

# Casual games

**Easy to learn, tough to master**

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

*What are the differences between the age groups 20 – 35 and 35+ regarding casual games?*

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## Abstract

When someone says digital games, most people will think about complex games which are played on a Playstation or Xbox with complicated controllers, and with a young target group, mostly men. However, there are also digital games that you can find on internet sites which are simple, have short instructions, simple controls, easy and quick to play. These games are called casual games. Casual games are, in contrast to other digital games, mostly played by women over the age of 35. The casual game industry takes this into account when making these games, but why are most players female? The goal of this study is to understand why there are more women than men who play these games and why people older than 35 play more than people who are younger than 35.

To find out why casual games are mostly played by women older than 35, we have studied several aspects in which this group can differ from other age and gender groups; game experience, reasons to play, introversion/extroversion, and game characteristics. To test these aspects we did two studies; the casual gamers survey and the average Dutch population survey. The casual gamers survey was filled in by people who play casual games regularly, the participants of the average Dutch population survey were more diverse; most of them though didn't play casual games, some of them didn't even play digital games.

There was no difference in game experience between men and women. However the age group younger than 20 years old scored higher than other age groups on all components of the Game Experience Questionnaire. In the interviews, participants who mentioned that it was sometimes difficult to stop playing were all older than 25.

The reasons to play casual games given by the participants were: to relax, entertainment, to beat your own scores, and mental exercise. Where the last one, mental exercise, was mostly mentioned by the participants who are older than 36. The female participants older than 35 who participated in the average Dutch population survey also chose memory strengthening as a reason to play casual games.

It doesn't matter whether you are introvert or extrovert regarding casual games. There were no differences between these groups in game experience, reasons to play casual games, and in how often they play these games. The average score of casual game players on the extroversion scale is +5.3, which means that they are slightly more extrovert than introvert.

There are significant differences between age groups concerning how often the participants play casual games at Zylom. When you look at the participants who play every day, you can see that the older the participants are, the more they play daily. This difference is also seen in the average Dutch population survey; the participants older than 35 have played more minutes than the participants younger than 35. There was no difference between men and women regarding the time they spent playing casual games. When looking at which digital game characteristics are important for men and women, there is a clear difference. Men rated the game characteristics which can be found in console games as important, whereas the female participants rated the game characteristics which can be found in casual games as important. For example, men rated realistic graphics, sophisticated AI interactions, and long duration games as important characteristics, whereas women rated solving puzzles and short duration games as important characteristics.

There were big differences between the participants of the casual gamers survey and the participants of the average Dutch population survey. Participants of the casual gamers survey played casual games more often obviously and had a more positive game experience. The casual gamers experienced higher immersion, challenge, and positive affect compared to the participants of the average Dutch population survey. Participants of the average Dutch population survey were more annoyed and experienced negative affects more than the casual gamers did.

Participants of the casual gamers survey also had different reasons to play casual games; to escape from everyday life and memory strengthening are examples of reasons which the participants of the casual gamers survey found more important than the participants of the average Dutch population survey.

# 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](http://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, the 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 played more by women compared to men and why most of these women are over the age of 35. To reach this goal, several research questions have been set up.

The main research questions are:

- What are the differences between men and women regarding casual games?
- What are the differences between 20 – 35 year olds and 35+ year olds regarding casual games?

There were several aspects we studied concerning these main questions; how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which characteristics of digital games do they find important?

To answer these main questions and their aspects, the following questions are of interest:

- Which characteristics of casual games distinguish them from other games?
- Why are casual games played?
- What is the game experience when playing casual games?
- What is the post-game experience? (possible benefits or negative consequences)
- Are there differences between introvert and extrovert casual gamers?
- 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?

For these questions we made the comparison between men and women and between 20 – 35 year olds and 35+ year olds.

### 1.3 Scope

There are a lot of platforms to play digital games on; you can play on a 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; first, the games you can play for free, this is not a trial version and there won't be another more extensive version of the game available, or second, 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'll 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.

### 1.4 Research approach

In the first part of this thesis is a literature study which describes the literature dealing with game characteristics in general, female preferences in games, what are casual games, who plays casual games (demographics), the benefits and motives of playing casual games, and internet and game addiction.

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 2 surveys; the casual gamers survey and the average Dutch population survey.

All participants of the casual gamers survey are self-selected. They received the survey in a pop-up when they clicked on a game. The participants who took part in the average Dutch population survey didn't need any casual game experience, because we wanted the sample to be as random as possible. The participants of the average Dutch population survey were recruited from a database of the University of Technology in Eindhoven.

## 1.5 Outline

The outline of this thesis is as follows:

Chapters 2 - 7: describe the literature dealing with what are casual games, who play casual games (demographics), game characteristics in general, female preferences in games, the benefits and motives of playing casual games, and internet and game addiction.

Chapter 8: explains the research which is done by means of the casual gamers survey and the average Dutch population survey.

Chapter 9: includes the analysis of the casual gamers survey which was online at [www.zylom.nl](http://www.zylom.nl). Its goal is to show whether there are differences between male and female casual gamers and differences between different age groups. The survey will also discuss whether there are differences between introvert and extrovert casual gamers.

Chapter 10: provides an overview of the average Dutch population survey which goal it is to show why there are more female than male casual gamers. It will show the differences between men and women regarding casual games, and the differences between 20-35 year olds and 35+ year olds. It will also discuss the addictiveness of casual games.

Chapter 11: includes the comparison of the casual gamers survey and the average Dutch population survey.

Chapter 12: gives the discussion and conclusion of the thesis and the possible future work on casual games.



## 2. 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](http://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 sites 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.

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

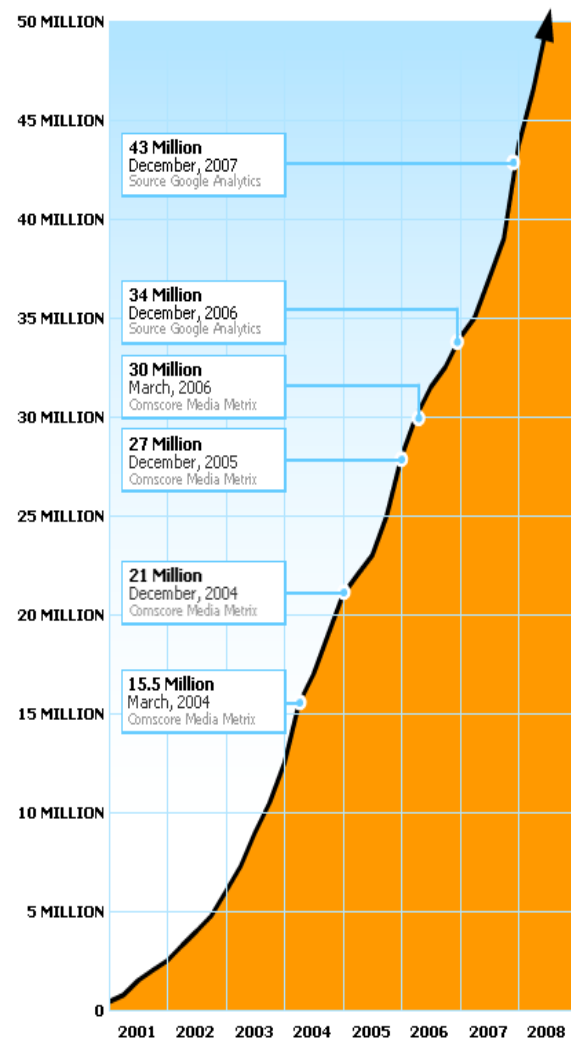


Figure 2 Unique visitors per month worldwide

### 3. 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<sup>1</sup> 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<sup>2</sup> and their Online Games Quarterly<sup>3</sup>. Zylom<sup>4</sup> 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. Forty-three percent of all videogamers in 2005 are female, whereas 38 percent in 2003. (IGDA, 2006)

We will discuss a few characteristics of the casual gamer which can be found in these studies.

#### 3.1 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 figures 3 and 4, retrieved from two different surveys done by respectively IGDA and ISG. As you can see in both figures the amount of 34+ and 30+ year olds are very high, 67 percent in the IGDA survey and even 89 percent in the ISG survey.

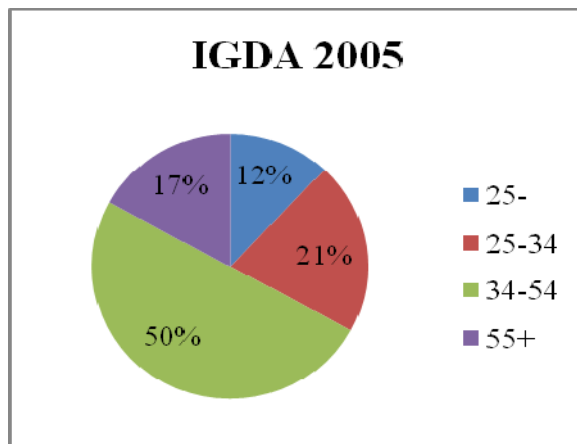


Figure 3 Age of casual game players (IGDA, 2005)

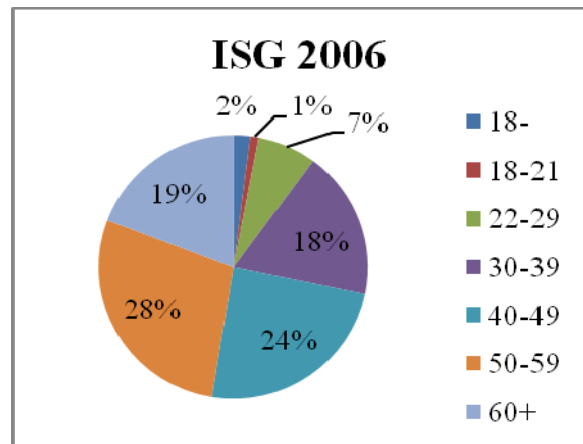


Figure 4 Age of casual game players (ISG, 2006)

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)

#### Notes:

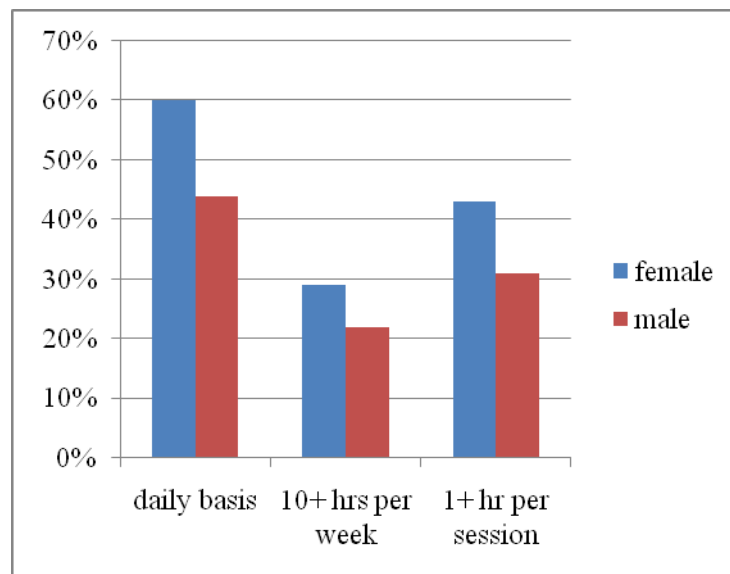
1. PopCap is an American casual game developer and publisher: <http://www.popcap.com/>
2. IGDA White Paper created by and for the community of online game developers on the art, craft, and science of online game development, published yearly.
3. Online Games Quarterly is a newsletter from IGDA.
4. Zylom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

## 3.2 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)

Sixty 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 5 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)

## 3.3 Marital status and education

According to the IGDA (2005) survey, 64 percent of the gamers were married and 46 percent have children. Forty 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.

### **3.4 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.

## 4. 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.

### 4.1 General characteristics

Several studies have explored game characteristics (Crawford, 1984; Malone, 1980; Prensky, 2001), some show the same characteristics, but some mention different descriptions of game characteristics. Crawford and Prensky are game designers who wrote books to discuss game characteristics. Malone conducted several experiments to understand which game characteristics are important (Malone, 1980a, 1980b).

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 experienced alone and not interactive. 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<sup>5</sup>: "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).

#### Notes:

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

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 *safety*, 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, players get bored and stop, on the other hand, if a game is too difficult, players stop because they get frustrated.

## 4.2 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 use 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 or 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. The other characteristics mentioned can however be found in casual games. There are rules and goals to structure the casual games. The characteristic feedback is partly seen in casual games; the game will let the player know when they are doing something good or bad, however, the social interaction which is also part of the characteristic feedback is not a characteristic of casual games. The characteristics challenge, conflict, competition and opposition are also characteristics of casual games.

## 5. Game preferences

The computer games industry is very male oriented, not only the game designers are mostly men, also the retail world and the gamers are mostly men. The whole industry is targeting young males to play the games (Laurel, 1998).

Nevertheless, the amount of female gamers has increased over the years. However, they have different preferences in gaming characteristics (Mehrabian & Wixen, 1986; Barnett et al, 1997; Cassell & Jenkins, 1999; Yates & Littleton, 1999).

There have been many studies concerning 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.

### 5.1 Female preferences

#### 5.1.1 Pick up and play

Women like the kind of games that you can pick up and play right away; they don't want to play with a console controller because of its technological complexity. They want short play and fast rewards.

Women are more likely to play on mobiles, online and on pc-games than they are to play console games because of these preferences (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.

#### 5.1.2 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.

According to Agosto (2004), the multiplayer modes and playing with friends are important factors for women when playing games.

#### 5.1.3 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, as Taylor (2003) found, everyone likes the excitement when they reach a new level or getting out of a difficult one, including the women.

#### 5.1.4 Violence

There has been a lot of research done on the topic violence, aggression and gender in video games. The main view, also found in the review on several studies of Nakamura and Wirman (2005), is that most women are uncomfortable with violence in games, whereas most men show greater preference for games with a violent theme. 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*<sup>6</sup>, saying 'I'd rather play violent games any day'.

### 5.1.5 Game speed

The game speed is very important to girl players; they prefer games in which they can play with a comfortable speed, not too high and not too low. Competing against the clock or computer, for instance, is not an attractive characteristic of games. (Suoninen, 1999 as cited by Nakamura & Wirman, 2005)

### 5.1.6 Gender stereotyping

A reason why the games industry is mainly focused on males is because women don't buy the games regularly, they borrow, share, or rent the games they want to play, this in contrast to men who buy more games. The industry will only see the men as consumers because they are the ones who buy the games (Kerr, 2003). This is one of the reasons why 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 avatars tend to be often weak victims who need protection or have to be rescued by powerful male avatars. "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" (Hartmann & Klimmt, 2006, p.3).

According to Kerr (2003, p.18), "females seemed most disturbed by condescending representations of women and blatant rewards which were clearly designed to fulfill particular heterosexual male fantasies."

## 5.2 Gender differences

Some differences between men and women were 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 are differences found between men and women. Significantly 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).

#### Notes:

6. 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.

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, multiplayer games, multiplayer 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). One of the characteristics men rated as important is multiplayer games, however in other studies (Haines, 2004; Agosto, 2004) this is a preference for women; they like the social component.

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.

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 Multiplayer games Multiplayer 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.

There was also research done regarding the game experience of men and women when playing games. This was done with the Game Experience Questionnaire (GEQ) which was developed by Poels, de Kort, and IJsselstein (2007). The GEQ measured several components of the experience the players had while playing games; competence, immersion (sensory and imaginative), flow, annoyance, challenge, negative affect, positive affect.

When looking at these components and the differences they found between men and women, the women had lower scores on all components except for the components negative affect and annoyance. Women scored higher on the component negative affect, and the component annoyance showed no difference between men and women (Poels, de Kort, IJsselstein, 2007).

The most positive experience was reported after playing FPS's and playing with co-located other(s), the most negative experience was after playing puzzles and quizzes and playing alone. The overall enjoyment of games was reported higher by men than women (Poels, de Kort, IJsselstein, 2007).

There will always be differences between men and women, however 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.

## 5.3 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.

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<sup>7</sup> 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)

**Notes:**

7. J.C. Herz is the principal of Joystick Nation Inc.

## 6. Benefits and motives

We've seen in a previous chapter the demographics of casual gamers in which we found that most casual gamers are female. We've also discussed several characteristics games have, and what the differences are between men and women regarding their game preferences. We now know what men and women prefer when playing games, but what are the reasons to play digital games? This chapter discusses the reasons and benefits to play digital games.

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.

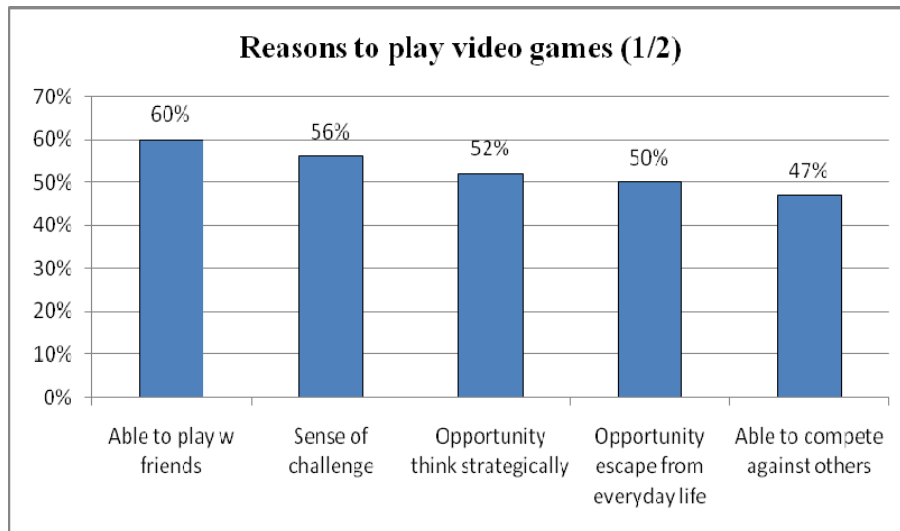


Figure 6 Reasons (1/2) (Nielsen, 2005)

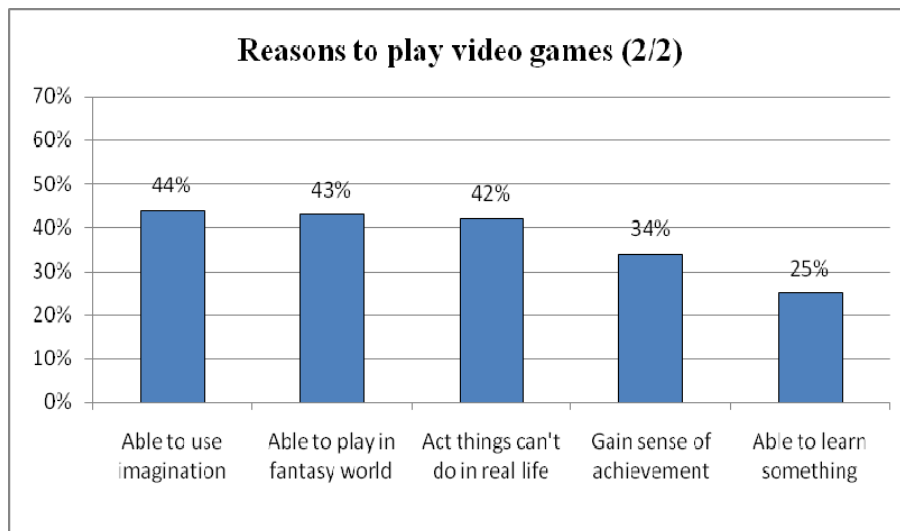


Figure 7 Reasons (2/2) (Nielsen, 2005)

## 6.1 Benefits of and motives for 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.

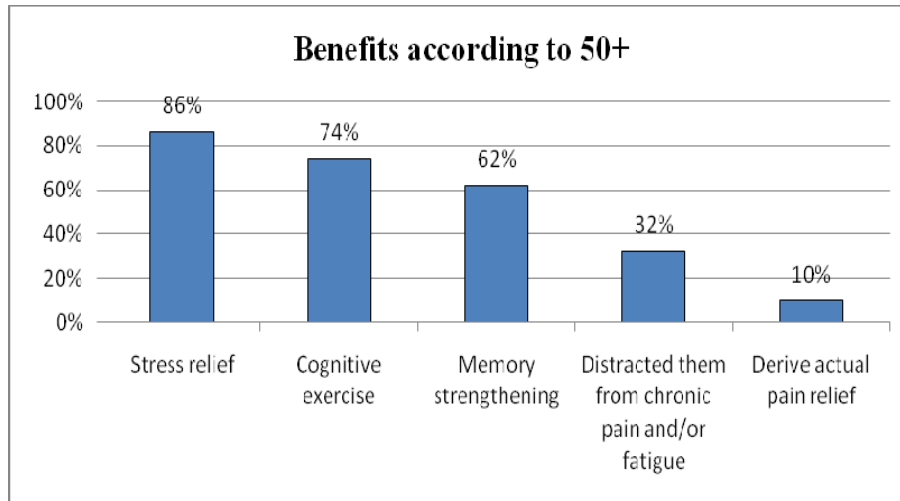
The highest score is for stress relief; playing games just to relax and unwind is the most chosen benefit by casual game players. The number one motive to play casual games (41 percent) is therefore also to relax / stress relief (Kerr, 2003). Another motive is entertainment, but this is chosen by only 19 percent of 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

Casual games are seen as addictive games, a casual games website even named their website [addictinggames.com](http://addictinggames.com). However, what makes these games addictive? Before we can answer this, 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 means that Internet addiction could be defined as an impulse-control disorder without an intoxicant. However, in what way do you have to diagnose someone to see whether they are addicted to the Internet? Young (1998) selected 8 criteria to diagnose Internet addiction (see appendix B), based on the 10 pathological gambling criteria of the DSM-IV (American Psychiatric Association, 1995). Those who say 'yes' to 5 out of the 8 criteria would be considered Internet-dependent. 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 8 criteria have to be answered with 'yes' and that at least one of the final three have to be met as well if you want to state that someone is addicted to the Internet.

There are several types of Internet addiction, Young specified it 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, Solitaire, which is a casual game. Game addiction will be discussed in chapter 7.2.

However, as Griffiths (n.d.) states, many Internet addicts are not really addicted to the Internet; they have other addictions (e.g. gambling, gaming), the Internet is just something they use to fulfill their needs.

Griffiths found only a few cases who appear to be addicted to the Internet itself, most of them used chat rooms or played role playing games, activities that they could not do without the Internet.

To see whether someone is addicted, Brown (1991, 1993) constructed a checklist with 6 facets. The first facet was *salience* (activity dominates someone's life), there were 2 types of salience; cognitive salience (mental life) and behavioral salience (person's behavior). The second facet was *euphoria*, which means the feeling of a 'buzz' or 'high'. The third facet was *tolerance*, the more you do the activity, the more you need to do it to feel the same 'buzz' or 'high'. The fourth facet was *withdrawal symptoms*, this is when someone experiences unpleasant emotions or even physical symptoms when not doing the activity. The fifth facet was *conflict*, meaning the conflicts you can have with other people or self-conflict regarding the activity. The sixth and final facet was *relapse and reinstatement*, which means that the activity is resumed in the same way after trying to stop.

Griffiths (2000) referred to all six of Brown's facets as 'core components' of addiction, but the research of Charlton (2002) shows that this should be refined with respect to computing behavior. Charlton (2002) stated that there are two different kinds of facets; the milder facets and the stronger core facets. 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)



One of the main issues in previous studies is the difference between someone who is Internet-dependent and someone who is highly engaged. The concepts addiction and dependency, as discussed earlier, are pathological, 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 both negative and positive effects. Yellowlees and Marks (2005) reviewed several studies in which they found the following negative effects: “tend to lose sleep, decrease social communication and have problems in their interpersonal relationships, use the Internet as their primary means of alleviating stress and depression, but also psychical complaints such as back strain, eyestrain, and carpal tunnel syndrome, and frequent time distortion.”

However, there have also been studies that stated some positive effects. Shotton’s (1989, 1991) study for example shows the positive sides of excessive Internet use. The participants of Shotton’s study stated that they improved their analytical and reasoning skills, they had greater technological knowledge and therefore also better job prospects. They also had improved their confidence, self-esteem, prestige, had more friends, less stress, boredom, and depression (Charlton, 2002).

### **7.1.2 Gratification factors of the Internet**

We’ve seen several criteria for Internet addiction and the consequences of excessive use, but why are people on the Internet, what are the gratification factors which make the Internet addictive? There have been several researches concerning these factors, which can be divided into two types: content gratifications and process gratifications (Song, Larose, Eastin & Lin, 2004). Content gratifications are connected to the world outside the Internet, process gratifications are connected to the Internet itself. Song, Larose, Eastin and Lin (2004) reviewed several studies in which several gratification factors were given. The gratification factors found were: interaction, escape, entertainment, surveillance, passing time, relaxation, social information, keep informed, diversion, peer identity, good feelings, communication, sights and sounds, career, and coolness. They did an exploratory factor analysis on all these factors and yielded 7 gratification factors specific to the Internet: virtual community, information seeking, aesthetic experience, monetary compensation, diversion, personal status, and relationship maintenance (Song, Larose, Eastin & Lin, 2004).

## **7.2 Game addiction**

When someone says video game addiction, most people will mention games like World of Warcraft and Everquest, which are MMORPG’s<sup>8</sup>, or MUD’s<sup>9</sup> like Dungeons and Dragons. These types of games are seen as the most addictive kind and most research is done concerning these game types. There are several studies where cases are discussed in which these games are represented as very addictive (Griffiths, 2000; Chak & Leung, 2004). However, there are also some who say that there have to be more research done before we can talk about video game addiction in the sense of 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)

#### **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

Computer games are designed to keep players interested, by giving them many different situations and give the appropriate feedback on the action they take. The game designer will try to make the games as engaging as possible. Most of the time, when a game is called addictive, it is very immersive and rewarding. When players are highly engaged by the game, it is difficult to keep track of the time. The behavior will become a problem when it dominates other behaviors, lead to conflicts with others or themselves, or when the player gets withdrawal symptoms when not playing the game (Fleming Seay & Kraut, 2007).

According to Wood et al. (2007) there is no objective evidence that games are addictive. Wood et al. stated that players who play excessively probably will have other problems. The game playing is only a symptom and not the cause. They also found that players who play frequently are more likely to play the games to escape from other problems, whereas players who play less frequently play the games for relaxation and escaping from everyday stress (Wood, Griffiths, & Parke, 2007).

O'Dwyer (2002) also mentioned that online gamers play these games because it relieves them of certain emotions like anger, depression and low self-esteem.

So we have to concentrate more on the players than on the games. According to Fleming, Seay and Kraut (2007) there are several factors concerning the psychological state of the players which are important regarding game addiction. Fleming, Seay and Kraut (2007) mentioned three factors: *self-monitoring* (keeping track of how long you have been playing), *self-evaluation* (comparing the time you have spent gaming with the time you have for other activities), and *self-consequence* (this is based on the self-evaluation. When playing more than usual, the player will take actions against their gaming). If someone has these factors, they are unlikely to become addicted (Fleming Seay & Kraut, 2007).

Research by Wan and Chiou (2006b) stated that players who excessively play online games are doing this because they want to be relieved of dissatisfaction, and are not looking for satisfaction. The players that are not addicted are gaming because they want satisfaction, players who have a game addiction tend to be affected by the sense of dissatisfaction. In their study they also mentioned Armstrong et al. who showed that players with low self-esteem were more likely to become addicted. Their research is only focused on MMORPG's, therefore Wan and Chiou mentioned that online casual games might show something different compared to the MMORPG's (Wan & Chiou, 2006b).

There are some studies concerning the flow experience regarding game addiction. Chou and Ting (2003) studied several flow components, empathy and discovery are experienced positively which can lead to excessive game playing. When these components are joined with the components relapse and tolerance, the player won't have self-control and will get withdrawal symptoms (Chou & Ting, 2003). Wan and Chiou (2006a) however stated that addiction to online games can't be explained by the flow experience.

One of the characteristics of games mentioned when talking about addiction is loss of time. When someone is highly engaged they will lose track of time. This characteristic is studied by Wood et al. (2007) who have done an online survey among gamers to see which characteristics are important regarding time loss. Respondents reported that 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" are associated with time loss (Wood, Griffiths, & Parke 2007). Time loss can be experienced as something positive, but also as something negative. The positive side of losing track of time is that you can relax and escape from everyday life, some respondents mentioned that when you lose track of time you know that it is a good game. However, there are also some negative aspects like missing other activities or when you feel guilty after playing the game because you could have done something more useful (Wood, Griffiths, & Parke 2007).

There is little research done regarding gender differences and game addiction. However, researchers at the Stanford University School of Medicine studied the reward centers in male and female brains when playing a game. The game began with a vertical line in the middle of the screen, the goal was to click the balls which approached the line from right to left before they reached the line. The lines moved to the right when balls were clicked at a certain distance from the line. When playing the game, the researchers made fMRI scans and discovered that the men's mesocorticolimbic center, associated with reward and addiction, was more activated compared to the women's. This maybe explains why there are more male gamers than female gamers (Hoeft, Watson, Kesler, Bettinger, & Reiss, 2008).

## 8. Research

Our main research questions were:

- What are the differences between men and women regarding casual games?
- What are the differences between 20 – 35 year olds and 35+ year olds regarding casual games?

Besides these main questions there were several questions which were also of interest:

- Which characteristics of casual games distinguish them from other games?
- Why are casual games played?
- What is the game experience when playing casual games?
- What is the post-game experience? (possible benefits or negative consequences)
- Are there differences between introvert and extrovert casual gamers?
- 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?

Some of these questions were answered in the literature study, the other questions will be answered in the study discussed in the following chapters.

In the literature study we found that most casual gamers are females over the age of 35. We've also seen that women like short play and fast rewards, without the hassle of a complex controller, they don't like violence and aggression in games in contrast to men. Women like finding, solving, avoiding and collecting things whereas men 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).

When looking at the reasons to play casual games, the literature study showed stress relief, relax and unwind, to beat their own scores, and mental exercise.

The literature study also discussed the questions regarding addiction, the only questions that weren't discussed are:

- Are casual games addictive?
- What elements make them addictive?

These questions will be discussed in chapter 10.

The following chapters will discuss the research which is done to understand why casual gamers are mostly women and over the age of 35.

To answer the main research questions the research was done in two parts; the first part was an online survey which was filled in by casual gamers, and the second part was an online survey filled in by all kinds of participants who didn't need game experience. The first survey will be called 'casual gamers survey'; the participants received this survey when they clicked on a game at Zylom.nl. The second survey will be called 'average Dutch population survey'. This survey was conducted with a group of participants who represent the Dutch population; with all educational levels and various occupations, some of them played digital games daily and some didn't play digital games at all, the only similarity is that they were all Dutch.

We wanted to know the differences between men and women and the differences between the age groups 20 – 35 and 35+. If you only conduct a survey with casual gamers, you will only have participants who like to play casual games; male and female casual gamers of all ages. However, we can understand what the game experience is of casual gamers when they are playing casual games, their reasons to play these games, and whether there is a difference between introvert and extrovert casual gamers.

However, if you want to understand why certain groups play casual games more than others, you will have to research the preferences of a group which is not biased. This was done with the average Dutch population survey.

You can't be complete without one of the surveys. Because the two groups of participants were different from each other, they had to be approached differently. We couldn't use the same surveys for both groups because of the different levels of knowledge of casual games. Therefore there were two different surveys, one especially made for the casual gamers and one for the average Dutch population. In the casual gamers survey we've studied:

- the game experience,
- reasons to play casual games,
- introversion/extroversion of the participants,
- how often they played casual games at Zylom.

This survey is filled in once by the participants, because they know what casual games are and didn't need an introduction to casual games. However, the participants of the average Dutch population survey needed more time to understand what casual games are and whether they liked the games or not.

Therefore the average Dutch population survey lasted for 7 days in which all participants played at least one casual game each day. Each day they filled in an online form with what they played that day, how long they played, at what time and where they played the game(s). Additional online forms were filled in during the 7 days concerning:

- demographical data,
- gaming habits,
- game experience,
- post-game experience,
- reasons to play casual games,
- digital game characteristics.

After these 7 days a subset of the participants was interviewed about their experience playing casual games and the possible addictiveness of casual games was also discussed.

In both surveys we've asked the game experience, reasons to play casual games and how often they play. Therefore we can compare the results of the survey answered by people who play casual games regularly with the results of the survey answered by people who don't play these games regularly. These aspects, besides gender and age, will be central when we discuss the differences between the participants of the casual gamers survey and the participants of the average Dutch population survey.

One of the aspects studied in the casual gamers survey was introversion/extroversion of casual gamers. The questions regarding this subject were only asked in the casual gamers survey because we were only interested in the introversion/extroversion of casual gamers and not in the introversion/extroversion of the average Dutch population.

In chapter 9 we discuss the casual gamers survey and in chapter 10 the average Dutch population survey. Chapter 11 will describe the differences found in both surveys between men and women and between the age groups 20 – 35 and older than 35. We will discuss whether these differences are different from each other.

## **9. Casual gamers survey**

### **9.1 Introduction**

Casual games are mainly played by women of the age of 35 or above, so there is a difference between men and women and between 20 – 35 year olds and 35+ year olds. However, do these differences also exist in the casual gamers sample?

This survey studied what the differences are between male and female casual gamers and also what the differences are between 20 – 35 year olds and 35+ year olds regarding these casual games.

The casual gamers survey was online at Zylom.nl for 2 weeks. Zylom, part of RealGames, is the leading provider of web- and downloadable games in Europe. They have more than 2.5 million unique visitors each month and on average each visitor comes back 13 times per month.

There were several aspects which were studied in this survey; the game experience, the reasons to play casual games, the introversion/extroversion of the casual gamers, and how often they play casual games at Zylom.nl. In the casual gamers survey we included the introvert/extrovert questions because we wanted to know whether it is a characteristic which can be linked to casual gamers.

### **9.2 Methodology**

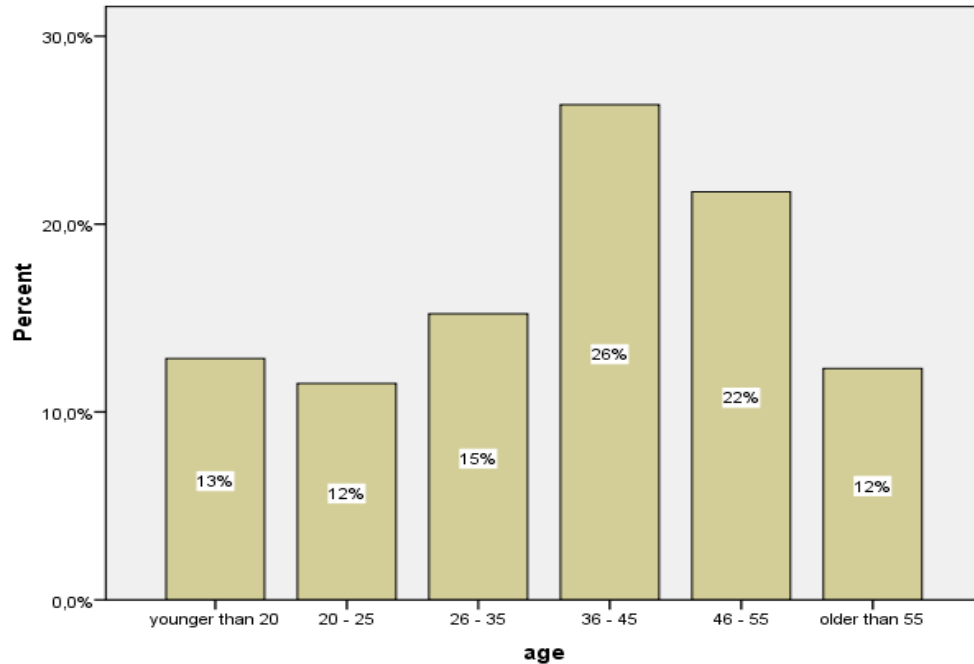
#### **9.2.1 Design**

The casual gamers survey consisted of 7 pages, including a welcome message and a thank you message at the end. In the online survey were questions about game experience, reasons to play casual games, and whether participants were introvert or extrovert.

All data was collected by Zylom, the analysis was done with SPSS 16.0.

#### **9.2.2 Participants**

Our sample consisted of 1093 self-selected participants who played online casual games at Zylom.nl. After excluding the participants who left questions open the final sample was 755 participants. We excluded these participants to make the data of the dataset more complete and making the overview of the analysis more clear. This group consisted of 108 men (14%) and 647 women (86%), with the ages seen in figure 9. The overrepresentation of women in casual games is clear from these numbers.



**Figure 9 Age participants in percent**

The frequency with which the participants play on Zylom.nl varied from daily (41%), 3-6 times per week (32%), 1-2 times per week (15%), couple of times per month (10%), and less than a couple of times per month (3%).

### 9.2.3 Procedure

The casual gamers survey was online for 2 weeks at [www.zylom.nl](http://www.zylom.nl). When someone clicked on a game, a pop-up was shown with the survey. In the welcome message of the survey the participants were asked to play the game they clicked and answer the questions after they played the game.

The survey consisted of the In-game Experience Questionnaire (iGEQ), questions about the reasons to play casual games, and questions to measure the introversion/extroversion of the participants. Besides these main parts of the survey, there were also questions about gender, age, and how often they played casual games at Zylom.

### 9.2.4 Setting and materials

Participants played a game at [www.zylom.nl](http://www.zylom.nl) before filling in the survey. Zylom is a website with web- and downloadable games. Participants could fill in the survey whenever they wanted and could take how long they wanted; there wasn't a time limit.

### 9.2.5 Dependent variables

The casual gamers survey consisted of three parts; the In-game Experience Questionnaire (iGEQ), questions about the reasons to play casual games, and questions about introvert/extrovert.

The iGEQ is the short version of the Game Experience Questionnaire (GEQ) in which the following components can be found: competence, sensory and imaginative immersion, flow, annoyance, challenge,

negative affect, and positive affect. Questions were rated on a five point scale; 0 (not at all) to 4 (extremely) (Poels, de Kort, IJsselstein, 2007).

There were 17 questions concerning the reasons to play casual games. All items were selected looking at previous research (ISG, 2006; Nielsen, 2005; PopCap, 2006; Zylom NL, 2007; Zylom UK, 2007), see also chapter 6. Participants rated the item 1 when it was not relevant, 2 when the item was a nice side-issue and 3 when the item was a reason to play casual games.

The introvert/extrovert questions were from the Big-Five factor structure (Goldberg, 1992). The questions were rated on a seven point scale; 1 (disagree/not true) to 7 (agree/true). The first 5 questions are +keyed, the final 5 questions are -keyed. The total amount of points accumulated from the 10 questions is the extraversion of the participant, ranging from -30 when someone is very introvert and +30 when someone is very extrovert.

## 9.3 Results

Since our main research questions are about gender and age differences, the results will be divided into several sections. The first part shows the overall results in which we discuss the results of all participants, in the second part the differences between men and women are discussed, third the differences between the age-groups, and in the final part the introvert/extrovert characteristic is discussed.

### 9.3.1 Overall results

#### Game experience:

This section will discuss the game experience of the participants which is studied with the In-game Experience Questionnaire (iGEQ).

The components of the iGEQ can get scores ranging from 0 (not at all) to 4 (extremely). As you can see in table 5, the positive affect component of the iGEQ has the highest mean score (2.2) and the annoyance component has the lowest with 0.5. The participants of the casual gamers survey felt moderately content and good when playing the games, and almost didn't feel any irritation or frustrations.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
Mean	1.8	1.3	1.4	0.5	1.6	0.6	2.2

**Table 5** The overall mean scores of the components of the iGEQ



### Reasons to play casual games:

On the third page of the casual gamers survey were questions about the reasons to play casual games. Participants filled in whether they found the items not relevant, a nice side-issue or a reason to play casual games. There were several items which participants chose as reasons; the items 'to relax' and 'entertainment' were chosen most often. However the items 'to beat your own scores', 'mental exercise', 'sense of challenge', 'opportunity to think strategically', 'opportunity to escape from everyday life', 'stress relief', and 'memory strengthening' are also worth mentioning with an average score higher than 1 (2 is the maximum score the items could receive), see figure 10.

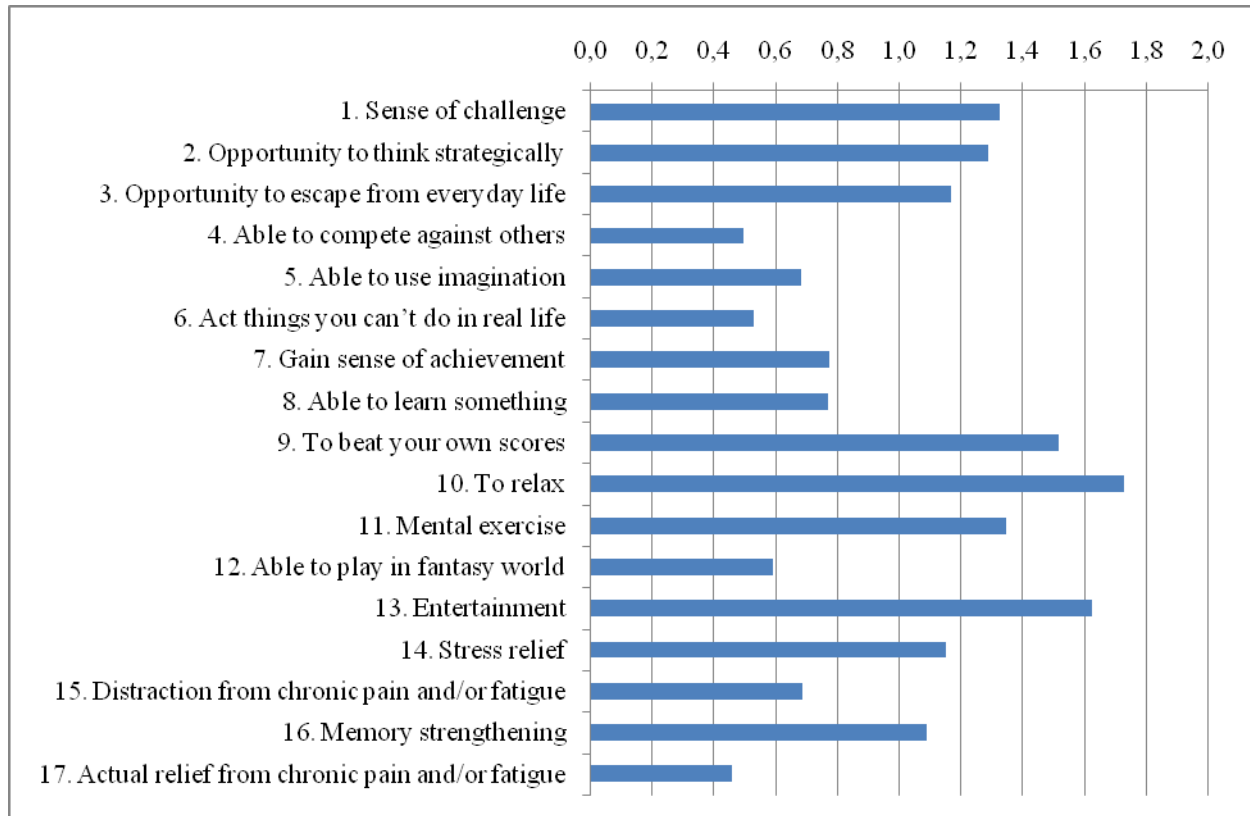


Figure 10 Average scores of the items: reasons to play casual games

### Introvert/extrovert:

The casual gamers survey included 10 questions about introversion and extroversion to see whether casual gamers are introvert or extrovert. On average, the participants are slightly more extrovert than introvert, with a mean of 5.3.

13% of the participants rated +20 or higher on the extroversion scale where -30 is the minimum and +30 is the maximum, 2% rated -20 or lower, see figure 11.

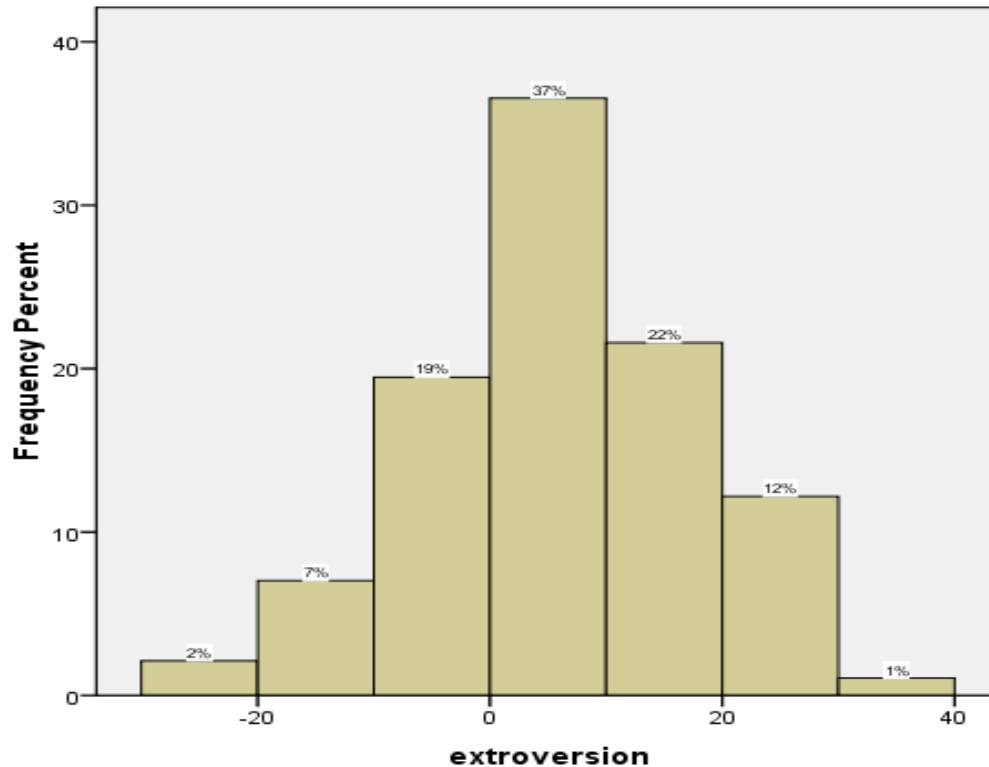


Figure 11 Extroversion of the participants

## 9.3.2 Gender differences

This section discusses the research question:

- What are the differences between men and women regarding game experience, reasons to play casual games, introversion/extroversion, and how often they play casual games?

### Game experience:

We used the In-game Experience Questionnaire (iGEQ) to study the game experience of casual gamers. The ANOVA table was used to see whether male casual gamers experience something different when playing casual games compared to female casual gamers. This showed that there were no significant differences between men and women concerning the components of the in-game questionnaire. The game experience is for both genders more or less the same, see table 6.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
Male	1.8	1.4	1.4	0.6	1.7	0.7	2.1
Female	1.8	1.3	1.4	0.5	1.6	0.6	2.2

Table 6 The mean scores of the components of the iGEQ specified by gender

### Reasons to play casual games:

Participants received 17 items concerning the reasons to play casual games, the average scores for men and women are shown in figure 12. T-tests showed that there were several significant differences between male and female casual gamers. The items 'to relax', 'mental exercise', 'entertainment', 'stress relief', 'distraction from chronic pain and/or fatigue', and 'memory strengthening' were rated as a reason to play casual games more by women than men.

50% or more of the males rated the items 'to beat your own scores', 'to relax', and 'entertainment' as reasons to play casual games. Females rated also 'mental exercise' as a reason in addition to the reasons given by men.

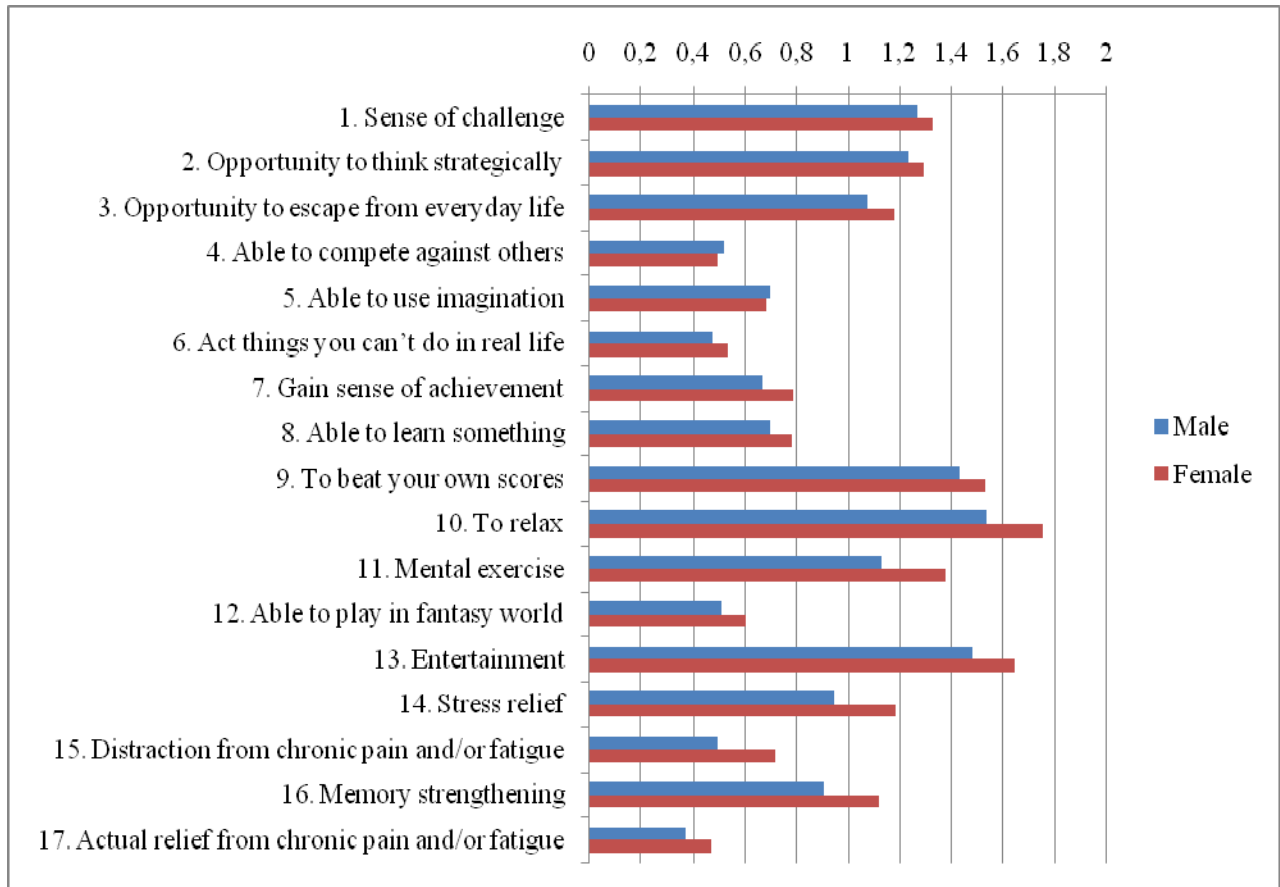


Figure 12 Average score of the items: reasons to play casual games | specified by gender

### Playing frequency:

In the casual gamers survey was the question ‘How often do you play casual games at Zylom?’. There was no significant difference between the answers of the male and female participants regarding the playing time. As you can see in figure 13, there are slightly more females than males who play every day, but adversely there are more males who play 3 to 6 times per week compared to females.

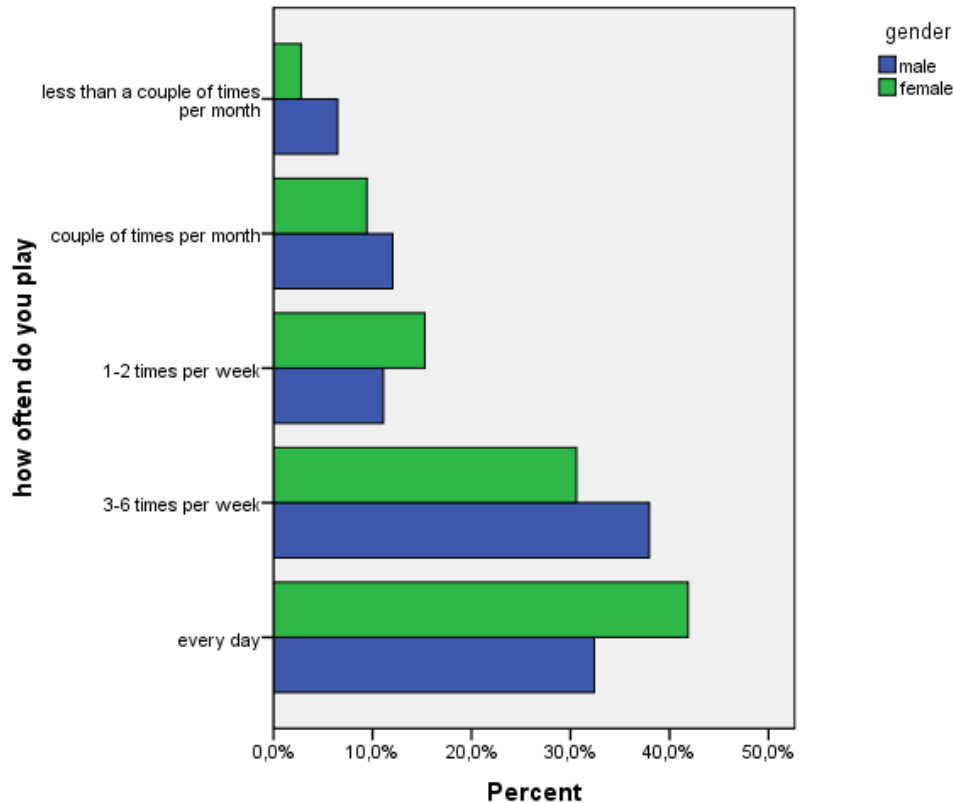


Figure 13 How often men and women play casual games at Zylom

### 9.3.3 Age differences

This section discusses the research question:

- What are the differences between the age groups regarding game experience, reasons to play casual games, introversion/extroversion, and how often they play casual games?

The following age groups were used in the casual gamers survey:

- younger than 20
- 20 – 25
- 26 – 35
- 36 – 45
- 46 – 55
- Older than 55

### Game experience:

We used the In-game Experience Questionnaire (iGEQ) to study the game experience of the various age groups.

The age group ‘younger than 20’ scored on almost all the components of the iGEQ higher than the other age groups. In Table 7 the correlation is shown between the components and the age, the first row including the age group younger than 20, the second row excluding this age group. When looking at the first row, almost all components have significant correlations, however, this could be caused by the high scores of the youngest age group. This is why we have also included the correlation between the components and the age groups excluding the age group younger than 20.

The components immersion and negative affect have significant correlations when excluding the youngest age group. The component immersion has a positive correlation; the score is increasing when the age is increasing. The component negative affect has a negative correlation; the score is decreasing when the age is increasing.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
Age, incl. the age group younger than 20	-0,140**	-0,052	-0,085*	-0,232**	-0,117**	-0,245**	-0,062
Age, excl. the age group younger than 20	-0,061	0,081*	0,000	-0,056	-0,026	-0,158**	0,007

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

Table 7 Pearson correlation between iGEQ components and age

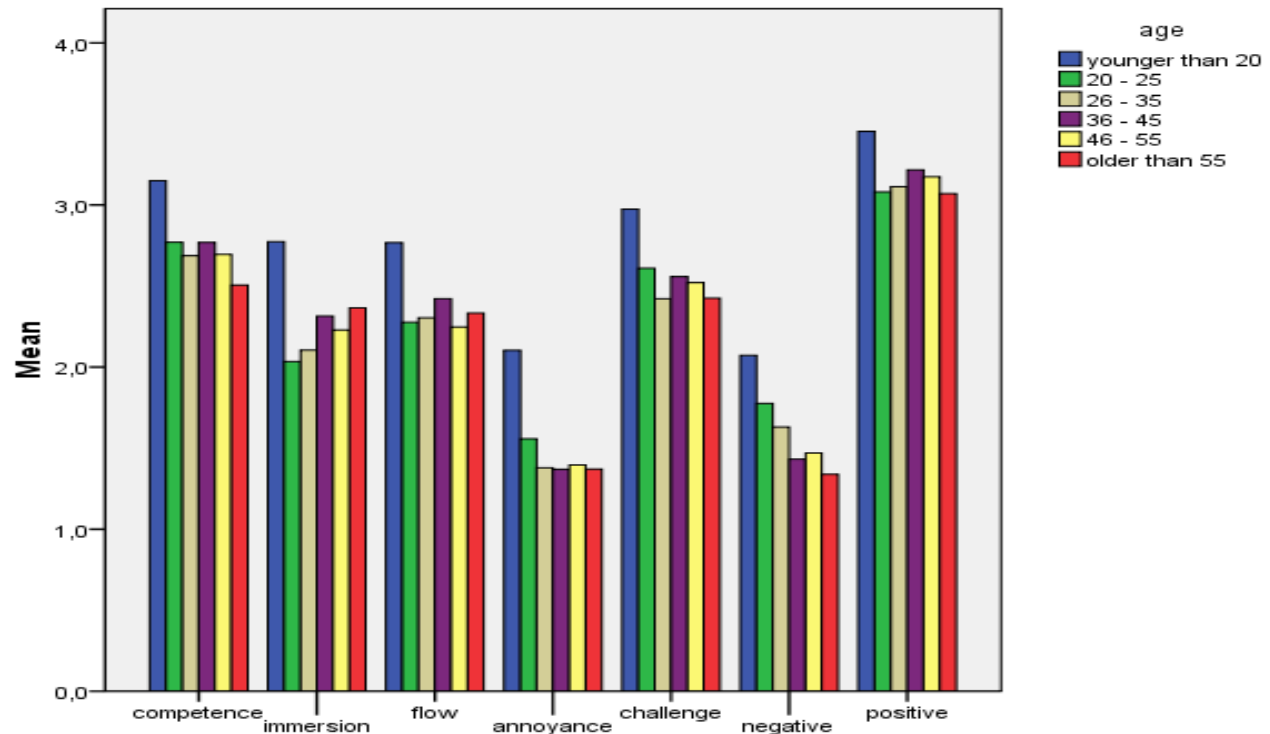


Figure 14 The mean scores of the iGEQ components per age group

### Reasons to play casual games:

There were 17 items in the casual gamers survey concerning the reason to play casual games. The items were rated as not relevant, nice side-issue, or as a reason to play.

There were several items which have a significant difference between age groups:

1. Sense of challenge (Sig. 0,001)
2. Opportunity to think strategically (Sig. 0,006)
4. Able to compete against others (Sig. 0,003)
5. Able to use imagination (Sig. 0,005)
6. Act things you can't do in real life (Sig. 0,000)
7. Gain sense of achievement (Sig. 0,000)
9. To beat your own scores (Sig. 0,000)
10. To relax (Sig. 0,000)
11. Mental exercise (Sig. 0,001)
12. Able to play in fantasy world (Sig. 0,000)
15. Distraction from chronic pain and/or fatigue (Sig. 0,001)
16. Memory strengthening (Sig. 0,000)
17. Actual relief from chronic pain and/or fatigue (Sig. 0,003)

The items 'able to use imagination', 'act things you can't do in real life', 'gain sense of achievement', and 'able to play in fantasy world' were selected as a reason by more participants of the age group younger than 20 than the other age groups.

'Mental exercise' and 'memory strengthening' were rated as a reason by more participants of the older age groups than of the younger age groups. See appendix I for the percentage per age group for the items that have a significant difference.

The items that were rated as a reason to play casual games per age group are in table 8, as you can see 51% of the age group 20 – 25 rated 'sense of challenge' as a reason to play casual games. In the second column is the number of participants per age group.

Age group	N	Sense of challenge	Opportunity to think strategically	To beat your own scores	To relax	Mental exercise	Entertainment
younger than 20	97				61%		68%
20 – 25	87	51%		64%	81%		75%
26 – 35	115			58%	79%		70%
36 – 45	199			63%	81%	51%	66%
46 – 55	164	51%	53%	65%	78%	58%	66%
Older than 55	93			62%	79%	61%	61%

**Table 8 Items rated as a reason by 50% or more per age group**

### Playing time:

With the question ‘How often do you play casual games at Zylom?’ we can study how often the different age groups play casual games.

There are significant differences between age groups concerning how often the participants play casual games at Zylom. As seen in figure 15, 40% of the participants older than 75 plays less than a couple of times per month whereas the other age groups have an average of 2%. When you look at the participants who play every day, you can see that the older the participants are, the more they play daily.

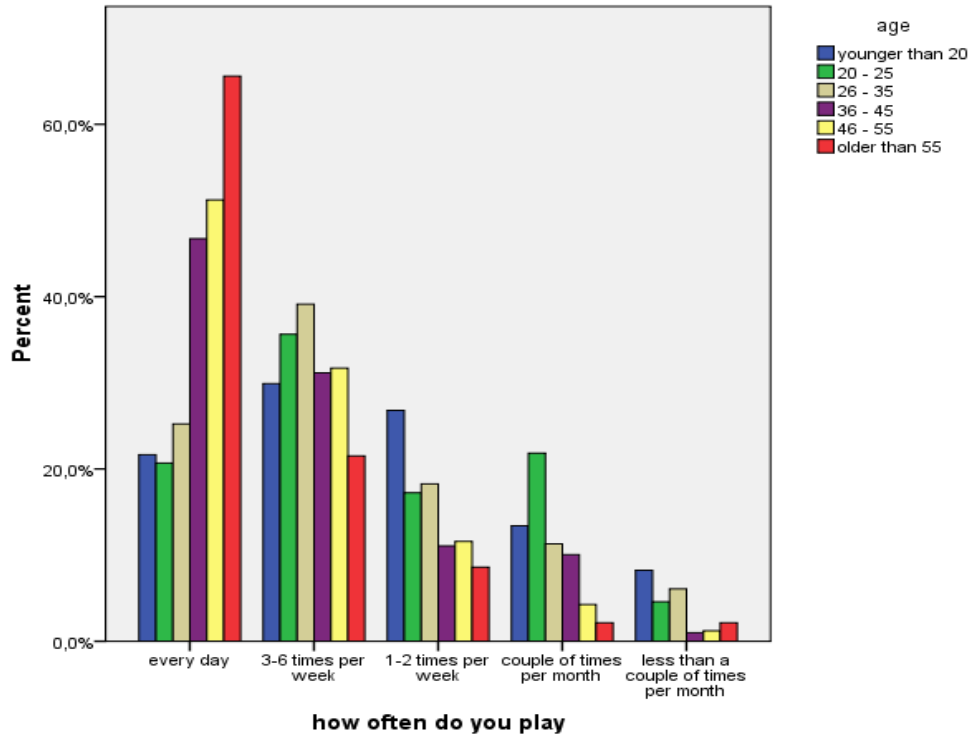


Figure 15 How often participants play casual games at Zylom, per age group

### 9.3.4 Introvert/extrovert

This section will discuss whether introversion/extroversion has an influence on game experience, reasons to play casual games and on how often they play casual games.

The range of the extroversion scale is from -30 to +30. When someone is called introvert, the score will be lower than 0, when someone is called extrovert, the score will be higher than 0. When someone scored 0, they are neither introvert nor extrovert, these participants were excluded from the following analysis (N=48).

### Game experience:

The game experience was measured with the In-game Experience Questionnaire (iGEQ).

There are no significant differences between introvert and extrovert participants concerning the components of the iGEQ. The mean scores of introvert and extrovert participants which can range from 0 to 4 are shown in table 9. The component positive affect has the highest score (2.2), given by both groups. Annoyance and negative affect scored the lowest by both introvert and extrovert participants.

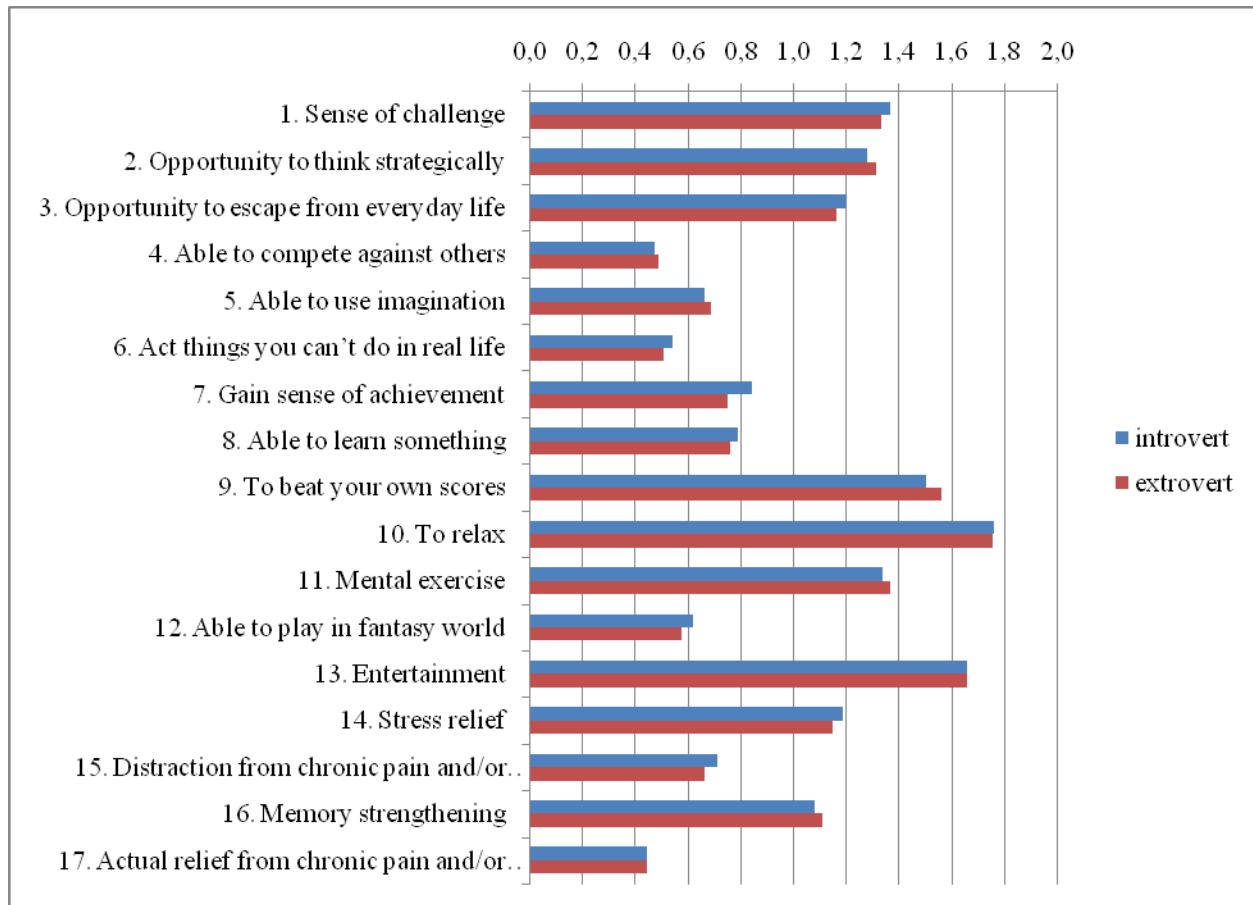
	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
<b>Introvert</b>	1.8	1.4	1.4	0.5	1.6	0.5	2.2
<b>Extrovert</b>	1.7	1.2	1.3	0.4	1.6	0.5	2.2

**Table 9** The mean scores of the components of the iGEQ specified by introvert/extrovert.

### Reasons to play casual games:

There were 17 items participants rated as either not relevant, a nice side-issue, or as a reason to play casual games. There is no significant difference between introvert and extrovert participants concerning these items. As you can see in figure 16, the average scores of introvert and extrovert participants don't differ much.

The items 'to beat your own scores', 'to relax', and 'entertainment' were rated as a reason by 50% or more of the introvert participants. More than half of the extrovert participants also rated, besides these three items, 'mental exercise' as a reason to play casual games.



**Figure 16** Average scores of the items: reasons to play casual games | specified by introvert/extrovert



### Playing time:

When looking at the question ‘How often do you play casual games at Zylom?’ and the extroversion scores of the participants, we didn’t find a significant difference between introvert and extrovert participants. As you can see in figure 17 it didn’t matter whether the participants were introvert or extrovert when looking at how often they play casual games, however there were slightly more introvert participants who play casual games every day.

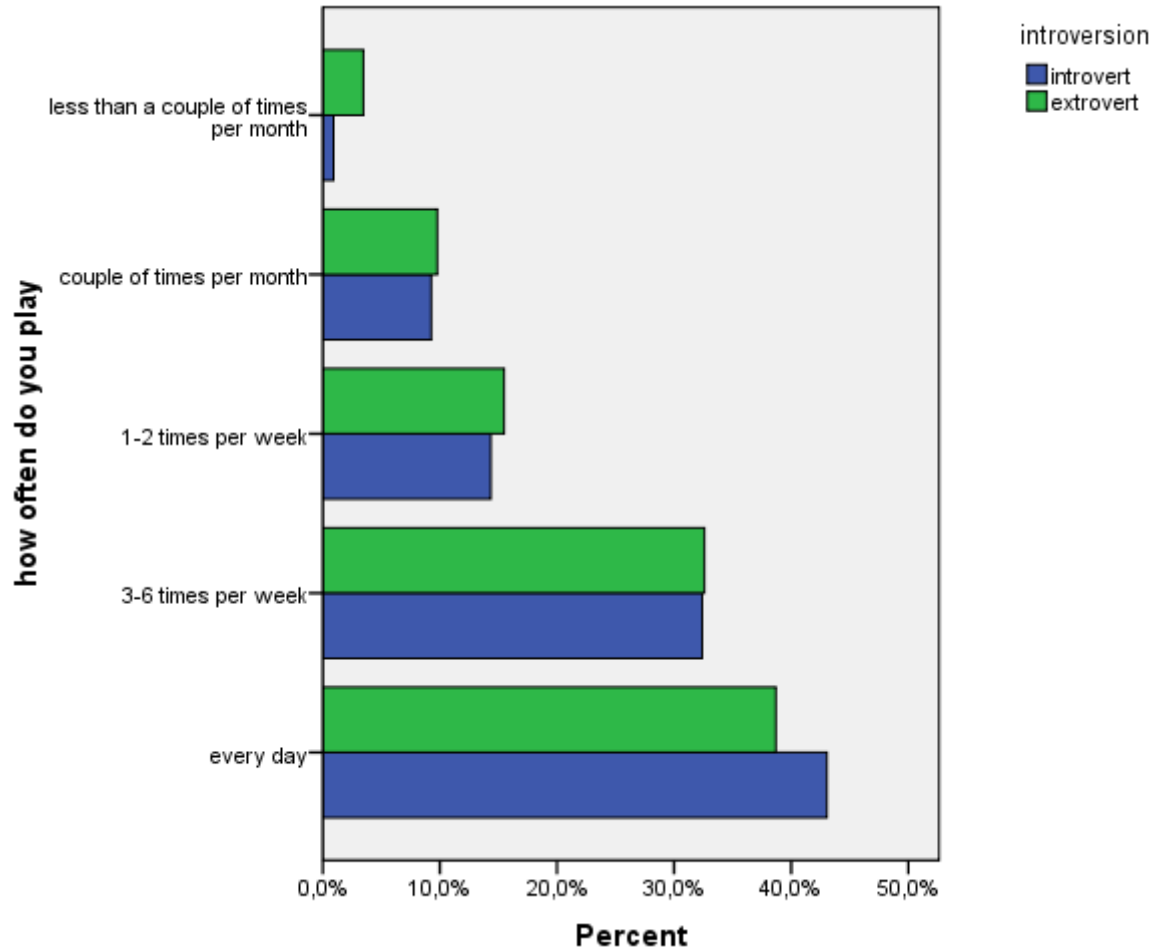


Figure 17 How often do you play casual games? | specified by introvert/extrovert

## 9.4 Discussion

The casual gamers survey had the goal to answer the following research questions:

- What are the differences between men and women regarding game experience, reasons to play casual games, introversion/extroversion, and how often they play casual games?
- What are the differences between the age groups regarding game experience, reasons to play casual games, introversion/extroversion, and how often they play casual games?
- What are the differences between introvert and extrovert casual gamers regarding game experience, reasons to play casual games, and how often they play casual games?

The sample consisted of only casual gamers in which we saw that there was an overrepresentation of women. We studied whether there are still differences between men and women and between the age groups regarding game experience, reasons to play, and how often they play casual games, even though they all liked casual games.

First we will discuss the differences between male and female casual gamers, second the differences between the age groups, and third the differences between introvert and extrovert casual gamers.

### **Gender differences:**

As mentioned before, there was an overrepresentation of women in our sample, this is conform to what we had found in the literature study that casual games are mostly played by women. However, when comparing the game experience of male and female casual gamers, the experience is the same. The overall game experience was positive with almost no irritation or frustration.

There was also no difference between men and women regarding how often they played the games, both men and women played with the same frequency. However there were more female casual gamers who played daily compared to the men.

Although they all liked casual games, male and female casual gamers had slightly different reasons to play casual games. The most important reasons the casual gamers mentioned are to relax, entertainment and to beat your own scores. On top of these reasons the female casual gamers also found mental exercise a reason to play casual games. When comparing male and female casual gamers regarding their reasons to play, to relax, mental exercise, entertainment, stress relief, distraction from chronic pain and/or fatigue, and memory strengthening are worth mentioning because women found these reasons more important than men.

There was no difference between men and women regarding introversion/extroversion, however, male casual gamers are slightly more extrovert than female casual gamers.

### **Age differences:**

The casual gamers survey had multiple age groups in which we studied the game experience, reasons to play casual games, how often they play casual games, and their introversion/extroversion.

The youngest age group, younger than 20 years old, had the most intense game experience with high scores on every aspect we studied compared to the other age groups. They had the highest score in positive affect, but also the challenge and competence when playing casual games was scored high in this age group. The components immersion and negative affect had significant correlations when excluding the youngest age group. The component immersion had a positive correlation; the score is increasing when the age is increasing. The component negative affect had a negative correlation; the score is decreasing when the age is increasing.

The age groups had also different reasons to play casual games. To relax and entertainment were the reasons for all age groups. However some age groups had more reasons besides to relax and entertainment. For example casual gamers older than 20 also found to beat your own scores a reason to

play casual games and casual gamers older than 36 found mental exercise a good reason to play casual games.

The differences between the age groups were not that clear regarding how often they played casual games. However when you look at the casual gamers who played every day; the older the casual gamers were, the more they played daily.

The introversion/extroversion of the age groups didn't differ much, the casual gamers between 20 and 25 years old are the most extrovert compared to the other age groups.

### **Introvert/extrovert differences:**

In addition to our main research questions, we also studied the personality dimension extroversion in the casual gamers survey to see whether there were any relationships between introversion/extroversion and game experience, reasons to play casual games, and how often they play casual games.

We didn't find differences in the experience introvert and extrovert casual gamers had when playing casual games. They both experienced positive affects and had the same level of challenge and negative affect.

There was also no difference in the reasons to play casual games between introvert and extrovert casual gamers. They both had the reasons to relax, entertainment, and to beat your own scores. However the extrovert casual gamers also had mental exercise as a reason to play casual games.

To study whether introvert or extrovert casual gamers play more often, we asked the question 'How often do you play casual games at Zylom?'. There were slightly more introvert casual gamers than extrovert casual gamers when looking at the casual gamers who played every day. There weren't any differences in the other categories between introvert and extrovert casual gamers.

## 10. Average Dutch population survey

### 10.1 Introduction

In chapter 9 we discussed the casual gamers survey which was conducted among avid casual gamers, recruited via a casual games website. The casual gamers survey gave us insight in the casual gamer concerning their game experience, their reasons to play casual games, how introvert/extrovert they are, and how often they play these games. However, how does the average Dutch population look at these games; what is their game experience, what are their reasons to play casual games and how often do they play. Therefore we also conducted the average Dutch population survey with a group of participants that represent the average Dutch population. Besides the game experience, reasons to play casual games, and how often they play, we also wanted to know which characteristics of digital games they liked. Can these characteristics explain why the average casual gamer is a woman over the age of 35? However you can't ask participants their game experience if they have never played casual games, on that account this survey had a different set up than the casual gamers survey. The average Dutch population survey was done in 7 days in which we also asked the participants about their post-game experience.

To conduct this survey, we had the following main research questions:

- In an average population sample, what are the differences between men and women regarding casual games?
- In an average population sample, what are the differences between 20-35 year olds and 35+ year olds regarding casual games?

These main questions had to be broken down into the following questions:

- What are the differences between men and women regarding how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which game characteristics do they find important?
- What are the differences between 20-35 year olds and 35+ year olds regarding how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which game characteristics do they find important?

Besides these questions we were also interested in:

- Are casual games addictive?
- What is a gamer?
  - o Is someone who plays casual games a gamer?

### 10.2 Methodology

#### 10.2.1 Design

In this survey participants were introduced to casual games and played them for 7 days. During these 7 days participants filled in several online questionnaires on previous gaming habits, game experience, post-game experience, reasons to play casual games, game characteristics, and how often and how long they played the games. After the survey a subset of the participants was interviewed.

## 10.2.2 Participants

Participants were recruited by email or recruited with the aid of the database of the University of Technology in Eindhoven. People can sign in regardless of their game experience.

The survey is done with 51 participants divided into four groups:

- 13 men, aged between 20 – 35
- 10 men, older than 35
- 14 women, aged between 20 – 35
- 14 women, older than 35

The group consisted of 23 men (45%) with an average age of 36, and 28 women (55%) with an average age of 35. The youngest participant was 20 years old, the oldest was 59 years old.

The living status of the participants varied from living alone (22%), living with parents (10%), living with partner, no children living at home (29%), living with partner and children (35%), and living alone, with children living at home (4%). 57% was married, 39% was single and 4% was divorced. 23 participants (45%) had children, with an average of 2 kids per participant.

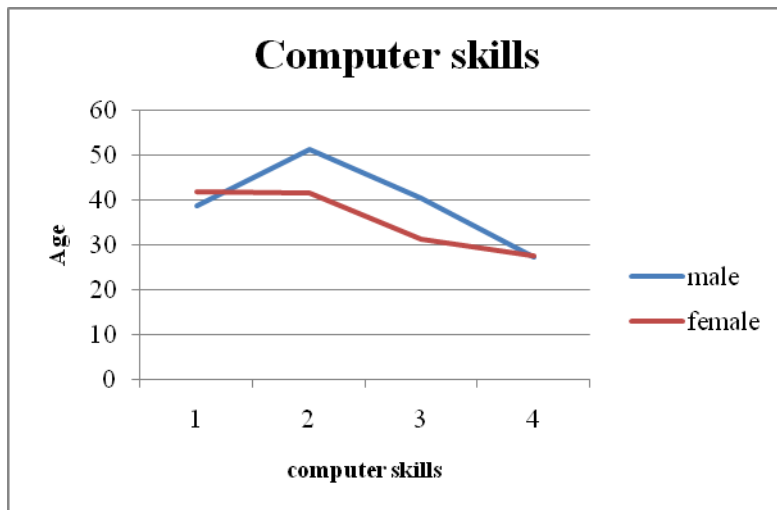


Figure 18 Average age per computer skills level of men and women

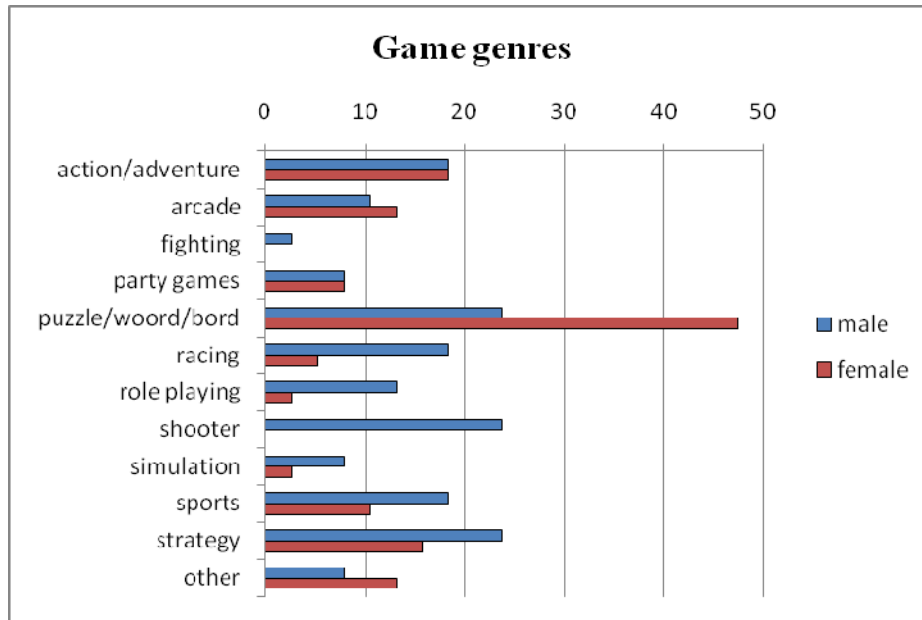
You might expect that women score lower on computer skills compared to men, but the women don't score much lower with 2.7 compared to the men with an average score of 3.1. However, as expected, computer skills showed a slight decline with age, see figure 18. All participants had some experience with computers because nobody rated their computer skills with a 0.

### 10.2.2.1 Gaming habits

Before the survey started we asked every participant to fill in the gaming habits form to see what experience they had with digital games.

#### Game genres:

25% of the participants didn't play digital games before the experiment, 75% of the participants did play digital games before the experiment. In figure 19 the game genres are shown which the participants who play digital games have chosen as the genres which they play (multiple answers possible).



**Figure 19 Game genres chosen by the participants who play digital games**

The most popular genre is the puzzle/word genre; 71% chose this as a genre which they play. However, if you divide the choice by gender it is even more remarkable because of all participants that play digital games 47% who chose this genre was female, whereas only 24% was male.

The genres fighting games and shooters were only chosen by male participants. The racing genre is also mainly chosen by men, except for 2 women. And also the role playing genre is a masculine genre; only 1 female chose this genre.

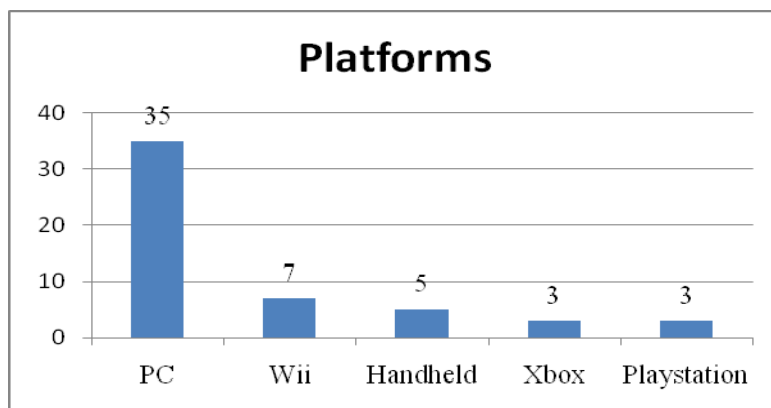
### Playing time:

How often participants played digital games varied from daily (8%), weekly (42%), monthly (34%), to less than monthly (16%).

More than half of the participants played digital games for 10 to 60 minutes each session (63%). 24% played less than 10 minutes per session and 13% plays more than 60 minutes.

Most participants preferred playing games in the evening (76%), however there were several participants who stated that they play in the morning (11%) and afternoon (11%).

In figure 20 the platforms are shown which the participants use to play digital games (multiple answers possible). The PC is by far the most popular platform to play games on; 35 participants selected the PC. 61% doesn't buy games, 40% does buy games.



**Figure 20 Which platforms are used to play digital games?**

When asked ‘Are you a gamer?’ only 18% said yes, 82% answered no. Of the 7 participants who called themselves a gamer, 4 of them were males between the ages of 20 and 35, whereas only 1 male and 1 female older than 35 and 1 female between 20 and 35 years old called themselves a gamer.

### 10.2.3 Procedure

The survey was done in 7 days in which the participants received several online questionnaires. When someone registered themselves as a participant, they received the gaming habits form. When the survey started, participants had to fill in the daily form every day. The start of the survey was on a Wednesday because we didn’t want to send additional questionnaires in the weekend.

Besides the daily form the other questionnaires were asked according to the following procedure:

Day 1: All participants received an email with the instructions to play casual games at least one per day for the next 7 days at [www.bigfishgames.com/online-games](http://www.bigfishgames.com/online-games).

Day 2: No additional questionnaires.

Day 3: The Post-Game Experience Questionnaire was filled in by all participants.

Day 4: No additional questionnaires.

Day 5: Participants had to play the game Bubblez, no additional questionnaires.

Day 6: They also had to play Bubblez on day 6, however they also received the Game Experience Questionnaire which they filled in regarding the game Bubblez.

Day 7: The reasons to play casual games questionnaire and the digital game characteristics questionnaire were filled in.

All the participants of this survey received 10 euro. After 7 days of playing casual games, 20 participants were interviewed approximately 20 – 30 minutes where the benefits, motives, and other subjects were asked, see appendix G for the interview questions. The interview was done face-to-face or by phone. One of the subjects discussed in the interviews is also addiction; are casual games addictive? To know whether this is true or not, we asked several direct questions like ‘Do you think these games are addictive?’ and ‘Are you addicted?’, but we also asked questions like ‘Is it difficult to stop playing?’ and ‘Do you play longer than originally intended?’. This last question can also be found in the questionnaire of Young (1998) who set up a questionnaire to check if someone has an Internet addiction, see appendix B.

The participants that were interviewed received an additional 5 euro, all was funded by Games at Large.

All data of the survey was collected through online forms, every time a participant submitted the answers a php-script sent the given answers in an email. All data was copied to an excel file to create the dataset. The analysis is done with SPSS 16.0.

### 10.2.4 Setting and materials

Participants played the casual games at [www.bigfishgames.com/online-games](http://www.bigfishgames.com/online-games). This site has casual games which only can be played as single player and the site doesn’t have the ability to sign yourself in to record your scores. Therefore there aren’t any high score tables and the social component is also eliminated. The website has also an advantage regarding the webpages; all online games were displayed on one webpage, so the participants didn’t have to search a whole website to play the game they wanted to play.

The participants played the games whenever and wherever they liked, the only thing required was an Internet connection.

### 10.2.5 Measurements

There were two kinds of data obtained in this study, the data of the questionnaires and the data of the interviews.

### 10.2.5.1 Questionnaires

The participants received several questionnaires as discussed in chapter 10.2.3 (Procedure). In this section we will discuss the questionnaires more extensively.

Before the survey started the gaming habits questionnaire was filled in. This questionnaire consisted of demographical questions and questions about their gaming habits (if any), see appendix E.

In the daily form were questions regarding the casual games they played that day. Participants could fill in how many games they had played that day, the names of the games with the number of minutes they played the game, at what time they started to play, and where they played the game (at home, at work, at school, or somewhere else). The participants could fill in this form whenever they wanted; they could answer the questions after each game they played or they could fill in the form at the end of each day, see appendix C.

On the third day of the survey the participants received the Post-Game Experience Questionnaire (PGEQ) to collect their experiences they had after playing casual games. The PGEQ measures the components: positive affect, negative affect, tiredness, and returning to reality. Questions were rated on a five point scale; 0 (not at all) to 4 (extremely).

On day 6 we asked the participants to play Bubblez (figure 21). To make sure all participants played this game for some time, enough time to get a clear view and opinion of the game, we also asked them to play this game on day 5. On day 6 the Game Experience Questionnaire (GEQ) was filled in regarding the game Bubblez to collect their game experience when playing this game. The GEQ has the same five point scale as the PGEQ, but with the components: competence, sensory and imaginative immersion, flow, annoyance, challenge, negative affect, and positive affect. Together with the GEQ there were also some questions regarding the game; how long they played Bubblez, at what time did they play the game, where they played and what grade they would give the game Bubblez, see appendix D. The game Bubblez is chosen because it has a puzzle element; how to empty the entire field, and the game has an action element with shooting the balls.

The questionnaire on day 7 was divided into two parts; the reasons to play casual games, and digital game characteristics, see appendix F. There were 17 questions concerning the reasons to play casual games. Participants rated the item 1 when it was not relevant, 2 when the item was a nice side-issue and 3 when the item was a reason to play casual games.

The second part of the questionnaire concerned the digital game characteristics. 54 questions were asked about characteristics of digital games. Each item was rated on a three point scale; 0 (not important), 1 (slightly important), 2 (very important). Participants could also rate the item with a 3 which meant that they didn't know what was meant by the item.



Figure 21 The obligatorily game, Bubblez

### 10.2.5.2 Interviews

All interviews lasted approximately 20 to 30 minutes; some were face-to-face, others were done by phone. The main questions of the interview were:

- What did you do before and after playing the games?
- Why did you stop playing?
- Was it difficult to stop playing the games?
- Did you play longer than originally intended?
- How did you choose the games?
- What do and don't you like about the games?
- Were there any positive or negative effects?



- Are these games addictive?
- What is a typical gamer?
- Is someone who plays casual games a gamer?

See appendix G for all the interview questions.

## 10.3 Results

Since our main research questions are about gender and age differences, the results will be divided into several sections. The first part of this chapter will show the overall results in which we discuss the results of all participants, in the second part the differences between men and women are discussed, and third the differences between the age-groups. The interviews will be discussed in all parts, however all the main interview questions are also discussed in the fourth part. The fifth and final part will discuss the subject gamers discussed in the interviews.

### 10.3.1 Overall results

#### Games played:

This section will discuss the casual games which the participants played during the 7 days of the survey and for which they filled in the daily form.

The participants played 10336 minutes and 509 games in total, which is an average of 203 minutes per participant in 7 days with an average of 10 games per participant. The average number of minutes played per participant per day is 29 minutes. Table 10 shows an overview of the number of games and minutes played each day of the experiment in total and per participant (ppn).

Day	Total number of games	Total number of minutes	Minutes per ppn	Games per ppn
1	82	1213	23.8	1.6
2	67	1126	22.1	1.3
3	88	1276	25.0	1.7
4	71	1450	28.4	1.4
5	57	1465	28.7	1.1
6	67	2194	43.0	1.3
7	77	1612	31.6	1.5

**Table 10** Number of games and minutes played per day

The number of minutes played on day 6 is higher than on the other days, this can be related to the game Bubblez which was obligated for day 6 with the addition of a questionnaire about the game. Bubblez is seen as a highly addictive game, even when you don't like it, you keep playing as one of the interviewed participants said.

*Ppn33: "Even though I don't like it, I start a new game, in that sense there is addictiveness in the games. ... Yes I think they can be addictive, especially the games that don't have an ending."*

Almost all participants who were interviewed felt that the games are addictive, but most of them also said that they couldn't get addicted to it themselves, but they could imagine how someone could. The participants who answered the question 'Are you addicted?' affirmative were all over the age of 35. Another participant said he was called by his partner because he was playing for a long time.

Ppn13: *“One time I was playing Bubblez five times and then my partner said ‘hey, be sociable and come drink some coffee’. Yes, she was sitting in the garden and thinking oh no, he is not going to be behind the computer all day. I didn’t notice that I had been playing it five times; I was absorbed in the game. At one point she said that I had to stop because it was not fun anymore.”*

#### Game experience:

The game experience was studied with the Game Experience Questionnaire (GEQ) and the Post-Game Experience Questionnaire (PGEQ).

Bubblez was the game which all participants had to play on day 5 and 6. On day 6, all participants filled in the GEQ regarding the game Bubblez. The overall results of the GEQ are shown table 11. The average grade given to the game Bubblez is 6.5, ranging from the grades 2 to 10. The participant who graded the game Bubblez with a 2 had a high score (3.3) on the component annoyance. The participant who graded the game with a 10 had a high score on competence (3.8), challenge (2.8), and positive affect (2.8). The components annoyance and negative affect were both scored 0. In the entire experiment, Bubblez was played 120 times and for a total amount of 4291 minutes. That’s 36 minutes per game.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
<b>Mean</b>	2.0	0.8	1.3	1.0	1.0	1.4	1.6

**Table 11 The overall mean scores of the components of the GEQ**

All the components of the GEQ have a correlation significant at the 0.01 level with the grade given by the participants for the game Bubblez, except for the component challenge. See table 12 for the correlations. There is a positive correlation between the grade and the components competence, immersion, flow, and positive affect. And the lower the grade is, the higher the scores are for the components annoyance and negative affect.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
<b>Grade</b>	0,509	0,403	0,454	-0,538	0,251	-0,588	0,665

**Table 12 Correlations between the GEQ components and the grades**

In contrast to the GEQ, the PGEQ wasn’t filled in for one specific game; the participants had played different games before filling in the questionnaire.

The PGEQ has 4 components; positive affect, negative affect, tiredness, and returning to reality. In table 13 the overall result of the PGEQ are shown.

The items of the PGEQ can get scores ranging from 0 (not at all) to 4 (extremely), so the components in table 13 have low averages compared to this range. The participants had almost no problem returning to reality after playing the casual games.

	Positive affect	Negative affect	Tiredness	Returning to reality
<b>Mean</b>	1.0	0.9	0.6	0.3

**Table 13 The overall mean scores of the components of the PGEQ**

The game experience was also discussed in the interviews, for example the positive or negative effects of playing casual games. Some participants mentioned that it was relaxing, but only when the game goes well. Others said it was a distraction from everyday life. A negative effect is that some feel it is a waste of time to play games, there are more useful things to do.

Ppn12: *“Well it takes time of course, so when you play a long time it is a waste of time. I only see it as something to relax, not something to do for a long time.”*

One of the participants is chronically ill and mentioned the following:

Ppn41: *“It is nice when you are absorbed in a game, that you don’t feel sick anymore, you don’t get confronted with it. But that’s also the danger with this; you can use it to escape from reality. However it is definitely a reason to play, and also when you’re bored, if you are too ill to get out of the house, it is a nice distraction from other work.”*

### Reasons to play casual games:

Participants filled in a questionnaire about reasons to play casual games in which seventeen items could be rated as a reason. The items ‘to relax’ and ‘entertainment’ are the only items that were chosen as reasons to play casual games by respectively 76% and 67% of the participants. However, when looking at the average scores of the items, the items ‘sense of challenge’, ‘opportunity to think strategically’, ‘to beat your own scores’, and ‘mental exercise’ should be mentioned as you can see in figure 22, all with an average score higher than 1 (2 is the maximum score the items could receive).

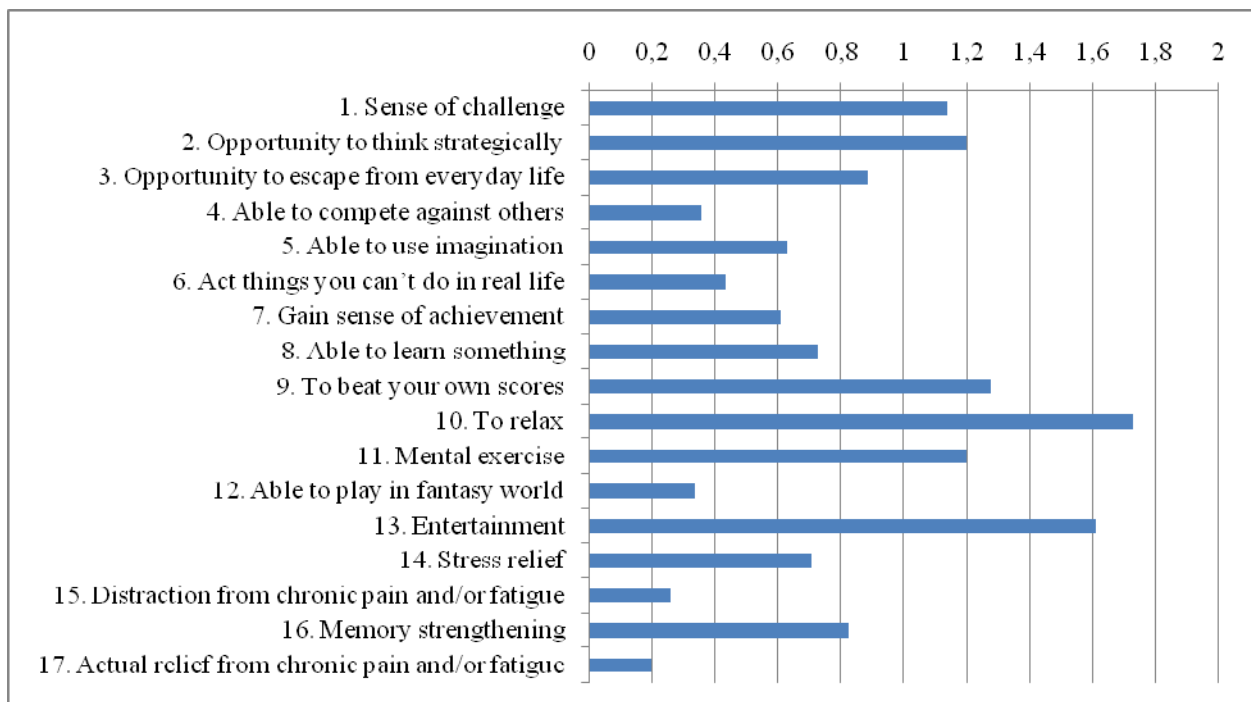


Figure 22 Average scores of the items: reasons to play casual games

### **Characteristics of digital games:**

Digital games have a lot of characteristics, but which characteristics did the participants find important when playing digital games? These characteristics had been rated from not important to very important. However, sometimes the participants didn't know what was meant with the characteristic, so they couldn't say whether it is important for them or not. In that case they could rate the item as unknown. In the top 3 of game characteristics which the participants didn't know what was meant with it is at number 1 the characteristic linear game format, and at a tied second place the characteristics cheats/Easter eggs and mapping areas.

The top 5 of game characteristics which were rated either slightly or very important:

- #1 Rapid advancement  
Elements of surprise
- #3 Rapid absorption rate
- #4 Ability to save regularly
- #5 Use of humor  
Skill development  
Solving puzzles  
Finding bonuses

Rapid advancement and elements of surprise are tied at first place, 90% of the participants rated these characteristics as either slightly or very important.

There were a lot of characteristics which were rated by 50% or more of the participants as important (either slightly or very important), see appendix J, but only the items 'fulfilling a quest', 'skill development', and 'ability to save regularly' were seen as very important by more than half of the participants.

### **10.3.2 Gender differences**

This section discusses the research question:

- What are the differences between men and women regarding how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which game characteristics do they find important?

#### **Games played:**

This section will discuss the casual games which the participants played during the 7 days of the survey and for which they filled in the daily form.

There isn't a significant difference between men and women regarding the number of minutes and the number of games they played. Men played on average 206 minutes in 7 days, women played the casual games for 200 minutes. Both groups played 10 games on average during the 7 days.

There were a few genres on the website; puzzles, action & arcade, mahjong, card & board, and word games. However there wasn't a big difference in which genres men and women played. Participants didn't have to choose a genre because all the games were on one page, therefore many participants didn't look at the genres and had several methods to choose the games, as mentioned by an interviewed participant:

*Ppn27: "It varied, sometimes I looked at the name, whether I liked it or not, then I played Papa's Pizzeria for example, and I have also looked at the number of players, and sometimes also at games that were in the top 5."*

### Game experience:

The experience the participants had during and after playing casual games were studied with the Game Experience Questionnaire (GEQ) and the Post-Game Experience Questionnaire (PGEQ).

To see whether there was a significant difference between men and women we made an ANOVA table. In this table, the GEQ and PGEQ components didn't show significant differences between men and women, see table 14 and 15 for the average scores.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
Male	2.1	0.8	1.4	1.0	1.1	1.3	1.6
Female	1.9	0.8	1.3	0.9	0.9	1.4	1.7

Table 14 The mean scores of the components of the GEQ specified by gender

	Positive affect	Negative affect	Tiredness	Returning to reality
Male	1.1	0.7	0.3	0.3
Female	0.9	1.1	0.8	0.3

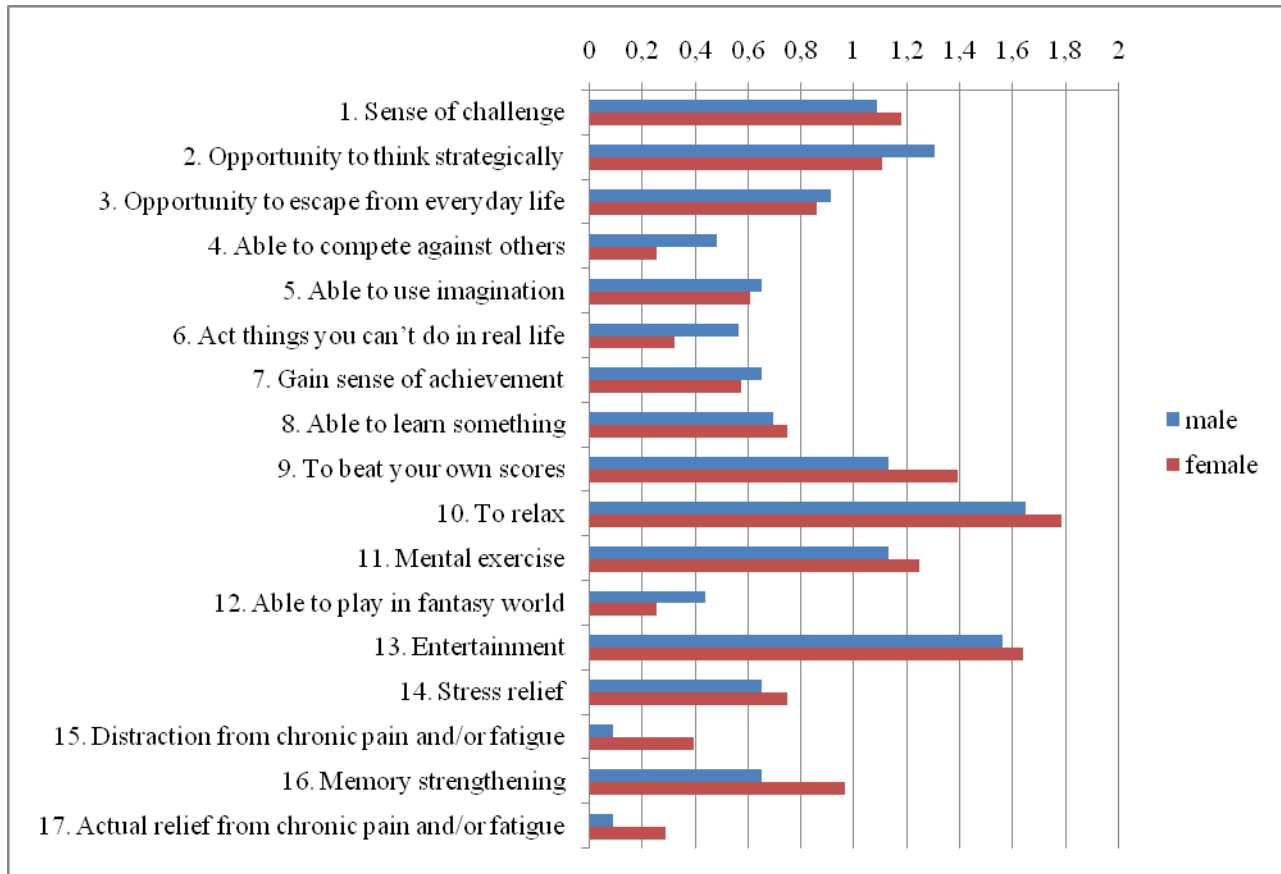
Table 15 The mean scores of the components of the PGEQ specified by gender

### Reasons to play casual games:

Participants received on day 7 of the survey a questionnaire with seventeen items which had to be rated as not relevant, side-issue, or as a reason to play casual games.

T-tests indicated that there weren't any significant differences between men and women. The items that were rated as reasons to play casual games by either 50% or more of the male or female participants were 'to relax' and 'entertainment'. 54% of the female participants also chose 'to beat your own score' as a reason to play, the men saw this item more as a nice side-issue.

As seen in the overall results discussed earlier, the 'sense of challenge', 'opportunity to think strategically', 'to beat your own scores', and 'mental exercise' are also rated as reasons to play casual games by both men and women, see figure 23.



**Figure 23 Average scores of the items: reasons to play casual games | specified by gender**

### Characteristics of digital games:

In the questionnaire on day 7 of the survey, several digital game characteristics were rated by the participants as not important, slightly important, or very important.

The terminology of digital game characteristics is not always understood. In the questionnaire participants could indicate that they didn't know what was meant by the characteristic. In this respect, there was a huge difference between men and women. Male participants only mentioned 25 times that they didn't know what was meant, whereas female participants mentioned it 157 times. And although there were slightly more female than male participants, you can conclude from this that women are less game minded than men and therefore know less game terms. However it is also a possibility that men are less open about whether they know what is meant by the characteristics compared to women.

Besides the characteristics mentioned earlier in the overall results; linear game format, cheats/Easter eggs and mapping areas, the characteristics multiplayer (LAN), building alliances, fast absorption rate, and physical feedback were also items which 30% or more of the female participants rated as unknown.

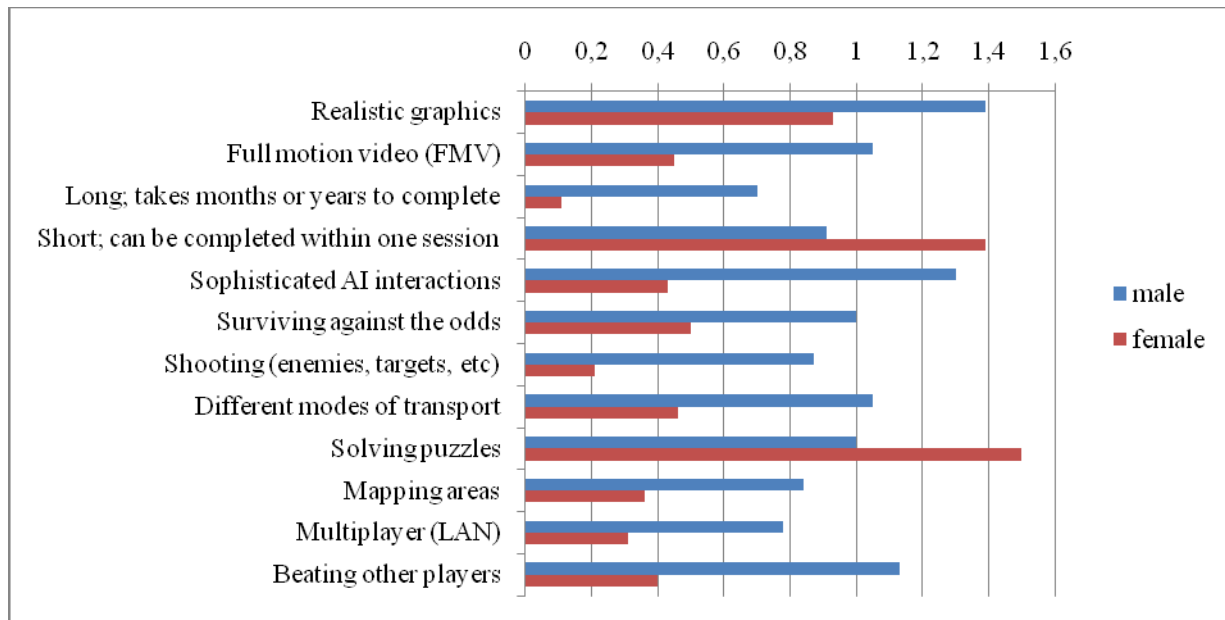
In table 16 is the top 5 of game characteristics which consists of items that men and women rated as slightly or very important. The male participants have a completely different top 5 compared to the female participants, the only characteristic they both found important was elements of surprise.

Top 5 / Male		Top 5 / Female	
#1	Elements of surprise	#1	Solving puzzles
#2	Choice of control methods	#2	Elements of surprise
	Ability to save regularly	#3	Rapid advancement
#4	Realistic graphics	#4	Short (game can be completed within one session)
#5	Finding things (e.g. secret doors, levers, passages, hidden levels, characters)		Use of humor
	Finding bonuses		

**Table 16 Top 5 important game characteristics, for men and women**

By means of the ANOVA table we noted that there was a significant difference between men and women concerning several game characteristics, see figure 24. Significantly more male participants chose the characteristics realistic graphics, full motion video, long (takes months or years to complete), sophisticated AI interaction, surviving against the odds, shooting (enemies, targets, etc), different modes of transport, mapping areas, multiplayer (LAN), and beating other players as important. Whereas more female participants rated the characteristics short (can be completed within one session), and solving puzzles as important.

Most of the characteristics men found important can't be found in casual games, however, the characteristics women rated as important are typical characteristics of casual games. When looking at the top 5 of both genders the characteristics chosen by the women can all be found in casual games. The characteristics men rated as important, for example ability to save regularly and realistic graphics, can't be found in casual games.



**Figure 24 Average scores of men and women of the game characteristics**

### 10.3.3 Age differences

This section discusses the research question:

- What are the differences between 20-35 year olds and 35+ year olds regarding how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which game characteristics do they find important?

#### Games played:

In figure 25 the average number of minutes played in the 7 days are shown for different age groups. As mentioned in the previous section, the difference between men and women regarding how many minutes they played is not that clear. However the significant difference between age groups is very visible; the participants older than 35 played more minutes than the participants between 20 and 35. The participants between 20 and 35 years old played on average 163 minutes, whereas the participants older than 35 played 247 minutes in 7 days.

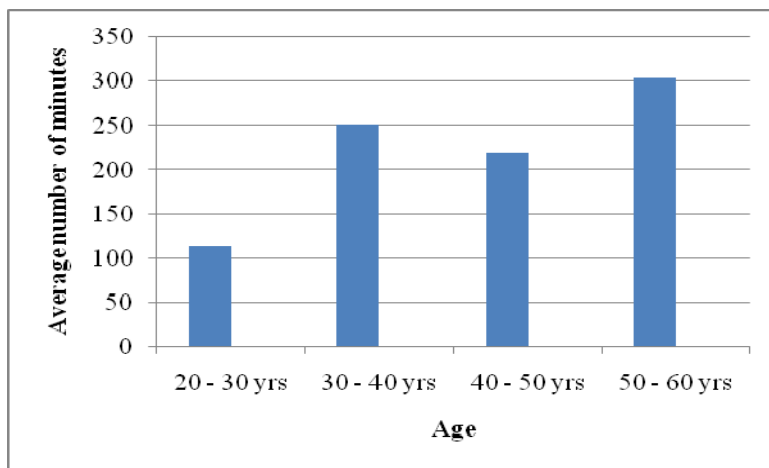


Figure 25 Average number of minutes played in 7 days by age

Although the differences regarding the number of games played is not that clear as the number of minutes played, the age group older than 35 tried slightly more different games than the age group of 20 – 35 years old, as you can see in figure 26. The average number of games played in 7 days is 9 for the participants between 20 and 35, and 11 for the age group older than 35.

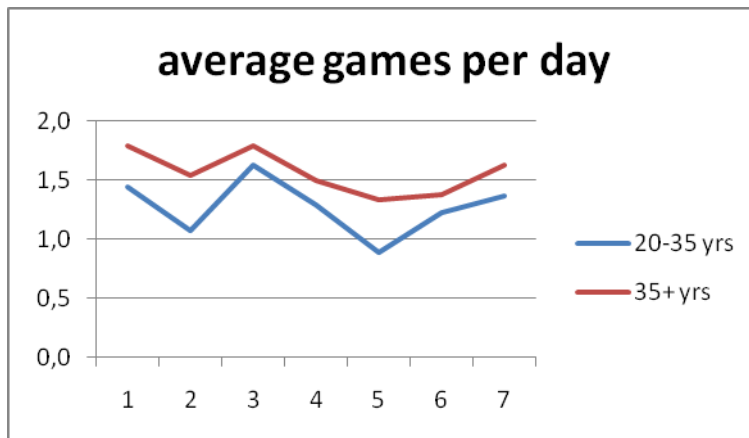


Figure 26 Average number of games played per age group



### Game experience:

To study the differences between the age groups 20 – 35 and older than 35 regarding the game experience and post-game experience, the Game Experience Questionnaire (GEQ) and the Post-Game Experience Questionnaire (PGEQ) were conducted.

There aren't any significant differences in game experience during and after playing casual games between the age groups, see table 17 and 18 for the average scores per component for each age group.

	Positive affect	Negative affect	Tiredness	Returning to reality
20 – 35 yrs	1.1	1.0	0.6	0.3
35+ yrs	0.9	0.8	0.5	0.3

Table 17 The mean scores of the components of the PGEQ specified per age group

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
20 – 35 yrs	2.0	0.7	1.3	0.9	0.8	1.4	1.5
35+ yrs	1.9	0.9	1.4	1.1	1.1	1.3	1.7

Table 18 The mean scores of the components of the GEQ specified per age group

However in the interviews was asked whether the participants felt it was hard to stop playing and if they sometimes played longer than they originally intended. The second question was true for a lot of the participants. Some see this as something positive because you are totally absorbed by the game and forget the time, but others see this as something negative because they regret playing when they are finished. They felt it was a waste of time and they could have done more useful things.

Ppn13: *“When you are in the game, you forget your surroundings and the time. I think it is something positive if you are totally absorbed in the game.”*

Some of the participants felt it was difficult to stop playing a game. Most of the time it was because they wanted to reach the next level in the game. The participants who said ‘no, it’s not difficult to stop’ were all under the age of 25. To see whether there is a real difference in game experience between young and old regarding casual games as our interview data suggested, there must be more interviews and game experience questionnaires conducted.

Ppn15: *“Especially Shift 2, it was fun to advance because every level got more difficult. With that game I really had the drive to continue.”*

Another participant mentioned coming late for an appointment because of playing a game.

Ppn9: *“It happened one time that I played too long, I felt a little bit guilty afterwards because I, well, I was too late for an appointment.”*

### Reasons to play casual games:

Does the age group 20 – 35 have different reasons to play casual games as the age group older than 35? We’ve studied this by means of the reasons to play casual games questionnaire on day 7 of the survey. The only significant difference between age groups can be seen with items distraction from chronic pain and/or fatigue (Sig. 0,013) and actual relief from chronic pain and/or fatigue (Sig. 0,038).

However there were some items that had remarkable differences when looking at not only the age groups but also at gender. There are four groups that can be made as seen in table 19; males in the age group 20 – 35, males in the age group older than 35, females in the age group 20 – 35, and females in the age group older than 35.

Besides the significant difference between age groups concerning the items distraction from chronic pain and/or fatigue and actual relief from chronic pain and/or fatigue, the most striking as you can see in table 19 is the fourth group; females older than 35. Where the other groups score 0%, 21% of the women over the age of 35 stated distraction from chronic pain and/or fatigue as a reason to play casual games and 7% said that actual relief from chronic pain and/or fatigue is a reason to play. But not only the amount of women that chose these items as a reason are remarkable, the percentage of women that chose these items as a nice side-issue are also higher than the other groups.

	Distraction from chronic pain and/or fatigue		Actual relief from chronic pain and/or fatigue	
	Side-issue	Reason	Side-issue	Reason
<b>Male, 20 – 35 yrs</b>	7.7%	0%	0%	0%
<b>Male, 35+ yrs</b>	10%	0%	20%	0%
<b>Female, 20 – 35 yrs</b>	7.1%	0%	14.3%	0%
<b>Female, 35+ yrs</b>	28.6%	21.4%	28.6%	7.1%

**Table 19 The percentages for distraction from chronic pain and/or fatigue and actual relief from chronic pain and/or fatigue**

Mental exercise and memory strengthening are also items that are worth mentioning, mostly because of group 4, women older than 35 (see table 20).

57% of this group rated mental exercise as a reason and 43% rated memory strengthening as a reason to play casual games. Memory strengthening is mainly seen as a nice side-issue or as a reason by participants that are older than 35, most participants of the younger age group rated the items as not relevant.

	Mental exercise		Memory strengthening		
	Side-issue	Reason	Not relevant	Side-issue	Reason
<b>Male, 20 – 35 yrs</b>	46.2%	38.5%	53.8%	30.8%	15.4%
<b>Male, 35+ yrs</b>	40%	30%	40%	50%	10%
<b>Female, 20 – 35 yrs</b>	57.1%	28.6%	42.9%	35.7%	21.4%
<b>Female, 35+ yrs</b>	21.4%	57.1%	28.6%	28.6%	42.9%

**Table 20 Percentages for Mental exercise and Memory strengthening**

The final item that we will mention is sense of challenge. This item is by 44% of the younger age group seen as a reason to play casual games whereas participants of the older age group rated the item more as a nice side-issue (50%) instead of a reason.

### **Characteristics of digital games:**

The game characteristic preferences of the age groups are studied by means of the questionnaire on day 7 of the survey. Participants filled in whether the given characteristics are important to them or not.

The age group older than 35 (N=24) had slightly more items which they didn't know what was meant with it than the age group 20 – 35 years old (N=27), with 99 items compared to 83 items.

In table 21 the top 5 of the age groups are shown. The game characteristic most chosen by the participants who are older than 35 is short game duration (can be completed within one session). For the participants between 20 and 35 years old this characteristic is at number 32 on the list of important characteristics.

This characteristic is maybe a reason why casual games are so popular in this age group.

The characteristic exploring new areas is rated by 89% of the age group 20 – 35 as slightly or very important, whereas only 54% of the participants older than 35 said this is an important characteristic.

These two characteristics, short game duration and exploring new areas, were the only two characteristics which had a significant difference between the age groups 20 – 35 years old and older than 35.

Top 5 / 20 – 35 yrs		Top 5 / 35+ yrs	
#1	Elements of surprise	#1	Short (can be completed within one session)
#2	Exploring new areas	#2	Rapid advancement
#3	Controlling the sound and graphics settings		Elements of surprise
	Points accumulation	#4	Use of humor
	Finding bonuses		Solving puzzles
			Having to start the level again
			Ability to save regularly

**Table 21 Top 5 important game characteristics, for 20 – 35 years old and 35+ years old**

### 10.3.4 Interviews

In this section gives an overview of the main interview questions, as mentioned in chapter 10.2.5.2.

#### **What did you do before and after playing the games?**

Most of the participants indicated that the computer was already turned on and often they first checked email and other sorts on the internet before playing the games. The games were often seen as something to do in between stuff; they are a nice diversion for the everyday life.

#### **Why did you stop playing?**

Basically there were three reasons to stop playing; it was time to do something else, or the game was over, or it became too boring.

#### **Was it difficult to stop playing the games?**

Some of the participants felt it was difficult to stop playing a game. Most of the time it was because they wanted to reach the next level in the game. The participants who said ‘no, it’s not difficult to stop’, were all under the age of 25.

#### **Did you play longer than originally intended?**

A lot of participants played sometimes longer than originally intended. Some see this as something positive because you are totally absorbed by the game and forget the time, but others see this as something negative because they regret playing when they are finished. They felt it was a waste of time and they could have done more useful things.

#### **How did you choose the games?**

Most of the games were chosen by name. Some participants chose the games that were in the top 5 or sometimes they looked at how many players were playing the games, which is mentioned on the site behind every title of the games.

#### **What do and don’t you like about the games?**

The aspect most mentioned is that the games are a nice distraction, something to do in between work or other things. It was also mentioned that you can play immediately, it is easy to understand.

The dislikes mentioned were the games are not original, they are monotonous, the games were too easy, you can't improve your skills, if you are game over you have to start all over, it takes a while to load the games, the games were frustrating when they didn't know how to play the game.

### **Were there any positive or negative effects?**

As positive effects, some participants mentioned that it was relaxing, but only when the game goes well. Others said it is a distraction from everyday life. Frustration when something doesn't go well is one of the negative effects mentioned by the participants. Another negative effect is that some feel it is a waste of time to play games, there are more useful things to do.

### **Are these games addictive?**

Almost all participants felt that the games are addictive, but most of them also said that they couldn't get addicted to it themselves, but they could imagine how someone could.

The following questions will be discussed in the next section; chapter 10.3.5.

- What is a typical gamer?
- Is someone who plays casual games a gamer?

## **10.3.5 Gamers**

In this section the following main interview questions are discussed:

- What is a typical gamer?
- Is someone who plays casual games a gamer?

There were 7 participants (14%) who see themselves as gamers, 31 participants (61%) answered the question 'Are you a gamer?' negative. The other participants didn't play digital games. Although the differences are not significant, the gamers have played more different games and more minutes compared to the participants who aren't gamers. Gamers played on average 12 games and 273 minutes in 7 days, whereas the other participants played on average 10 games and 193 minutes.

In addition to the main questions we've also asked the participants 'Do you see yourself as a gamer?'. Most of the interviewed participants didn't see themselves as a gamer. There were several different descriptions of what a gamer exactly is. The interpretations can be divided into two groups. One view of a typical gamer is the more stereotypical one; gamers who play the more complex games on the consoles or PC.

Ppn21: *"Someone who plays on a daily basis, mostly role playing and shooters."*

Another view is that a gamer is a player, so it doesn't matter what kind of games they play. If you play a lot, you are a gamer. Remarkable of this second view is that it was mainly mentioned by people over the age of 40.

Ppn22: *"Someone who does it daily. A gamer can play all sorts of games."*

When asked: Do you call someone who plays casual games a gamer? 11 participants said yes, 7 said no and some were doubtful. It depends on how long somebody plays the games and how often.

Ppn41: *“The kind of games may not be what you think of a real game, but it is important how someone is handling it.”*

The main reason when someone is called a gamer when he plays casual games is the amount of time someone plays and not the kind of game that’s played. If the games are played regularly, then someone can be called a gamer.

Here are some of the reasons the participants mentioned why someone who plays casual games is not a gamer:

Ppn15: *“I think that someone who plays casual games all day long, I would call that an addiction. I think the games are too small and, relatively speaking, too simple to define someone who plays only these kinds of games a gamer.”*

Ppn14: *“Gamers are more fanatical, they play Quake and that kind of games.”*

Ppn12: *“Gamers play the more advanced games, the games you can buy.”*

## 10.4 Discussion

The average Dutch population survey has the goal to understand why casual games are mostly played by women and by people older than 35. We set up several research questions, the most important ones are:

- What are the differences between men and women regarding how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which game characteristics do they find important?
- What are the differences between 20-35 year olds and 35+ year olds regarding how often and how long they play casual games, game experience, post-game experience, reasons to play casual games, and which game characteristics do they find important?

Besides these questions we were also interested in:

- Are casual games addictive?

First we will discuss the differences between men and women, second the differences between the age groups, and third whether casual games are addictive or not.

### Gender differences:

In the casual gamers survey we’ve seen that most casual gamers are female. In the average Dutch population survey the female participants didn’t play more than male participants. Therefore we can’t conclude that women like these games more than men because the female participants of the average Dutch population survey didn’t play more and/or longer compared to the male participants.

Besides this, the game experience and post-game experience of the participants also didn’t have differences between men and women of the average Dutch population survey.

When someone is playing casual games, the game experience and the amount of time they play is not different for men or women. Therefore there have to be other reasons why casual gamers are mostly female. In the average Dutch population survey we’ve also studied the reasons to play casual games, but we couldn’t find differences in male or female opinions. The most important reasons the participants

mentioned are to relax and entertainment, but the reasons sense of challenge, opportunity to think strategically, to beat your own scores, and mental exercise were also found important. So we didn't find differences between genders in how long or often the participants played, in game experience and post-game experience, and in their reasons to play casual games. However in the final aspect mentioned in the research question, the digital game characteristics, are many differences found between men and women. The game characteristics more favored by men are realistic graphics, full motion video, long (takes months or years to complete), sophisticated AI interaction, surviving against the odds, shooting (enemies, targets, etc), different modes of transport, mapping areas, multiplayer (LAN), and beating other players. All these game characteristics can be seen as the characteristics for the more complex games on the console or pc. Whereas women favored the characteristics short (can be completed within one session), and solving puzzles, which are some of the main characteristics of casual games. This difference between men and women is also seen in the choice of genres of digital games. Women chose the puzzle and word games, men chose the genres fighting, shooters, role playing and racing games. Concluding that there is a difference between genders in what kind of game characteristics they like, however, once they are playing casual games it doesn't make a difference in how long or often they play.

### **Age differences:**

We've studied the differences between two age groups, 20 – 35 years old and older than 35, regarding the same aspects as before and which are mentioned in the research question.

In the average Dutch population survey the age group older than 35 played more minutes than the age group 20 – 35. Therefore you might expect a difference in game experience, you would think that participants older than 35 enjoyed the games more compared to the younger age group and therefore played more minutes. However we didn't find any differences in game experience or post-game experience between the age groups, so there have to be other reasons for why the age group older than 35 played more than the age group 20 – 35. In the interviews conducted after the average Dutch population survey was asked whether it was difficult to stop playing the games. All who answered 'no' were in the age group 20 – 35. The age group older than 35 found it difficult to stop playing, but is this the only reason why they played more minutes than the age group 20 – 35?

We've also studied the reasons to play casual games between the two age groups. The biggest difference was that participants older than 35 found the reasons distraction from chronic pain and/or fatigue and actual relief from chronic pain and/or fatigue more important than the other participants. The reasons memory strengthening and mental exercise are also found more important in the age group 35+, most participants between 20 and 35 found these reasons not relevant. Perhaps these differences are because the participants in the age group older than 35 are more aware of their physical being.

There weren't many differences between the age groups when looking at the characteristics of digital games. Nevertheless the main difference was the characteristic short (can be completed within one session) which is found more important by the age group older than 35. As mentioned before, this characteristic could be seen as one of the main characteristics of casual games, which will partly explain why casual games are mostly played by people over the age of 35.

### **Addiction:**

We were also interested in the game addiction of casual games. Could these games be addictive? Could someone get addicted to casual games? We have asked several questions in the interviews to try to understand this subject. Almost all participants felt that the games are addictive, but most of them also said that they couldn't get addicted to it themselves, but they could imagine how someone could. Participants mentioned that they often thought, 'ah, just one more level' and that is exactly why these games could be addictive. The ability to accomplish something in a short period of time is one of the attractions to play more and longer.

## 11. Comparison of the surveys

The casual gamers survey was only filled in by people who play casual games, the average Dutch population survey however was done with a more average kind of people; most of them didn't play casual games, some of them had never played digital games at all.

In the next chapter we discuss the differences between the participants who filled in the casual gamers survey and persons who participated in the average Dutch population survey. However we had to take into account that the sample sizes were very different; there were 755 casual gamers and 51 average Dutch population survey participants.

We've asked the game experience, reasons to play casual games and how often they play in both surveys. Therefore we can compare the results of the survey answered by people who play casual games regularly with the results of the survey answered by people who don't play these games regularly.

First we discuss the overall comparison between the two groups of participants, second we compare the differences found between men and women in both surveys, and third we will discuss the comparison of the differences we found between the age groups 20 – 35 and older than 35 in both surveys.

### 11.1 Overall comparison

#### Playing time:

All participants answered the question about how often they play games. For the participants of the average Dutch population survey, the question was about digital games in general, for the participants of the casual gamers survey, the question was more specified on how often they play casual games at Zylom. Even though the participants of the average Dutch population survey answered the question for all digital games and not only for casual games, there were more casual gamers who played on a daily basis. The number of casual gamers that play daily can only increase when asking the casual gamers how often they play digital games instead of asking how often they play casual games.

25% of the participants who filled in the average Dutch population survey didn't play digital games. Of the 75% that did play games, 45% played at least weekly with only 3% playing digital games on a daily basis (see figure 27). 87% of the participants who filled in the casual gamers survey played at least weekly with 41% playing casual games at Zylom every day (see figure 28).

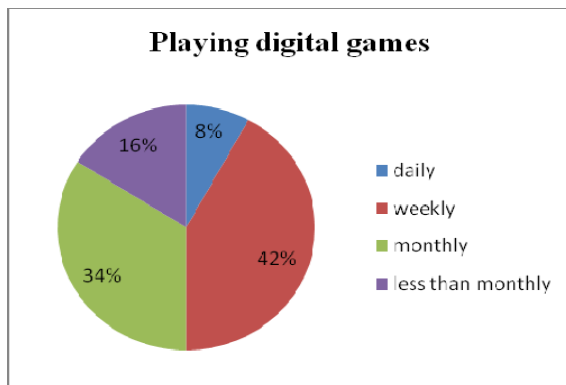


Figure 27 Average Dutch population survey

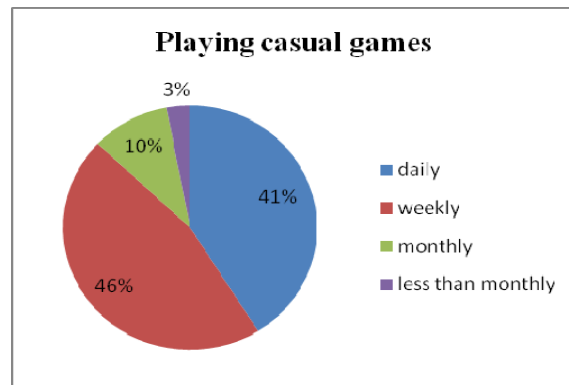


Figure 28 Casual gamers survey

### Game experience:

The participants of the casual gamers survey filled in the In-game Experience Questionnaire (iGEQ) which is a shorter version of the Game Experience Questionnaire (GEQ) which was filled in by the participants of the average Dutch population survey. However, to make a good comparison between the two surveys, we calculated the scores of the average Dutch population survey according to the iGEQ guidelines instead of the GEQ. In table 22 the average scores per component are shown.

As you might expect, when looking at the ANOVA table the scores of the casual gamers are significantly higher than the participants of the average Dutch population survey have scored. Except for the components competence and flow.

The casual gamers experienced higher immersion, challenge, and positive affect compared to the participants of the average Dutch population survey. Participants of the average Dutch population survey were more annoyed and experienced negative affects more than the casual gamers did.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
<b>Casual gamers survey</b>	1.8	1.3	1.4	0.5	1.6	0.6	2.2
<b>Average Dutch population survey</b>	2.0	0.7	1.3	0.8	1.2	1.0	1.8
<b>Sig.</b>	0,128	0,000	0,521	0,003	0,005	0,000	0,011

**Table 22 The Mean scores of the components of the iGEQ.**

### Reasons to play casual games:

Participants of both surveys filled in the reasons to play casual games questionnaire in which 17 items were rated as either not relevant, or as a nice side-issue, or as a reason to play casual games. In figure 29 are the average scores shown of both surveys for all items.

Participants of both surveys agreed on the reasons to relax and entertainment which they both scored high. However there were also some differences between the two groups of participants. Sense of challenge, opportunity to escape from everyday life, to beat your own scores, able to play in fantasy world, stress relief, distraction from chronic pain and/or fatigue, memory strengthening, and actual relief from chronic pain and/or fatigue were all rated higher as a reason by the casual gamers than by the participants of the average Dutch population survey.



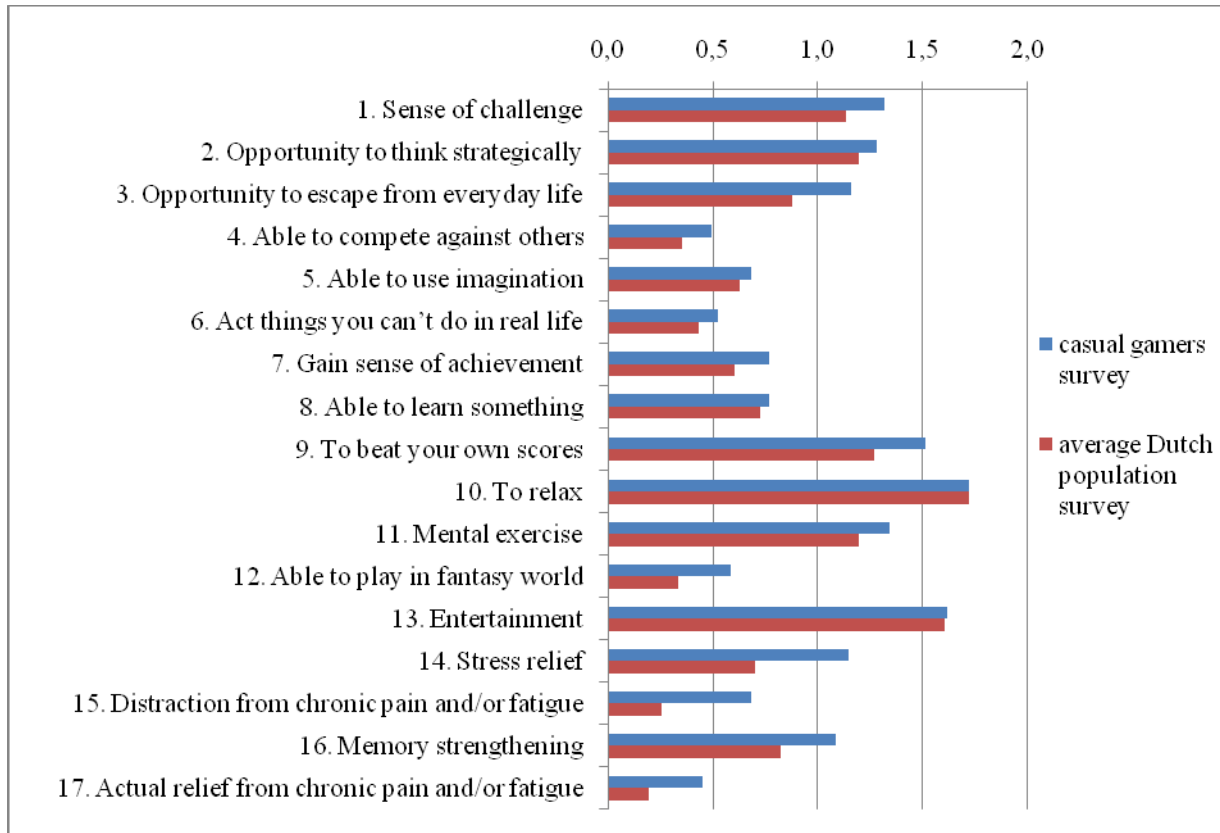


Figure 29 Average scores of the items: reasons to play casual games | specified by survey

## 11.2 Gender comparison

We have discussed the gender differences in the casual gamers survey and in the average Dutch population survey. In this section we discuss the differences we found between men and women in both surveys and whether these differences are different from each other. How often the participants play games, their game experience, and their reasons to play casual games are the aspects which are used to discuss the differences.

### Playing time:

There wasn't a difference in the frequency which they played casual games with between male and female casual gamers in the casual gamers survey. There were more female casual gamers who played daily and there were more male casual gamers who played weekly.

When looking at digital games in general, the average Dutch population survey showed the opposite; males played more daily and more females played weekly.

### Game experience:

In the casual gamers survey was the In-game Experience Questionnaire (iGEQ) and in the average Dutch population survey was the Game Experience Questionnaire (GEQ). With these questionnaires we studied the game experience when playing casual games.

In both surveys we didn't find any differences between men and women in their game experience when playing casual games.

### Reasons to play casual games:

There were multiple items which the participants rated as not relevant, a nice side-issue, or as a reason to play casual games. We didn't find any differences between men and women in the average Dutch population survey regarding the reasons to play casual games. However, in the casual gamers survey, the female participants had more reasons to play casual games than male participants. To relax, mental exercise, entertainment, stress relief, distraction from chronic pain and/or fatigue, and memory strengthening were the reasons which were more important to the female casual gamers than the male casual gamers. Perhaps it is because women have more reasons to play casual games that most casual gamers are female.

## 11.3 Age comparison

We have discussed the age differences in the casual gamers survey and in the average Dutch population survey. In this section we will discuss the differences we found between the age groups 20 – 35 years old and older than 35 and whether these differences are different from each other. We changed the age groups of the casual gamers survey into the age groups of the average Dutch population survey. This means that the age group younger than 20 of the casual gamers survey is not included in this comparison. We compare the age groups 20 – 35 and older than 35.

### Playing time:

Maybe you expect the younger age group to play digital games more often, however, in the average Dutch population survey, the differences between the age groups 20 – 35 and older than 35 weren't visible.

However, the casual gamers survey did show a difference between the age groups, see figure 30. The casual gamers who play daily are mostly older than 35 and the casual gamers that play weekly are more in the age group 20 – 35.

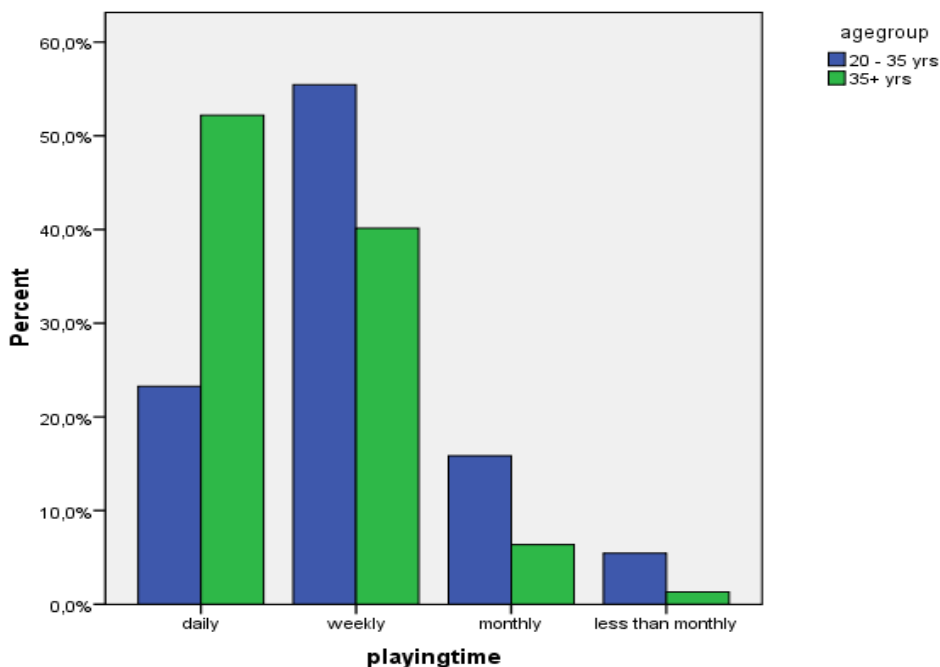


Figure 30 How often do you play casual games? (Casual gamers survey)

### Game experience:

The game experience was studied with the In-game Experience Questionnaire (iGEQ). In table 23 the mean scores of the age groups 20 – 35 and older than 35 of the casual gamers survey are shown. There is a significant difference regarding the components immersion and negative affect; the age groups older than 35 scored higher on immersion and lower on negative affect.

In the average Dutch population survey we didn't see any differences between the age groups.

	Competence	Immersion	Flow	Annoyance	Challenge	Negative affect	Positive affect
<b>20 – 35 yrs</b>	1.7	1,1	1,3	0.5	1.5	0.7	2.1
<b>Older than 35</b>	1.7	1.3	1.3	0.4	1.5	0.4	2.2
<b>Sig.</b>	0,679	0,021	0,614	0,189	0,859	0,000	0,389

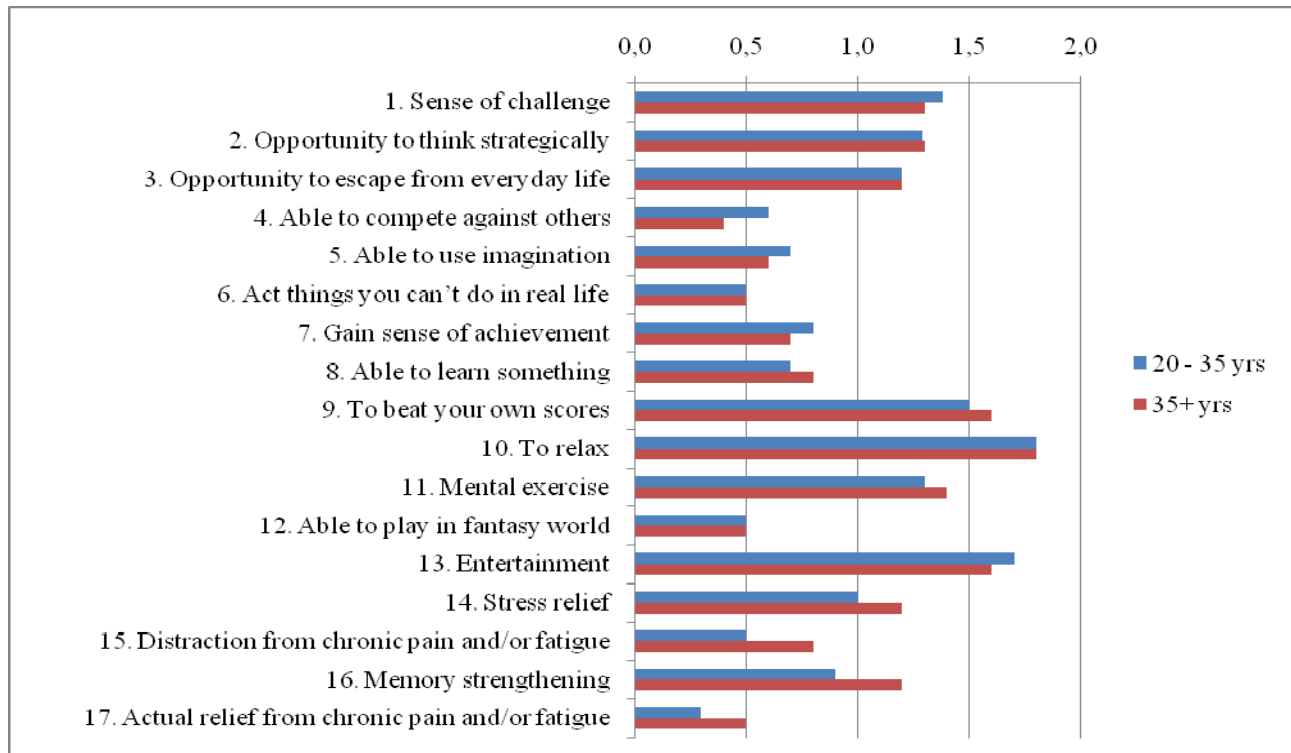
**Table 23** The mean scores of the components of the iGEQ (casual gamers survey)

### Reasons to play casual games:

In both surveys were 17 items which the participants could rate as a reason to play casual games.

In the casual gamers survey were multiple differences between the age groups 20 – 35 and older than 35.

In figure 31 you can see the average scores the items got from the different age groups. Able to compete against others was scored higher by the age group 20 – 35 than by the age group older than 35. However, mental exercise, stress relief, memory strengthening, distraction and actual relief from chronic pain and/or fatigue are reasons which were scored higher by the age group older than 35. This is partly also seen in the average Dutch population survey, where participants older than 35 found distraction and actual relief from chronic pain and/or fatigue more important than the other participants. As well as memory strengthening and mental exercise; age group 20 – 35 found these not relevant.



**Figure 31** Average scores of the items: reasons to play casual games (casual gamers survey)

## 12. Discussion

### 12.1 Discussion

The goal of this thesis was to understand why casual games are more played by women compared to men and why are most of the casual game players older than 35.

We had several aspects we've studied in which these groups can differ from other age and gender groups; game experience, reasons to play, introversion/extroversion, and game characteristics.

This study consisted of two different parts; the casual gamers survey, and the average Dutch population survey. The participants of the casual gamers survey were all casual game players, 41% even played the games daily, whereas the participants of the average Dutch population survey were less familiar with digital games, some of them had no experience with digital games before the survey.

There is some selection bias because all participants are self-selected. We also have to be careful with the comparison of both surveys because of the sample sizes; 755 participants filled in the casual gamers survey, only 51 participants took part in the average Dutch population survey.

The game preferences of women mentioned in chapter 3 are partially seen in this study. Women like short games which you can also see in the outcome of the digital games characteristics questionnaire in the average Dutch population survey, whereas men rated the long games as more important. The social component, violence, and gender stereotyping in games is not an issue in casual games, so these preferences are not studied in this thesis.

The outcome of the research done by Wood et al. (2004) is also seen in our study, although not entirely, the tendency is the same. The female preferences Wood et al. (2004) found were cartoon style graphics, fantasy settings, use of humor, short duration games, points accumulation, finding bonuses, solving puzzles, avoiding things, and collecting things. In our study the characteristics solving puzzles and short duration games are also the preferred by women. The men in the research of Wood et al. (2004) liked among other things the characteristics long duration games, multiplayer options, sophisticated AI, shooting things, and beating other players. In our study we saw similar characteristics which the men preferred; shooting things and long duration games.

The most important characteristics of casual games are cartoon style graphics, short duration games, and solving puzzles. These characteristics are precisely the ones that women chose as important game characteristics, which could explain why most casual gamers are female. Men chose the characteristics which can be found in console games; shooting things, long duration, multiplayer options, sophisticated AI.

You might think that women have more positive experiences when playing casual games than men and therefore more women play casual games than men. However in our study there were no differences in game experience when playing casual games between men and women, and also no differences between participants younger than 35 and older than 35. Although men and women have other game characteristics which they find important, as mentioned earlier, once they are playing casual games, the experience is the same.

The research done by ISG (2006) discussed in chapter 6 about the reasons to play casual games didn't match our outcome. The highest score in their research was for stress relief and only 19% chose entertainment. In our study entertainment was number 2 after the reason to relax at number 1 and stress relief was only chosen as the 8<sup>th</sup> reason to play casual games. Stress relief was chosen by 38% of the participants as a reason to play casual games, whereas to relax was chosen by 77% of the participants. However the research done by Zylom UK (2007) and Zylom NL (2007), also discussed in chapter 6, corresponded more with our study, they also had to relax as one of the most chosen reason to play casual games. But this is not very surprising because our casual gamers survey was conducted on the Zylom website.

In the interviews of the average Dutch population survey the subject game addiction was discussed which is also in chapter 7. Almost all interviewed participants felt that casual games are addictive, especially the games that don't have an ending; where there are multiple levels. The participants were often tempted to play just one more level, with the result that they sometimes played longer than originally intended. We only asked the participant one of the 8 items of the questionnaire of the model of Young (1998), because this was the only question which the participants could answer. The other questions were not appropriate for the average Dutch population survey, because most participants only had the 7 days experience playing casual games. However the answer to that question (do you stay online longer than originally intended?) was often affirmative, especially in the age group older than 35.

## 12.2 Conclusion

### **What explains why casual games are played mostly by women?**

The game characteristics women like are conform the characteristics of casual games, whereas the game characteristics men like are more conform the characteristics of console games. Therefore women will choose the casual games over the console games and men vice-versa.

The game experience men and women have when playing casual games is not different, so this can't be the reason why casual gamers are mostly women. The reason is also not the introversion or extroversion of the players; it doesn't matter whether you are introvert or extrovert regarding playing casual games. Women do state more reasons to play casual games, perhaps they perceive more benefits of playing these games than men do.

### **What explains why casual games are played mostly by people over the age of 35?**

People over the age of 35 like different game characteristics compared to people younger than 35. They like short duration games, rapid advancement, and solving puzzles, whereas people younger than 35 like the game characteristics elements of surprise, exploring new areas, and controlling the sound and graphics settings. The game characteristics people over the age of 35 like are conform the characteristic of casual games.

People over the age of 35 have more reasons to play casual games than people younger than 35 years old, including mental exercise and memory strengthening. They, especially women over the age of 35, also state distraction and actual relief from chronic pain and/or fatigue as a reason to play, whereas no one younger than 35 thought these were reasons to play casual games. Maybe there are more benefits for people over the age of 35 when playing casual games and therefore have more reasons to play these games.

However, the game experience both age groups have when playing casual games is the same; when they are playing it doesn't matter how old you are when looking at your game experience of casual games.

## 12.3 Future work

For future research it could be interesting to see which dimensions of personality are important for casual game players. Is there a specific human personality that is common among casual game players? We've studied introversion/extroversion which didn't result in many differences in playing time, game experience or reasons to play casual games, but maybe other dimension do.

Another interesting topic is the difference in game characteristic preferences between men and women. If you look at the characteristics men like compared to women, you could link these to an evolutionary explanation of men as the hunters and women as the gatherers.

There have to be more research done to see whether casual games can be addictive or not and why they are potentially addictive, especially with casual game players who play the games often and for long periods of time. In the interviews the participants mentioned that they felt the games were addictive, but most of them also said that they weren't addicted. There has to be more research done to understand casual game addiction.

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## Appendix A: Game websites

The online gaming sites that offer free casual computer games:

- Addicting games **[www.addictinggames.com](http://www.addictinggames.com)**
- AOL Games **[games.aol.com](http://games.aol.com)**
- Big Fish Games **[www.bigfishgames.com](http://www.bigfishgames.com)**
- Electronic Arts Pogo **[www.pogo.com](http://www.pogo.com)**
- FetchFido **[www.fetchfido.co.uk/games/menu/games\\_menu.htm](http://www.fetchfido.co.uk/games/menu/games_menu.htm)**
- Free Online Games **[www.freeonlinegames.com](http://www.freeonlinegames.com)**
- Miniclip **[www.miniclip.com](http://www.miniclip.com)**
- MSN Games **[zone.msn.com](http://zone.msn.com)**
- PopCap games **[www.popcap.com](http://www.popcap.com)**
- RealNetworks RealArcade **[www.realarcade.com](http://www.realarcade.com)**
- Riddler **[www.riddler.com](http://www.riddler.com)**
- Yahoo! Games **[games.yahoo.com](http://games.yahoo.com)**
- Zylom Media Group BV **[www.zylom.com](http://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: Daily form

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 kregen de mogelijkheid om opmerkingen achter te laten.

## Appendix D: Day 6

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 E: Gaming habits

Emailadres: (open vraag)

Leeftijd: (open vraag)

Geslacht: man/vrouw

Wat is je huwelijks 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)

Hoe vaak speel je games? (dropdown menu:	Andere) 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 kregen de mogelijkheid om opmerkingen achter te laten.

## Appendix F: Day 7

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. Oplossen 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 ontwikkelt zich 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. Multiplayer LAN optie
52. Multiplayer communicatie
53. Allianties creëren
54. Andere spelers verslaan

## Appendix G: Interview questions

- Hoe vond je het experiment?
- Heb je voor het experiment ook al wel eens een casual game gespeeld?
  - o Zo ja, welke, welke site?
- Wanneer speelde je de spelletjes meestal?
  - o Wat deed je voor en na het spelen?
  - o 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?
  - o Speelde je langer dan eigenlijk je bedoeling was?
  - o Wat maakte het in het spel moeilijk om te stoppen?
- Wat is je favoriete genre wat betreft casual games?
- Hoe koos je de spelletjes?
  - o 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?
  - o Zo ja, waarom?
  - o Zo nee, waarom?
- Zou je deze spelletjes als verslavend kunnen zien?
  - o 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)
  - o 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?
  - o Kan je aangeven waarom?

## Appendix H: Casual gamers survey

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

**zylom®**  
Have fun.

**Zylom spelletjes vragenlijst**

Hallo,

Zylom zou graag willen weten wat voor jou redenen zijn om te spelen en hoe je je voelt na het spelen van een spelletje. Vul na het spelen van dit spel de vragenlijst in en help ons Zylom nog leuker te maken.

**BELANGRIJK:** vul de enquête pas in nadat je het spelletje gespeeld hebt!

Alvast bedankt.

**zylom®**  
Have fun.



Start

Have Fun! @ Zylom



## 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voelde me succesvol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voelde me verveeld	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vond het indrukwekkend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vergat alles om me heen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik was gefrustreerd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vond het saai	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik was prikkelbaar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voelde me vaardig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik was helemaal geabsorbeerd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voelde me tevreden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voelde me uitgedaagd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik moest er veel moeite in steken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voelde me lekker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

■■■■■ 28%

Volgende



## Zylom spelletjes vragenlijst

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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gelegenheid om strategisch te denken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gelegenheid om te ontsnappen aan het dagelijkse leven	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mogelijkheid om tegen andere te concurreren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mogelijkheid om je fantasie te gebruiken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dingen doen die je niet in het echte leven kunt doen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gevoel dat je iets bereikt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mogelijkheid om iets te leren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eigen scores verbeteren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ontspanning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hersenen trainen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mogelijkheid om in een fantasie wereld te spelen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vermaak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verminderen van stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afleiding van chronische pijn en/of vermoeidheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geheugen verbeteren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Daadwerkelijke vermindering van chronische pijn en/of vermoeidheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

■■■■■■■■■■ 42%

Volgende





## Zylom spelletjes vragenlijst

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

[illegible]

**■■■■■■■■■** 57%

Volgende

Have Fun! @ Zylom



## Zylom spelletjes vragenlijst

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

Have Fun! @ Zylom



## Appendix I Reasons to play casual games \* age groups

Casual gamers survey:

The table consists of items that have a significant difference between the age groups. For each age group is the percentage given of who rated the item as a reason to play casual games.

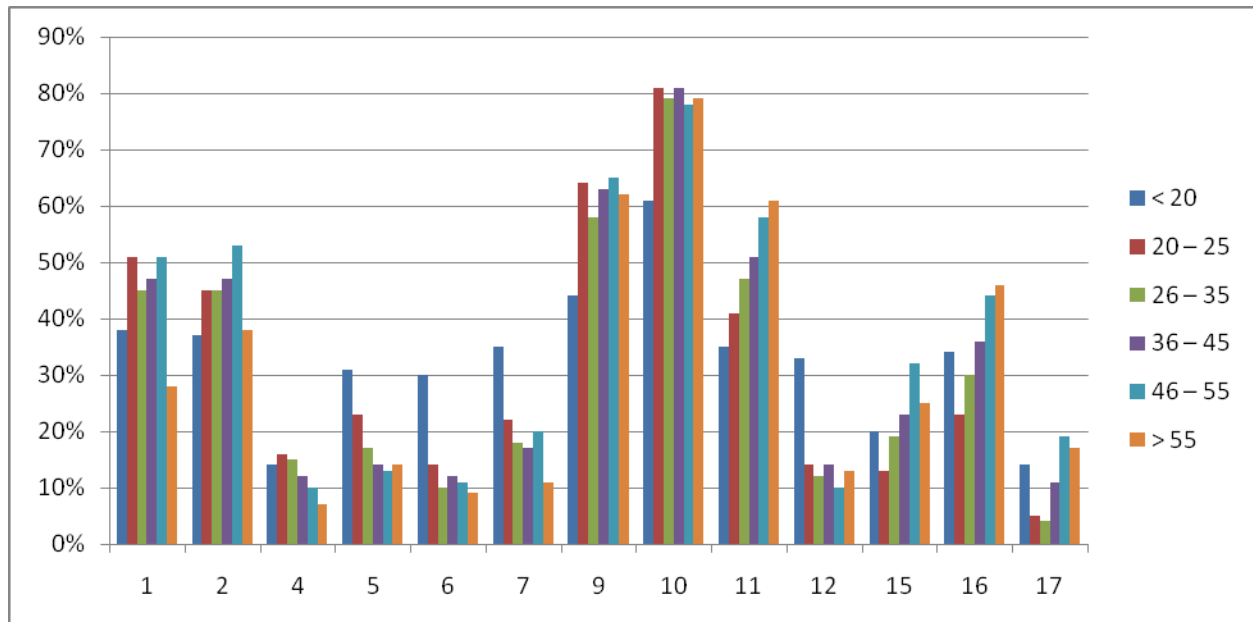
	< 20	20 – 25	26 – 35	36 – 45	46 – 55	> 55	Sig.
<b>Item 1</b>	38%	51%	45%	47%	51%	28%	,008
<b>Item 2</b>	37%	45%	45%	47%	53%	38%	,036
<b>Item 4</b>	14%	16%	15%	12%	10%	7%	,013
<b>Item 5</b>	31%	23%	17%	14%	13%	14%	,017
<b>Item 6</b>	30%	14%	10%	12%	11%	9%	,000
<b>Item 7</b>	35%	22%	18%	17%	20%	11%	,003
<b>Item 9</b>	44%	64%	58%	63%	65%	62%	,001
<b>Item 10</b>	61%	81%	79%	81%	78%	79%	,000
<b>Item 11</b>	35%	41%	47%	51%	58%	61%	,006
<b>Item 12</b>	33%	14%	12%	14%	10%	13%	,000
<b>Item 15</b>	20%	13%	19%	23%	32%	25%	,009
<b>Item 16</b>	34%	23%	30%	36%	44%	46%	,001
<b>Item 17</b>	14%	5%	4%	11%	19%	17%	,009

These percentages can also be seen in the figure below.

x-axis: items that have a significant difference between age groups

y-axis: percentage

legend: age groups



## Appendix J Characteristics analysis

50% or more of participants of the average Dutch population survey rated the following characteristics as slightly or very important:

Item	Important		Item	Important
1	67%		25	55%
2	52%		26	69%
3	63%		27	55%
5	78%		29	59%
6	60%		30	58%
7	53%		31	63%
10	61%		32	82%
11	59%		33	51%
13	60%		35	53%
14	71%		36	62%
15	88%		37	59%
16	90%		38	60%
17	82%		41	53%
18	76%		42	77%
19	77%		43	82%
20	53%		44	74%
21	73%		45	84%
22	90%		46	63%
23	77%		50	51%
24	82%		54	54%

Significant difference between men and women in the following items:

Item	Sig.	Male			Female		
		Not important	Slightly important	Very important	Not important	Slightly important	Very important
5	,027	13%	35%	52%	29%	50%	21%
7	,017	30%	35%	35%	65%	25%	10%
12	,001	52%	26%	22%	89%	11%	0%
14	,048	44%	22%	35%	18%	25%	57%
25	,000	17%	35%	48%	68%	21%	11%
27	,016	35%	30%	35%	54%	43%	4%
28	,001	35%	44%	22%	86%	7%	7%
30	,005	24%	48%	29%	58%	38%	4%
32	,016	30%	39%	30%	7%	36%	57%
38	,035	26%	63%	11%	64%	36%	0%
51	,042	44%	35%	22%	69%	31%	0%
54	,001	26%	35%	40%	64%	32%	4%

- 5. Realistic graphics
- 7. Full motion video (FMV)
- 12. Long; takes months or years to complete
- 14. Short; can be completed within one session
- 25. Sophisticated AI interactions
- 27. Surviving against the odds
- 28. Shooting (enemies, targets, etc)
- 30. Different modes of transport
- 32. Solving puzzles
- 38. Mapping areas
- 51. Multiplayer (LAN) option
- 54. Beating other players

**Significant difference between the age groups in the following items:**

Item	Sig.	20 – 35 yrs			35+ yrs		
		Not important	Slightly important	Very important	Not important	Slightly important	Very important
<b>14</b>	,001	48%	22%	30%	8%	25%	67%
<b>21</b>	,006	11%	37%	52%	46%	29%	25%

- 14. Short; can be completed within one session
- 21. Elements of surprise