THE WORLD OF COMPUTER GAMES
– A new research topic in the view of a sport researcher

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Introduction

Can you believe it; playing computer games is almost as popular as practicing sports. In Sweden the quantity of practicians of computer games are more than in both soccer and ice hockey together. There are no reliable details about exactly how many people that is playing computer games but roughly we are talking about 350 millions around the world and in Sweden 2 millions. Playing computer games are particularly popular among children and adolescents. A report from the Council of Media showed that 84% of children between nine and fifteen years old in Sweden have played computer games in the last year. The computer game industry is big around the world. In 2005 the worldwide sales of computer games was estimated to a value of $30 billion. The Swedish computer game industry has increased largely since 1998 and in 2006 5, 5 million computer games were sold to a value of 1, 7 billion Swedish crowns ($1, 2 billion). The computer game industry is as big as the music- and movie industry in Sweden. These statistics are not fully reliable but they tell us something about the popularity of computer games.

In the wake of the popularity of computer games the phenomenon of electronic sport (e-sport), defined as competition in computer game, has arisen. In countries like South Korea, China, Russia and Bulgaria e-sport have been more accepted by the sports world than in Sweden. Roughly 250 thousand people are involved in e-sport in Sweden at both low and high performance level. Karl Danielsson has carried out a deep analysis of the similarities between e-sport and traditional sport. He claims that e-sport in many aspects correspond to Guttmann’s theory about what constitute modern sport. Despite of these facts and due to the physical inactivity in most computer game playing people in general (adults and parents) have a relatively negative attitude toward both computer games and e-sport.

In society today individuals have to find and practice leisure activities that contribute to physical wellbeing. New technology like robots and machines does the physical work we humans used to do and today our work often is done behind a desk. Besides peoples places of work the new technology also have changed the way we are living our lives in the sense of making everything more physically easier, and often we are expected to choose those
alternatives that are the least physical and time demanding. Why walk or run to your friends
if you can take the bus or the car? Why open a door by hand if you can push a button that
automatically opens the door? Why even bother go to your workplace if you can be seated in
front of a computer with Internet at home and do your work? This physical passivity is one of
the reasons behind many of the widespread diseases in western societies. Examples of
diseases that are related with a physical inactive lifestyle are, heart- and vascular diseases,
Type-2 diabetes, obesity, brittleness of bones, joint- and back problems and large intestine
cancer.

Sport is one of the most popular leisure activities among both adults and children and it is
seen as a contributor to both physical and psychological wellbeing. In Sweden, sport is a
national movement with roughly 3 million people involved and approximately 60% of all
children between nine to twelve years old are involved in sports. Many adults and parents
are involved with sport as organizers, coaches or functionaries. The sports environment is an
important place for adults to socialize children and adolescents. Within sports adults are given
the possibility to effect children and adolescent social-, physiological and psychological
development in a positive way. Research has shown that children and adolescent who are
involved in sports are more likely to carry on with the activity in adult life. Besides the
positive effects and its importance as a socializing arena, sports are big business. The most
popular sports appear in newspapers, on TV and on the Internet. The most successful athletes
make tons of money and are treated as heroes. For example, David Beckham is one of the
stars within soccer and he might even be one of the most famous people in the world. Swedish stars like Peter Forsberg, Annika Sörenstam and Zlatan Ibrahimovic are heroes,
someone to look up to and resemble for children and adolescent.

Adults and parents have a good knowledge in what sports are and the positive effects that
follows and extensively research has been carried out in the area. Sports are in contrast to
playing computer games an accepted leisure activity and both parents and society encourage
and support children to get involved. As mentioned, playing computer games are very popular
among children and adolescent and a new significant leisure activity has emerged. People
in the game industry are of course very pleased, parents and other adults are not. In Sweden
one study showed that almost three out of four parents experiences their children’s computer
game playing as problematic and that their perceptions of computer games differ from their
children’s.
Playing computer games is a relatively new phenomenon in contrast to sports and it has been and is developing very quickly. Often parents and adults lack both experiences and knowledge about the phenomenon. The absence of knowledge may result in an enlargement of the negative consequences of playing computer games. When parents are noticing that their child is sitting alone in front of the computer all day long they might make some incorrect conclusions. Playing computer games makes my child socially isolated and physically passive, this is not good. Besides social isolation and physical passiveness parents and adults in Sweden have been debating the issue of violence in computer games and addiction. Due to parents knowledge about sports and its positive effects and the enlargement of the negative aspects of playing computer games it is not particularly strange if they prefer sport as a leisure activity for their children before computer games.

Relative little research, especially within a Swedish context, has been carried out on the world of computer games. The year of 2001 is seen as the first year of the international field computer game studies and the first international conference for researcher within the field was carried out in 2003. Most of the computer game studies have been focusing on the possible negative aspects of playing, but in recent year more research has been done with a neutral point of view. One question researchers have been debated is what computer games is. Is it an entertainment, a narrative or a game? My point of view is that computer games similar to sport are a very complex phenomenon which includes many different aspects. For that reason I will just refer the phenomenon to the world of computer games. The aim of this paper is to spread some light over this world with a perspective on children and adolescents computer game playing. At the end I will introduce a research plan were similarities and differences between e-sport and traditional sports as significant arenas for children and adolescents socialization is in focus. I will first describe the world of computer games with help of earlier computer game studies and reports in respect of three main questions at issue:

1. What do we know about the world of computer games?
   - Who plays, what kind of games are popular and how much time do children spend on playing computer games?
2. Why are computer games popular and what motivates children and adolescent to play?
3. In what way do computer game playing effect children and adolescent?
The world of computer games

In spite of the view of computer games as a relatively new phenomenon it has a history of nearly fifty years. Malliet and de Meyer describe the history of computer games in a meritorious way. The scientist Willy Higinbotham converted an oscilloscope into a game he called Tennis for two already in 1958. The inventors Steve Russell, Ralph Baer and Nolan Bushnell have been regarded as the true inventor of the computer game. Steve Russell created Spacewar, the first game on a computer and Ralph Bear designed a device that could be connected to the TV which he played a kind of ping pong game. Bushnell is seen as the father of the arcade computer game and he succeeded to bring the computer games to the general public. In the 70s and early 80s home consoles was developed by Atari, Nintendo and Sega and a game computer for domestic use were presented by Commodore. In this period of time it became popular to play computer games; a new industry was born. During the 90s the industry of computer games developed very rapidly both technically and economically.

Today playing computer games is a significant leisure activity for many people in industrialized countries in Asia, Europe and America and it is a billion dollar industry, as mentioned before. There are countless computer games which you can play on both game consoles and personal computers (PCs). In the game consoles market there are a few operations which dominates, Nintendo (Nintendo 64 & Game cube), Sega (Dreamcast), Sony (Play station) and Microsoft (Xbox). In Sweden, amongst children and adolescent, it is more popular to play computer games on PCs than on game consoles. Due to the development of Internet it is possible to play online with and against other people and communicate with others who play computer games on PCs. The social interaction might be one of the reasons behind the popularity of playing on a PC; another reason might be the access.

Many people in Sweden have the possibility to play computer games on consoles and both online and offline on a PC at their home. In 2006 peoples access to a game console vary due to age. Amongst people between 16-24 and 35-44 years old the proportion is circa 46 %, this number is lower amongst people between 25-34. Further more, 32 % of children between 9-16 have a game console in their own room, more boys (49 %) than girls (15 %). Statistics shows that from year 1998 to 2006 the proportion of peoples (between 16-84) who have a computer at home have increased from 52.6 % to 82 % and the access to Internet have increased from 31 % to 76 %. More men than women and more younger than older people
have a computer at home and access to Internet. Approximately the proportion of men who have a computer is 7% higher than amongst women and the differences are 8% when it comes to access to Internet. Another statistics reveal that 38% of children (between 9-16) have a computer in their own room, more boys (49%) than girls (31%).

Despite the differences in peoples access to consoles and PCs the sales of games are similar, roughly 2,7 million games for both consoles and PCs. As mention before, the value of computer games sales was 1,2 billion dollars in 2006. In Sweden there are roughly 68 cooperation’s that mainly develop computer games and these have 812 employed, 85% of these are men. About 1 300 computer games titles were released in 2003. Like movies computer games have been categorised into different genres. In an overview of different computer games 42 different genres were identified, the following genres are example of the most popular: Action, First-person-shooter (FPS), Driving and racing, Sport, Strategy, Simulation, Platform games (Super Mario), Adventure and role-playing, Puzzle- and board games, Edutainment. Due to the games width the different types of genres should be seen as guidance for the consumer and not as a definition of a computer game. Besides the guidance with genres the computer games are PEGI-marked with a recommended age limit and a warning mark due to objectionable content. The different age limits which different games are recommended for are 3, 7, 12, 16 and 18 year and the other mark warns if the game content discrimination, drugs, sex and nudity, violence, bad language or if it is frightening.

The computer game players
At the moment we know that the industry of computer games are big and that many people have access to both game consoles and PCs at home to play on but how many people does play computer games, how much do they playing and what games? The number of players is hard to appreciate because it is increasing from year to year. As mention before, roughly 350 millions over the world and 2 millions in Sweden are playing. If you had asked me some years ago who the typical computer game player was, my answer would be a 10-13 year old boy, today the answer to the question are more complex. Boys, girls, men and women with a diversity of backgrounds are in fact playing. In spite of these facts I will focus on children and adolescents computer game playing in their leisure time within a Swedish context. Two national surveys show that playing computer games are not the leisure activity that they do most often. Children and adolescent between 9-20 years old appreciate that they are doing activities like lesson to music, watch television, talk to people through the Internet, do sports,
send and receive sms/mms, meet friends and do homework more often than they play computer games. Further results of the surveys reveal that between 86 % to 92 % have played computer games in the last year. A local survey carried out in the capital of Sweden shows that 71 % of children between 7-9 years had played computer games.\textsuperscript{xlv}

The differences between boys and girls computer game playing become clear when we ask the children about how often they play and what types of games that they prefer. About 52 % of children and adolescent between 13-20 are playing computer games every day or once a week, more boys (77 %) than girls (24 %) and more children between 13-15 years old (64 %) than between 16-20 years old (49 %).\textsuperscript{xlvi} Children and adolescent who play more often also play computer games for a longer time at one occasion.\textsuperscript{xlvii} Boys prefers to play computer games within the genres action- and first-person-shooter, sports and driving in contrast to girls who prefers to play within the genres strategy, platform and games with a content of vogue, home furnishings or horse riding.\textsuperscript{xlviii} One study showed that the three most popular computer games among boys were, in order, Counter-strike, World of Warcraft, Need for speed and Fifa and among girls the games were The Sims, The harp, Super Mario and Counter-strike.\textsuperscript{xlix} The Swedish results about who is playing computer games are quite similar to results of international research.\textsuperscript{1}

\textit{The phenomenon electronic sports (e-sport)}

Due to the quantity of computer game players it is not particular strange that some of these wants to compete with and together with others and within e-sport they have their chance. There has been little academic interest for e-sport. Karl Danielsson (married name Jonasson) and The Swedish Board of Young People have conduct research were they describe the phenomenon very well.\textsuperscript{ii} I will sum up their work very briefly.

E-sport is a new phenomenon and is heavily linked to the evolution of technology, particular to the birth of Internet and when it was spread to the public. The history of e-sport starts at the early 90s and it became more and more popular during the decade and today there are approximately 250 thousand people in Sweden and 13 millions worldwide are involved in e-sport. The most popular genres within e-sport is action, first-person-shooter, sports, strategy and driving/racing were games such as Counter-strike, Warcraft 3 and Battlefield are the most popular. The competition is carried out via Internet or so called Local Area Network (LAN) were both smaller and larger amount of peoples computers are linked together. In the winter
of 2006 the LAN-event Dream Hack, which was held in Sweden, were appointed as the world’s largest event ever. At the event there were 7752 visitors who paid entrance and 7788 computers were linked together. In the summer 2007 there were fewer participants, overall circa 6000. The total amounts of price money were 200 thousand. At the event there were mostly boys and men between 9 to 40, 10% were women.

Competition via Internet and LAN makes it possible to play against another player in the same computer game. Within e-sport you can compete against others in special leagues or in world championships, similar to the competing system we can see within traditional sports. Another form of competing that is present within e-sport is so called ladder and they are carried out in communities via Internet. Communities are a scene were e-sport practicians can read news, talk to each other and compete. Ladder is a system where the winner climbs higher on the ladder and the loser must climb down. A new person who comes along begins at the bottom. You can compete individual or in teams (so called Clans) with two or more members. The practicians in Sweden are organized in national associations like Sverok, Tech Group and Goodgame. These associations have approximately 70 thousand members. The best e-sport practicians are professionals and are in some countries (South Korea) treated like superstars. TV-Chanel’s in South Korea are sending e-sport matches and the interest from others outside e-sport is big.

The popularity of playing computer games

Due to the technological evolution and children’s and adolescents access to computers, Internet and game consoles a new popular leisure activity has arisen. In contrast to organized sports children and adolescent might be attracted to playing computer games because the activity is not as monitored by parents and adults. I believe that the experience of a free zone while playing computer games is one of the key factors behind the popularity. But besides that, what is it in the world of computer games that attracts children and adolescent? This question has been an issue for researchers, parents and other adults. Klug and Schell try to answer the questions, and they have some five theses which I will present.

The first reason why people likes to play computer games is that they want to have some control over the event and to be involved in the story in games. When people watch a movie or read a book they can not actively influence the story in the way they can when they play
computer games. The second reason is that people through the computer games can experience events that they before only could as an observer. For example, you can be a manager of a soccer team or you can play the role of David Beckham despite your lack of the necessary physically talent. The third reason is that people can through playing computer games can escape into an alternate reality. This reason is the same reason why people reads books or watches movies, and they are not interested to gain control over the event. The fourth reason is that people want to compete similar to people within traditional sports. Historical these players played against the computer but today they play often against other humans. The last reason Klug and Schell discuss are the possibility to explore fantasy relationships safely. For example in Role-playing games the shy man could take risk without a risk in his approach to a woman. One reason which have been somewhat neglected in Klug and Schells discussion is the role of overcoming a challenge as an important reason to play computer games.

De Maria\textsuperscript{lv} thinks that one of the central reasons why we play computer games is our interest in just overcoming challengers and learns new things. Another reason she think is important is that we feel empowered and rewarded by success. Others raise the feeling of flow as an important reason why we play computer games.\textsuperscript{lvii} In consistency, Salonius-Pasternak and Gelfond\textsuperscript{lviii} make a good point when they say that computer games have different degrees of difficulties which make it possible for players to succeed irrespectively of their abilities. Results of Swedish computer game studies have showed that players report the motive having fun as the most important, other motives are just immersion, overcoming a challenge or perform, the interaction with other and finally the story of the game is essential if the player will pursue playing the game or not.\textsuperscript{lix}

**Consequences of playing computer games**

As mentioned earlier, historical the computer game studies have focus on possible negative effects and consequences of playing. Very little Swedish research has been carried out on the field, due to these facts I will mainly present studies from an international context. Lee and Peng\textsuperscript{lx} have done a review over research about effects of playing computer games. They claim that the negative effect that has mainly been studied is violence in the games and its effects. Violent computer games are popular among boys and girls and adolescence\textsuperscript{lxii} and the violent content have increased, should we be worried? Violence in computer games can in fact be good for children and adolescent. Games with violent content can work as a valve and allow
them to handle complicated problems such as war or death without any risks.\textsuperscript{lxii} Research has shown mixed results, experimental studies have shown a short term effect of aggressive behaviour and other studies show no effects.\textsuperscript{lxiv} There are contradictory results of the relation between game violence and both aggressive affects and behaviour. However research shows an increase in both aggressive thoughts and physiological arousal.\textsuperscript{lxv} One conclusion might be that people get affected but not to the extent that they act out their aggressiveness. Other possible negative effects in relation with computer gaming which have been studied are social isolation, addiction or game dependency, physical inactivity and poor academic performance. In respect of the statement of computer game playing and its negative effects on school performance, physical activity and social life there are no empirical support.\textsuperscript{lxvi} Studies have shown that children and adolescent who play computer games are as physically active as they who do not play.\textsuperscript{lxvii} Research shows that one in five, more boys than girls are addictive or have game dependency.\textsuperscript{lxviii} It is not strange due to the fact that developer of computer game want to make the consumer to keep on playing.

In recent years studies have found positive effects of children and adolescents computer games playing on spatial skills, reaction time, family relationships, parental obedience, social network, school performance and abstinence from drinking and use drugs.\textsuperscript{lxix} Further research has to be carried out to secure these results. To study a specific factor and how it is influenced by playing computer games is complicated, there are often variables left without considerations. Due to this fact it is not strange that research shows contradictory results. My point of view is that playing computer game similar to sports as a leisure activity can have both positive and negative effects on children and adolescent. As stated by Carin Falkner in her dissertation, it is important that researcher, parents and other adults talks with and not about children’s usage of medium such as computer games when it comes to the meaning that are constructed and the social construction of playing and understand the world of computer games.\textsuperscript{lxx}

**Conclusion**

In line with Falkner I will in conclusion of this paper briefly introduce a research plan with a focus on computer game and sports as leisure activities for children and adolescent. I believe that there can be both positive and negative consequences of these activities, but in general the attitudes toward sports are more positive than playing computer games. Reasons behind
the negative attitude toward computer games might be the lack of research about the world and the fact that children’s playing are not monitored by adults. In contrast to playing computer games sports is not a new phenomenon and it is a more physically demanding activity. In spite of these differences there are some similarity between playing computer games and sports. As discussed in this paper both computer games and sports as leisure activities are important for many children and young. E-sport is in many ways similar to modern sports\textsuperscript{lxxi} and it would be interesting to compare these two environments.

The purpose of the research plan is to shed some light over children and adolescents socialization\textsuperscript{lxii} in and through the leisure activities of playing computer games and sports. More specific, the differences between practicians of e-sport and sport when it comes to demographic variables, personality traits, participation motives and attitudes will be studied. Further, I will study gender differences within and across the activities due to the fact that there are differences in boys and girls socialization.\textsuperscript{lxiii} The research method I will use is surveys and deep interviews of children and adolescent between 10-19 years old. The analysis will be conducted on the basis of three groups of selections:

1) Children and adolescents who solely are involved in sports
2) Children and adolescents who solely are involved in e-sport
3) Children and adolescents who are involved in both e-sport and sports

The purpose with these three groups is to capture the essence of both e-sport and sports as an environment of socialization for children and adolescents. Earlier research has focus on children’s and adolescents computer game playing. Further there is a lack in the field of computer game studies with a sport perspective. Few have carried out research where e-sport and sports are compared. My wishes are to contribute to the lack of research within the field of computer game studies.
New game: Om unga och datorspel. Ungdomsstyrelsens skrifter, 2006:2.)

Defined as an organised physical activity with more or less segments of competition.


Dahlén, P. (031209) Beckham – mannen, myten och varumärket. Internet source: www.idrottsforum.org


Datorn i barns vardag


New game: Om unga och datorspel. Ungdomsstyrelsens skrifter, 2006:2

PEGI stands for Pan European Game Information.

Ibid.

Ibid.


The feelings of flow come up when there is a balance between our abilities and the difficulty of the challenge. Jackson, S.A. & Csikszentmihalyi, M. Flow och idrott. Jönköping: Brain Books AB.


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