The Battle of the Video game consoles

Predictors for the success of a video game console

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In this study, gender and cross-continental differences in video game use and video game console preferences are examined. This study focused on the gender differences between the social aspects, interpersonal needs, game genres available and gameplay elements and if one or more of these factors lead to a preference for a video game console. The results of one large-scale survey (N= 330) and one smaller scale survey (N=149) of predominantly young adults shows that their reasons for playing video games are time, amount of playing, and how they are socially connected through the game. Men report more hours of games played in a week and a different preference for games and game genres than women. Both men and women prefer a game console which features their favorite character(s). Based on console specific features men prefer a technical superior console like the Xbox360 or the Playstation 3, while women prefer the idea of features of the Nintendo Wii. Implications for future research are given.

Keywords: Game genres, Gameplay, Parasocial interaction, Uses & Gratification, FIRO, Video Game consoles

Introduction

In the past 35 years gaming has evolved from simple games like Pong (1972) to highly advanced games with almost realistic graphics as in Modern Warfare 2 (2009) or for example Gran Turismo 5: prologue (image 1: on the left GT5: prologue, on the right “reality”, 2008).

Since the release of the first video game and the first video game console in the 70s, the video games market keeps increasing. The increasing grow of the gaming market is the result of a few interesting factors according to Shah & Haigh (2005): (1) the increasing amount of high speed internet connections, (2) the low prices of video game consoles and pc hardware, (3) the use of more robust wireless networks and telephones, (4) the increasing age of the consumers, (5) more exclusive games, and (6) the better cooperation between game developers and game publishers. An example of a very fast growing games market is the Canadian market, with a growth rate of more than 23% in 2008, the Canadian games market shows how fast games are taking over the world. Another example of a fast growing games market is the Taiwanese games market which has an estimated 8.4% growth rate in 2009. One of the largest selling home entertainment media stores in the Netherlands, the Free Record Shop, is even changing their primary store setup to gaming because of this increasing growth in the gaming market(Free Record Shop, January 2009).

Another worthy demographic to note is the new group of consumers who Nintendo reached with their new products like the Nintendo Wii and Nintendo DS. Before the release of the Wii and DS

playing video games were still seen more as “boy’s toys” (Cassel & Jenkins, 1998, Agosto, 2005). A recent study by Ivory (2006) confirms that the majority of the medium’s audience continues to be male. However, according to data from Nielsen Entertainment, 43% of all the gamers are female and the Wii was even in the women top 10 wish list for 2007’Christmas (*HDTV Sets and Laptops Top Holiday Wishlist* ,z.d.). This could mean that there is a shift in the gaming world, with more and more women as potential customers. Krotoski (2004) addresses the importance of women, as consumer or producer, that they are one of the key points for getting gaming to a so called ‘mass market phenomenon’.

Examining the current consumer market for games leads to some interesting results. Nintendo has re-conquered the gaming industry with their video game console (the Wii) with an worldwide market share of almost 50%, while Microsoft follows on a safe distance with 30% share and Sony with their Playstation 3 on 20% of the total market for the next generation video game consoles (VGchartz, June 2009). The different games and type of games available on the Wii also contain some valuable information. The games are mostly for younger people (age rating 12+ or lower). The Wii has more games for Families and Kids and has a lot of so called Party games. Microsoft and Sony are however still concentrating on the hardcore gamer instead of the casual gamers with most of the games. A hardcore gamer is a very fanatic gamer and a casual gamer is someone who plays easy and simple games now and then. The figures also show differences between regions, with the Xbox 360 selling more units than the Playstation 3 in the United States of America, while they are on par in Europe. In Japan the Playstation 3 outsells the Xbox 360.

This study tries to find an answer to this shift in the gaming world. The Wii has achieved a very large market share with games mostly aimed for families and kids, and not the hardcore gamer. The Wii also does not deliver the technical power which the Xbox 360 and Playstation 3 can deliver. Technical superiority does not seem to be the predictor for success of the video game consoles anymore. While the Playstation 3 and the Xbox 360 do not differ a lot in technical features, there is a substantial difference between the sold units in North-America, Europe and Japan. This might mean that there are continental differences between brands, games or other factors.

Many factors might be a predictor for the choice of a video game console, but none has been researched yet. This study tries to make a first step into finding predictors for success of a video game console by focusing on two bodies of theoretical literature. The first is the social side of gaming and the second is the type of games and involved gameplay experienced by the gamers themselves. The social side of gaming will be measured by the Parasocial interaction and Fundamental Interpersonal Relations Orientation theory. The type of games and wanted gameplay elements will be measured by evaluating the elements the participants prefer. The Uses and gratification theory will be used to check both factors. Next to the social side and gaming side of gaming, the differences between men and women will be addressed in this study. In addition to gender differences this study also focuses on continental differences between North-America and Europe. This results in the following main research question:

Based on which social and game factors do people make a choice for a video game console, and what are the cross-continental differences between men and women within these factors?

This article starts with a brief introduction into the history of video games consoles and current video games which gives a good view in how gaming evolved till now and how it became attractive for female players.

Brief history of the Video Game Consoles

PONG is known as one of the first popular games in the history of gaming. It is an arcade video game with very simple 2-dimensional graphics and it simulates table tennis. The game was manufactured and released by Atari in 1972 and it led to the start of the video game industry. It was however not the first video game, the first video game was released in 1947 and was played on a cathode ray tube (Wikipedia: video game console). But the real mass production of games started in the 70s with also the release of the first video game console; the Magnavox Odyssey. The first successful video game console was created by the same makers of PONG; Atari. The Atari 2600 was released in the late 70s.

The new generation of consoles was introduced in the 80s by Nintendo, with the FamiCom in 1983 (Family Computer), which was renamed to Nintendo Entertainment System (NES) for the release in the American and

European market in 1985. SEGA introduced the Genesis (also known as Megadrive) as competitor of the NES and started their line of video game consoles. More video game consoles were introduced but they were not as successful as the NES and Genesis.

Nintendo and SEGA continued their battle of the video game consoles in the 90s when Nintendo introduced the Super Nintendo Entertainment System (SNES) and SEGA released a newer version of the Megadrive. Atari and 3DO tried to battle both systems but the high prices and difficult programming of these consoles were the cause of an early death. The SNES was a huge success and the popularity of gaming increased.

A failed deal with Nintendo made Sony release their own console in 1994: the Playstation. History shows that it was the start of a very successful video game console that has passed the 100 million sold units mark as first. Nintendo released the Nintendo 64 as a competitor of the Playstation in 1996 and still had cartridges instead of CD's which most new consoles had around that days. The Nintendo 64 was not able to stop the success of the Playstation.

The sixth generation of consoles was started by SEGA with the release of the SEGA Dreamcast in 1999. Despite the very good features the Dreamcast did not sell enough units and it was the last console release by SEGA. Sony released the Playstation 2 as follow up console of the very successful Playstation in 2000. The Playstation 2 is still on the video game console market with new game releases and more than 140 million consoles are sold being the most successful video game console of all time (Eurogamer.net). Nintendo released the Gamecube which featured an optical disc instead of a cartridge; it was the first time for Nintendo to release a video game console without a cartridge slot. Next to Sony and Nintendo also Microsoft started to compete in the video game industry with their first release of a video game console: the Xbox. But both Nintendo and Microsoft could not compete with the Playstation 2. Nintendo's Gamecube sold only 21,5 million consoles and Microsoft's Xbox sold only 24 million consoles (Vgchartz, June 2009). It was almost the end of Nintendo with selling less consoles every release, but their next release of a video game console mend a new time for the video gaming industry.

Microsoft has started the newest era of game consoles back in 2005 when they launched the Xbox 360. Nintendo en Sony followed a year after with the Wii and the Playstation 3. In the next paragraphs the latest video game consoles will be described in detail and the exact features will be summed up in a table.

Microsoft Xbox 360

The Xbox 360 was the first console of the "next-generation" and had a worldwide release in the winter of 2005. The Xbox360 is a traditional console like all the previous generations but with new and more advanced hardware, but games still have to be played with a standard controller with buttons. The only big difference is the addition of High Definition graphics. This means that games can be played on a console with maximum resolution of 1920x1080p. Games can have far more realistic looks and games looks more advanced than before. Next to the high definition graphics is the Xbox live network, which is a specifically designed online gaming network.

Nintendo Wii

Nintendo released their revolutionary Wii in 2006, trying to reach a totally different group of consumers than before. What makes the Wii so special is the motion sensor and Wii Mote, the game controller for the Wii. The controller differs a lot from its competitors as can be seen on the first page of this article. The controller of the Wii lets players get more involved into the game because you have to do the exact same movement as in real life to let the console react on it. For example: when you want to play a tennis game, the Wii-controller is your tennis racket. If you want to hit the ball you need to swing your controller just like you have to swing your racket in real life.

Sony Playstation 3

The Playstation 3 is the third and latest addition in the next gen console generation. The Playstation 3 was released in the winter of 2006 in Japan and the United States of America and in the spring of 2007 in Europe, the Middle East, and Australia. The console has the same target group of consumers as the Xbox 360 of Microsoft but the Playstation 3 has slightly better hardware and a blu-ray player.

Table 1:
Current generation of video and portable game consoles statistics.

Statistics	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3	Sony PSP	Nintendo DS(i)
Units sold total In millions	50.85 (48,7%)	30,74(29,5%)	22,75(21,8%)	48,04 (31,4%)	104,85 (68,6%)
North-America	23,54 (47,3%)	17,53 (35,2%)	8,73 (17,5%)	16,93(32,1%)	35,78(67,9%)
Europe	19,18 (45,6%)	12,14(28,8%)	10,77 (25,6%)	18,77(30,7%)	42,29(69,3%)
Japan	8,12 (65,3%)	1,07 (8,6%)	3,24 (26,1%)	12,34 (31,5%)	26,78 (68,5%)
Type of gameplay	Active gaming	Passive gaming	Passive gaming	Portable gaming	Portable gaming
Target group	Family, kids, girls	Gamers	Gamers	Gamers	Family, kids, girls, gamers
Special features	Gaming with movement	Specific online game network	Newest technology (blu-ray)	Multimedia portable game system	Dual screen & touch screen

Table 2:
Historical overview of important video game consoles

Statistics	***Magnavox Odyssey***	***Fairchild Video Entertainment System***	***Atari 2600***	***Nintendo Entertainment System***	***Sega Megadrive***	***Super Nintendo Entertainment System***
Year of Release (NA)	*1972*	*1976*	*1977*	*1985*	*1989*	*1991*
CPU	*-*	*8-bit*	*1,19mhz*	*8-bit*	*16-bit*	*16-bit*
RAM	*-*	*-*	*128Bytes*	*-*	*-*	*-*
Storage	*-*	*-*	*-*	*-*	*-*	*-*
Game	*Cartridge*	*Cartridge*	*Cartridge*	*Cartridge*	*Cartridge/CD*	*Cartridge*

Statistics	***Sony Playstation***	***Sony Playstation 2***	***Microsoft Xbox360***	***Nintendo Wii***	***Sony Playstation 3***
Year of Release (NA)	*1995*	*2000*	*2005*	*2006*	*2006*
CPU	*32-bit*	*64-bit*	*3.2ghz*	*730mhz*	*3.2ghz*
RAM	*-*	*32mb*	*512mb*	*64mb*	*256mb*
Storage	*Memory Card*	*Memory Card*	*0,5 – 120gb HD*	*512mb IM*	*20-120gb HD*
Game	*CD*	*DVD*	*DVD*	*DVD*	*Blu-ray*

Video game research

The figures show a large total of sold units, and as told in the previous paragraph gaming has become more and more popular over the years. As the game market increases, so does the research. Much research has already been conducted in the field of gaming; many to find what effects of games have on children, adolescents and adults. Different results were found, some in favor for gaming but also many with negative results.

Games can have positive results when adapted for medical recovery (Gunter,2005), social effects (Gunter, 2005), or for example training surgeons (Rosser et al, 2007) but it can also have negative effects on health and socializing (Gunter, 2005). According to Griffiths (2005) research has consistently shown that playing games produces increased reaction times, improved hand-eye coordination and raises players' self-esteem. Griffiths (2005) also reports on the therapeutic benefits of video game playing. Video games can be used to help people successfully rehabilitate after accidents, traumatic brain injuries and help wheelchair users for example. After playing games people show a difference in self-esteem and on average game exposure also appeared to be somewhat draining or fatiguing, but people who experienced autonomy and competence in playing showed more positive outcomes on short-term according to Ryan et al (2006). A very recent report, presented by the European Union, even states that games are good for children (Guardian.co.uk, February 2009).

Another possible negative side of video games is that a lot of them feature aggressive content. Many articles describe the negative consequences of video games in relation to aggressiveness, but other articles describe that there is little or no positive or negative effect concerning for example the mood of the participants (Ryan et al, 2006; Anderson & Bushman, 2001; Carnagey & Anderson, 2004; Robinson et al, 2001; Ferguson, 2007; Griffiths, 1999; Dill & Dill, 1998; Konijn et al, 2007). The meta-analytical research of Ferguson (2007) shows that most laboratory experiment results, when researching for aggressive behavior after playing games, are more based on "aggressive thoughts" instead of real "aggressive behavior". Ferguson also explains in his article that it is very logical for aggressive thoughts to occur shortly after playing a violent video game.

Furthermore video gaming also features positive and negative effects within the social and psychological side. The following paragraph gives more information about video gaming, the social and psychological side of gaming, why people play games and the theoretical background of this study.

Theoretical background

This study tries to find an explanation of the video game console choice by researching the communicative and social perspective of gaming using three theories. The theories used in this study are the Uses and Gratifications theory, The FIRO theory and Parasocial Interaction. Video gaming is a communicative phenomenon according to Lucas & Sherry (2004) which supports our use of the three theories. All three theories have a communicative and psychological background and while they have been used in previous gaming studies (Lucas & Sherry, 2003, 2004; Greenberg et al, 2008; Linek & Albert, 2008) they have not been used to explain why people buy a video game console. The uses and gratification theory adapted to games can possibly explain why people choose a console based on their needs, while the FIRO theory adapted to games tries to find answers with a social explanation. FIRO explains the need for the interpersonal interaction. The research by Lucas & Sherry already examined FIRO and used the theory to explain and predict the gender differences in the uses and gratifications. Lucas & Sherry did however use FIRO as an explanatory theory instead of using a scale to measure the different elements of the theory. In this study a smaller scale of the full FIRO questionnaire has been created with the focus on gaming but it will be used to research the same problems as in the research by Lucas & Sherry (2004). The parasocial interaction theory has been used to try and find a link between game characters and the people who play the games. The theory has however not yet be used to find the combination favorites character and video game console preferences. The combination of certain favorite characters, liking of game genres, gratifications, gameplay elements and social factors, or only a few parts of them, could be a predictor for the success a video game consoles.

Gameplay

Each video game has been built up from several elements and each element is of vital importance for the game. Some of the gameplay elements used in this study have aesthetic features.

Graphics The first and maybe most commonly known are the visual elements, or in gamer language: the graphics. The graphics are the visual content of a game and have vastly improved since the first games Spacewar and Pong. Graphics include the looks of the whole designed game world, everything you can see with your eyes on the TV or PC screen are the graphics. The visual features started in the 60s and 70s with a so called 2D perspective but have now, anno 2009, evolved to more realistic settings in 3D. In the time of the 2D graphics people loved games more for the interactive capabilities than for the primitive graphics. But nowadays graphics are one of the most important components and producers use the strength of the visual effect in advertising their games (Shapirio et al, 2006 The differences between graphics can be best noticed when following the release of every football game released by EA sports every year. Every year the footballers look better and better and more realistic. The difference between every release of a video game console is even more notable. Especially now with the High Definition graphics cars in Gran Turismo 5: prologue, as shown on the first page of this article, games look more realistic than ever.

All these visual elements are observed by the user and graphics are one of the most important gameplay elements. But women might think otherwise, since most of the games they play do not feature state of the art graphics. Therefore we predict that:

Hypothesis 1a: Men find graphics more important than Women.

Sound The second gameplay element is the auditory feature, or the sound. Without any sound a lot of games would not be fun to play. Games like Pong featured sounds which were not realistic. In time the auditory features evolved from computer beeps to real sound which cannot be separated from what can be heard in the "normal" world. The addition of more speakers in the gaming room adds an even more realistic effect since the sound options also feature 3-D space surrounding the player (Shapiro, 2006 GAMES BOEK). This means that you can hear everything in front, to your side and from your back. One of the primary goals of in-game sound is to enhance the realism of video games (Zehnder & Lipscomb, chap 17 GAMES BOEK). If sound is realistic and good it can make the game more exciting in the player's perception according to Smith (2006). The realistic effects of sounds are mostly important in games with realistic settings or games in which sound is very important. These games are mostly shooters and racing games, mostly played by men. Simulation and puzzle games as the Sims series, which women really like (Lucas & Sherry, 2004), do not feature advanced sound. Therefore we predict that:

Hypothesis 1b: Men find sound more important than Women.

Realism Third, realism might be an important gameplay element and is closely related to all the other gameplay elements. It might even be better to say that all gameplay elements combined can deliver a realistic game, but that differs from the eventual type of game. An arcade race game like Burnout: Paradise never meant to be realistic in driving, but it does feature very good graphics, sound, difficulty and arousal. Games played by men feature both realistic games but also non realistic games, but games played by women are mostly non realistic games. Therefore we think that:

Hypothesis 1c: Men find realism more important than Women.

But because not most of the games are realistic we also think that:

Hypothesis 1d: Realism is less important than the other gameplay elements.

Characters The fourth gameplay element is the in-game character. In most of the games several main characters are presented to the player and all of the characters play a certain role in the game. The most important character is of course the player himself. How the characters are presented to the player is the most important part. A player can feel empathy or feel sorry for characters in a game, but only when they are programmed and played perfectly. The combination of graphics, sound and sometimes also realism can create a character which will be liked by the player. A game with non-believable or bad played characters makes a game less appealing. Since characters are important in all kind of games we think that:

Hypothesis 1e: There is no difference between men and women in how important the characters are.

Like with the other gameplay elements, a story can be very important in a game, but it is not a necessary feature. Almost all games feature a certain story, but most of them do not feature strong stories like in a book or a good movie. Nowadays some games do feature stories comparable, or sometimes better than popular Hollywood movies. Stories are very important for some game genres like the Role-playing games and shooters. But a game like The Sims 3 does not feature a story-line. Most of the very popular games on the video game consoles feature a good story, and without such a story they would probably not have sold as well. The games and game genres mostly preferred by men feature a story while most games and game genres for women do not. Concluding to this we think that:

Hypothesis 1f: Stories are more important to Men than to Women.

Games are meant to be fun, but a game with a difficulty level which almost no one can handle or which is too easy are most of the time no fun. The sixth gameplay element is the difficulty factor, it is a factor which cannot be seen but can only be discovered when playing a game. Almost all games feature the possibility to change the difficulty of the gameplay. Every person is different in challenges and some like it and some don't. Therefore we think that:

Hypothesis 1g: There is no difference between Men and Women in the importance of the difficulty level.

The last element is not specifically a gameplay element, but it is an element that should be noted; arousal. The expectations are that the excitement and arousal factor of a game are very important for gamers, since a game is pretty expensive to buy and you want to have fun with it for at least several hours. Games can however also be fun for one hour each week instead of playing it every day. The results of earlier studies by Lucas & Sherry (2004) and Greenberg et al (2008) show that men play games more frequently, and for more hours in the week than women. Coming to the conclusion that it may be possible that men are getting more aroused and getting more excited from playing games than women. Therefore we think that:

Hypothesis 1h: Men find it more important to be aroused than Women.

All the elements can be important features of a game but not all have to be included to create a perfect game. A racing game does not primarily need a story for example. Gameplay itself is also a gameplay element, but is too difficult to define. It easily can be defined as the core of a game. If the gameplay in a game does not work, the game itself does not work. For example: if you have a football game that should be realistic, but the gameplay is so bad that it plays like a game from 20 years ago with rules not implemented and other important football things missing it does not feel like a football game and people probably will not buy it.

Game genres

There are a lot of different games and game genres. PEGI (Pan European Game Information) is an European institute which gives age ratings to all the different games that are being released in Europe, and does this with the support of the European Commission. Therefore the PEGI rating system is widely recognized in the European Union. Next to giving age rating PEGI has also created a list of Game Genres with a guiding text to explain each game genre. The list of genres covers most games available.

Large internet web-shops like Bol.com, Amazon, Play.com and videogamesplus.ca all have their games listed by game genres. None of these game genres are exactly the same or correspondent with the PEGI game list. Therefore it is very difficult to define one exact list of game genres. Lucas & Sherry (2004) developed one list of game genres after consulting previous research, video game magazines, gaming websites, and video game departments. The list contained thirteen genres: strategy, puzzle, fantasy/role playing, action/adventure, sports, simulation, racing/speed, shooter, fighter, arcade, card/dice, quiz/trivia, and classic board games. The list was however created in 2004 and therefore not up to date anymore. After researching several large online web-shops and gaming website the conclusion was that a new genre had to be added; Party Games. Party games are multiplayer games at home. Also included in the Party games genre are the rhythm and music games like Guitar Hero and Singstar. The biggest cause of this new genre was the release of the Nintendo Wii, which basically is a Party console.

Next to the change of game genres the example games also had to be changed. Most of the games are five years old and newer popular games had to be added and some changes in faulty game names had to be made. Table 3 will show the different game genres with guiding text and examples.

Research of Lucas & Sherry (2004) already showed a large difference between men and women preferences for video games. Most of the video games on the current market feature competition elements, clear objectives and a clear definition of the role of the player. Which are, according to Greenberg et al (2008) all stronger feature of male play. A typically very popular game series for women, The Sims, show exactly the opposite of game features with no competition elements, clear role definition and clear objectives. Therefore we posit that:

Hypothesis 2: Video game genre preferences will be different between men and women

Gaming from a Social and Psychological perspective

Playing a video game is a way of entertainment and video games can be played in many different ways with their different elements and game genres. People can play these video games on various increasing platforms including the pc, the video game consoles as shown earlier, mobile phone, mp3 player and many more different platforms. Because of this it is merely impossible to not get in touch with gaming. According to Philips

et al (1995, in Lucas & Sherry 2004) the uses for video game playing are to pass time, to avoid doing other things, to cheer oneself up, and just for enjoyment.

Table 3:
Video Game genres and descriptions

Genre	Description	Examples
Strategy	Games that use strategic planning skills	*Command & Conquer, Civilization, Age of Empire*
Puzzle	Games that can be solved, no element of chance	*Tetris, Free Cell, Sudoku*
Fantasy/Role playing	Games that let you assume a character role	*Final Fantasy, Diablo, World of Warcraft*
Action-adventure	Games where you go on an adventure	*Resident Evil, Tomb Raider*
Sports	Games based on athletic teams and events	*Tony Hawk's Pro Skater, Fifa, Virtua Tennis*
Platform	Games that focus on jumping from platform to platform	*Super Mario, Ratchet & Clank, Banjo Kazooie*
SIM	Games where you create a simulation	*Rollercoaster Tycoon, SimCity, The Sims*
Racing/Speed	Games that focus on going fast	*Super Mario Kart, Gran Turismo, Need for Speed*
Shooter	Games where you shoot other characters	*Quake, Gears of War, Call of Duty, Killzone*
Fighter	Games that focus on martial arts or hand-to-hand combat	*Mortal Kombat, Tekken, Street Fighter*
Arcade	Games based on original arcade games	*PacMan, Frogger, Pinball*
Card/Dice	Games that have an element of chance	*Solitare, Poker*
Quiz/Trivia	Games that test your knowledge	*Trivial Pursuit, Buzz Quiz Tv, Brain Training*
Classic Board Games	Video game versions of old-time favorites	*Monopoly, Checkers*
Kids	Games primarily designed for kids' use	*Pokemon, Crash Bandicoot, Nintendogs*
Party	Games designed to play with a group of friends or family	*Guitar Hero, Rock Band, Rayman: Raving Rabbids, Wii: Sports*

Children start playing video games already when they are around 6 years old, and in Germany children own 7.1 games on average while their age is between 6-to-13 years (Salisch et al, 2006). According to Salisch et al "*children are active users who are attracted to electronic games that*:

1. *address their developmental tasks*
2. *offer possibilities for escapism and possibly mood management, and*
3. *match their level of development "*

Raney et al (2006) describe the combination of teens and video games as a match that has been made in *"media heaven".* Teens can find their psychological and sociological needs in playing video games. Teenagers enjoy the gaming, get excited and aroused from it and are drawn to the games because of the challenging aspects. Also the content in a game enables teenagers to meet their psychological needs. Content should contain interactive features, suspenseful content but also violent content to excite the teens.

Next to the psychological side of gaming, there is also lots of evidence that people like gaming because of the social possibilities. People are able to play video games in the single player mode, but most of the time games also have a multi-player or online mode where multiple people can play the game at once. Playing video games on for example the Wii invites social interaction, the console has been made and marketed as a family console. In the advertisements of the Wii you always will see several people in one room playing the game

together. Playing the videogames in a group setting appeals to people for various reasons; it enables companionship and creates a team-like camaraderie similar to sports. Second it enables adolescents to compete and defeat peers, while they in some cases are unable to do that because they lack exceptional athletic or academic prowess (Raney et al, 2006). But also singleplayer games promote social interaction according to Raney et al (2006), because people tend to top one another's high score or extreme moves. However, Gajadhar et al's (2008) study demonstrated that social presence progressively increased from playing against a computer player, a mediated co-player and a co-located co-player. Participants reported more positive affect, less tension and more competence.

Clans and guilds are the best example of the social side of games. Clans and guilds are groups of gamers who play the same game(s). This social side with clans and guilds are sometimes the reason for players to keep playing a certain game (Jansz & Tanis, 2007; Williams et al, 2006). Playing in MMORPGs (Massive Multiplayer Online Role Playing Game) enables people to join a large social experience with hundreds of thousands of players, Ducheneaut & Moore (2004) addresses the importance of good social experiences in these games. According to Williams et al (2006) playing MMORPGs is as social as a team sport, with its own rules, literal boundaries and social norms.

Several other articles also address the importance of the psychological and social need of gaming (Ryan et al 2006; Sellers, 2006; Poels et al, 2007; Yee, 2006). Poels et al conducted a study with focus group to find the real digital game experience right from the players themselves. They categorized all the recordings into one table with different dimensions of digital game experience. The dimensions included all the psychological and social needs like Enjoyment, Competence and Social Presence that are also addressed in the other articles.

Uses and Gratifications theory

The introduction of why people play video games gives already a slight view into the Uses & Gratification paradigm when adapted to games. People tend to play games for certain reasons and needs they want to meet. The uses and gratifications theory is one of the oldest communication based theories to explain why people are being attracted to certain types of communication and media. According to Lucas & Sherry (2004) the model states, in part, that people perceive a variety of problems and possible solutions to those problems. People develop their own motives and needs to get their gratification or find a solution for their problems, which they meet through media consumption or non-media-based activity (Lucas & Sherry, 2004). For example: some people play video games to meet their need of entertainment and excitement, while others play video games to meet their social needs. The study by Ruggiero (2000) shows that the Uses & Gratifications theory has its starting roots in the 1940s where researchers studied why people kept listening to certain radio shows. The uses and gratifications theory is, according to McQuail (1994), *a subtradition of media effects research*.

Philips et al (1995) researched the uses for video game playing and found that people primarily play games to pass time, avoid doing other things, to cheer oneself up and just for enjoyment. Griffiths (1991a, b, in Lucas & Sherry 2004) found some uses and gratifications including arousal, social rewards, skill testing, displacement and stress reduction. By trying to identify the uses and gratifications for video game playing Lucas & Sherry(2003) did however not focus on the research by Griffiths (1991a,b) but conducted focus group sessions to find them. The scale was developed based on the methodology used by Greenberg in 1974 when he constructed the original television uses and gratifications scale. The focus group sessions by Lucas & Sherry (2003) resulted in the following uses and gratifications for games: challenge, arousal, diversion, fantasy, competition and social interaction. These gratifications are the ones used in this study because several follow up research by Lucas & Sherry (2003, 2004) and Greenberg et al (2008) show that this can be a valuable theory.

Most of the games are designed to meet the needs and interest of the male users since they focus on their uses and gratifications and game content. As noted by several authors (Reinecke et al, 2007; Hartmann & Klimmt, 2006; Lucas & Sherry, 2004) women show less interest in competitive situations while most games do feature a lot competitive situations. The majority of video games available have direct competition, clear role definitions and explicit goals, which are all strong features of male play (Greenberg et al 2008).

While men seem to be more motivated to play games than women in any type of uses and gratification (Lucas & Sherry, 2004) Reinecke et al (2007) interviewed female video game players to find out about why they like to play video games. Results show that women are not motivated by winning, while previous research shows that men are motivated by this. The best illustration is a citation from an interview by Reinecke et

al(2007): "*It is not at all important to win!*". In contradiction to competition they do want to have a challenge in the game, they wanted to master the game; making challenge a very important motivation for women. The study of Lucas & Sherry (2004) shows that challenge is the highest rated motivation for playing video games in comparison with the other game related uses and gratifications.

Hartmann & Klimmt (2006) studied what women dislike about computer games. Next to the earlier reported competition element women tend to dislike the lack of meaningful social interaction, violent content and sexual gender role stereotyping of game characters. The inclusion of the competition and other elements and the exclusion of social interaction might lead to the fact that women are less motivated to play computer games. Most games released earlier in the history of the gaming industry reflect this type of games. The research by Lucas & Sherry (2004) did however not result in a high rate of motivation for the social interaction factor. In fact, the results for social interaction were the lowest for all the uses and gratifications available. The results of Reinecke et al's(2007) study show that social interaction is mostly important in online games.

In 1998 Cassel & Jenkins already noted that the world of gaming is primarily dominated by men. More recent research by Agosto (2005) and Ivory (2006) show similar results. The industry itself is mostly technological and like with most technological industries this is also dominated by men (Agosto, 2005). Gaming is also not supported by most friends of female game players (Reinecke et al, 2007); it is not a typical girl or female activity. To get girls to game the world needs a change in thinking and needs to present games that meets the uses and gratifications of women.

With the release of the Nintendo Wii things could have changed in the past three years. Results from a research by Greenberg et al (2008) show only a slight increase in hours of play between girls compared to the 2004 study by Lucas & Sherry. At the end of 2008 and the beginning 2009 the Wii has sold more units and more games have been released to stimulate gaming for girls. With previous results in mind we think that:

Hypothesis 3a (H3a): Men will spend more time playing video games than women.
Hypothesis 3b (H3b): Participants in general still think that gaming is primarily a men's world.

More games that meet the needs of women have been released and therefore there should be a difference between the study of Lucas & Sherry (2004) within the results of the uses and gratification scale. The Nintendo Wii presented Wii Sports as the social game, but a competitive element is also included in the game.

Earlier research by Lucas & Sherry (2003, 2004) shows clear differences that challenge is the most important gratification for young men and women. Research by Greenberg et al (2008) shows however that competition is very important for children and young men and women. Because our target participants are between ages 16-26 we predict that:

Hypothesis 3c (H3c): Men and women will be more motivated by challenge than by any other gratification.

Earlier research shows that women are motivated by challenge to play video games and that they are not motivated by competition, therefore we predict that:

Hypothesis 3d (H3d): Women will be more motivated by challenge than by competition.

As said earlier, most games feature elements that are typically meant for men, therefore we predict that:

Hypothesis 3e (H3e): Men will report higher results in all uses and gratifications.

Because there is no difference in game releases and video game consoles worldwide we predict that:

Hypothesis 3f (H3f): *There is no difference between Dutch and North-American men and women.*

FIRO Theory

The Fundamental Interpersonal Relations Orientation (FIRO) theory was introduced in the fifties by Schutz (1958). Schutz (1958) developed a 54-item scale which measures three dimensions of interpersonal relations. The three dimensions are respectively Inclusion, Control and Affection, and these three combined should be

able to explain most human interaction. According to the creator and author of the FIRO theory, Schutz (1958), Inclusion is the degree to which a person needs to associate or interact with others, Control is the extent to which a person needs to assume responsibility, and Affection is the degree to which a person needs to become emotionally involved with others. These three dimensions all have two separate components, namely the Expressed and Wanted component. Expressed and wanted inclusion are for example: the expressions of *including people in a person's own activity* or *the wanted to be included in others activities*. Expressed and wanted control is for example: the expression of someone *who wants to control people during an activity* or *wanting to be controlled during an activity*. Expressed and wanted affection are for example: the expression to *be open minded with people* or *wanting people to be open for them in more private conversations*.

The dimensions Inclusion and Affection are connected to each other for some reasons. When someone is not included in an interpersonal group, then someone cannot feel or experience affection. As stated by Lucas & Sherry (2004) inclusion is a necessary precursor too affection. But even when someone is included in an interpersonal group it does not mean he will experience affection. Results of the FIRO questionnaire (Schutz, 1958; Floyd, 1988) show no gender differences on the desire for inclusion, affection and control. Men and women are therefore equally motivated to meet their needs for inclusion, affection and control.

When adapting FIRO to gaming, the needs for inclusion, affection and control should differ between gender. The need for inclusion with gaming activities is possibly higher with men than with women since gaming is a typical male activity (Cassel & Jenkins, 1998; Agosto, 2005; Ivory, 2006)). Research by Etaugh & Liss (1992) shows that parents and teachers reward the gender-typical play and do not accept gender-atypical play. As noted by Lucas & Sherry (2004) boys may be directed towards and girls steered away from video game playing. This fact might be the cause of the difference between amount of gaming and the gender differences in the gaming industry. While boys are rewarded to play video games, girls are not. When girls or women do play video games which are normally meant for boys or men they risk the fact of being rejected by their peers. Their behavior is then in some sense not normal since video gaming is considered to be a cross-sex stereotyped activity. As result of this, girls might not be able to meet their needs for inclusion and affection since their friends are not interested in the same type of activities. In this study a part of the FIRO hypotheses from the study by Lucas & Sherry (2004) is replicated, but examined with a questionnaire.

Hypothesis 4a (H4a): Women will be less motivated by the gratification social interaction and therefore seek less inclusion than men will.

As result of this they will less likely be included in gaming activities than men and therefore:

Hypothesis 4b (H4b): Women will also seek less affection and control than men.

Parasocial interaction

The theory around parasocial interaction was introduced in the 50's. Parasocial interaction is defined as *"a relationship of friendship or intimacy by a media consumer with a remote media "persona""* (Horton & Wohl, 1956; Rubin 1994). The phenomenon occurs when people respond to a media figure as if he/she/it were a real person (Giles, 2002). Parasocial interaction has a connection with the Uses and Gratification theory, since it *was brought back to life as an explanation for the gratifications users receive from interacting with people on screen* (Giles, 2002). Research within the Parasocial interaction paradigm focused mainly on the parasocial interaction with TV personalities (Rubin, 1994).

Parasocial interaction and video games. Gaming, as an interactive activity features also a kind of parasocial interaction. Lewis et al (2008) posit that there is no parasocial interaction because there is an "actual, tangible connection" since it is a fully functional completely controllable avatar. We do not agree with this statement, since there are a lot of linear games which tell the story of your character, even in a role-playing game as presented by Lewis et al (2008). The first singleplayer game where the gamer himself can create his own story still has to be constructed. Instead of Character Attachment, as Lewis et al(2008) call their phenomenon , we still call this phenomenon parasocial interaction.

Almost every player of video games will experience a type of parasocial interaction with the in-game characters. Especially when playing a singleplayer game a gamer has to interact in some way with his own character. Lots of games feature interactions with characters and story lines are build up with one or some

main character(s). The storyline tries to involve the gamer in an interactive way with including choices that the gamer has to make within the game they play. Do they, for example, want their character to be evil or friendly? Research of Hefner et al (2007) shows that when players identify themselves with a character or role offered by a game they change their self-concept by adopting relevant attributes of the character. This means that the players perceive themselves as more courageous, heroic and powerful during identification with a soldier. When playing such a heroic character adolescent men can experience a sense of freedom they cannot experience in the real life. As Jansz (2005) reports, a violent game is a safe world in a private setting where men can experience different emotions, including the emotions that are controversial in normal life.

Women also show a high identification with the avatar (Reinecke et al, 2007), which could be an indication of parasocial interaction. According to Linek & Albert (2008), parasocial interaction is especially important for women. The problem of most games is however the sexual gender role stereotyping (Hartmann & Klimmt, 2006). The perfect example games for sexual gender role stereotyping of game characters are the visual looks of the characters in Fighting games like Dead or Alive and Tekken. Female characters have all the features men might "want" to see in women. Big breasts, little clothes and a sexy body. Next to the design of the female characters, the male characters seem to always be the heroes while the female characters are "weak". Linek & Albert (2008) also posit that video game development should focus more on a gender-fair design. Because of these negative features we predict that:

Hypothesis 5a: Women show a lower score for parasocial interaction than men.

In the middle and late 90's a "huge battle" emerged in the gaming industry: Mario versus Sonic. These two game characters were the main characters of their video game consoles. Mario could be played on a Nintendo console while Sonic was played on a SEGA console. Many gamers had one favorite character, either Mario or Sonic. Having such a favorite character could probably also lead to the choice for a video game console, especially when a character is only available in games on a certain console. Therefore we predict that:

Hypothesis 5b: Participants who have a favorite character which is available on one console only, also buy or own that console.

Research question & hypotheses

The following paragraph sums up every hypothesis stated in this article to give a general view of this study. The research addresses the following research question:

Based on which social and game factors do people make a choice for a video game console, and what are the cross-continental differences between men and women within these factors?

The research question focuses on several factors which could influence the choice for a video game console. The research question will be tested on two different groups of participants to check if there are no differences between North American and European people since there are differences in sold video game consoles. There are a lot more factors that could be a possible influence for buying a console, but this study tends to look for an explanation within the games, the game-genres, gameplay elements and social interactions which can occur while playing games off-, or on-line.

Based on the expected results of the different theories in this study we predict that:

Hypothesis 1a: Men find graphics more important than Women.
Hypothesis 1b: Men find sound more important than Women
Hypothesis 1c: Men find realism more important than Women
Hypothesis 1d: Realism is less important than the other gameplay elements.
Hypothesis 1e: There is no difference between men and women in how important characters are
Hypothesis 1f: Stories are more important to Men than to Women
Hypothesis 1g: There is no difference between Men and Women in the importance of the difficulty level
Hypothesis 1h: Men find it more important to be aroused than Women.

Hypothesis 2: Video game genre preferences will be different between men and women

Hypothesis 3a: Men will spend more time playing video games than women
Hypothesis 3b: Participants in general still think that gaming is primarily a men's world.
Hypothesis 3c : Men and women will be more motivated by challenge than by any other gratification
Hypothesis 3d: Women will be more motivated by challenge than by competition
Hypothesis 3e: Men will report higher results in all uses and gratifications
Hypothesis 3f: *There is no difference between Dutch and North-American men or women*

Hypothesis 4a: Women will be less motivated by the gratification social interaction and therefore seek less inclusion than men will.
Hypothesis 4b: Women will also seek less affection and control than men

Hypothesis 5a: Women show a lower score for parasocial interaction than men.
Hypothesis 5b: Participants who have a favorite character which is available on one console only, also buy or own that console

In conclusion to all hypotheses the prediction is that:

Hypothesis 6: Women will make their choice for the Nintendo Wii, while men will choose for the Xbox360 or Playstation 3.

Method

Design Questionnaire

To test our hypothesis a questionnaire was created in two languages: English and Dutch. The two languages were needed because a Dutch and American university were involved in this questionnaire. Both questionnaires contained the same questions divided in eight sections, which will be explained in the following paragraphs.

The Dutch questionnaire contained some parts of previous studies which were translated from English to Dutch. The full Dutch questionnaire was pre-tested on grammar and sentences by three individual persons. The Dutch questionnaire was also fully pre-tested (N = 30) on the real questions. The North-American questionnaire contained some Dutch parts that were translated to English. These parts were tested on grammar and sentences by two individual and Native-English speaking persons. After that the questionnaire was pre-tested by students from the University of Washington who are conducting several game related researches.

Part 1: General questions

The first set of questions contained general questions which asked about the age, gender, education and nationality of the participant, but also about current experience with gaming. These questions were related to the amount of hours played in a week, at what days the participants play games, at which time of the day the participants play games and also about what video game consoles are present in their home situation. Other questions were related to gaming with friends and if they played games with their friends on what console it was.

Part 2: Gameplay questions

The second set of questions were based on gameplay features. All the features of gameplay combined make a game. Most of the gameplay features are therefore very important factors, if a game for example features terrible graphics and sound it probably will not sell as good as a game which has wonderful graphics and beautiful sound. The following gameplay elements with guiding text were included in the questionnaire and could be rated with a 7-point likert scale (1 – Not at all important, 7 – Very important):

- Graphics: how important do you find the graphical looks of a game?
- Sound: How important do you find the sound in a game?
- Realism: How important do you find that a game resembles reality?

- Characters: How important do you find the characters in a game? (the main characters and the computer controlled characters)
- Story: How important do you find the story of a game?
- Difficulty: How important do you find the difficulty of a game?
- Arousal: How important do you find it that a game gets you aroused?

Part 3: Game genres

The third part contains an edited copy of the Game Genre test from Lucas & Sherry (2004). The test needed few changes, since some names of games were spelled incorrect or are unknown in the Netherlands. The last change was the addition of a new Game Genre; Party games. Party games are games which can be played alone, but are mostly played with friends. The Nintendo Wii is the console which features the most party games such as Wii Sports. Very popular party games on the Xbox 360 and Playstation 3 are Rock Band and the Guitar hero series. The list was also renewed with more known games from this and last year. The list of video game genres is presented with guiding text and could be rated with a 7-point likert scale (0 don't know – 1 strongly dislike – 6 strongly like). The full list with Game genres and guiding can be found in Table 3 of this article.

Part 4: Parasocial interaction

The fourth part contained questions related to parasocial interaction. The questions were very basic since the experiment did not include a gaming session. Measuring parasocial interaction without participants playing a game is not possible since they have to remember playing a game and then have to imagine if they had some sort of social interaction with the character. The pre-test confirmed this problem, and therefore there was chosen to only ask basic parasocial questions. The following eight statements were included in the questionnaire:

- I find it important to have a lot of interaction with game characters
- I find it important that the game characters have a realistic and believable look
- I prefer to control my character as much as possible
- I put some effort into interacting with the game characters
- I find it important that the main characters in a game seem reliable
- I like it when my favorite game characters are present in several games
- It would be disappointing if they stopped making new games with my favorite game character

And a final question about favorite game characters:

- Do you have a favorite game character? If yes, please fill in which one, else don't fill in anything:

The questions could be rated on a 5-points likert scale (Not at all true – Very true).

Part 5: Choose video game console

The most important part of this questionnaire is the part where the participants had the possibility to choose the console they want out of two consoles. The console presented as Console X represents the Nintendo Wii and the consoles presented as Console Y represents the Microsoft Xbox360 and Sony Playstation 3. The following guiding text and features were presented to the participant:

Imagine: you have the possibility to choose a video game console no matter how much it costs. You have the possibility to choose between two video games consoles that are currently available, with each their certain special features. The costs of both video game consoles are the same, which means you can choose the video game consoles based on their specific features. The main features of the two consoles are written below. After reading the features, make a choice for one of the two consoles.

Console X
- A new way of playing games on a video game console
- Lots of Party, Family and Kids games
- Relatively dated technical features, minimal graphics
- Gaming and moving
- Gaming with the whole family and friends

Console Y
- The newest technical features
- Phenomenal online network for the best online gaming experience
- Graphical top notch games
- Games primarily for die-hard gamers and adults
- Perfect as a media center for all your videos/photos/music

Part 6: Uses and Gratification

The 20-items Uses and Gratification scale in the questionnaire was adapted from previous research by Lucas and Sherry(2006). The participants could rate the questions on a 7-points likert scale (1 strongly disagree – 7 strongly agree).

Part 7: Firo Theory

The last tested theory is the FIRO theory. A 16 items scale was added and edited after the pre-test. The questionnaire contained questions adapted from the official 54-items FIRO questionnaire by Schutz (1958) and were changed to a FIRO-Game questionnaire instead of a social and psychological only questionnaire. The same elements were tested, but the main focus was inclusion and control, since measuring affection was experienced as strange for the participants. The participants could Agree or Disagree with the given statements.

Part 8: Final questions

The last set of questions were used to ask the participants' preferred video game and portable game console, but also if they think if gaming is a men's world or not.

Participants & procedure

Data was collected from 640 participants. Participants were recruited from the internet via gaming forums, technical forums, forums with women as main visitors and two universities (university of Twente in the Netherlands, and university of Washington in the United States of America). The questionnaire was taken online, via www.thesistools.com. Participants had to fill in their e-mail address to prevent duplicate data. The Dutch and North-American questionnaire had a different link to prevent that the North-American participants had to read a Dutch questionnaire. Of the 640 participants, 470 were from the Netherlands and 170 from North-America. 140 of the Dutch participants, and 21 of the North American participants were excluded because they did not complete the full questionnaire. All the remaining participants were familiar with playing games in general, the participants did not have to be a hardcore gamer to be included. Some information about the participants in both questionnaires are presented in table 4.

Table 4:
Information about the Participants

Statistics	Dutch questionnaire	North-American questionnaire
Participants	329	149
Mean age	22,69	22,28
Men (mean age)	270 (22,51)	131(21,98)
Women (mean age)	59(23,51)	18(24,39)
High school	58	85
Associates	72	12
Bachelors Degree	98	36
Masters Degree	91	11
PHD	8	4

When both questionnaires had a sufficient amount of participants, or no more participants could be recruited due to time or other reasons, the data recorded was transformed to a readable SPSS format. The analysis of the data collected focused on six important factors, the theories (Para-social interaction, Uses & Gratification, FIRO), game genres, gameplay and the choice for a console.

Results

In the following section the results of store check and the results of the Dutch and North-American questionnaire are presented. Before the full questionnaire was presented to the participants two pre-tests were conducted. The first pre-test resulted in several changes in the questionnaire, primarily in the parasocial interaction scale.

Store Check

Several online stores were checked on their game categories and the amount of games for each video game consoles. The stores checked were one large Dutch online store and three very large North-American online shops. The results of these figures can be used to check if a certain video game console has more games for men or women or if the games available in genres are equally divided. The tables with full figures can be found in Appendix A.

Video Game genre

The largest media and entertainment online store, Bol.com, has their gaming section divided in seven large categories; Action, Adventure & Role-playing, Entertainment/Family, Racing, Simulation, Sports and Strategy. The Xbox360 and the Playstation 3 both have almost 50% of their games in the Action genre, while the Wii has only 31% of their total games sold by bol.com in the Action genre. The Wii also has almost 20% of their games in the Entertainment/family genre.

Play.com has their gaming section divided in more categories that are comparable with the game genre list reported earlier in this article. A total of fifteen video game genres were found with the adventure genre being the largest overall genre. The Xbox 360 and the Playstation 3 also have almost an equal amount of games divided in the Shooter genre while that genre is only little present in the list of games for the Wii. The Wii has two almost unique genres with Education and Virtual life, the Xbox360 has only one game in the Virtual Life genre.

Amazon.co.uk shows almost the exact same list as the game genre list by Lucas & Sherry(2004). The trend is here almost the same with the Xbox 360 and Playstation 3 having the most games in the Action & Shooter genres. The Wii has fewer games in the Action & Shooter genre, but has more games in the Children, Education & Reference, Adventure, Simulation, Arcade & Platform and Puzzle genres.

The large Canadian web-shop Videogamesplus.ca has similar results as the previous three web-shops. The Xbox360 and Playstation 3 have both their games equally divided in each video game genre, while the Wii has more games in the Family/Puzzle section.

Age restrictions

Of the four web-shops that have been studied only bol.com has their games divided by the official PEGI age rating system, the other web-shops did not use any age rating systems to divide their games. Not all games are rated, but the results do show a clear difference between the consoles. Most notably is the large amount of 3+ games in the Nintendo Wii section. More than 50% of the games for the Wii are playable by everyone in a family situation. Furthermore, only 37 games have an age restriction level from 16+ or 18+ while the Microsoft Xbox 360 and Playstation 3 both have more than 100 games rated in that section. There is almost no difference between the Xbox 360 and the Playstation 3 in exact percentages.

Game categorization

Next to the age restriction bol.com also has a lot of the games categorized in three sections namely; Kids, Family and Hardcore Gamer. The results show again that the Xbox360 and Playstation 3 have similar results for all three categories. The Wii differs in all three categories from the Xbox360 and the Playstation 3 with the most games in the Family section and a lot of games in the kids section. The Hardcore gamer section is a lot lower for the Wii than for the Xbox360 and Playstation 3, two-third of all games on the Xbox 360 and Playstation 3 are rated as games for the hardcore gamer.

Table 5:
Bol.com PEGI Age differences between video game consoles

PEGI Age	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3
3+	167 (52%)	71 (23%)	43 (20%)
7+	53 (16%)	23 (7%)	14 (6%)
12+	66 (20%)	70 (23%)	57 (26%)
16+	28 (9%)	86 (28%)	57 (26%)
18+	9 (3%)	60 (19%)	48 (22%)
Totaal	**323**	**310**	**219**

Table 6:
Bol.com game categorization per video game console

Recommended for:	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3
Kids	70 (27%)	19 (7%)	18 (9%)
Family	122 (46%)	66 (25%)	47 (24%)
Hardcore gamer	72 (27%)	183 (68%)	130 (67%)
Total	**264**	**268**	**195**

Questionnaire results

Hypothesis 1: Gameplay

Hypothesis 1a, that men would find graphics more important than women, was tested with a T-test. In both the Dutch as the North-American questionnaire no significant differences between men and women were found. No differences between the men and women of both questionnaire were found. Hypothesis 1a was therefore not supported.

Hypothesis 1b stated that men would find sound more important than women and was tested with a T-test. The difference between the Dutch men (M = 5.22) and women (M = 4.36) within the gameplay element sound is significant, $t(327) = 4{,}656$, $p < .001$. The North-American men found the Sound element significantly more important than women (Men M = 5.07, Women M = 4.29; $t(144) = 2{,}196$, $p < .05$), which means that hypothesis 1b is supported for both questionnaires. No differences between the men and women of both questionnaires were found.

Hypothesis 1c, that men find realism more important than women was tested with a T-test. A significant difference between men and women ((Men M = 4.23, Women M = 3.75, $t(327) = 1{,}991$, $p < .05$) in the Dutch questionnaire for the element Realism was found. Men find Realism more important than women and therefore hypothesis 1c is supported. There was however no significant difference between the North-American men and women related to the element Realism which means that hypothesis 1c was not supported. No significant difference was found between the women of both questionnaires but a significant difference was found between the men of both questionnaires. The Dutch men find Realism significantly more important than the North-American men, Dutch men M = 4.23, North-American men M = 3,40), $t(397) = 4{,}615$, $p < .001$.

The element Arousal had to be deleted from the North-American questionnaire because some people did not fully understand the word. People thought about aroused in a sexual context instead of a psychological context. Hypothesis 1d stated that the element Realism would score the lowest of all elements. The removal of the element Arousal makes the element Realism the element with the lowest importance for all four groups of participants and therefore hypothesis 1d is supported.

Hypothesis 1e, that there is no difference between men and women in how important characters are, was tested with a T-test. For both the Dutch and North-American questionnaire no significant differences were found which was expected and therefore supports hypothesis 1e. The Dutch men did differ from the North-American men with scoring significantly lower on the reported importance of Characters, Dutch men M = 5.19, North-American men M = 5,82), $t(397) = -4{,}373$, $p < .001$. No differences was found between the two groups of women.

Hypothesis 1f, that stories are more important to men than to women, was tested with a T-test. A significant difference between the Dutch men and women was found for the Story element, with M = 5.37 for men, M = 4.95 for women and $t(327)$ = 1,992, $p < .05$. The North-American men and women however both find the Story element almost equally important with M = 5.84 for men and M = 5.72 for women. Hypothesis 1f is therefore supported by the Dutch questionnaire, but not supported by the North-American questionnaire. The Dutch men score again significantly lower than the North-American men for the story element, Dutch men M = 5.37, North-American men M = 5.84), $t(397)$ = -3,193, $p < .05$, $\alpha = .05$. Again no significant difference between the two groups of women was found.

Hypothesis 1g, that there is no difference between men and women in the importance of the difficulty level, was tested with a T-test. Both the Dutch as well as the North-American men and women do not differ in the reported importance of the difficulty level. No significant difference was found which supports hypothesis 1g.

Hypothesis 1h, that men find it more important to be aroused than women, was tested with a T-test. Results of the Dutch questionnaire show a significant difference between men (M = 5.27) and women (M = 4.76) with $t(327)$ = 2,473,$p < .05$. Therefore hypothesis 1h is supported for the Dutch questionnaire.

Table 7
Reported liking of gameplay elements by gender and continent

	Mean Liking					
	Dutch Men	Dutch Women	NA Men	NA Women	Significance: Between Men	Significance: Between Women
Graphics	5.23	5.25	4.97	4.78	ns	ns
Sound	5.22*	4.36	5.07**	4.29	*ns*	ns
Realism	4.23**	3.75	3.40	3.06	*	ns
Characters	5.19	5.08	5.82**	5.28	*	ns
Story	5.37**	4.95	5.84	5.72	**	ns
Difficulty	5.35	5.17	5.15	5.06	ns	ns
Arousal	5.27**	4.76	-	-	-	-

Note: Independent T-test computed (Dutch N = 329; df = 327) (North-American N = 146; df = 144) (Between Men N = 400; df =397) (Between Women N = 78; df =76)
*Mean differences between men and women were significantly different $p < .001$; ** $p < .05$. *ns* = non significant $p > .05$

Hypothesis 2: Game genres

Hypothesis 2, that video game genre preferences will be different between men and women, was tested with a T-test. Comparing the reported liking resulted in difference between men and women in almost every game genre for both the Dutch as the North-American questionnaire. Every game genre for the Dutch questionnaire, except for the Platform, Arcade, Kids and Party genres, was significantly different with $p < .05$. Both men and women have a preferred game genre with men liking Shooters the most with a mean of 6.81 and women liking Simulations games the most with a reported mean of 6.36. In comparison men like Strategy, Fantasy/rpg, Action/adventure, Racing, Shooter, and Fighter games more than women. All the other games, Kids games excluded because of the very low scores, are liked more by women. Therefore hypothesis 2 was supported for the Dutch questionnaire.

The results for the North-American questionnaire show similar results with almost every game genre being significantly different. Men again like shooters the most (M = 6.19) and women like puzzles the most (M = 5.56). In comparison men like Strategy, Fantasy/RPG, Action/adventure, Racing, Shooter, and Fighter games more than women. All the other games, Kids games excluded because of the very low scores, are liked more by the women. Therefore hypothesis 2 was supported.

Some differences were found between the Dutch and North-American men. The Dutch men score significantly higher on liking on the video game genres Strategy, Sports, SIM, Racing, Shooter (all $p < .001$),

Classic Board games ($p < .05$) and Party ($p < .05$). The women of both questionnaires only score significantly different on Sports ($p < .05$), SIM ($p < .05$) and fighting games ($p < .05$).

Table 8
Reported liking of video game genres by gender and continent

	Mean Liking					
	Dutch Men	Dutch Women	NA Men	NA Women	Significance: Between Men	Significance: Between Women
Strategy	6.08*	5.02	5.17*	3.72	*	*ns*
Puzzle	4.55*	5.97	4.69**	5.56	*ns*	*ns*
Fantasy/RPG	5.69**	4.81	5.58	5.06	*ns*	*ns*
Action/Adventure	5.78*	4.81	5.97*	4.44	*ns*	*ns*
Sports	4.98**	4.29	3.93	3.22	*	**
Platform	5.46	5.71	5.41	5.33	*ns*	*ns*
SIM	5.10*	6.36	4.14*	5.22	*	**
Racing	5.95*	5.05	4.95	4.39	*	*ns*
Shooter	6.81*	3.86	6.19*	3.53	*	*ns*
Fighter	5.05*	3.29	4.71	4.18	*ns*	**
Arcade	4.33	4.73	4.32	4.94	*ns*	*ns*
Card/Dice	3.72**	4.29	3.44**	4.76	*ns*	*ns*
Quiz/Trivia	3.91*	5.44	3.53**	4.72	*ns*	*ns*
Classic/Board	3.83*	4.90	3.34**	4.44	**	*ns*
Kids	3.22	3.02	3.60	4.17	**	**
Party	5.04	5.14	4.38	4.67	**	*ns*

Note: Independent T-test computed (Dutch $N = 329$; $df = 327$) (North-American $N = 146$; $df = 144$) (Between Men $N = 400$; $df = 397$) (Between Women $N = 78$; $df = 76$)
*Mean differences between men and women were significantly different $p < .001$; ** $p < .05$. *ns* = non significant $p > .05$

Hypothesis 3: General questions

Hypothesis 3a, that men will spend more time playing video games than women, was tested with a T-test. Hypothesis 3a can be confirmed with men still playing significant more hours in the week than women (Men $M = 3.24$, Women M = 2,39, $t(327) = 5,432$, $p < .001$). The North-American men have reported a very high mean playing time and women play significant less hours in the week games, which also confirms hypothesis 3a for the North-American questionnaire. The mean gaming time was not exactly measured. The mean score shows that the North-American male participants play slightly more hours games in the week than the Dutch male participants but there is no significant difference between the men of both questionnaires. The North-American women play less hours games in a week than the Dutch women, but there is no significant difference.

On the question “Do you play games with friends at home?” most Dutch men answered with yes (78%), while only little more than half of the Dutch women (54%) answered that question with a yes. While most of the Dutch men play games together with their friends only 40% do organize a special game day/evening with friends or family. Only 24% of the Dutch women organize such a day.

More than 70% of the North-American men and 60% of the North-American women play games with friends sometimes. Only 30% of the North-American men and 28% of the North-American women organize a special game day sometimes.

The differences between these results, playing with friends and organizing a gameday, might be the cause of the online possibilities on the game consoles nowadays. The early video game consoles were released in the times that gaming together was also getting together at home or in an arcade hall. Nowadays almost everyone in a modern western country has a fast internet connection (Shah & Haigh, 2005) which makes it easy to play games without problems online. All three consoles feature an online network where players can meet their

friends and start playing the same games. Basically there is no need to play in one room anymore when gamers can find their needs for inclusion, affection and control in online gaming. This is however not researched in this study.

Table 9
General gaming difference between gender and continent

	Mean Liking					
	Dutch Men	Dutch Women	NA Men	NA Women	Significance: Between Men	Significance: Between Women
Hours Played	3.24*	2.39	3.41*	2.11	ns	ns
Time of the Day	2.76	2.77	2.77	2.81	*ns*	ns
Day in the Week	2.49	2.32	2.84	2.62	*	ns
Games with Friends	1.22*	1.46	1.28	1.39	ns	ns
Organize game day	1.60**	1.76	1.70	1.72	**	ns

Note: Independent T-test computed (Dutch *N* = 329; *df* = 327) (North-American *N* = 146; *df* = 144) (Between Men *N* = 400; *df* =397) (Between Women *N* = 78; *df* =76)
*Mean differences between men and women were significantly different $p < .001$; ** $p < .05$. *ns* = non significant $p > .05$

Hypothesis 3b posited that participants would still think that gaming is primarily a men's world, the hypothesis was tested with a T-test. The Dutch men thought significantly different from the Dutch women, men *M* = 1,47; women *M* = 1,63; *t*(327) = -2,191, $p < .05$, but most of women did not agree with the statement. Only 63% of the women disagreed with the statement, while more than half of the men agreed with the statement. Both the men and women in the North-American questionnaire mostly disagreed with the question, finding that gaming is not anymore the men domain. 56% of the women disagreed with the statement, while 59% of the men disagreed with the statement. No significant difference between men and women could be found. Hypothesis 3b is therefore supported for the Dutch questionnaire and rejected for the North-American questionnaire.

A significant difference, men *M* = 1.47, North-American men *M* = 1.59), *t*(398) = -2,294, $p < .05$, between the Dutch and North-American men is found after examining the results of the statement that the gaming world is the men's domain. More than half of the Dutch participants agree with the statement, while almost 60% of the North-American participants disagree with the statement. The Dutch and North-American women however do not think significantly different.

Hypothesis 3c stated that the uses and gratification element Challenge would be the highest motivational factor for both men and women to play video games. Hypothesis 3d stated that women would find Challenge more important than Competition. These hypotheses were tested by examining the means of the uses and gratifications compared to the other uses and gratifications. For both men and women Challenge was the highest motivation with *M* = 4.44 for men and *M* = 3.88 for women. Men rated their second highest gratification, Arousal with *M* = 4.10, women rated their second highest gratification, Diversion with *M* = 3.40, lower than challenge. Hypothesis 3c was therefore supported and hypothesis 3d was also supported with Competition being the lowest gratification for women with *M* = 2.28. The North-American questionnaire shows similar results as the Dutch questionnaire, with hypothesis 3c and hypothesis 3d supported. Challenge was with a mean of *M* = 5.01 for men and a *M* = 4.28 for women in comparison again the highest notable gratification. The gratification competition was again the lowest rated gratification with *M* = 2.33 supporting hypothesis 3d.

Hypothesis 3e was tested with a T- test to compare the difference between the men and women between all the uses and gratifications. The differences between men and women uses and gratifications Competition, Challenge, Diversion, Fantasy and Arousal are all significantly different with $p < .001$. The differences between men and women with Social interaction are significant with $p < .05$. Therefore hypothesis 3e is supported for the Dutch questionnaire. Hypothesis 3e was however not supported by the results of the North-American questionnaire. The North-American men score higher on all gratifications, but the differences between the gratifications Diversion and Fantasy are not significant

Four of the total 6 video game related gratifications are significantly different between the Dutch and North-American men (with p < .05). The only gratifications that show similar results are Competition and Diversion, but these also do show some differences in the means. The Dutch men score significantly lower on the gratifications Challenge, Social Interaction, Fantasy, and Arousal than the North-American men. The Dutch men only score higher, but not significantly, on the gratification Competition. The North-American women in this questionnaire score higher on every gratification than the Dutch women. The gratifications Fantasy and Arousal are the only gratifications which are significantly different with $p < .05$. Hypothesis 3f is therefore not supported.

Table 10
Reported Uses and Gratifications by Gender

	Mean Liking					
	Dutch Men	Dutch Women	NA Men	NA Women	Significance: Between Men	Significance: Between Women
Competition	3.50*	2.28	3.30**	2.33	*ns*	*ns*
Challenge	4.44*	3.88	5.01**	4.28	*	*ns*
Social Interaction	3.58**	2.36	4.48*	2.83	*	*ns*
Diversion	3.90*	3.40	4.21	4.11	*ns*	*ns*
Fantasy	3.61*	2.64	4.62	3.89	*	**
Arousal	4.10*	3.07	4.40*	3.78	**	**

Note: Independent T-test computed (Dutch $N = 329$; $df = 327$) (North-American $N = 146$; $df = 144$) (Between Men $N = 400$; $df = 397$) (Between Women $N = 78$; $df = 76$)
*Mean differences between men and women were significantly different $p < .001$; ** $p < .05$. *ns* = non significant $p > .05$

Hypothesis 4: Firo Theory

Hypothesis 4a, that women will be less motivated by the gratification social interaction and therefore seek less inclusion than men will, and hypothesis 4b, that women will also seek less affection and control than men, were both tested with a T-test. The Dutch male participants score higher on every single FIRO element in this part of the questionnaire, except Expressed Affection. Dutch women show significant less need for Inclusion (Expressed and Wanted Inclusion included) than men with $p < .001$ for all three elements and less need for control with $p < .001$ for Control in general and Expressed control, and $p < .05$ for Wanted Control. Female participants show significant less need for wanted affection in comparison with the men with $p < .05$. Affection and expressed affection are however not significantly different between Dutch men and women. Hypothesis 4a is therefore supported and hypothesis 4b is rejected for the Dutch questionnaire.

In comparison the North-American women score lower on every FIRO aspect when related to gaming, not every difference is significant however. For Wanted Inclusion and Expressed control no significant differences could be found between the North-American men and women. Significant differences could be found within the inclusion and control elements, but there were no significant differences found within the Affection element. The full list with results can be found in table 11. Based on the results Hypothesis 4a is supported and hypothesis 4b is rejected for the North-American questionnaire.

No significant differences between the Dutch and North-American men in Inclusion and Control were found. But when taking in account the expressed and wanted factors important differences are discovered. A significant difference between the Dutch and North-American men can be found with the Expressed and Wanted inclusion elements. North-American men express their need for inclusion with gaming more with $M = 1.45$ against $M = 1.54$ for the Dutch men, and was significantly different, $t(398) = 2,631$, $p < .05$. Dutch men however seem to want more inclusion with $M = 1.33$ than North-American men with $M = 1.44$, which is significantly different, $t(398) = -3,073$, $p < .05$. Dutch men express their need for control more than the North-American men ($M = 1.59$ against $M = 1.68$ with $p < .05$), but North-American men want more control ($M = 1.43$ against $M = 1.43$, $t(398) = 2,432$, $p < .05$. $p < .05$). North-American men express more their need for affection with $M = 1.28$ against $M = 1.57$ for the Dutch men, the difference is significant, $t(398) = 5,711$, $p < .001$.

The Dutch and North-American women show no significant differences on any of the three FIRO factors inclusion, affection and control. When taking the three factors more in detail with the expressed and wanted elements the differences were still not significant for any of the factors.

Table 11
Reported FIRO results by gender and continent

	Mean Liking					
	Dutch Men	Dutch Women	NA Men	NA Women	Significance: Between Men	Significance: Between Women
Inclusion	1.44*	1.78	1.43*	1.68	*ns*	*ns*
Expressed Inclusion	1.54*	1.84	1.45*	1.72	**	*ns*
Wanted Inclusion	1.33*	1.69	1.44	1.53	**	*ns*
Control	1.56*	1.71	1.56**	1.72	*ns*	*ns*
Expressed Control	1.59*	1.77	1.68	1.84	**	*ns*
Wanted Control	1.53**	1.64	1.43**	1.61	**	*ns*
Affection	1.55	1.64	1.45	1.55	**	*ns*
Expressed Affection	1.57	1.56	1.28	1.32	*	*ns*
Wanted Affection	1.53*	1.73	1.61	1.79	*ns*	*ns*

Note: Independent T-test computed (Dutch $N = 329$; $df = 327$) (North-American $N = 146$; $df = 144$) (Between Men $N = 400$; $df = 397$) (Between Women $N = 78$; $df = 76$)
*Mean differences between men and women were significantly different $p < .001$; ** $p < .05$. *ns* = non significant $p > .05$

Hypothesis 5: Parasocial interaction

Hypothesis 5a, that women show a lower score for parasocial interaction than men, was tested with a T-test. The results of the general parasocial interaction questions are as expected for the Dutch questionnaire. Dutch men find interaction with a character significantly more important than women with $M = 3.70$ against $M = 3.34$ and $t(327) = 2,949$, $p < .05$. The Dutch men also prefer more realistic and believable characters than women with $M = 3.44$ against $M = 3.10$ and $t(327) = 2,286$, $p < .05$. The most important parasocial interaction element, in comparison with the other elements, is having control over a character. Men report a $M = 4.13$ and women a $M = 3.60$, which is significantly different with $t\ (327) = 4,611$, $p < .001$. Next men also put more energy in getting to know their character and men want their character to look more trustworthy than Dutch women. Therefore hypothesis 5a is supported for the Dutch questionnaire. Dutch men and women agree with each other that they want to see their favorite characters in more games and that they would be disappointed if their favorite character will not play in a game anymore.

Hypothesis 5a has to be rejected for the North-American questionnaire, no differences between men and women were found. In comparison almost all the results are in favor of the men, except for wanting to have their favorite character in more games ($M = 3.50$ for men and $M = 3.53$ for women) but none was significant. Both North-American men and women do agree with how much they want to have their favorite character in more games or that they would be disappointed when the character would disappear.

The Dutch and North-American men results on the general parasocial interaction scale are on most points very similar. Dutch men ($M = 3.44$) want their character to be more realistic than North-American men ($M = 3.14$), $t(398) = 2,643$, $p < .05$. North-American men however put more energy in getting to know their character with $M = 3.91$ against the Dutch $M = 3.25$, which is significantly different with $t(398) = -6,821$, $p < .001$. North-American men also want their characters to be more trustworthy, North-American $M = 3,58$, Dutch $M = 3,04$, $t(398) = -4,976$, $p < .05$.

Dutch and North-American women show similar differences as the men. The North-American women score significantly higher on putting energy (Dutch women $M = 3,25$; North-American women $M = 3,91$ $t(76) = -3,799$, $p < .001$) in their character and wanting their character to be trustworthy(Dutch women $M = 3,04$;

North-American women *M* = 3,58 *t*(76) = -3,967, *p* < .001)**.** The other parasocial interaction factors show no significant differences. All the results are listed in Table 12.

Hypothesis 5b, that respondents who have a favorite character which is available on one console only, also buy or own that console, was tested by examining the favorite characters of the participants and their owned console. More than 50% of men and 30% of the women have a favorite character. Results show that almost 75% of the people who have a favorite character which is only available on the Wii also owns a Wii. Solid Snake, the main character of the Metal Gear series, is good for 68% of the participants, with him as favorite character, owning the Playstation 3. 56% of the participants with Solid Snake as favorite character also own a Playstation 2 on which the previous metal gear series were released. Based on these fact hypothesis 5b is supported.

Table 12
Parasocial interaction results by Gender

	Mean Liking					
	Dutch Men	Dutch Women	NA Men	NA Women	Significance: Between Men	Significance: Between Women
Interaction	3.70**	3.34	3.78	3.44	*ns*	*ns*
Realistic/Believable	3.44**	3.10	3.14	2.16	**	*ns*
Control	4.13*	3.60	4.22	3.94	*ns*	*ns*
Energy	3.25*	2.69	3.91	3.56	*	*
Trust	3.04**	2.66	3.58	3.56	*	*
More games	3.54	3.41	3.50	3.53	*ns*	*ns*
No game	3.31	3.07	3.48	3.44	*ns*	*ns*

Note: Independent T-test computed (Dutch *N* = 329; *df* = 327) (North-American *N* = 146; *df* = 144) (Between Men *N* = 400; *df* =397) (Between Women *N* = 78; *df* =76)
*Mean differences between men and women were significantly different *p* < .001; ** p < .05. *ns* = non significant *p* > .05

Hypothesis 6: Console

Hypothesis 6, that women will make their choice for the Nintendo Wii, while men will choose for the Xbox360 or Playstation 3 was tested with a t test. Almost 90% of the Dutch men and more than 90% of the North-American men made their choice for the video game console with the newest high tech features, console Y which was a combined list of features of the Xbox 360 or the Playstation 3. More than 50% of the Dutch, and 50% of the North-American women made their choice for Console X, which is the Nintendo Wii. A large significant difference between the Dutch men and women was reported (men *M* = 1.88; women *M* = 1,46; *t*(327) = 8,006, *p* < .001) and a large significant difference between the North-American men and women was reported (Men *M* = 1.92, Women *M* = 1.50), *t*(144) = 5,430, *p* < .001).

Combining all the participants gives similar results with 87% of the men making their choice for the Xbox 360 or the Playstation 3, while 53% of the women wants the Wii. The difference is significant with *p* < .001. Between men there is no significant difference (*p* > .1), 88% of the Dutch men prefer console Y and 92% of the North-American men prefer console X. Between the women there is also no significant difference (*p* > .1), 54% of the Dutch women prefer console X and 47% of the North-American women prefer console X.

Discussion

In the last 40 years the gaming industry has had their focus on men. Nintendo changed that typical focus by targeting a new group of possible consumers: the casual gamers. The Nintendo Wii is the most successful video game console of the new generation. This study tried to find different predictors for a successful video game console. The exact focus was to find the predictors by focusing on two theoretical bodies, the first based on the social and psychological factors of gaming, and the second to find the answer in reported liking of game genres and gameplay elements. The continental and gender differences were also examined.

As with previous studies (Lucas & Sherry, 2003, 2004,2006; Greenberg et al, 2008) notable differences between men and women were found, which also means that there is a clear difference between the preference for a video game console. This study shows that the games available, game genres available and the features of a video game console are very good predictors for a successful video game console. The game genres preferred by men and women are presented on different video game console. As result both men and women preferred another video game console. Most men prefer for example Shooters and Action genres, and most of these games are released on the Playstation 3 and Xbox 360. The result is that men prefer to have, or already have, the Playstation 3 or Xbox 360. The same results was found for the women, the games they liked the most are released for the Wii, as result more than half of the women made their choice for this console. In addition to these particular general predictors, the parasocial interaction theory is also a valuable predictor. All three video game consoles have exclusive games, with exclusive characters. Results show that especially the characters of these games are favorite characters of the participants. When those participants have a favorite character they mostly buy the console on which the games of their favorite character will be released.

Both men and women are mostly motivated by the gratification Challenge to play games. Men show that they have more interest in the gaming gratifications than women and still show to play more hours games in a week. This is in line with previous studies (Lucas & Sherry, 2003, 2004,2006; Greenberg et al, 2008). Game genre preferences differ a lot between gender and men show that they are more willing to be included in gaming sessions with friends than women. The results from the FIRO theory in combination with questions asked at the beginning of this questionnaire reflect this fact. Most of the women do game with friends sometimes, but also most of them do not organize a special game day, while men play more with their friends and organize more special game days. It still looks like there is a notable gender gap. Women show less need for inclusion and control in gaming than men, while the interpersonal relations in a normal social context are equal. This is probably the cause of their peers, it is not “normal” for women to play games with their peers (Raney et al, 2006). The FIRO theory adapted to gaming scale, which tested the need for inclusion, control and affection can therefore not be used as a predictor for video game consoles yet. The results show the significant differences between men and women which were expected, but they do not show what the cause of this difference is. Results found within the uses and gratification theory is similar to the FIRO theory. There are notable differences between men and women but the theory as used in this study cannot be used as a predictor for a video game console. Further research is needed to find out if both theories can be predictors.

While the FIRO theory adapted to gaming still shows that there is a notable gender gap, this study also shows that the gender gap in the gaming industry is decreasing. Most of the participated women think that gaming is not particularly a men’s world. Nintendo may have found the solution to decrease this gender gap with the Wii. More than half of the women participated in this study choose the Wii instead of an Xbox 360 or Playstation 3. Not only are the women of course the cause of the shift in the gaming industry. Results of the store check show that a lot of games that are released for the Wii are games they like, while the games on the Xbox 360 and Playstation 3 mainly focus on the hardcore gamers. Sony and Microsoft seem to follow Nintendo and change their focus to the casual gamer since both have announced new controllers which are in line with the Wii motion controller. Sony announced a similar, but more precise motion controller, while Microsoft announced a camera which can detect your movement, mood and voice. These announcements could mean that the focus of both video game console producers is changing to the casual gamer. This study does however show that most men are more interested in technical superior video game consoles instead of the motion control video game consoles. By focusing on the casual gamers the gaming industry might lose a large amount of current customers. The results of this study suggest that video game console designers should concentrate on which target group they want to reach. A universal video game console, which concentrates on both genders, is also possible, but only when games are released which focus on the game genres men and women like. The good point is that next to Nintendo, both Microsoft and Sony are trying to reach the casual gamers. When more and more games will be released for women, they will eventually accept it. Kids are nowadays growing up with a video game console which is also fun for girls; acceptation by them is then much more likely. This means that the market is becoming a mass-market phenomenon.

In addition to the gender differences and finding the predictors for a successful video game console, this study also tried to find differences between the continents. The differences between men and women from North-America and the Netherlands, which represented Europe, were very minor. The cause of this fact is probably that games are being released on a worldwide scale. Almost every game being released in North-America will also be released in Europe, which is also the fact for the video game consoles. A more notable

difference can probably be found when studying the differences between North-America/Europe and Japan. Japan has a lot of other games than North-America and Europe, which should mean that there are notable differences in uses and gratification, and maybe also in how gaming is accepted from a social perspective.

Limitations & Future Research

One of the problems researching games and the game industry is that it still is a developing medium. There is no standard type of play or one way to play games. Therefore most of these results are only usable on a short time period and only in this generation of video game consoles. The release of new video game consoles usually means a new way of playing games or new kinds of technology. The most important implication for future research is to conduct a study as this one every generation. By examining differences between every generation of video game consoles and keeping the same age group of participants (between age 16-26) we can find important differences. These results might be a valuable help for the producers of the video game consoles, which then can focus on games and hardware add-ons specifically for their target group of consumers. Other valuable results can be found when interviewing people who have just bought a video game console. At that specific moment, when they just leave the shop, the real predictors of buying a video game console can be found.

The change within the video games industry, with women playing games more often, is also a limitation to this study. Playing times are still in favor for men but more changes and the decrease of video gaming being a men world already shows that the results are really time bound. As with much research within the gaming phenomenon there is need to replicate elements, or the full research, over time and to continue to address the many significant other factors which might be predictors of the video game console choice.

The original 54-item scale of the FIRO theory, developed by Schutz(1958), was too large to be fully adapted to this study. The scale was reduced to a 16-item FIRO-game scale, but some participants still thought that duplicate questions were asked. The FIRO theory can, and should be adapted to games because valuable information about the social aspect of gaming can be obtained. The theory can give valuable information about why people play on a certain console, or certain games. The FIRO-game scale should therefore be tested in more detail and maybe only focus on one console instead of three different consoles. This would mean that more detailed questions about inclusion, control and affection can be asked. Someone who plays on a Playstation 3 might need less wanted inclusion in real life than someone who plays on a Wii. The Wii is especially fun with several friends at home, while the Playstation 3 can be fun alone or just online.

Another very important limitation was that the participants of this study were recruited from the internet. This means that there was no possibility to concentrate on a specific group of people. The advantage of this method is receiving a high response rate, but the negative side is having a high rate of participants not fully completing the questionnaire. The Dutch questionnaire had more than one-third of the participants failing to complete the full questionnaire. Recruiting via the internet had another disadvantage; where to reach the perfect participant. Men were not difficult to find, there are a lot of game related forums on the internet. The problem was getting women to fill in a gaming questionnaire. A lot of women do play games, but do not think of themselves as real gamers. Also women were not really attracted to the questionnaire.

The results of the parasocial interaction theory showed that it can be a very good predictor for video game console preferences. The theory should however be tested in more detail and focus on for example games like the Sims 3 and games on a Nintendo Wii and Xbox 360 or Playstation 3. At this point the theory was tested with a limited set of questions which only measured the parasocial interaction in general. Participants were asked to recall their last video game playing sessions which could cause not fully trustworthy answers. In addition the favorite characters of respondents should be researched in more detail. This study found out that the favorite character, and therefore parasocial interaction, seems to be a predictor for a video game console. In-depth interviews with respondents who have a favorite character should give answers to the question if it really is a predictor for a video game console choice.

Conclusion

The limitations addressed in this study should not be forgotten, but conclusions can be made. Gender differences between the theories and game elements were found and the choice for a console can partly be partly explained based on several factors. More research into the communicative and social aspects of gaming is needed to find valuable predictors for a successful video game console.

The Nintendo Wii was mostly chosen by the women in this study, the game genres and overall less interest in game elements do reflect and support this choice. Games that are released for the Nintendo Wii feature the elements which are liked by the women and can be categorized in the Game genres that women like. The Nintendo Wii is also a video game console for the casual gamer who likes to play a game now and then, but it still is a video game console. This means that the gaming industry is trying to become a mass-market phenomenon which, according to Krotoski (2004), can only happen if everyone wants to play games. Results of this study show that the most women do not think that the world of gaming is still the men's domain. Creating a video game console which features motion control, games in the genres preferred by women and characters that are previously liked by women could cause that women will buy such a console. The men should however not be forgotten, they mostly like the technical superiority of the video game console and do not particularly mind about motion controllers. They just want to play with the best video game console possible. Video game console designers should therefore concentrate on one target group, or they have to be able to create a video game console which can meet both genders needs in gaming.

To conclude this study; most particularly the Game genres, games available and Parasocial interaction (Characters) can lead to the preference for a certain video game console. Both the FIRO and the Uses and Gratifications theory were not valuable predictors for a video game console in this study but both can, with further research, be a predictor. In addition, a lot of other factors have to be examined first before we can conclude that we have found the leading factors for a video game console choice.

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Appendix

Table 13: *Bol.com, available games for each game genre*

Genre	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3
Actie	171 (31%)	199 (47%)	130 (49%)
Avontuur & Rollenspel	82 (15%)	46 (11%)	26 (10%)
Entertainment/Familie	106 (19%)	33 (8%)	28 (10%)
Race	28 (5%)	34 (8%)	23 (9%)
Simulatie	67 (12%)	18 (4%)	7 (3%)
Sport	68 (12%)	64 (15%)	38 (14%)
Strategie	25 (5%)	27 (6%)	14 (5%)
Totaal	**547**	**421**	**266**

Table 14: *Play.com, available games for each game genre*

Genre	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3
Adventure	155 (28%)	110 (24%)	82 (24%)
Arcade	30 (5%)	15 (3%)	4 (1%)
Driving/Racing	42 (8%)	40 (9%)	35 (10%)
Education	16 (3%)	0	0
Fighting	11 (2%)	25 (5%)	18 (5%)
Party / Family	37 (7%)	5 (1%)	5 (1%)
Platform	9 (2%)	7 (2%)	5 (1%)
Puzzle & Mind Games	33 (6%)	3 (1%)	2 (1%)
Rhythm / Music	30 (5%)	12 (3%)	17 (5%)
Role Playing	17 (3%)	32 (7%)	17 (5%)
Shooter	30 (5%)	104 (23%)	85 (25%)
Simulation	3 (1%)	3 (1%)	3 (1%)
Sport	96 (18%)	71 (16%)	52 (15%)
Strategy	16 (3%)	28 (6%)	13 (4%)
Virtual life	22 (4%)	1 (0%)	0
Totaal	**547**	**456**	**338**

Table 15: *Amazon.co.uk, available games for each game genre*

Genre	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3
Action & Shooter	144 (27%)	230 (44%)	158 (46%)
Adventure	40 (7%)	13 (2%)	8 (2%)
Arcade & Platform	38 (7%)	15 (3%)	10 (3%)
Board, Card & Casino	10 (2%)	6 (1%)	5 (1%)
Children's	28 (5%)	3 (1%)	1 (0%)
Education & Reference	11 (2%)	0	0
Fighting	19 (4%)	23 (4%)	13 (4%)
Music & Dancing	37 (7%)	25 (5%)	28 (9%)
Puzzle	22 (4%)	2 (0%)	0
Quiz & Trivia	9 (2%)	2 (0%)	5 (1%)
Racing	45 (8%)	52 (10%)	36 (11%)
Role Playing	14 (2%)	32 (6%)	13 (4%)
Simulation	47 (9%)	13 (2%)	11 (3%)
Sports	63 (12%)	78 (16%)	46 (14%)
Strategy	14 (2%)	30 (6%)	8 (2%)
Totaal	**541**	**524**	**342**

Table 16: *VideoGamesPlus.ca, available games for each game genre*

Genre	Nintendo Wii	Microsoft Xbox 360	Sony Playstation 3
Action / Adventure	176 (43%)	214 (50%)	156 (54%)
Family / Puzzle	94 (22%)	27 (6%)	21 (7%)
Sports	64 (16%)	78 (18%)	51 (18%)
Fighting	17 (4%)	14 (3%)	8 (3%)
Platform	7 (2%)	4 (1%)	3 (1%)
Role Playing	15 (4%)	28 (7%)	16 (6%)
Racing	27 (7%)	30 (7%)	23 (8%)
Strategy	10 (2%)	29 (7%)	11 (4%)
Totaal	**410**	**424**	**289**