whose dominance exists and who wins the fight (physical or argue) from others tends to play different types of games. Another interesting observation is that the child who loses actual fight likes to win the virtual fight from his sibling rival.

In case of Arabic children, we have found that in the cases where no sibling rivalry exists, children are more attracted towards puzzle board and IQ games (*Figure 4.5*). Dominance in

sibling causes a change in game playing behavior. In female children there is no tendency to play fight games. They liked strategy, IQ and girls type games.

## **Further Research**

In our research we have included three ethnicities. Further research is possible on this topic by including more ethnicities to see the results in a wider sense. Also our research is limited to children only. A huge number of adults also like playing video and computer games. It is interesting to see if demographics and relations have any effect on their game selection.

## Appendix 1: Interview Guide

- **Step 1:** Introduce ourselves to the interviewer. Give children some chocolates.
- **Step 2:** Brief introduction about purpose of interview. Why we are conducting this interview? Preferably if some guardian is there also inform him about this.
- **Step 3:** Tell the children that this information will be confidential and he has the right to refuse to give answer to any question.
- **Step 4:** Ask the children if he/she has any questions or need any explanations before starting interview.
- **Step 5:** Start interview.

**Following are the interview questions that we have asked to children**

No.	Interview Question
1.	Tell us about your self (Number of brother and sisters, age, ethnicity etc)?
2.	How you spent a typical day?
3.	If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?
4.	Playing video games is very interesting and fun, what do you think?
5.	Playing alone computer game is more fun or playing with others is more fun and why?
6.	In some games you fight with others, what you feel when someone beat you, and when you beat someone?
7.	I think you are a very good game player. Who is the person to whom you win, and feel excitement?
8.	Some children fight with their brothers and sisters, do you know why they do that?
9.	Tell us about your three most <i>favorite games (or type of games)</i> and why you like these?
10.	Why often you fight with your brothers and sisters and who win the fight?
11.	Your teacher told me that you are a very good boy but sometimes fight with other children. Why you do so?
12.	Tell me which type of children you dislike?

## Appendix 2: Interview Transcription, Danish children

No.	interview Questions and answer Dan1 (12 years, Male)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mom and I am the only kid of my parents.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>Most of the time of the day, I spent in school and with my friends.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>If I could have a chance to change something I would like to change my mom's anger.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>I agree</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>I only play games to fun and for relax. It's not a matter for me that I am playing alone or with a friend, in both cases I enjoy the game.. I also plays with strangers it gives me a chance to make new friends.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>No answer</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>I like to win from the people I know.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>The reason why some children fight with their brothers and sister is that they want to prove their superiority, power and to feel on the top of them.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you</i></p>



	<p><i>like these?</i></p> <p><b>I like the fighting and war games world of war craft, counter strike and Grand theft Auto most and often plays strategy and puzzle games but rarely likes racing games.</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>Not relevant (No sibling)</b></p>
11.	<p><i>Your teacher told me that you are a very good boy but sometimes fight with other children. Why you do so?</i></p> <p><b>I do not fight with anyone.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I like the people who follow the rules either in real life or in game. I don't like people who break rules or try to do so.</b></p>

No.	Interview Question and Answers Dan 2 (10 Years, Male)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mother and father. I have one younger brother and one younger sister.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent a typical day by going to school, then coming home or at activity centre, at home I plays with other kids, but if I am alone I play world of war computer games with strangers because my friends don't like the same game.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>If I had a magic wound in my hand I would not like to change any thing about my family every thing is perfect for me.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>Playing online games is fun for me.</b></p>

5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>When I am in home I like to play alone and never played with my sister or with parents. While when I am in activity center I like to play with friends. I don't like to play with my sister because her choice is different. I like to play games most with my friend Tobias because I want to win from him.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>yes I like to play fight games but mostly like to beat my friend's players and also like to beat when i play with my sister.</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>I am very happy when i win from my sister.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>thinking for some time then no answer</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>I like to play war and shooting games, and first time I select this game (World of war craft) from shop because its title was looking so good. I enjoy the game while shooting others and making deals about strategy of playing. I like to chat with people who are playing by using chat function of the game, and this helps me to learn English that I like most.</b></p> <p><b>I like war, strategy, role playing and counter strike games and don't like puzzle game so much .I like war craft because it is a combination of strategy and war, world of war craft because in this game I can explore new things, languages etc and battle field because in this we can surprise others and be surprised by others.. I like the situation in football playing because during play all are striving for a single goal.</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>no we i don't like to fight with my sister in real life but like to fight while playing games</b></p>
11.	<p><i>Your teacher told me that you are a very good boy/girl but sometimes fight</i></p>

	<p><i>with other children. Why you do so?</i></p> <p><b>No answer.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I like the people who are active, speedy and argue for strategy making in games.</b></p>

No.	Interview Question and Answers Dan 3 (10 Years, Male)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my parents. I have one younger sister who is 8 years old.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>Most of the time I spent by watching television, playing football in ground and with computer. I would to become world best soccer player.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>Every thing seems perfect to me i would not like to change any thing with magic wound</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>I agree</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>I like the social games but not so much.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>I like to play games and like to win every time. When I win the game I start teasing the loser.</b></p> <p><b>I feel pleasant when I win the game and then make a new deal by chatting. I like to make strategies in "battle field". I like to explore more things in game and like to know cheat codes.</b></p>

7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>I have clear the level 70 of war craft and I want to pass more levels while playing with friends instead of strangers. My cousin has created interest in me for war games. He is very expert in war craft and I always learned from him. A time comes when I will win from my cousin.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>In my opinion children fight due to age and character differences between them.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>war craft, Battle field</b></p> <p><b>I like most to learn English while playing by using chat function of the game.</b></p> <p><b>Sometimes My mom and dad refer me to play world of war craft and not counter strike games.</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>I never argue with my friends and class fellows. My sister doesn't like war games, she likes to play puzzle and also like to play Barbie type games. We both have different liking of game playing habits that's why I don't play with her.</b></p>
11.	<p>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</p> <p><b>Already given answer in above question</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I don't like donkey and lazy children.</b></p>

No.	Interview Question and Answers Dan 4 (10 Years, Male)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mom and with her boyfriend. I have one younger brother.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent my day at school and at activity center.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>No answer</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>I Agree</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>I like to play alone not with friends because when I play alone and have no competition then I explore the world and game in a good way as I like.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>I like to win a game but it's not fair that when you loose and others start teasing you.</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>As I don't like to play in groups as well with friends so I have no much feeling of excitement when I win the game.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>may they cheat each other, and then they start arguing on this</b></p>
9.	<p><i>Tell us about your three most favorite games (or types of games) and why you like these?</i></p>

	<p>I like to play computer games with more exploring nature. I like to use my imagination in games and try to search game features using my perception, in this why I enjoy more and feel excitement when I found a good scene and image.</p> <p>I like to play discovering, role playing and strategy games</p>
10.	<p><i>Why often you fight (or argue) with your brothers and sisters and who win the fight?</i></p> <p>I never argue with my younger brother and only harmony at home and a lot of talks.</p>
11.	<p>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</p> <p>I only argue with others when I consider that I am right and stubborn.</p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p>i hate who cheat me while playing game.</p>

No.	Interview Question and Answers Dan 5 (9 Years, Female)
1.	<p><i>Tell us about yourself (Number of brother and sisters, age, ethnicity etc)?</i></p> <p>I live with my parents. I have one younger brother.</p>
2.	<p><i>How you spent a typical day?</i></p> <p>Going to school and play with my friends and my little brother. When asked she added that she had never played with dolls.</p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p>No i do not want to change anything in my family.</p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p>

	<b>Yes it is fun and i like it. I play it everyday.</b>
5.	<i>Playing alone computer game is more fun or playing with others is more fun and why?</i> <b>I like to play alone but i also play with my brother. Sometimes with my friends too.</b>
6.	<i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i> <b>I do not like it. It is not good thing to do.</b>
7.	<i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i> <b>With my brother and friends.</b>
8.	<i>Some children fight with their brothers and sisters, do you know why they do that?</i> <b>I do not know.</b>
9.	<i>Tell us about your three most favorite games (or types of games) and why you like these?</i> <b>I only like to play Dragon Fable and Age of Empire because I like to play fighting game. (When asked about Puzzle and Barbie type games, she said no, I only like fighting games)</b>
10.	<i>Why often you fight (or argue) with your brothers and sisters and who win the fight?</i> <b>I never fight with my brother, he always play with me and never fight.</b>
11.	<i>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</i> <b>I never fight with anyone but if someone try to fight with me i fight too.</b>
12.	<i>Tell me which type of children you dislike?</i> <b>Who are rude with me.</b>

### Appendix 3: Interview Transcription, Pakistani children

No.	Interview Question and Answers Pak 1 (12 years, Male, Sibling to Pak 2 and 3)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>We are three brothers and we don't have any sister. I live with my mom, dad and uncle. My age is 12. My parents belong to Pakistan and we go back to visit Pakistan at least once in two years and I like to go to Pakistan and meet my relatives and see different cities</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent a typical day in the activities like going to school, mosque, playing football and games on play station and computer. I like to play football and football games. My favorite football club is F.C. København. I often wear its shirt showing its logo. Whenever there is a match on television, I like to watch it. I also play football with my friends and it is the best sports to play, it is so much fun. I like to play football game with my brothers and friends; it is more fun to play when I play with them</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>I feel every thing perfect in my life about people around me (mom, dad, brothers) and don't want to change any thing about them.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>I agree.</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>Playing online games is always a fun especially with the people I know.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>I am unlike other boys not so much found of playing fight games but when they play I share with them and play with them.</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you</i></p>



	<p><i>win, and feel excitement?</i></p> <p><b>I like to win from the people I know but never mind if I lose any game.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>I don't know.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>In addition to play the football games I am interested in playing HABBO now days. It's a virtual world, where you can do any thing which you do in real world like having a home, making friends, parties etc.</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>As brother we often fight with each other but I never start fight, others start fight with me but I always win because I am stronger.</b></p>
11.	<p>Your teacher told me that you are a very good boy but sometimes fight with other children. Why you do so?</p> <p><b>(Already given answer to this question)</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I don't like children who tease others on losing the games.</b></p>

No.	Interview Question and Answers Pak 2 (10 years, Male, Sibling to Pak 1 and 3)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mom dad and uncle. We are three brothers and no sister and I am in middle. My parents belong to Pakistan and we go back to visit Pakistan at least once in two years my grand mother who lives in Pakistan loves me too much and takes care of me but because I was born here so I also loves to live here.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent a typical day in the activities like going to school, mosque, playing football and games on play station and computer. I like to play fighting and sports games but I like the car racing the most. One reason for this is I am very fond of cars and often insist my papa to buy a new car because the previous one is not so fast.</b></p>

3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i>  <b>If I have a chance to change any thing about people around me I would like to change my mothers anger when we (siblings) fight with each other.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i>  <b>I agree.</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i>  <b>I like to play games with others as it is great fun and you have the opportunity to make new friends.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i>  <b>When I play games with others I do not always win but surely it is a better feeling to win rather then losing.</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i>  <b>From other children, i know.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i>  <b>I don't know why often children fight or argue with each other.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i>  <b>I like to play fighting and sports games but I like the car racing the most.</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i>  <b>Answer given in Q11.</b></p>
11.	<p>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?  <b>But as far as I am concerned, I don't like cheating. When some body cheats me I argue with him and some times this argue converts in to fight specially with my younger brother.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i>  <b>Cheaters</b></p>

No.	Interview Question and Answers Pak 3 (8 Years, Male, Sibling to Pak 1 and 2)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mom dad and uncle. We are three brothers and no sister and I am the youngest. My parents belong to Pakistan and we go back to visit Pakistan at least once in two years.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent a typical day in the activities like going to school, mosque, playing games and playing with my cousins and brothers.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>If I would have a magic wand I would like to change my elder brother's anger.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>Yes</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>Playing online game is fun and I always like to play with others.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>I like to win from the people I know. I like to win from my elder brother. We often play with each other. Most of the times I win the game I play but some time lose. But wining a game gives me more pleasure.</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>I love to win from my elder brother</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>I think children fight or argue due to conflicts between them.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>I love to play fight games. I like to play fighting and sports games</b></p>

	<b>but enjoy fighting games more.</b>
10.	<i>Why often you fight with your brothers and sisters and who win the fight?</i> <b>But I never start fight. I play a lot with my brothers but we fight also and because I am younger I am beaten by elder brother.</b>
11.	Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so? <b>Already given answer in reply to Q.10</b>
12.	<i>Tell me which type of children you dislike?</i> <b>I do not like children who fight or argue.</b>

No.	Interview Question and Answers Pak 4 (7 Years, Male)
1.	<i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i> <b>I live with my mama and papa, I study in class one. I have one elder brother and one elder sister. I like to go to Pakistan with my parents and meet my cousins and grandparents.</b>
2.	<i>How you spent a typical day?</i> <b>After coming back from school I spent my time with my friends.</b>
3.	<i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i> <b>If I have a magic wand, I want to change my younger sister, she always annoy me.</b>
4.	<i>Playing video games is very interesting and fun, what do you think?</i> <b>Yes</b>
6.	<i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i> <b>I like to win fight games from others it gives me excitement. I always win "street fighter" from my brother and sister. When i lose i do not disappoint. I tries to win next time.</b>
5.	<i>Playing alone computer game is more fun or playing with others is more fun and why?</i> <b>Mostly I like to play alone on computer most of the time, but sometimes also likes to play with my sister and brother.</b>
7.	<i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i> <b>From my siblings.</b>

8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>I think they fight when they are angry.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>I like to play 'Bomber man' and 'Street Fighter'.</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>Given the answer in Q.11</b></p>
11.	<p><i>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</i></p> <p><b>My sister fights with me when she loses the game.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I don't like the children who fight with each other.</b></p>

No.	Interview Question and Answers Pak 5 (7 Year, Female)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my parents. I have two elder brothers.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent most of the time of day in school and by playing with my friends</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>I will not like to change any thing around me.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>Yes</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>I enjoy playing video games with my brothers, but his choice of playing is different. I like to play puzzle, singing and makeup games, which he doesn't like. I enjoy more to play in school with my friends rather than playing on computer.</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>I dont like to play fight games.</b></p>

7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>I am very happy when I win from my brother</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p> <p><b>I dont know.</b></p>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>I like to play "Picross " and "Two memories". I really enjoy when I solve the puzzle in "Picross". My favorite game of makeup is "A Vivacious Look"..</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>I never fight or argue with any one.</b></p>
11.	<p>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</p> <p><b>Answer given in Q10.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I like all the children.</b></p>

## Appendix 4: Interview Transcription, Arabic children

No.	Interview Question and Answers Ar 1 (10 Year, male)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mother and father; I have two elder brothers and one younger sister.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>After coming back from school I spent my time with my mom, sister and with elder brother who is 2 year older to me. During weekend I spent my time with my friends in Valby ground by playing football, but not every weekend. I like to play games with my brother and some times with friends.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>If I have a magic wand I will build a beautiful home in Syria for myself, where I want to live with my mother and father.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>Yes, I agree. Off course playing game is fun and we can enjoy our free time.</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>I enjoy most to play with my brother</b></p>
6.	<p><i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i></p> <p><b>No Answer</b></p>
7.	<p><i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i></p> <p><b>I feel pleasant to win the fight in game from my friends especially from my brother.</b></p>
8.	<p><i>Some children fight with their brothers and sisters, do you know why they do that?</i></p>

	<b>No Answer</b>
9.	<p><i>Tell us about your three most favorite games (or type of games) and why you like these?</i></p> <p><b>I like to play shooting and strike game. I like "Beyond Good &amp; Evil", "Elite Beat Agents" and some times like "world of war craft".</b></p>
10.	<p><i>Why often you fight with your brothers and sisters and who win the fight?</i></p> <p><b>I some times fight with my brother, but mostly we argue with each other. When we fight and if he beat me, mama always favor me then I become happy. I only fight with my brother when he cheats in game.</b></p>
11.	<p>Your teacher told me that you are a very good boy but sometimes fight with other children. Why you do so?</p> <p><b>I only fight with my brother when he cheats in game.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i></p> <p><b>I only argue with my friends when they cheat or tease me when they win.</b></p>

No.	Interview Question and Answers Ar 2 (5 Years, Female)
1.	<p><i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i></p> <p><b>I live with my mom and dad. I have one brother who is elder to me. My parents belong to Palestine.</b></p>
2.	<p><i>How you spent a typical day?</i></p> <p><b>I spent a typical day in going to born heaven, playing with other kids, watching cartoons on TV and playing games.</b></p>
3.	<p><i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i></p> <p><b>If I would have a magic wand I would not like to change any thing. I like every thing around me.</b></p>
4.	<p><i>Playing video games is very interesting and fun, what do you think?</i></p> <p><b>Playing games is fun and a good way to pass the time</b></p>
5.	<p><i>Playing alone computer game is more fun or playing with others is more fun and why?</i></p> <p><b>I like to play online with others (Playing with others is fun).</b></p>



6.	<i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i> <b>I like to win from the kids I know but losing is not a matter for me. I try to win for the next time.</b>
7.	<i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i> <b>I feel very happy when I win from my friends</b>
8.	<i>Some children fight with their brothers and sisters, do you know why they do that?</i> <b>I think children fight when they cheat each other. But my brother is very good he never cheats so we never fight.</b>
9.	<i>Tell us about your three most favorite games (or type of games) and why you like these?</i> <b>I like fight and war games but I also like girls' games. My favorite game is the Simpson's hit and run because it is a cartoon type of game and is fun to play. I also like Cooking Mama. This game is fun to play. This also gives me the opportunity to learn cooking recipes.</b>
10.	<i>Why often you fight with your brothers and sisters and who win the fight?</i> <b>I never fight with my brother because he is very nice.</b>
11.	<i>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</i> <b>When they make fun of me, i do not like it.</b>
12.	<i>Tell me which type of children you dislike?</i> <b>Children that make fun of others.</b>

No.	Interview Question and Answers Ar 3 (9 Year, Female)
1.	<i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i> <b>I live with my mother and father. I have one younger sister. Once in a year I go to Iraq with my mother and uncle. Iraq is my mother's homeland.</b>
2.	<i>How you spent a typical day?</i> <b>Most of the time of the day, I spent with my friends living in my community. I often spent my weekend at my uncle's home. Along with my cousins I often play video and online games.</b>
3.	<i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i> <b>No, I would not like to change any thing.</b>

4.	<i>Playing video games is very interesting and fun, what do you think?</i> <b>Yes, it is fun to play games and i like to play daily.</b>
5.	<i>Playing alone computer game is more fun or playing with others is more fun and why?</i> <b>I always try to play with my friends. Sometimes I play alone when my friends are not with me.</b>
6.	<i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i> <b>I rarely play fight games. But when I play I like to win and beat others. I feel happy.</b>
7.	<i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i> <b>From my best friend Alima.</b>
8.	<i>Some children fight with their brothers and sisters, do you know why they do that?</i> <b>I do not know.</b>
9.	<i>Tell us about your three most favorite games (or type of games) and why you like these?</i> <b>Mostly the games I like to play are "The Staff of Dreams", "Harvest moon" and "Pokemon". I like beautiful scenes. I like to live in desert. I like to make strategy in "Pokemon" and want to defeat my opponent. I like greener and beautiful nature scenes in "Harvest moon." .</b>
10.	<i>Why often you fight with your brothers and sisters and who win the fight?</i> <b>I never fight with my sister. She is so younger of only age 3 year, so we don't play together.</b>
11.	<i>Your teacher told me that you are a very good boy/girl but sometimes fight with other children. Why you do so?</i> <b>No, this is not true. I never fight with anyone.</b>
12.	<i>Tell me which type of children you dislike?</i> <b>I don't like the people who fight and argue with each other like my neighbor</b>

No.	Interview Question and Answers Ar 4 (11 Years, Male)
1.	<i>Tell us about your self (Number of brother and sisters, age, ethnicity etc)?</i> <b>I live with my mom and dad. I have one brother who is elder to me.</b>

	<b>My parents belong to Palestine.</b>
2.	<i>How you spent a typical day?</i> <b>I spent a typical day by going to school, playing football with other kids, watching TV and playing video games. .</b>
3.	<i>If you have a magic wand and could change anything you wanted, what would you change about your Mom, Dad, brothers, sisters and friends?</i> <b>If I would have a magic wand I would like to change my father's anger.</b>
4.	<i>Playing video games is very interesting and fun, what do you think?</i> <b>Playing video game is fun and good tool to learn new things.</b>
5.	<i>Playing alone computer game is more fun or playing with others is more fun and why?</i> <b>Playing video game with others is more fun then playing alone because it is more interesting and gives you opportunity to make new friends.</b>
6.	<i>In some games you fight with others, what you feel when someone beat you, and when you beat someone?</i> <b>I feel at the top when I win but I do not disappoint when I lose the game</b>
7.	<i>I think you are a very good game player. Who is the person to whom you win, and feel excitement?</i> <b>I feel more excited to win from the people who are better players then me.</b>
8.	<i>Some children fight with their brothers and sisters, do you know why they do that?</i> <b>I think children fight or argue with each other is due to conflicts between them.</b>
9.	<i>Tell us about your three most favorite games (or type of games) and why you like these?</i> <b>I like fighting and war games. My favorite games are age of empire, empire earth and Grand Theft Auto. The earlier two games are very interesting because you make the strategy and involve your mind to win a war from your opponent.</b>
10.	<i>Why often you fight with your brothers and sisters and who win the fight?</i> <b>My elder brother always beat me so I fight with him and complain to my mother.</b>
11.	Your teacher told me that you are a very good boy/girl but sometimes fight

	<p>with other children. Why you do so? <b>If someone is making fun of me, I will make fun of him. If someone fights with me i will fight with him.</b></p>
12.	<p><i>Tell me which type of children you dislike?</i> <b>I don't like children who fight with others. It's OK if they argue but fight is not a good habit.</b></p>

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## **Appendix 6: Abbreviations and concepts:**

**OLPC** - One Laptop Per Child

**MIT** - Massachusetts Institute of technology