Casual games
Easy to learn, tough to master

What are the differences between men and women regarding casual games?

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Abstract

1. Introduction

1.1 Problem area

Casual webgames are games that can be found on the internet; most of them are word- or puzzle games (e.g. mahjong, bejeweled, scrabble), but there are also action, adventure, sports, arcade, and strategy games available. The games are called 'casual' because the games are very simple; with a short instruction in the beginning of the game, the user will understand immediately what he/she is supposed to do. The games are only controlled with the mouse or the arrows on the keyboard, therefore a complex controller is not needed, which makes the games easily accessible for everyone.
Zylom.com state that they are Europe's biggest casual games-website and each month over 10 million people play free games on zylom.com. So these casual games are rather popular which makes it interesting to do research on. Another good example of a website with casual games is www.addictinggames.com, for more game websites, see appendix A.

There is a lot of research done in the digital gaming industry (Choi & Kim, 2004; Griffiths, Davies, & Chappell, 2003; Sarin & Vahid, 2002), but those were primarily for the more complicated games (games for the consoles). There are models to evaluate player enjoyment while playing games (Sweetser & Wyeth, 2005), but those are mostly for console games or other more complicated games rather than for casual games. Casual games are played individually, so there is no social context involved. Some of these games are played online on a website (i.e. casual webgames), where you can't save your progress to continue later with your game. So when a player wants to play the game another time, he/she has to start all over again at the beginning of the game.
On some of these websites, for example Zylom.com, you can play for free, but you can also pay them for the game, in that case, you can play the game offline. If you pay for the game, you will have the deluxe version; the complete version of the game with more levels and in some games the possibility to save your progress while playing.
However, the interest of this thesis lies with the games which are online, where you can't save your progress and you don't have to pay for the games.

1.2 Problem statement

The stereotype gamer is a socially withdrawn young male who plays video games all day and night. However, a typical casual gamer is a woman who is in her early 40s and likes to play when she has the house to herself. Her favorite game genre is puzzle games, followed closely by card games (Partridge, 2007). This huge difference between these gamers is remarkable; they are two totally different target groups, which make casual games an interesting topic.
The goal of this thesis is to understand why casual games are more played by women compared to men and why most of these women are over the age of 30. To reach this goal, several research questions have been set up.

The main research questions are:
    What is the difference between men and women regarding casual games?
    What is the difference between 20-30 year olds and 35-55 year olds regarding casual games?

In order to answer these questions, the following questions are of interest:
    - Which characteristics of casual games distinguish them from other games?
    - What do women prefer in games compared to men?
    - Why are casual games played? (motives)

- Are casual games addictive?
  - o What is addiction?
  - o What is Internet addiction?
  - o What is game addiction?
  - o What elements/characteristics make them addictive?
- What is the post-game experience? (possible benefits or negative consequences)

1.3 Scope

There are a lot of platforms to play digital games; you can play on the console, pc, handheld-console, or on your mobile. Casual games is a genre which can be played on any platform, however, casual webgames are only played online on your pc. This thesis is only concerned with the casual games on the pc, so every time casual games are mentioned, they are only the pc-versions and not the casual games for other platforms. Our research concerns the casual webgames in particular.
There are two kinds of online casual games; play for free, this is not a trial version and there won't be another more extensive version of the game available, or the casual game you can play for free as a trial version and if you want to play the whole game, with more levels and with the ability to play offline, you will have to pay. This thesis will only concern the first kind, where there isn't the option to buy the game; you can only play it online. These games are casual webgames, the second kind is about casual games. It isn't considered to be a webgame anymore, because you play it offline and not in a web browser. However, they are both casual games, the only difference is the way it is played; in a web browser or offline. The game itself remains the same.
Our participants didn't need any casual game experience, because we wanted the sample to be as random as possible. All participants were chosen randomly from the database of the Game Experience Lab.

1.4 Research approach

The first part of this research is a literature study which focuses on games in general (the characteristics of games and the preferences of women in games compared to men), casual games (the characteristics, demographics, possible benefits or negative consequences of playing casual games, the motives to play these games), and addiction (the addictiveness of the Internet and the addictiveness of games).

The second part consists of an overview of the study of casual webgames which is done in order to understand the differences between men and women and the difference between 20-35 year olds and 35+ year olds regarding casual webgames.
The data is extracted from an experiment.

1.5 Outline

The outline of this thesis is as follows:
Chapters 2 - 7: describe the literature dealing with game characteristics in general, female preferences in games, what are casual games, who play casual games (demographics), the benefits and motives of playing casual games, and internet and game addiction.
Chapter 8: provides an overview of the research which goal it is to show why there are more female than male casual gamers. It will show the difference between men and women regarding casual games, and the difference between 20-35 year olds and 35+ year olds. It will also discuss the addictiveness of casual games.
Chapter 9: includes the analysis of the questionnaire which was online at www.zylom.nl.
Chapter 10 includes the conclusion, discussion and future work based on chapter 8 and 9.

2. Game characteristics

There have been some researches in which the characteristics of games in general are studied. Which characteristics do games have and which are the ones which make the games engaging? Can these characteristics also be applied to casual games?
In this chapter, we will discuss the characteristics of games in general, according to the related literature.

2.1 General characteristics

There are studies that show game characteristics (Crawford, 1984; Malone, 1980; Prensky, 2001), some show the same characteristics, but some mention different descriptions of game characteristics.

Prensky (2001) states in his book six key structural elements of games which contribute to the engagement of the best games. Prensky states that nothing else provides these elements, except the best games. Books and movies come close, but they are not interactive and experienced alone.
The first element is *rules*; the most basic definition of a game is that it is organized and rule-based play. In digital games, the rules are built into the game. The second element *goals and objectives* is important because when a game doesn't have a goal, it is referred to as play. Play is something you can do in many ways, depending what you want to do. A game has a goal, which is an important motivator to play the game. The third element is *outcomes and feedback*. Prensky states that the outcomes and feedback you receive are in almost all games immediate and are a way to measure your progress against the goals. Feedback can come in multiple forms: visually, auditory and if you play with a controller it can give you force-feedback; the vibration felt when you are driving, for example, on a bumpy road. You learn a game through the feedback you receive. The more you learn, the better you get in the game, resulting in more positive feedback, which motivates you to play more. However, the amount of feedback has to be balanced; too little feedback can be frustrating to a player, he won't understand the game because he doesn't know when he is doing the right or wrong things, and too much feedback can also lead to frustration for the player because it will disturb the gameplay. The fourth element Prensky discusses is a combination of four terms; *conflict, competition, challenge,* and *opposition*. These terms are the problems in a game you are trying to solve. These are the things that make you excited about playing the game. Will Wright[1]: "A computer game is nothing but a problem that we're selling." The level of conflict, competition, challenge and opposition has to be kept in sync with the player's skills. Just as the feedback characteristic, too little or too much can lead to frustration for the player.
The fifth element is *interaction*, which has two important aspects: the first is the interaction of the player and the computer, which is the feedback discussed earlier. The player does something in the game and receives feedback from the computer. The second is the social aspect of games, the multi-player modes in games. Initially, games were primarily made for the single-player, but nowadays the tendency of computer games is to become multi-player. The sixth and final element Prensky states is *representation or story*, which means that the game is *about* something. Representation includes any narrative or story elements in the game. Narrative is the strongest way to engage people, because it is a great way to stimulate emotions (Prensky, 2001).

Malone (1980a) based his description of game characteristics on experiments and theory given by Malone (1980b, 1980c). According to Malone (1980a), the essential characteristics of computer games can be organized into three categories: *challenge*, *fantasy*, and *curiosity*. The first category is *challenge* which corresponds to the second and third element of Prensky; '*goals and objectives*', and '*outcomes and feedback*'. Malone states that there has to be an obvious goal. The environment should be structured in such a way that every player can choose their own goals with the appropriate difficulty. There has to be some kind of performance feedback; the player has to be able to tell whether they are getting closer to the

goal. The outcome of the game has to be uncertain, if the player is certain to win or lose, they will get bored. Malone doesn't refer to challenge in a way Prensky does in his fourth element '*conflict, competition, challenge,* and *opposition'*.

The second category of Malone is *fantasy* which can be seen as part of the sixth element of Prensky; *'representation or story'*. According to Malone, games that include fantasy show images of physical objects or social situations not actually present. These fantasies often make computer games more interesting, because the player can relate to it. On the other hand there are non-fantasy games which involve only abstract symbols. The third category is *curiosity,* which is the motivation to learn, independent of any goal-seeking or fantasy-fulfillment. This can be done by providing environments that should be neither too complicated nor too simple with respect to the player's existing knowledge. Games can appeal to the player's curiosity by the use of feedback, for instance with audio and visual effects. The way to engage player's curiosity is to present just enough information to make their existing knowledge seem incomplete and inconsistent. This category can't be found in the study of Prensky (2001).

Crawford is a computer game designer who wrote the book 'The art of computer game design', in this book he describes four characteristics of games. The characteristics according to Crawford (1984) are *representation*, *interaction*, *conflict*, and *safety*.

The first element, *representation*, corresponds to the second category of Malone and the sixth element of Prensky. Crawford states that a game creates a subjective and deliberately simplified representation of emotional reality. A game is not an objectively accurate representation of reality; objective accuracy is only necessary to the extent required to support the player's fantasy. The player's fantasy is the key agent in making the game psychologically real. The second element of Crawford is *interaction*, which is also mentioned by Prensky. Crawford notes that interaction transforms the challenge of the game from a technical one to an interpersonal one and it transforms the nature of the challenge from a passive challenge to an active challenge. *Conflict* is Crawford's third characteristic, it can be direct or indirect, violent or nonviolent, but it is present in every game. It arises from the interaction in a game. The final characteristic Crawford mentions is s*afety*, which is not mentioned in the study of Malone or Prensky. Games provide safe ways to experience reality. In almost all games the reward penalty structure is positive; the loser is not punished for losing, the winner is rewarded for winning.

The overall importance in all characteristics is that it has to be balanced, the challenges presented and your ability to solve them have to be almost perfectly matched. This way you will often accomplish things that you didn't think you could. However, if a game is too easy, the player gets bored and stops, and on the other side, if a game is too difficult, the player stops because they get frustrated.

2.2 Conclusion

There are several general characteristics which are important for games. There have to be some rules and goals to structure the game and provide a possible motivation for players to play the game. They can be motivated to play because they want to reach the goal(s) set by the game, or goal(s) set by themselves. Another characteristic is feedback, which is an important feature to let the player know whether they are doing a good job or not. If the feedback is good, too little or too much can lead to frustration for the player, the player will learn how the game is supposed to be played. The feedback is also part of the interaction characteristic, together with the social interaction.

The characteristic challenge is a returning element in most studies. Although the term is used for different descriptions and different terms are used for the same description; Prensky and Malone both uses the term challenge, but describe it differently, whereas Crawford uses the term conflict which has the same description of Prensky's sixth element. Nevertheless, if there is enough challenge, conflict, competition and opposition, the game will be engaging.

Malone states curiosity as a characteristic which is the motivation to learn. To engage the player's curiosity their existing knowledge is shown to be incomplete and inconsistent, and because they want to learn things, the player will want to play and learn more to complete their knowledge.
Representation or story (Prensky), fantasy (Malone), and representation (Crawford) all discuss the same characteristic. A game creates a subjective and simplified representation of the reality, the player's fantasy is key in making the game psychologically real. Besides the representation, the story told in a game is also part of this characteristic according to Prensky. Nevertheless, not all games have stories; a lot of casual games for instance don't have a storyline.

Notes
1   Will Wright is an American game designer, best known as creator of the Sims.

3. Game preferences

The whole industry of computer games consolidated very quickly around a young male demographic – all the way from the gameplay design to the arcade environment to the retail world (Laurel, 1998). Nevertheless, the amount of female game playing has increased over the years. However, they have different preferences in gaming categories (Mehrabian & Wixen, 1986; Barnet et al, 1997; Cassell & Jenkins, 1999; Yates & Littleton, 1999).
There have been many studies concerning these females' likes and dislikes regarding digital gaming. In this chapter we will mainly discuss these preferences, but in the end we will also give some males' preferences to show the differences compared to females.

3.1 Female preferences

3.1.1 Pick up and play

Women like the kind of games that you can pick up and play right away, not to worry about the technological complexity of the console controller. They want short play and fast rewards. Because of these preferences, they are more likely to play on mobiles, online and on pc-games than they are to play console games (Haines, 2004). Haines (2004) conducted several interviews and surveys; over seventy people who work in the industry and thirty or forty with industry knowledge contributed to this research.

3.1.2 Social content

When women are playing console games, they are often playing the games with a higher social content such as XboxLive, SingStar, EyeToy or dancemat games (Haines, 2004). Although these, except XboxLive, can also be played alone, they are most of the time played with others.
The multiplayer modes and playing with friends are important factors for female game playing (Agosto, 2004).

3.1.3 Co-operative

The social content component is also found in the preference women have to play co-operatively; they rather play with each other than against one another (Gorritz & Medina, 2000; Ray, 2004). In most games however there is a competitive structure, this could, according to Vorderer, Hartmann & Klimmt (2006) contribute to the females' lack of interest toward competitive gaming.
Another study reports that females are less competitive and find winning less important in (play) actions than males (Hartmann & Klimmt, 2006). This is also found in sport psychology research; girls find competitive activities less attractive than boys do (Swain & Jones, 1991).
However, the excitement over reaching a new level or getting out of a particularly bad one (a 'hell level') is not lost on any player, including the women (Taylor, 2003).

3.1.4 Violence

There has been a lot of research done on the topic violence, aggression and gender in video games. The main view is that women are uncomfortable with violence in games, whereas men show greater preference for games with a violent theme (Haines, 2004; Slater, 2003; Hartmann & Klimmt, 2006; Subrahmanyam & Greenfield, 2000**;** Goldstein, 1994; Nikken, 2000; Gailey, 1993; Provenzo, 1991; Buchanan & Funk, 1996; Colwell, Grady, & Rhaiti, 1995).

However there has also been research where the contrary is found. For example, in the study of Cassell and Jenkins (1998) and in the study of Carr (2005), the women didn't find the violence offensive. In the study of Cunningham (2000), she interviewed girls about their gaming habits and found how girls she interviewed explicitly avoided genres like *Barbie Fashion Designer[2]*, saying 'I'd rather play violent games any day'.

3.1.5 Game speed

Girl players have a preference to games in which they are able to play with comfortable speed that is not too high and not too low. Competing against the clock or computer is not considered to be appealing. (Suoninen, 1999 as cited by Nakamura & Wirman, 2005)

3.1.6 Gender stereotyping

Women tend to, in contrast of men, borrow, share, or rent games rather than make regular purchases – this also means that they would not be visible as consumers (Kerr, 2003). This is also a reason that the industry is mainly focused on male consumers, not only the shops but especially the game design. A lot of avatars are hypersexual, which women don't like (Haines, 2004). Because of this focus on male consumers, the female characters in computer games are often weak victims who are protected or rescued by powerful males. Moreover, visual portrayals of females tend to highlight physical attributes or exaggerate female sexuality. Although such content characteristics will presumably attract male players, they may repel females from playing (Cassell, 2002; Hartmann & Klimmt, 2006).
According to Kerr (2003), females seemed most disturbed by condescending representations of women and blatant rewards which were clearly designed to fulfill particular heterosexual male fantasies.

3.2 Gender differences

Some differences between men and women are found in a study by Wood, Griffiths, Chappell and Davies (2004). Self-selected video gamers (n=382) were asked to rate features in the following categories of characteristics on a five-point scale (*not important at all* to *extremely important*): sound, graphics, background and setting, duration of game, rate of play, advancement rate, use of humor, control options, game dynamics, winning and losing features, character development, brand assurance, and multiplayer features.
In table 1 are the most important characteristics of video games, no distinction between men and women. However, in the research there is a distinction made between men and women. Significant more females rated the elements: cartoon style graphics, fantasy settings, humor, short duration games, points accumulation, finding bonuses, solving puzzles, avoiding things, and collecting things as important compared to males (see table 2 for an overview).
On the other hand, there were several elements which significantly more males rated as important compared to females: full motion video (FMV), realistic settings, game based on factual events, long duration games, option to customize the game, multi-player games, multi-player communication, building alliances, beating other players, sophisticated AI, skill development, shooting things, a variety of different forms of transport, and surviving against the odds (see table 3 for an overview).

Important characteristics according to men and women
Realistic sound effects
Realistic and high quality graphics
Real life settings such as being based on a story and having a realistic setting
Humor
The characters have to be able to develop over time in terms of features such as dexterity, strength, and intelligence
Customize the actual physical properties of the character before the game begins
Medium duration games (days or weeks to complete)
Rapid absorption
Rapid advancement
Choice of control method
Multi-player features
Able to save the game at regular intervals

Table 1 Important characteristics according to males and females (Wood et al., 2004)

Females like:
Cartoon style graphics
Fantasy settings
Humor
Short duration games
Points accumulation
Finding bonuses
Solving puzzles
Avoiding things
Collecting things

Table 2 Female preferences (Wood et al., 2004)

Males like:
Full motion video (FMV)
Realistic settings
Games based on factual events
Long duration games
Option to customize the game
Multi-player games
Multi-player communication
Building alliances
Beating other players
Sophisticated AI
Skill development
Shooting things
A variety of different forms of transport
Surviving against the odds

Table 3 Male preferences (Wood et al., 2004)

Kerr (2003) conducted semi-structured interviews with two marketing professionals and ten female game players aged 18 and over. She found that the following characteristics were important in games for females: being able to explore the world in any order they liked and controlling the character or creating their own character. Storyline, puzzles, changing tempo, humor and multiplayer mode were also rated as important features. Females didn't like complicated functionality/controls, unrelenting tempo and steep learning curves.

The most popular duration of a game, according to Wood et al. (2004) was medium (takes days or weeks to complete), the least popular were short duration games (over in one session), but in this category there were significantly more females who preferred the short duration games. An example of short duration games is casual games, which are mostly played by females.

There will always be differences of course, because you can't rely on gender alone to be the predictor of gaming habits. (Entertainment and Leisure Software Publishers Association [ELSPA], 2004) But in most cases, these are the preferences of males and females concerning digital games.

3.3 Game Experience Questionnaire

The Game Experience Questionnaire is developed by Poels, de Kort, and IJsselsteijn (2007).
The questionnaire is developed with a modular structure, consisting of:
- The core questionnaire (GEQ), probing multiple components of players' experience while gaming.
- The post-game questionnaire (PGEQ), probing gamers' experience after the gaming session and any after effects.
- The social presence module (SPGQ), probing gamers' experience of and involvement with their co-player(s).

These lists are to be administered after the gaming session has ended. Additionally, a short in-game version of the GEQ was developed, the iGEQ, for probing in-game experience multiple times during a gaming session.
(See the appendix C-G for all the questionnaires)

3.3.1 Results

For the exploration of digital game experience, there have been focus groups and an expert meeting. After finishing the GEQ, a survey was done.

Focus groups:
They started gaming when they had little else to do or when they wanted to relax after a busy day.
Participants referred to playing games as a way to relax and meet with friends.
They reported experiences like fun, enjoyment, concentration, tension, thrill and immersion. Only frequent gamers referred to control and prestige. Frequent gamers were less likely to call gaming a waste of time, infrequent gamers reported more frequently regret, especially when gaming made them loose track of time and, as such, neglect more urgent activities.

Expert meeting:
The most important components that resulted from the expert meeting were:
- Competence (accomplishment, euphoria, pride)
- Flow (concentration, being absorbed, flow, loosing track of time, detachment, jetlag)
- Suspense (challenge, pressure, arousal, hoping to win, anxiety, tension, release, feeling empty, exhausted)
- Enjoyment (enjoyment, pleasure, relaxation, exuberated, energized)
- Sensory immersion (sensory immersion, presence, returning to the real world)
- Imaginative immersion (absorbed in story, empathy, identification with game character)
- Control (control, autonomy, power)
- Negative affect (shame, anger, irritation, disappointment, ignorance, guilt)
- Connectedness (enjoyment with others, being connected with other, empathy)
- Negative affective experiences related to playing with others (jealousy, envy, revenge, guilt)

Survey:
Female players report lower scores on every single subscale of the GEQ, except for Negative Affect, where females score higher, and Tension where there is no significant difference.
Positive affect showed significant differences between game types. Puzzle games scored lower than all other types of games. The reverse was true for Negative Affect. Similar patterns emerged for Competence and Flow.
Female participants scored lower on Positive experience and Return to reality, and higher on Negative experience.

Male players reported more game enjoyment overall than female players. Playing puzzles and quizzes was generally reported as less involving and enjoying than other types of games.
Experience after playing was most positive after FPS's, most negative after puzzle and quizzes.
Players who had played alone reported the most negative experiences, whereas those playing with co-located other(s) reported the highest positive experiences.

3.4 Conclusion

There are some huge differences between men and women regarding game characteristics. Women like 'pick up and play' games, where they have short play and fast rewards without the hassle of a complex controller.
In some studies (Haines, 2004; Agosto, 2004) social content is a preference for women, they like multiplayer modes and playing with friends. However, this is in contrast with the research of Wood et al. (2004), where multi-player games and communication are male preferences and not female preferences. The social component is also found in the preference that women like to play co-operatively instead of against each other.
Women don't like violence and aggression in games in contrast to men, who show greater preference for games with a violent theme. As you can see in table 2, women like finding, solving, avoiding and collecting things whereas men (table 3) like to shoot things and survive against the odds. Women are more interested in a cartoon style, fantasy setting and humor in a game. Men tend to like the more realistic games, with games based on factual events, sophisticated AI and full motion video (FMV). Girls don't like to compete against the clock or computer; they want to play with comfortable speed that is not too high and not too low.

Notes:
[2] Barbie Fashion Designer allows children to create their own Barbie clothing by selecting the occasion, designing an outfit, adding accessories, choosing patterns and colors, and then seeing their fashions modeled by a virtual Barbie, either in the dressing room or at the fashion show. When everything is just right, print your pattern on the paper-backed fabric included with the game and assemble the outfit.

4. Casual games

Casual games are becoming more popular these days, especially women older than 30 play these games. There has even been a championship in 2006 in America to find the "World's Best Casual Gamer", see the article in figure 1. To no surprise the winner and runner-up were both female gamers.
To see how this industry is growing, Miniclip (www.miniclip.com) has a growth chart, see figure 2. (Miniclip, 2007) The gaming website Miniclip.com, was launched in 2001 and has seen an incredible growth since then. This growth not only applies for Miniclip, but for casual games in general. Most gaming site started around the year 2000 and have become more popular ever since; Zylom was visited by more than 13 million unique consumers in June 2007, Big Fish Games has more than 25 million unique visitors and Addicting Games has over 12 million unique visitors each month.

If you look at the preferences of women of digital games in general, you can conclude why they might like casual games. Casual games are 'pick up and play' games, most of them have no violent themes and they don't have complex controls. However, the preference of women that they don't want to compete against the clock or computer is not met in casual games; in most casual games there is some sort of clock.
The elements women like in games, in general, can't all be met in casual games. Nevertheless, women do like these kinds of games. When you look at the research done by Wood et al. (2004), the elements that were more important to females can be found in casual games. Cartoon style graphics, fantasy settings, humor, short duration games, points accumulation, finding bonuses, solving puzzles, avoiding things, and collecting things are all characteristics which can be found in casual games.

J. C. Herz[3] notes: "Tetris is more popular with women than any other game. Tetris is about coping, it's about imposing order on the chaos. It's not about blowing things up, it's about cleaning things up."

Steve Meretzky, game designer at WorldWinner: "Why do casual games attract a more female (and an older) audience? I attribute it to several factors: these games are less intimidating – you can learn them quickly without having to read a manual or wade through a long tutorial… Finally, the shorter playing time and less-violent themes are appealing to this demographic." (IGDA, 2005)

LOS ANGELES AND TORONTO – (September 10, 2006) – After an intense 12-hour competition, Kavitha Yalavarthi of Odessa, TX emerged the champion of FUN Technologies' first-ever World Wide Web Games (W3Games) and winner of the million-dollar grand prize. Yalavarthi outlasted 70 of the world's top casual gamers, who made the trip to Hollywood for a chance to be named the "World's Best Casual Gamer." The competition consisted of six rounds of strategic game play in three of the most popular casual games, Bejeweled 2, Solitaire and Zuma. Gaining top rankings early on,
Yalavarthi established herself as the competitor to beat. The 71 contestants, ranging in age from 20 to 63, represented six countries and 22 U.S. states.

Fun Technologies, Press Release.

Figure 1 World's best casual gamer
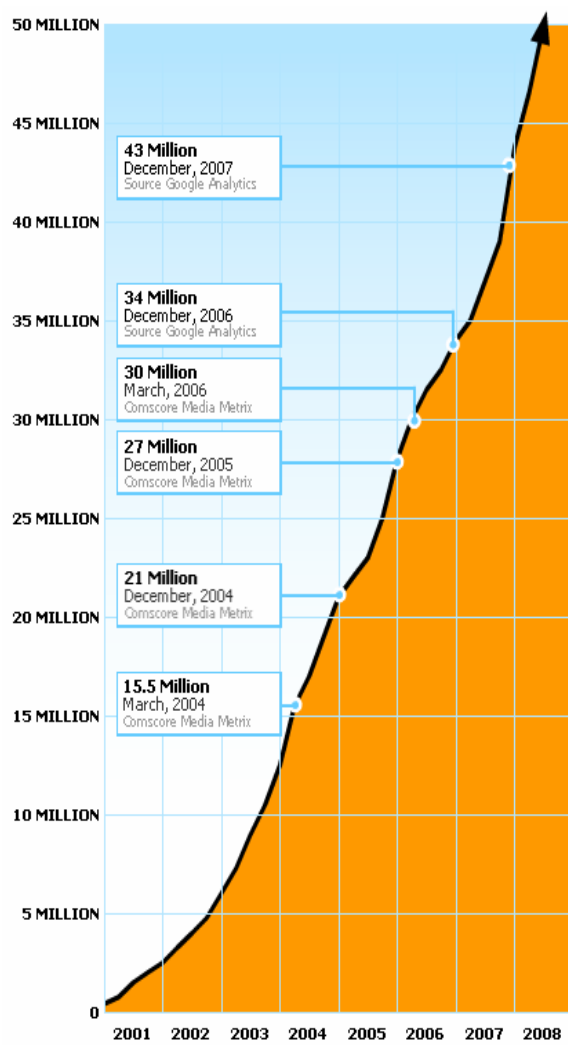
Figure 2 Unique visitors per month worldwide

Notes
[3] J.C. Herz is the principal of Joystick Nation Inc.

5. Casual games demographics

Millions of people from all over the world play casual games, but who are these people? Several studies have been done to analyze the demographics of the casual gamer. One survey was done by market research firm Information Solutions Group (ISG) where 2,191 PopCap[4] customers answered questions about their casual gaming habits. Another research was done by the International Game Developers Association (IGDA) and can be found in their White Paper[5] and their Online Games Quarterly[6]. Zylom[7] also conducted a research, but only with female casual game players. The female player is becoming more of an interest, because they nowadays play more than in the past. Women comprise 43 percent of all videogamers in 2005, whereas 38 percent in 2003. (IGDA, 2006)
We will discuss a few characteristics of the casual gamer which can be found in these studies.

5.1 Gender and age

Most of the casual game players are women (Partridge, 2007), approximately 70 percent according to IGDA and ISG. (IGDA, 2005; ISG, 2006)
The age of the players is seen in figure 3 and figure 4, retrieved from two different surveys done by respectively IGDA and ISG. As you can see in both figures the amount of 30+ year olds is very high, about 70 percent in both studies.
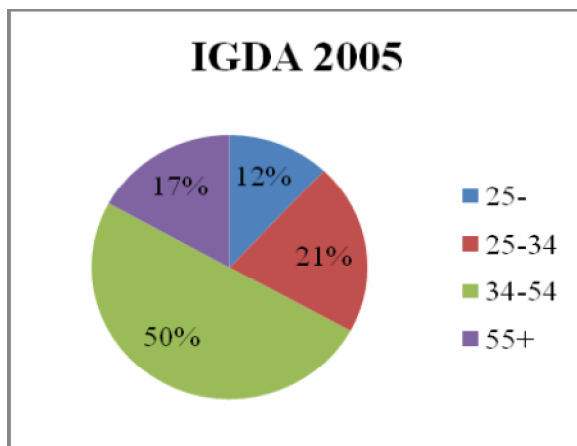
Figure 1 Age of casual game players (IGDA, 2005)
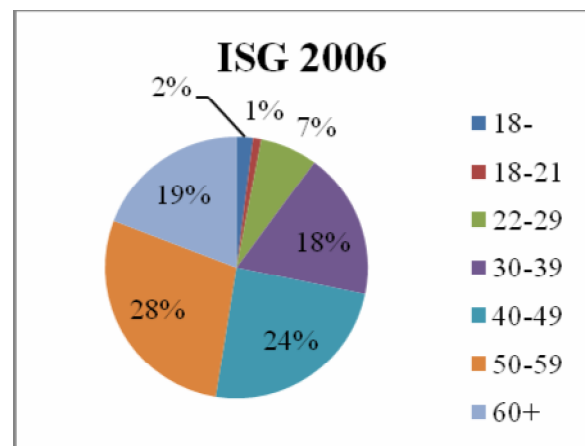
Figure 2 Age of casual game players (ISG, 2006)

Research done by Zylom.com shows that 11 percent of the female gamers is younger than 25, 58% is between the age of 25 and 55 and 31 percent is 55+ years old. So 89% of the female players at Zylom are 25 or older. (Zylom NL, 2007)

5.2 Playing time

Female casual gamers tend to spend more hours per week playing casual games and for longer periods of time than men. According to IGDA, women spend 5 hours per week in contrast to men who play 2 hours per week. (IGDA, 2005)
60 percent of all female casual gamers play on a daily basis, compared to 44 percent of men. 29 percent of female gamers play for ten or more hours per week, compared to 22 percent of men. Women also play for longer periods; 43 percent plays sessions that last an hour or more, compared to 31 percent of men. See figure 5 for an overview of the amount of time played by women and men.

Overall, 57 percent of men and women play casual games on a daily basis, and 90 percent play twice or more per week. 52 percent play casual games for at least 5 hours per week, and 29 percent play for 10 or more hours each week. (ISG, 2006)
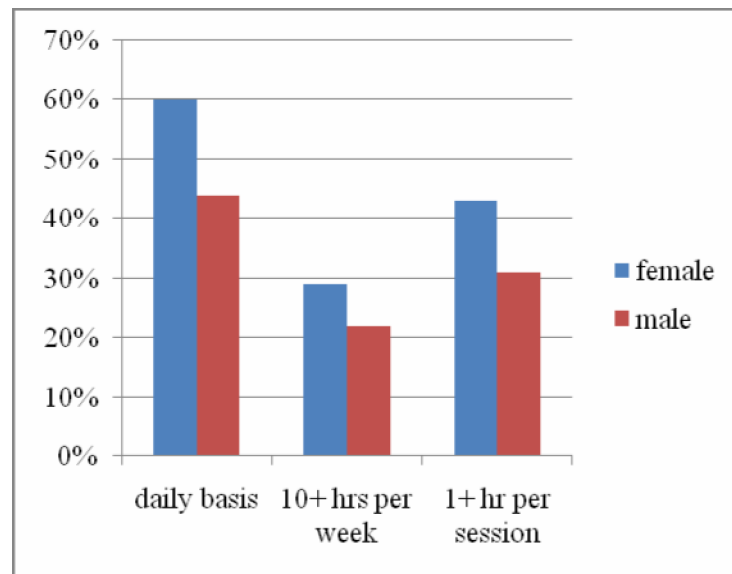
Figure 3 Times spend playing casual games

The most players play during the weekend evenings (51 percent), but late at night before going to bed is also one of the favorite times to play (47 percent). Playing in the weekends is in third place with 35 percent and 11 percent plays casual games during work hours. (ISG, 2006)

5.3 Marital status and education

According to the IGDA (2005) survey, 64 percent of the gamers were married and 46 percent have children. 40 percent have graduated college or higher and 25 percent are professional / managerial. ISG (2006) also stated that nearly half are college graduates.

These findings are also confirmed by several executives from leading companies in the casual games market. "75% of the people who purchase our games are women…We tend to make our games appeal to females with color usage, graphics and intuitive interface design, although not so feminine as to alienate the male users." Said Stephen Smith, formed FreshGames in 2002.
"We have lots of busy parents who have children in their household who are looking for a quick break from the daily grind." Said Duncan Magee, Senior Director of Content at RealArcade.
Dave Rohrl, producer and game designer at Pogo.com: "Our audience skews older and more female than most core gaming offerings. Pogo's audience is 65% female and the average age is 32."
(IGDA, 2005)

A typical description of an average casual gamer is given by Partridge (2007):
> The average casual gamer is a woman, in her early 40s, playing at night. She's on a broadband connection, which also implies that she has disposable income. Her hobbies include pets, travel, arts and crafts, shopping, and gardening. She sits down to play more than once a day on average and she sticks to it for at least an hour when she does. She also likes to play when she has the house to herself, which is pretty often because there's a 60% chance that no children under 18 are living with her. Her favorite games by far are puzzles, followed fairly closely by card games. She'll occasionally

download and play a strategy game (like Mahjong) or an action game. Perhaps most importantly, she has downloaded games online and has purchased at least one already this year.

…

The difference between hard-core gamers and casual game players is that casual game players probably wouldn't define themselves as gamers if you asked them.

The statement made by Partridge that casual game players don't define themselves as gamers corresponds to what Kerr (2003) states; females don't see themselves as gamers.

5.4 Conclusion

Most casual game players are female over the age of 30. Female casual gamers tend to spend more hours per week playing casual games, and for longer periods of time. More than half of all casual gamers play on a daily basis and even 90 percent play twice or more per week.

Most casual game players play during the weekend evenings and/or late at night before going to bed. More than half are married and 40 percent has graduated college or higher.

Notes:
[4] PopCap is an American casual game developer and publisher: http://www.popcap.com/
[5] IGDA White Paper created by and for the community of online game developers on the art, craft, and science of online game development, published yearly.
[6] Online Games Quarterly is a newsletter from IGDA.
[7] Zylom Media Group BV is producer and publisher of casual games and in 2006, they became part of the RealNetworks Inc. http://www.zylom.com/

6. Benefits and motives

When you look at the reasons why people play digital video games in general, the most important aspect is the social component. See figure 6 and 7 for the data according to Nielsen Interactive Entertainment (2005). Nielsen Interactive Entertainment conducted two thousand telephone interviews of 15 minutes. All respondents were required to personally play video games on a PC, home-based or portable console but no other criteria were required. Respondents were aged between 14 and 39 year olds and specified to be 80% male and 20% female.
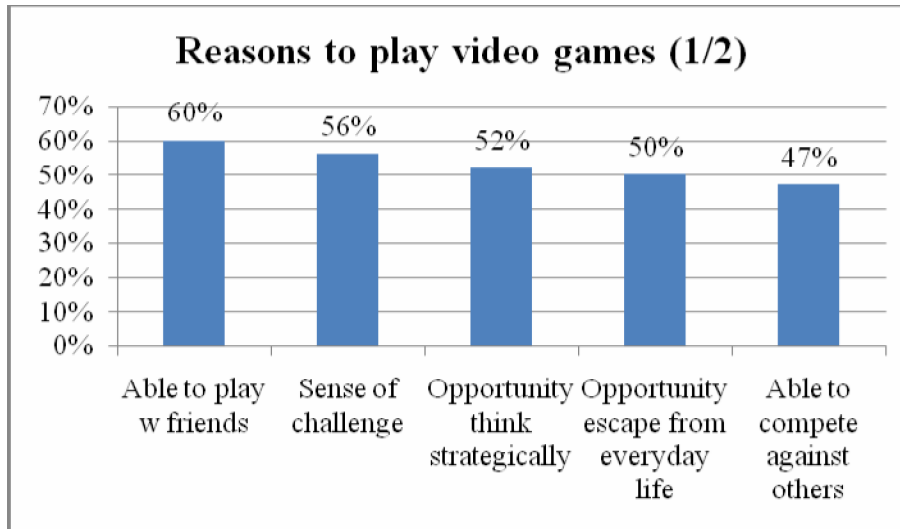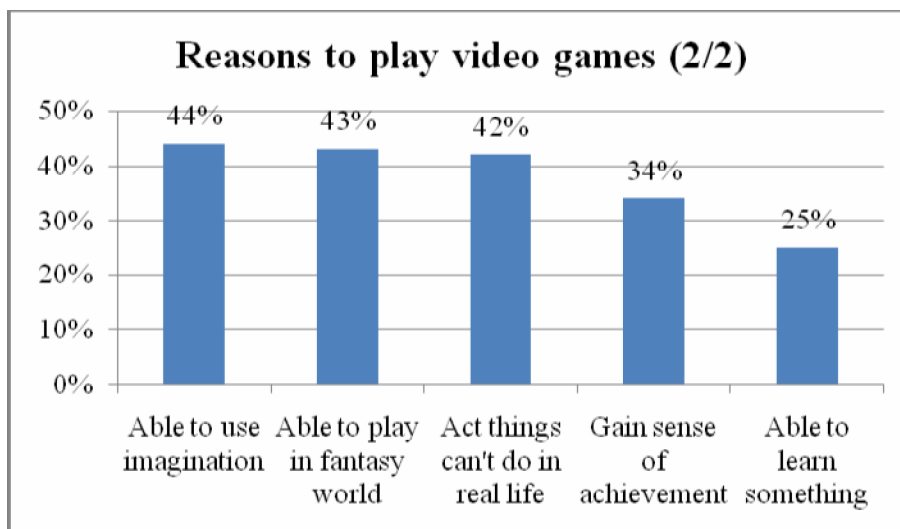

Figure 4 Reasons (1/2) (Nielsen, 2005)

Figure 5 Reasons (2/2) (Nielsen, 2005)

6.1 Benefits and motives playing casual games

The social component (i.e. multi-play) is an important reason for people to play digital games in general, however it is not an aspect in casual games because these are played alone. So what are the reasons to play casual games?

Survey done by	Benefits
ISG (2006)	88%: stress relief 74%: mental exercise 27%: distraction from chronic pain and/or fatigue 19% entertainment 8%: actual relief from chronic pain and/or fatigue
Zylom NL (2007)	73% of female gamers: relax and unwind 50% of female gamers: to beat their best score and often admitting to finding online puzzles addictive 33% of female gamers: keep their brains active and healthy
Zylom UK (2007)	64% of female gamers: to beat their best score and 39% admitting to finding online puzzles addictive 59% of female gamers: relax and unwind 47% of female gamers: keep their brains active and healthy

Table 4 Benefits

Table 4 states the benefits experienced by casual gamers found in several surveys.
The highest score is for stress relief; playing games just to relax and unwind is the most chosen benefit by casual game players. The number one motive to play casual games (41 percent) is therefore also to relax / stress relief (Kerr, 2003). Another motive is entertainment, but this is only chosen 19 percent by the respondents of the survey (ISG, 2006).

6.2 Benefits for elderly

Digital games can enhance the lives of seniors, potentially improving their mental and physical wellbeing, enhancing social connectedness, offering an enjoyable way of spending time (IJsselsteijn, Nap, de Kort, & Poels, 2007), heightening their self-esteem (Weisman, 1983) and improving their reaction times (Goldstein et al, 1997).
The benefits, which the survey of PopCap (2006) conducted by Information Solutions Group found, can be seen in figure 8. The respondents were casual game players age 50 and above.
In general, 86 percent of older survey respondents said that they felt playing casual games offered them physical and/or mental health benefits, compared to 74 percent of those under 50.
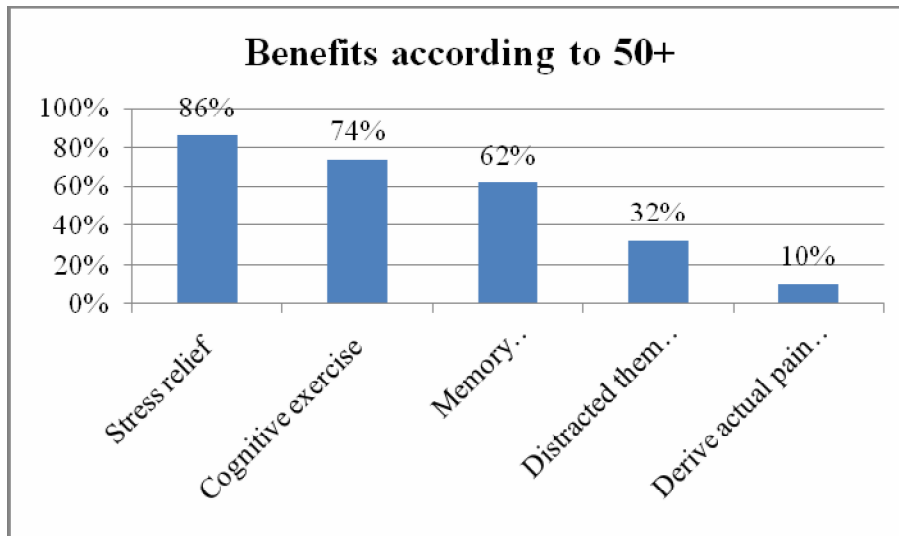
Figure 8 Benefits according to elderly casual game players (PopCap, 2006)

7. Addiction

When we are discussing casual webgames in relation to addicting behavior, we have to look at the Internet addiction component and the video game addiction component. We will discuss these in the following chapter.

7.1 Internet addiction

Previous research stated that Internet addiction is most akin to pathological gambling (Young, 1998), which allows Internet addiction to be defined as an impulse-control disorder which does not involve an intoxicant. (Bai, Lin, & Chen 2001; Beard & Wolf, 2001; Davis, Flett, & Besser, 2002; Holden, 2001; Mitchell, 2000; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Treuer, Fabian, & Furedi, 2001) Young (1998) proposed a set of criteria to diagnose Internet addiction. These criteria were based on pathological gambling criteria of the DSM-IV (American Psychiatric Association, 1995). She selected 8 out of the 10 pathological gambling criteria (see appendix B) to be the set to diagnose whether someone has an Internet addiction. Those who say 'yes' to 5 out of the 8 criteria would be considered Internet-dependent.

Young specified Internet addiction into 5 subtypes: cybersexual addiction (compulsive use of adult websites for cybersex and cyberporn), cyber-relationship addiction (overinvolvement in online relationships), net compulsions (obsessive online gambling, shopping or day trading), information overload (compulsive web surfing or database searches), computer addiction (obsessive computer game playing, for example, Doom, Myst, or Solitaire). (Young, 1998)

In our research we are interested in the last subtype; 'computer addiction', and especially for the last example given, which is a casual game.

However, as Griffiths (n.d.) states, many Internet addicts are not really addicted to the Internet; they use the Internet as a medium to fuel their addictions, like gambling and gaming. Griffiths identified only a small number of cases who appear to be addicted to the Internet itself, mostly people who use chat rooms or play fantasy role playing games, activities that they would not engage in except on the Internet itself. Young (1997) also stated that 'dependents' predominately used the Internet to meet, socialize, and exchange ideas with new people, whereas 'non-dependents' used the Internet for information gathering and to maintain pre-existing relationships.

Beard and Wolf (2001) used the criteria of Young and modified them. They stated that the first 5 of Young's criteria should be met, and that at least one of the final three should be met as well in order to state that someone is Internet-dependent.

Brown (1991, 1993) adopted a checklist approach with 6 facets required for the existence of addiction.
Salience: the activity dominates the person's life. There are 2 types of salience; cognitive salience, where an activity dominates a person's mental life, and behavioral salience, where an activity dominates a person's behavior.
Euphoria: the gaining of a 'buzz' or 'high' from the activity.
Tolerance: the need to engage in the activity to a progressively greater extent to acquire the same 'buzz'.
Withdrawal symptoms: experiencing unpleasant emotions or physical effects when the activity is halted.
Conflict: the activity leads to conflict with other people or self-conflict.
Relapse and reinstatement: the activity is resumed with just the same vigor subsequent to attempts to abstain.

Griffiths (2000) referred to all six of Brown's criteria as 'core components' of addiction, but the research of Charlton (2002) shows that this should be refined with respect to computing behavior. The facets tolerance, euphoria and cognitive salience are the milder facets of addiction, whereas the facets withdrawal symptoms, relapse and reinstatement, conflict, and behavioral salience are the stronger core facets of addiction. (Charlton, 2002)

The main issue is whether a person is Internet-dependent or just highly engaged. Addiction and dependency are pathological concepts, whereas high engagement is non-pathological (Charlton, 2002; Charlton & Danforth, 2005). Engagement is a state of deep interest in and involvement with the medium.

7.1.1 Consequences of excessive Internet use

Excessive Internet use can have negative effects; tend to lose sleep (Anderson, 2001; Nalwa & Anand, 2003), decrease social communication (Kraut et al, 1998), have problems in their interpersonal relationships (Lin & Tsai, 2002; Young 1998), use the Internet as their primary means of alleviating stress and depression (Chou, 2001), but also psychical complaints such as back strain, eyestrain, and carpal tunnel syndrome, and frequent time distortion (Young, 1998).
However, Shotton's (1989, 1991) study shows the positive side. Respondents reported improved analytical and reasoning skills, greater technological knowledge, enhanced job prospects, and also greater confidence, self-esteem, prestige, and a wider circle of friends, and less stress, boredom, and depression.

7.1.2 Gratification factors of the Internet

There have been several researches concerning the gratification factors of the Internet.
Miller (1996) stated that people seek gratification through interaction, escape, entertainment and surveillance.
Ferguson and Perse (2000) found the gratification factors entertainment, passing time, relaxation and escape, and social information.
Charney and Greenberg (2002) note eight factors; keep informed, diversion and entertainment, peer identity, good feelings, communication, sights and sounds, career, and coolness.
Song, Larose, Eastin, and Lin (2004) did an exploratory factor analysis of all these gratification factors from previous researches and yielded seven gratification factors specific to the Internet: virtual community, information seeking, aesthetic experience, monetary compensation, diversion, personal status, and relationship maintenance.
There are two types of gratifications on the Internet: content gratifications are inherently connected to the world outside the media system, and process gratifications are focused on the consumption of the medium itself and pull the user away from the outside world. (Song, Larose, Eastin, & Lin, 2004)

7.2 Game addiction

Most research in this area is done regarding MMORPG's[8] like Everquest and World of Warcraft or MUD's[9] like Dungeons and Dragons. There are some anecdotal studies where these games are seen as highly addictive. (Griffiths, 2000; Chak & Leung, 2004)
Addiction experts however say that there has to be more research done before it could be considered a mental illness. "It [video game addiction] doesn't get to have the word addiction attached to it", said Dr. Stuart Gitlow of the American Society of Addiction Medicine and MT. Sinai School of Medicine in New York. (Steenhuysen, 2007)

Computer games are designed to keep the player's interest at all times, by giving them situations and rewarding the player depending on the action they take. The player's susceptibility to developing excessive game playing habits is still largely determined by factors in his psychological profile. Self-monitoring (observation of the amount of time one has spent playing), self-evaluation (comparing their observed time allotment for gaming to those made to other activities), and self-consequation (involves the development of behavioral contingencies that, based on the outcome of the self-evaluative process, lead to the self-administration of reinforcement or punishment) are important factors regarding game addiction. If

someone has these self-regulation behaviors, they are unlikely to become addicted. (Fleming Seay & Kraut, 2007)

Computer games can serve to fulfill the psychological needs of the game player. Wan and Chiou (2006a) analyzed the following needs: the need for amusement, an emotional coping mechanism (relieving tension, anger and frustration, and coping with depression and loneliness), a way to escape from reality, social interactive needs, the need for fulfillment, the need for excitement and competition, and the need for power.

Another research by Wan and Chiou (2006b) states that the compulsive use of online games comes from the relief of dissatisfaction rather than the pursuit of satisfaction. This is parallel to the findings of Armstrong et al., who found that the person with lower self-esteem were more likely to become addicted to Internet due to deficient social skills and insufficient self-confidence. Wan and Chiou also found that addicts of online games tend to be affected by the sense of dissatisfaction, and this might be the reason why they are compulsive users. In contrast, the nonaddicts tend to seek enhancement of satisfaction and this might be the reason why they are capable of avoiding the obsession to online games. This research is only focused on MMORPG's, therefore Wan and Chiou mention that online casual games might exhibit a different picture of the relationship between players' motives and addiction. (Wan & Chiou, 2006b)

Wood, Griffiths and Parke (2007) found that high frequency players were far more likely to play games in order to escape from other problems in their lives compared to low frequency players. Half of their sample of non-problematic game players reported that they play games as a way of relaxing and escaping from everyday stress.

According to Wood et al. (2007) there is no firm basis on which claims about the addictive properties of video games can be made. There is very little objective evidence that video games are inherently addictive. Wood states that genuinely excessive players are likely to have other underlying problems, and/or have inadequate time management skills. Excessive video game playing is therefore likely to be a symptom and not the cause of their problem. (Wood, Griffiths, & Parke, 2007)

There are some studies concerning the flow experience regarding game addiction. Chou and Ting (2003) found that the flow components empathy (concentration and time distortion) and discovery (playfulness and exploratory behavior) are attractive experiences that lead to goal confusion and obsession. Combined with relapse and tolerance, a deep obsession creates a strong self-control disorder, as exhibited by withdrawal symptoms and failed attempts to stop the activity. (Chou & Ting, 2003)

Wan and Chiou (2006) however state that addiction to online games can't be explained by the flow experience.

Online game players don't have normal social relationships anymore and they play because it covers feelings of anger, depression and low self-esteem (O'Dwyer, 2002).

When something is called addictive, most of the time, the game is very immersive and rewarding, which triggers the desire to play 'just one more' time. It's hard to keep track of the time while engaged.

It becomes problematic when it dominates and displaces other behaviors, leads to conflict, or when inability to play causes anxiety. (Fleming Seay & Kraut, 2007)

The loss of time is studied by Wood et al. (2007). The key characteristics that were reported as being associated with time loss were games that were complex and immersive, had compelling goals and levels, involved interaction with other real players, had plot-driven stories, and were exciting and stimulating. Losing track of time can be experienced as positive but also as negative. Time loss was seen as an endorsement of a good game. The positive benefits were that the experience was seen as relaxing and a

way of escaping from everyday stress. The negative aspects were issues relating to either missing other things (e.g. appointments, lectures, meals) or guilt feelings (time could be better spent).

Researchers at the Stanford University School of Medicine found that the reward centers of men's brains were far more activated than those in women's brains. These gender differences may help explain why males are more attracted to, and more likely to become 'hooked' on video games than females.
In the game they used for their research, a vertical line appears in the middle of the screen. The goal of the game is to click balls as they travel from right to left before they hit the wall. If the balls are clicked a certain distance before they hit the wall, the wall moves to the right and players gain space.
On the fMRI scans was found that the men's mesocorticolimbic center, which is associated with reward and addiction, was more activated while playing the game than women's. Also, the more space, or territory, the men gained, the more active the center was. (Hoeft, Watson, Kesler, Bettinger, & Reiss, 2008)

Notes:
[8] MMORPG's are Massively Multiplayer Online Role-Playing Games. This is a genre in which a large number of players interact with each other in a virtual world.
[9] MUD's are Multi-User Dungeons. The game is usually text-driven, where players read descriptions of rooms, objects, events, other characters, and computer-controlled creatures or non-player characters in a virtual world. Players usually interact with each other and the surroundings by typing commands that resemble a natural language, usually English

References

Agosto, D. (2004). Girls and gaming: A summary of the research with implications for practice. *Teacher Librarian, 31*(3)

American Psychiatric Association. (1995). *Diagnostic and statistical manual of mental disorders (4th ed.).* Washington, DC: American Psychiatric Publishing, Inc.

Anderson, K. J. (2001). Internet use among college students: an exploratory study. *Journal of American College Health, 50* (1), 21-26

Bai, Y. M., Lin, C. C., & Chen, J. Y. (2001). Internet addiction disorder among clients of a virtual clinic. *Psychiatric Services, 52*(10), 1397

Barnett, M. A., Vitaglione, G. D., Harper, K. K. G., Quackenbush, S. W., Steadman, L. A., & Valdez, B. S. (1997). Late adolescents' experiences with and attitudes towards videogames. *Journal of Applied Social Psychology, 27*, 1316-1334

Beard, K. W., & Wolf, E. M. (2001). Modification in the proposed diagnostic criteria for Internet addiction. *Cyberpsychology and Behavior, 4*(3), 377-383

Brown, R. I. F. (1991). Gaming, gambling and other addictive play. In J. H. Kerr & M. J. Apter (Eds.), *Adult play: A reversal theory approach* (pp. 101–118). Amsterdam: Swets & Zeitlinger.

Brown, R. I. F. (1993). Some contributions of the study of gambling to the study of other addictions. In: W. R. Eadington & J. A. Cornelius (Eds.), *Gambling behavior and problem gambling* (pp. 241–272). Reno, NV: University of Nevada.

Buchanan, D. D., & Funk, J. B. (1996). Video and computer games in the 90's: Children's time commitment and game preference. *Children Today, 24*, 12-15

Carr, D. (2005). Contexts, gaming pleasures and gendered preferences. *Simulation and Gaming, 36* (4), 464-482. Institute of Education, University of London

Cassell, J., & Jenkins, H. (1998). *From Barbie to Mortal Kombat: Gender and computer games.* London: MIT Press

Cassell, J., & Jenkins, H. (1999). Chess for girls? Feminism and computer games. *From Barbie to Mortal Kombat*. Massachusetts: The MIT Press, 2-45

Cassell, J. (2002). Genderizing HCI. In J. Jacko & A. Sears (Eds.), *The handbook of human-computer interaction* (p 402-411). Mahwah, NJ: Lawrence Erlbaum. Retrieved February 5, 2008 from http://www.soc.northwestern.edu/justine/publications/gender.hci.just.pdf

Chak, K., & Leung, L. (2004). Shyness and locus of control as predictors of Internet addiction and Internet use. *Cyberpsychology and Behavior, 7*(5), 559-570

Charlton, J. P. (2002). A factor-analytic investigation of computer 'addiction' and engagement. *British Journal of Psychology, 93*, 329-344

Charlton, J. P., & Danforth, I. D. W. (2005). Distinguishing addiction and high engagement in the context of online game playing. *Computers in Human Behavior 23* (2007), 1531-1548

Charney, T. R., & Greenberg, B. S. (2002). Uses and gratifications of the Internet. In: Lin, C., Atkin, D. (Eds.), *Communication, technology and society: new media adoption and uses.* Cresskill, NJ: Hampton Press

Choi, D., & Kim, J. (2004). Why People Continue to Play Online Games: In Search of Critical Design Factors to Increase Customer Loyalty to Online Contents. *CyberPsychology & Behavior, 7*(1), 11-24

Chou, C. (2001). Internet heavy use and addiction among Taiwanese college students: an online interview study. *Cyberpsychology and Behavior, 4*(5), 573–585.

Chou, T. J., & Ting, C. C. (2003). The role of flow experience in cyber-game addiction. *Cyberpsychology and Behavior, 6*(6), 663-675

Colwell, J., Grady, C., & Rhaiti, S. (1995). Computer games, self-esteem and gratification of needs in adolescents. *Journal of Community and Applied Social Psychology, 5*(3): 195-206

Crawford, C. (1984). *The art of computer game design*. USA: Osborne/McGraw-Hill

Cunningham, H. (2000). Mortal kombat and computer game girls. In: J. T. Caldwell (Ed.), *Electronic Media and Technoculture*. New Brunswick: Rutgers, p222

Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior, 17*, 187-195

Davis, R. A., Flett, G. L., & Besser, A. (2002). Validation of anew scale for measuring problematic internet use: implications for pre-employment screening. *Cyberpsychology Behavior, 5*(4), 331-345

Entertainment and Leisure Software Publishers Association (2004). *Chick and Joysticks: An exploration of women and gaming*. London: A. Krotoski

Ferguson, D. A., & Perse, E. M. (2000). The World Wide Web as a functional alternative to television. *Journal of Broadcasting & Electronic Media, 44*, 155-174

Fleming Seay, A., & Kraut, R. E. (2007). Project massive: self-regulation and problematic use of online gaming. *CHI 2007 proceedings*, San Jose, CA, USA.

Fun Technologies, Press Release (2006). *Fun Technologies awards million-dollar grand prize to first ever worldwide web games champion*. Retrieved February 8, 2008, from http://www.funtechnologies.com/images_fun/press/fun_press_09_10_06.pdf

Gailey, C. W. (1993). Mediated messages: gender, class, and cosmos in home video games. *Journal of Popular Culture. 27*(1), 81-97

Goldstein, J. (1994). Sex differences in toy play and use of video games. In: J. H. Goldstein (Ed.), *Toys, Play, and Child Development*. New York: Cambridge University Press

Goldstein, J., Cajko, L., Oosterbroek, M., Michielsen, M., van Houten, O., & Salverda, F. (1997). Video games and the elderly. *Social Behavior and Personality, 25*, 345-352

Gorritz, C. M., & Medina, C. (2000). Engaging girls with computers through software games. *Communications of the ACM, 34*(1), 42-49

Griffiths, M. (n.d.). *Internet addiction: a reply to Kimberly S. Young*. Retrieved February 22, 2008, from http://student.bmj.com/back_issues/1099/editorials/351.html

Griffiths, M. (1998). Internet addiction: does it really exist? In J. Gackenbach (Ed.), *Psychology and the Internet* (pp. 61–75). San Diego, CA: Academic Press.

Griffiths, M. (2000). Does Internet and computer 'addiction' exist? Some case study evidence. *Cyberpsychology and Behavior, 3*(2), 211-218

Griffiths, M. D., Davies, M. N. O., Chappell, D. (2003) Breaking the Stereotype: The Case of Online Gaming. *CyberPsychology and Behavior, 6*(1), 81-91

Haines, L. (2004). *Why are there so few women in games? Research for Media Training North West*. Retrieved February 22, 2008, from http://www.igda.org/women/MTNW_Women-in-Games_Sep04.pdf

Hartmann, T., & Klimmt, C. (2006). Gender and computer games: Exploring females' dislikes. *Journal of Computer-Mediated Communication, 11* (4), article 2.
(Retrieved February 5, 2008 from http://jcmc.indiana.edu/vol11/issue4/hartmann.html)

Hoeft, F., Watson, C. L., Kesler, S. R., Bettinger, K. E., Reiss, A. L. (2008). Gender differences in the mesocorticolimbic system during computer game-play. *Journal of Psychiatric Research, 42*(4), 253-258

Holden, C. (2001). 'Behavioral' addictions: do they exist? *Science, 294*(5544), 980-982

IGDA (2005). Online Games Quarterly. *International Game Developers Association, 1*(2),
(Retrieved February 6, 2008, from http://www.igda.org/online/quarterly/1_2/online_quarterly_1_2.pdf)

IGDA (2006). *Casual Games White Paper*. International Game Developers Association. Retrieved February 6, 2008, from http://www.igda.org/casual/IGDA_CasualGames_Whitepaper_2006.pdf

ISG (2006). *Women Choose "Casual" Videogames Over TV; 100 Million+ Women Now Play Regularly, For Different Reasons Than Men.* Information Solutions Group, Retrieved February 6, 2008 from http://www.infosolutionsgroup.com/press_release_A.htm

Kerr, A. (2003). Women just want to have fun – A study of adult female players in digital games. In: M. Copier & J. Raessens (Eds.), *Level Up Conference Proceedings*. Utrecht: University of Utrecht

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox. A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*(9), 1017–1031.

Laurel, B. (1998). Technological humanism and values-driven design. *Paper presented at the CHI-98*, Los Angeles

Lin, S. S., & Tsai, C. C. (2002). Sensation seeking and internet dependence of Taiwanese high school adolescents. *Computers in Human Behavior, 18*, 411–426.

Malone, T. W. (1980a). What makes things fun to learn? Heuristics for designing instructional computer games. *Proceedings of the 3rd ACM SIGSMALL symposium and the first SIGPC symposium on Small systems.* California: Xerox Palo Alto Research Center

Malone, T. W. (1980b). What makes things fun to learn? A study of intrinsically motivating computer games. *Unpublished PhD dissertation*, Department of Psychology, Stanford University, Stanford, California

Malone, T. W. (1980c). What makes things fun to learn? A study of intrinsically motivating computer games. *Technical report*, California: Xerox Palo Alto Research Center

Mehrabian, A., & Wixen, W. J. (1986). Preference for individual video games as a function of their emotional effect on players. *Journal of Applied Social Psychology, 16*, 3-15

Miller, T. E. (1996). Segmenting the Internet. *American Demographics, 18*, 48-52

Miniclip (2007). *Growth chart.* Retrieved February 7, 2008, from http://corporate.miniclip.com/growth-chart.htm

Mitchell, P. (2002). Internet addiction: genuine diagnosis or not? *Lancet, 355*(9204), 632

Nakamura, R., & Wirman, H. (2005). Girlish counter-playing tactics. *International journal of computer game research, 5*(1)

Nalwa, K., & Anand, A. P. (2003). Internet addiction in students: a cause of concern. *Cyberpsychology and Behavior, 6*(6), 653–656.

Nielsen Interactive Entertainment (2005). *Video gamers in Europe -- 2005*. Research Report Prepared for the Interactive Software Federation of Europe (ISFE).

Nikken, P. (2000). Boys, girls and violent video games, the views of dutch children. In: C. von Feilitzen & U. Carlsson (Eds.), *Children in the New Media Landscape: Games, Pornography, Perceptions* (p. 93-102). Goteborg: Unesco Yearbook

O'Dwyer, S. (2002). *Online gaming addiction on the rise.* Retrieved February 25, 2008, from http://dev.informazine.com/archives/000032.html

Partridge, A. (2007). *Creating casual games for profit & fun*. Boston, Massachusetts: Charles River Media.

?Hoe refereren? is een deliverable Poels, K., de Kort, Y. A. W., & IJsselsteijn, W. A. (2007). FUGA - The fun of gaming: Measuring the human experience of media enjoyment. Deliverable D3.3: Game Experience Questionnaire. Game Experience Lab, University of Technology, Eindhoven

PopCap (2006). *Survey: Popcap on Why Seniors Game.* Research done by Information Solutions Group. Retrieved February 8, 2008 from http://www.gamasutra.com/php-bin/news_index.php?story=11132

Prensky, M. (2001). Fun, play and games: what make games engaging. In: *Digital game-based learning*. New York: McGraw-Hill

Provenzo, E. (1991). *Video kids: Making sense of Nintendo*. Cambridge, MA: Harvard University Press

Ray, S. G. (2004). *Gender inclusive game design: expanding the market*. Hingham, MA: Charles River Media

Sarin, R., & Vahid, F. (2002) Predicting How People Play Games: A Simple Dynamic Model of Choice. *Games and Economic Behavior, 34*(1), 104-122

Shapira, N. A., Goldsmith, T. D., Keck, P. E., Jr., Khosla, U. M., & McElroy, S. L. (2000). Psychiatric features of individuals with problematic internet use. *Journal of Affective Disorders, 57*(1–3), 267–272.

Shotton, M. A. (1991). The costs and benefits of 'computer addiction'. *Behaviour & Information Technology, 10*, 219–230.

Slater, M. D. (2003). Alienation, aggression, and sensation seeking as predictors of adolescent use of violent film, computer, and website content. *Journal of Communication, 53* (1), 105-121

Song, I., Larose, R., Eastin, M., & Lin, C. A. (2004). Internet gratifications and Internet addiction: On the uses and abuses of new media. *Cyberpsychology and Behavior, 7*(4), 384-394

Steenhuysen, J. (2007). *Addiction experts say video games not an addiction*. Retrieved February 25, 2008 from http://www.reuters.com/article/technologyNews/idUSN2425415820070624?sp=true

Subrahmanyam, K., & Greenfield, P. M. (2000). Computer games for girls: What makes them play? In J. Cassell & H. Jenkins (Eds.), *From Barbie to Mortal Kombat* (p 46-71), Cambridge, MA: MIT Press

Suoninen, A. (1999) Tietokonepelejäkö? Ei kiitos. Miksi pelaamien ei viehätä tyttöjä? Pelit, tietokone ja ihminen. *Publication of Suomen tekoälyseura, symbposiosarja no. 15.* Helsinki: Taideteollinen korkeakoulu. 147-155

Swain, A., & Jones, G. (1991). Gender role endorsement and competitive anxiety. *International Journal of Sport Psychology, 22*(1), 200-207

Sweetser, P. & Wyeth, P. (2005). GameFlow: a model for evaluating player enjoyment in games. *Computers in Entertainment (CIE), 3*(3), 3

Taylor, T. L. (2003). Multiple pleasures: Women and online gaming. *Convergence: The International Journal of Research into New Media Technologies, 9*(1), 21-46

Treuer, T., Fabian, Z., & Furedi, J. (2001). Internet addiction associated with features of impulse control disorder: is it a real psychiatric disorder? *Journal of Affective Disorders, 66*(2-3), 283.

Vorderer, P., Hartmann, T., & Klimmt, C. (2006). Explaining the enjoyment of playing video games: The role of competition. In: D. Marinelli (Ed.), *ICEC Conference Proceedings 2003: Essay on the future of interactive entertainment* (p 107-120), Pittsburgh, PA: Carnegie Mellon University Press

Wan, C. S., & Chiou, W. B. (2006a). Why are adolescent addicted to online gaming? An interview study in Taiwan. *CyberPsychology & Behavior, 9*, 762-766

Wan, C. S., & Chiou, W. B. (2006b). Psychological motives and online games addiction: a test of flow theory and humanistic needs theory for Taiwanese adolescents. *Cyberpsychology and Behavior, 9*(3), 317-324

Weisman, S. (1983). Computer games for the frail elderly. *The Gerontologist, 23*(4), 361-363

Wood, R. T. A., Griffiths, M. D., Chappell, D., & Davies, M. N. O. (2004). The structural characteristics of video games: a psycho-structural analysis. *Cyberpsychology and Behavior, 7*(1), 1-10

Wood, R. T. A., Griffiths, M. D., & Parke, A. (2007). Experiences of time loss among videogame players: an empirical study. *Cyberpsychology and Behavior, 10*(1), 38-44

Yates, S. J., & Littleton, K. (1999). Understanding computer game cultures: A situated approach. *Information, Communication and Society, 2*, 566-583

Young, K. S. (1997). What makes the Internet addictive: Potential explanations for pathological Internet use. *Presented at the Meeting of the 105th Annual Conference of the American Psychological Association*, Chicago

Young, K. S. (1998). Internet addiction: the emergence of a new clinical disorder. *Cyberpsychology and Behavior, 1*(3), 237-244

Young, K. S., & Case, C. J. (2004). Internet abuse in the workplace: new trends in risk management. *Cyberpsychology and Behavior, 7*(1), 105-111

IJsselsteijn, W., Nap, H. H., de Kort, Y., & Poels, K. (2007). Digital game design for elderly users. Eindhoven University of Technology. Game Experience Lab, HTI Group.

Zylom NL (2007). *Online casual gaming is typisch vrouwenhobby*. Retrieved February 6, 2008, from http://info.zylom.com/news/13/gamehers_nl.html

Zylom UK (2007). *The attack of the GameHers*. Retrieved February 6, 2008, from http://info.zylom.com/news/12/gamehers_uk.html

Appendix A: Game websites

The online gaming sites that offer free casual computer games:
-   Addicting games **www.addictinggames.com**
-   AOL Games **games.aol.com**
-   Big Fish Games **www.bigfishgames.com**
-   Electronic Arts Pogo **www.pogo.com**
-   FetchFido **www.fetchfido.co.uk/games/menu/games_menu.htm**
-   Free Online Games **www.freeonlinegames.com**
-   Miniclip **www.miniclip.com**
-   MSN Games **zone.msn.com**
-   PopCap games **www.popcap.com**
-   RealNetworks RealArcade **www.realarcade.com**
-   Riddler **www.riddler.com**
-   Yahoo! Games **games.yahoo.com**
-   Zylom Media Group BV **www.zylom.com**

Appendix B: Model of Young

The eight items of the questionnaire, based on the pathological gambling model (Young, 1998):
1. Do you feel preoccupied with the Internet (think about previous online activity or anticipate next online session)?
2. Do you feel the need to use the Internet with increasing amounts of time in order to achieve satisfaction?
3. Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?
4. Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?
5. Do you stay online longer than originally intended?
6. Have you jeopardized or risked the loss of significant relationship, job, educational or career opportunity because of the Internet?
7. Have you lied to family members, therapists, or others to conceal the extent of involvement with the Internet?
8. Do you use the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g. feelings of helplessness, guilt, anxiety, depression)?

Appendix C: Game Experience Questionnaire (GEQ) - Core

Duid voor elk van de items aan hoe jij je voelde tijdens het spelen. Doe dit met behulp van de volgende schaal.

Niet	Een klein beetje	Enigszins	Behoorlijk	Heel erg
0	1	2	3	4
< >	< >	< >	< >	< >

1   Ik voelde me tevreden
2   Ik voelde me vaardig
3   Ik was geboeid door het verhaal van het spel
4   Ik kon er om lachen
5   Ik was helemaal geabsorbeerd
6   Ik voelde me vrolijk
7   Ik kreeg er slechte zin van
8   Ik was met andere zaken bezig
9   Ik vond het saai
10   Ik voelde me zeker
11   Ik vond het moeilijk
12   Ik vond het aansprekend van vormgeving
13   Ik vergat alles om me heen
14   Ik voelde me lekker
15   Ik was er goed in
16   Ik voelde me verveeld
17   Ik voelde me succesvol
18   Ik voelde me fantasierijk
19   Ik had het gevoel dat ik de gamewereld kon exploreren
20   Ik genoot ervan
21   Ik was snel in het bereiken van de doelen in de game
22   Ik was geïrriteerd
23   Ik voelde me onder druk gezet
24   Ik was prikkelbaar
25   Ik was mijn gevoel voor tijd kwijt
26   Ik voelde me uitgedaagd
27   Ik vond het indrukwekkend
28   Ik was ten volle geconcentreerd op de game
29   Ik was gefrustreerd
30   Ik vond het een rijke ervaring
31   Ik was weg uit de buitenwereld
32   Ik voelde tijdsdruk
33   Ik moest er veel moeite in steken

Appendix D: In-Game Questionnaire (iGEQ)

Duid voor elk van de items aan hoe jij je voelde tijdens het spelen. Doe dit met behulp van de volgende schaal.

Niet	Een klein beetje	Enigszins	Behoorlijk	Heel erg
0	1	2	3	4
< >	< >	< >	< >	< >

1	Ik was geboeid door het verhaal van het spel	GEQ Core – 3
2	Ik voelde me succesvol	GEQ Core – 17
3	Ik voelde me verveeld	GEQ Core – 16
4	Ik vond het indrukwekkend	GEQ Core – 27
5	Ik vergat alles om me heen	GEQ Core – 13
6	Ik was gefrustreerd	GEQ Core – 29
7	Ik vond het saai	GEQ Core – 9
8	Ik was prikkelbaar	GEQ Core – 24
9	Ik voelde me vaardig	GEQ Core – 2
10	Ik was helemaal geabsorbeerd	GEQ Core – 5
11	Ik voelde me tevreden	GEQ Core – 1
12	Ik voelde me uitgedaagd	GEQ Core – 26
13	Ik moest er veel moeite in steken	GEQ Core – 33
14	Ik voelde me lekker	GEQ Core – 14

Appendix E: Post-Game Experience Questionnaire (PGEQ)

Duid voor elk van de items aan hoe jij je voelde NA het gamen. Doe dit met behulp van de volgende schaal.

Niet	Een klein beetje	Enigszins	Behoorlijk	Heel erg
0	1	2	3	4
< >	< >	< >	< >	< >

1   Ik voelde me opgepept
2   Ik voelde me rot
3   Ik had moeite om terug te keren naar de realiteit
4   Ik voelde me schuldig
5   Ik zag het als een overwinning
6   Ik vond het zonde van de tijd
7   Ik voelde me opgeladen
8   Ik voelde me voldaan
9   Ik voelde me gedesoriënteerd
10 Ik voelde me uitgeput
11 Ik vond dat ik meer nuttige dingen had kunnen doen
12 Ik voelde me machtig
13 Ik voelde me vermoeid
14 Ik had spijt
15 Ik schaamde me
16 Ik voelde me trots
17 Ik had het gevoel dat ik van een "reis" terugkeerde
18 Ik voelde me opgelucht
19 Ik was teleurgesteld
20 Ik voelde me leeg
21 Ik had het gevoel nuttig bezig te zijn geweest

Cursief gedrukte zinnen zijn voor verdere validatie.

Appendix F: Social-Presence Gaming Questionnaire (SPGQ)

Duid voor elk van de items aan hoe jij je voelde tijdens het spelen. Doe dit met behulp van de volgende schaal.

Niet	Een klein beetje	Enigszins	Behoorlijk	Heel erg
0	1	2	3	4
< >	< >	< >	< >	< >

1   Ik leefde mee met de ander(en)
2   Mijn handelingen hingen af van de handelingen van de ander(en)
3   De handelingen van de ander(en) hingen af van mijn handelingen
4   Ik voelde me verbonden met de ander(en)
5   De ander(en) lette(n) op mij
6   Ik lette op de ander(en)
7   Ik was jaloers op de ander(en)
8   Ik vond het gezellig met de ander(en)
9   Wanneer ik blij was, was (waren) de ander(en) blij
10   Wanneer de ander(en) blij was (waren), was ik blij
11   Ik beïnvloedde de stemming van de ander(en)
12   Ik werd beïnvloed door de stemming van de ander(en)
13   Ik bewonderde de ander(en)
14   Wat de ander(en) de(e)d(en), beïnvloedde wat ik deed
15   Wat ik deed, beïnvloedde wat de ander(en) de(e)d(en)
16   Ik was wraakzuchtig
17   Ik had leedvermaak

Appendix G: Scoring guidelines for all GEQs

Richtlijnen bij het scoren van de GEQ Core Module
De Core GEQ Module bestaat uit zeven componenten; hieronder worden de items voor elk van de componenten weergegeven.
De scores voor elke component worden berekend als het gemiddelde van de items.
Competence: Items 2, 10, 15, 17, en 21.
Sensory and Imaginative Immersion: Items 3, 12, 18, 19, 27, en 30.
Flow: Items 5, 13, 25, 28, en 31.
Annoyance: Items 22, 24, en 29.
Challenge: Items 11, 23, 26, 32, en 33.
Negative affect: Items 7, 8, 9, en 16.
Positive affect: Items 1, 4, 6, 14, en 20.

Richtlijnen bij het scoren van de GEQ In-Game Module
De In-Game Module bestaat uit zeven componenten, identiek aan die van de Core Module. Bij de In-Game Module worden slechts twee items gebruikt per component. Hieronder worden de items weergegeven.
De scores voor elke component worden berekend als het gemiddelde van de items.
Competence: Items 2 en 9.
Sensory and Imaginative Immersion: Items 1 en 4.
Flow: Items 5 en 10.
Annoyance: Items 6 en 8.
Challenge: Items 12 en 13.
Negative affect: Items 3 en 7.
Positive affect: Items 11 en 14.

Richtlijnen voor het scoren van de GEQ Post-Game Module
De Post-Game Module bestaat uit vier componenten. Hieronder worden de items weergegeven.
De scores voor elke component worden berekend als het gemiddelde van de items.
Positive Experience: Items 1, 5, 7, 8, 12, en 16.
Negative experience: Items 2, 4, 6, 11, 14, en 15.
Tiredness: Items 10, 13.
Returning to Reality: Items 3, 9, and 17.
(extra items voor verdere validatie: 18, 19, 20, 21)

Richtlijnen van het scoren van de GEQ Social Presence Module
De Social Presence Module bestaat uit drie componenten. Hieronder worden de items weergegeven.
De scores voor elke component worden berekend als het gemiddelde van de items.
Psychological Involvement – Empathy: Items 1, 4, 8, 9, 10, en 13.
Psychological Involvement – Negative Feelings: Items 7, 11, 12, 16, en 17.
Behavioural Involvement: Items 2, 3, 5, 6, 14, en 15.

Appendix H: Daily form

De dagelijkse vragenlijst was voor de pilot en het experiment hetzelfde. De volgende vragen werden gesteld:

Emailadres: (open vraag)
Hoeveel verschillende spellen heb je vandaag gespeeld? (dropdown menu: geen / 1 / 2 / 3 / meer dan 3)

> Als 'geen' is geselecteerd, dan geen verdere vragen meer

> Als '1' is geselecteerd:
>> Naam spel: .... gespeeld gedurende .... minuten.
>> Hoe laat was het toen je begon met spelen?
>> Waar heb je het spel gespeeld?

> Als '2' is geselecteerd:
>> Naam spel: .... gespeeld gedurende .... minuten.
>> Naam spel: .... gespeeld gedurende .... minuten.
>> Hoe laat was het toen je begon met spelen?
>> Waar heb je het spel gespeeld?

> Als '3' is geselecteerd:
>> Naam spel: .... gespeeld gedurende .... minuten.
>> Naam spel: .... gespeeld gedurende .... minuten.
>> Naam spel: .... gespeeld gedurende .... minuten.
>> Hoe laat was het toen je begon met spelen?
>> Waar heb je het spel gespeeld?

> Als 'meer dan 3' is geselecteerd:
>> Aantal spellen:......
>> Wat waren de 3 leukste?
>>> Naam: .... gespeeld gedurende ...... minuten
>>> Naam: .... gespeeld gedurende ...... minuten
>>> Naam: .... gespeeld gedurende ...... minuten
>> Hoe laat was het toen je begon met spelen?
>> Waar heb je het spel gespeeld?

De vraag 'Waar heb je het spel gespeeld?' heeft een dropdown menu met de opties:
Thuis / werk / school / ergens anders.

Alle participanten krijgen de mogelijkheid om opmerkingen achter te laten.

Appendix I: Gaming habits (pilot study)

Emailadres: (open vraag)
Leeftijd: (open vraag)
Geslacht: man/vrouw
Speel je wel eens digitale games? (dropdown menu: ja / nee)
      Zo ja, dan de volgende vragen:
            Welke genres speel je zoal? (checkbox: Action, adventure
                Arcade
                Fighting
                Party games
                Puzzle / woord / bord spellen
                Racing
                Role playing
                Shooter
                Simulation
                Sport
                Strategy
                Andere)
            Hoe vaak speel je games? (dropdown menu: minder dan 1x per maand
                1x per maand
                meerdere keren per maand
                1x per week
                meerdere keren per week
                elke dag)
            Wanneer speel je meestal? (dropdown menu: 's ochtends
                's middags
                's avonds
                's nachts
                    En: doordeweeks
                in het weekend)
            Waar speel je meestal? (dropdown menu: thuis
                werk
                school
                ergens anders)
            Welk platform gebruik je? (checkbox: PC
                Playstation 1/2/3
                Xbox/Xbox 360
                Nintendo Wii
                DS / PSP / Gameboy / andere handheld
                Ander platform, namelijk:
            Koop je wel eens spelletjes? (dropdown menu: ja / nee)
            Wat is je favoriete game? (open vraag)
            Wat is je favoriete genre? (open vraag)
            Vind je jezelf een gamer? (dropdown menu: ja / nee)
      Zo nee, dan geen verdere vragen meer.

Alle participanten krijgen de mogelijkheid om opmerkingen achter te laten.

Appendix J: Day 3 (pilot study)

Deze vragenlijst is tijdens de pilot study op dag 3 verzonden samen met de PGEQ (appendix E).

Geef voor de volgende eigenschappen aan hoe belangrijk je deze vindt in casual games. Doe dit met behulp van de volgende schaal:
niet belangrijk(0), een klein beetje belangrijk(1), enigszins belangrijk(2), behoorlijk belangrijk(3), heel erg belangrijk(4).

22. Punten verzamelen
23. Puzzels oplossen
24. Dingen ontwijken
25. Aanwezigheid van een klok
26. Achtergrond muziek
27. Geluidseffecten
28. Realistische graphics
29. Cartoon-stijl graphics
30. Humor

31. Dingen verzamelen
32. High-score lijst
33. Bonussen verdienen
34. Schieten
35. Realistische spel-omgeving
36. Fantasie spel-omgeving
37. Overleven tegen de kansen in
38. Je eigen skills ontwikkelen/verbeteren
39. Spel gebaseerd op feitelijke gebeurtenissen

Appendix K: Day 6

Deze vragen zaten in de pilot study en ook in het experiment.
De extra vragen wat betreft het spel Bubblez die voor de GEQ vragenlijst zaten:

Hoe lang heb je Bubblez gespeeld? .... minuten
Hoe laat was het toen je begon met spelen? (open vraag)
Waar heb je Bubblez gespeeld? (dropdown menu: thuis, werk, school, ergens anders)
Wat voor cijfer geef je het spel Bubblez? (1 is het laagste, 10 het hoogste) (open vraag)

Appendix L: Interview questions (pilot study)

Interview vragen **pilot**:
- Hoe vond je het experiment?
- Heb je voor het experiment ook al wel eens een casual game gespeeld?
  - Zo ja, welke, welke site?
- Heb je nog gespeeld vandaag?
  - Zo ja, dan de dagelijkse vragen doornemen
- Wanneer speelde je de spelletjes meestal?
  - wat deed je voor en na het spelen?
- Waarom stopte je met spelen?
- Wat is je favoriete game die je gespeeld hebt (deze week)?
- Wat is je favoriete genre wat betreft casual games?
- Wat vind je leuk aan de spelletjes?
- Wat vind je niet leuk aan de spelletjes?
- Heb je positieve effecten / consequenties gemerkt?
- Heb je negatieve effecten / consequenties gemerkt?
- Ga je deze spelletjes nu vaker spelen?
  - Zo ja, waarom?
  - Zo nee, waarom?
- Zou je deze spelletjes als verslavend kunnen zien?
  - Zou jij er verslaafd aan kunnen raken / ben je verslaafd?
- Zie je jezelf nu als gamer? (alleen vragen als er geen game ervaring was, anders is deze vraag al beantwoord in de begin vragenlijst)
  - Zie je iemand die deze spelletjes af en toe speelt als een 'gamer'?

Appendix M: Gaming habits (experiment)

Emailadres: (open vraag)
Leeftijd: (open vraag)
Geslacht: man/vrouw
Wat is je huwelijkse staat? (dropdown menu: Alleenstaand
                                              Gehuwd of partnerschap
                                              Gescheiden
                                              Echtgenoot of partner overleden)
Hoeveel kinderen heb je? (open vraag)
Wat zijn uw woonomstandigheden? (dropdown menu: Alleenwonend
                                                 Woont bij ouders
                                                 Woont met partner, geen inwonende kinderen
                                                 Woont met partner, wel inwonende kinderen
                                                 Woont alleen, met inwonende kinderen)

Wat is je opleidingsniveau? (dropdown menu: Lagere school
                                             Middelbare school
                                             Lager beroepsonderwijs
                                             Middel beroepsonderwijs
                                             Hoger beroepsonderwijs
                                             Universiteit
                                             Anders)
Wat is je vakgebied? (dropdown menu: Natuurwetenschappen
                                      Informatietechnologie
                                      Techniek
                                      Architectuur en bouwen
                                      Landbouw en milieu
                                      Gezondheidszorg
                                      Onderwijs
                                      Management en handel
                                      Maatschappij en cultuur
                                      Creatieve beroepen
                                      Voeding en horeca
                                      Anders)
Wat is je beroep? (open vraag)
Op een 5-punts schaal, hoe schat je je vaardigheid met een computer in? slecht ...... goed

Speel je wel eens digitale games? (dropdown menu: ja / nee)
        Zo ja, dan de volgende vragen:
                Welke genres speel je zoal? (checkbox: Action, adventure
                                                        Arcade
                                                        Fighting
                                                        Party games
                                                        Puzzle / woord / bord spellen
                                                        Racing
                                                        Role playing
                                                        Shooter
                                                        Simulation

	Sport
	Strategy
	Andere)
Hoe vaak speel je games? (dropdown menu:	minder dan 1x per maand
	1x per maand
	meerdere keren per maand
	1x per week
	meerdere keren per week
	elke dag)
Wanneer speel je meestal? (dropdown menu:	's ochtends
	's middags
	's avonds
	's nachts
En:	doordeweeks
	in het weekend)
Waar speel je meestal? (dropdown menu:	thuis
	werk
	school
	ergens anders)
Welk platform gebruik je? (checkbox:	PC
	Playstation 1/2/3
	Xbox/Xbox 360
	Nintendo Wii
	DS / PSP / Gameboy / andere handheld
	Ander platform, namelijk:
Koop je wel eens spelletjes? (dropdown menu:	ja / nee)
Wat is je favoriete game? (open vraag)	
Wat is je favoriete genre? (open vraag)	
Vind je jezelf een gamer? (dropdown menu:	ja / nee)

Zo nee, dan geen verdere vragen meer.

Alle participanten krijgen de mogelijkheid om opmerkingen achter te laten.

Appendix N: Day 7 (experiment)

De volgende vragenlijst is gesteld op dag 7 van het experiment (niet tijdens de pilot study).

Hieronder staan redenen die andere mensen hebben genoemd om casual games te spelen. Geef voor iedere reden aan of het voor jou persoonlijk:
- niet relevant is (0)
- een leuke bijkomstigheid is (1)
- een reden is om te spelen (2)

Doe dit met behulp van de volgende schaal:
Niet relevant (0), bijkomstigheid (1), reden (2).

1. Uitdaging
2. Gelegenheid om strategisch te denken
3. Gelegenheid om te ontsnappen aan het dagelijkse leven
4. Mogelijkheid om tegen anderen te concurreren
5. Mogelijkheid om je fantasie te gebruiken
6. Dingen doen die je niet in het echte leven kunt doen
7. Gevoel dat je iets bereikt
8. Mogelijkheid om iets te leren
9. Eigen scores te verbeteren
10. Ontspanning
11. Hersenen trainen
12. Mogelijkheid om in een fantasie wereld te spelen
13. Vermaak
14. Verminderen van stress
15. Afleiding van chronische pijn en/of vermoeidheid
16. Geheugen verbeteren
17. Daadwerkelijke vermindering van chronische pijn en/of vermoeidheid

Geef voor de volgende eigenschappen aan hoe belangrijk je deze vindt in digitale games. Het gaat dus niet alleen om casual games, maar om alle games die je speelt op de computer of console.
Doe dit met behulp van de volgende schaal:
Niet belangrijk (0), enigszins belangrijk (1), heel erg belangrijk (2).
Als je bij een eigenschap niet weet wat het is, vul dan (3) in.

Geluid:
1. Realistische geluidseffecten
2. Pratende personages
3. Achtergrond muziek
4. Gesproken verhaal
Grafisch:
5. Realistische graphics
6. Cartoon stijl graphics
7. Full motion video (FMV)
Achtergrond en setting:
8. Spel gebaseerd op feitelijke gebeurtenissen
9. Spel gebaseerd op een film of tv-serie/programma

10. Realistische spel-omgeving
11. Fantasie spel-omgeving

Lengte van een game:
12. Lang; het spel duurt maanden tot jaren om uit te spelen
13. Middel; het spel duurt dagen tot weken om uit te spelen
14. Kort; het spel kan in 1 keer worden uitgespeeld.

Snelheid:
15. Snelle absorptie
16. Snelle vordering in het spel

Humor:
17. Gebruik van humor

Control opties:
18. Mogelijkheid om geluid en graphics aan te passen
19. Keuze uit control methods
20. Fysieke feedback

Game opties:
21. Ontdekken van nieuwe gebieden
22. Verrassingselementen in het spel
23. Een quest/missie vervullen
24. Je eigen skill ontwikkelen/verbeteren
25. Slimme computer gestuurde tegenstanders
26. Dingen vinden (geheime deuren, verborgen levels enz)
27. Overleven tegen de kansen in
28. Schieten
29. Verschillend einde aan een spel
30. Verschillende transport mogelijkheden
31. Verzamelen van dingen
32. Puzzels oplossen
33. Verslaan van de klok
34. Cheats
35. Ontwijken van dingen
36. Oplosen van tijd-gelimiteerde problemen
37. Bouwen van dingen
38. Mapping areas
39. Lineair spel format
40. High-score lijst

Winnen en verliezen:
41. Punten verliezen
42. Punten verzamelen/winnen
43. Bonussen vinden
44. Een level opnieuw moeten beginnen
45. Mogelijkheid om regelmatig het spel op te slaan

Karakter ontwikkeling:
46. Karakter ontwikkeltzich gedurende het spel
47. Mogelijkheid om het uiterlijk van het karakter aan te passen

Merken:
48. Spel is afkomstig van een bekend en betrouwbaar bedrijf
49. Spel is ondersteund door beroemd persoon

Multiplayer:
50. Multiplayer online spelen
51. Mulitplayer LAN optie

52. Multiplayer communicatie
53. Allianties creeeren
54. Andere spelers verslaan

Appendix O: Interview questions (experiment)

Interview vragen **experiment**:
- Hoe vond je het experiment?
- Heb je voor het experiment ook al wel eens een casual game gespeeld?
  - Zo ja, welke, welke site?
- Wanneer speelde je de spelletjes meestal?
  - Wat deed je voor en na het spelen?
  - Zat je al achter de computer?
- Waarom stopte je met spelen?
- Vond je het moeilijk om te stoppen als je eenmaal aan het spelen was?
  - Speelde je langer dan eigenlijk je bedoeling was?
  - Wat maakte het in het spel moeilijk om te stoppen?
- Wat is je favoriete genre wat betreft casual games?
- Hoe koos je de spelletjes?
  - Heb je gekeken naar de genres / aantal spelers?
- Wat vind je leuk aan de spelletjes?
- Bij sommige sites/spellen heb je high-score lijsten, zou je dat een toevoeging vinden voor een spel?
- Wat vind je niet leuk aan de spelletjes?
- Je hebt spelletjes die oneindig doorgaan (Bubblez) en je hebt spelletjes die je echt kunt uitspelen in een paar minuten. Wat voor spelletjes heb je liever?
- Heb je positieve effecten / consequenties gemerkt?
- Heb je negatieve effecten / consequenties gemerkt?
- Ga je deze spelletjes nu vaker spelen?
  - Zo ja, waarom?
  - Zo nee, waarom?
- Zou je deze spelletjes als verslavend kunnen zien?
  - Zou jij er verslaafd aan kunnen raken / ben je verslaafd?
- Zie je jezelf nu als gamer? (alleen vragen als er geen game ervaring was, anders is deze vraag al beantwoord in de begin vragenlijst)
  - Zie je iemand die deze spelletjes af en toe speelt als een 'gamer'?
- Wat is volgens jou een echte typische gamer?
- Wat is je favoriete game die je gespeeld hebt tijdens het experiment?
  - Kan je aangeven waarom?

Appendix P: Zylom questionnaire

De volgende vragenlijst heeft 2 weken op de site van Zylom.nl gestaan:

Zylom spelletjes vragenlijst

Speel eerst het spel dat je gestart hebt, en beantwoord daarna de volgende vragen:

1. **Welk spel heb je gespeeld?**

2. **Duid voor elk van de items aan hoe jij je voelde tijdens het spelen. Doe dit met behulp van de volgende schaal.**

	Niet	Een klein beetje	Enigszins	Behoorlijk	Heel erg
Ik was geboeid door het verhaal van het spel	○	○	○	○	○
Ik voelde me succesvol	○	○	○	○	○
Ik voelde me verveeld	○	○	○	○	○
Ik vond het indrukwekkend	○	○	○	○	○
Ik vergat alles om me heen	○	○	○	○	○
Ik was gefrustreerd	○	○	○	○	○
Ik vond het saai	○	○	○	○	○
Ik was prikkelbaar	○	○	○	○	○
Ik voelde me vaardig	○	○	○	○	○
Ik was helemaal geabsorbeerd	○	○	○	○	○
Ik voelde me tevreden	○	○	○	○	○
Ik voelde me uitgedaagd	○	○	○	○	○
Ik moest er veel moeite in steken	○	○	○	○	○
Ik voelde me lekker	○	○	○	○	○

28%   Volgende

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3. Hieronder staan redenen die andere mensen hebben genoemd om casual games te spelen. Geef alsjeblieft voor iedere reden aan of het voor jou persoonlijk ook geldt:

	Niet relevant	Een leuke bijkomstigheid	Een reden is om te spelen
Uitdaging	○	○	○
Gelegenheid om strategisch te denken	○	○	○
Gelegenheid om te ontsnappen aan het dagelijkse leven	○	○	○
Mogelijkheid om tegen andere te concurreren	○	○	○
Mogelijkheid om je fantasie te gebruiken	○	○	○
Dingen doen die je niet in het echteleven kunt doen	○	○	○
Gevoel dat je iets bereikt	○	○	○
Mogelijkheid om iets te leren	○	○	○
Eigen scores verbeteren	○	○	○
Ontspanning	○	○	○
Hersenen trainen	○	○	○
Mogelijkheid om in een fantasie wereld te spelen	○	○	○
Vermaak	○	○	○
Verminderen van stress	○	○	○
Afleiding van chronische pijn en/of vermoeidheid	○	○	○
Geheugen verbeteren	○	○	○
Daadwerkelijke vermindering van chronische pijn en/of vermoeidheid	○	○	○

▮▮▮▮▮▮▮▮░░░░░░░░░░░ 42%

Volgende

4. Tot slot willen we je nog wat vragen over jezelf stellen. Geef van onderstaande stellingen aan of ze op jou van toepassing zijn of niet.

Hierbij is 1 - oneens/niet waar en 7 - eens/waar

	1	2	3	4	5	6	7
Ik kan een feestje op gang brengen	○	○	○	○	○	○	○
Ik voel me op mijn gemak tussen mensen	○	○	○	○	○	○	○
Ik begin gesprekken	○	○	○	○	○	○	○
Ik vind het niet erg om in het middelpunt van de belangstelling te staan	○	○	○	○	○	○	○
Ik praat met veel verschillende mensen op feestjes	○	○	○	○	○	○	○
Ik ben stil als ik onder vreemden ben	○	○	○	○	○	○	○
Ik houd er niet van om de aandacht op me te vestigen	○	○	○	○	○	○	○
Ik praat niet veel	○	○	○	○	○	○	○
Ik heb weinig te zeggen	○	○	○	○	○	○	○
Ik blijf op de achtergrond	○	○	○	○	○	○	○

▮▮▮▮▮▮▮▮▯▯▯▯▯▯ 57%   Volgende

5. Hoe vaak speel je op Zylom.nl?

○ Elke dag
○ 3-6 keer per week
○ 1-2 keer per week
○ Een paar keer per maand
○ Minder dan een paar keer per maand

▮▮▮▮▮▮▮▮▮▮▯▯▯▯ 71%   Volgende

6. **Ben je een man of een vrouw?**
   ○ Vrouw
   ○ Man

7. **Wat is je leeftijd?**
   ○ Jonger dan 20
   ○ 20 - 25
   ○ 26 - 35
   ○ 36 - 45
   ○ 46 - 55
   ○ 56 - 65
   ○ 66 - 75
   ○ Ouder dan 75

▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ 100%   Finish

Bedankt voor het meedoen aan onze enquête!
Have fun! www.nl.zylom.com