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Are games more than fun?

Motivational aspects on digital games

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Sammanfattning

Användandet av spel som ett kraftfullt verktyg växer sig allt starkare inom träning. Att använda spel som en träningsmetod kan ge ökad motivation, något som ger ökad inlärning. Denna studie undersöker varför vi spelar, och vad som gör att vi fortsätter spela. Studien består av två delar; en fokusgrupp och en webbenkät. Resultaten visar att människor föredrar att spela tillsammans med andra, och att de främst spelar på grund av underhållning, tidsfördriv och gemenskap. Resultaten visar också att deltagarna var överens om fem olika egenskaper som ett spel måste ha för att de ska vilja spela; *skön spelkänsla* i form av effekter som musik, karaktärer och miljö, *variation* i uppgifter, *successivt* ökande svårighetsgrad, en *spännande* handling och att spelet måste vara *enkelt* att förstå.

Dessa resultat är viktiga för att de visar vilka faktorer speldesigners måste ta hänsyn till när de designar spel för träning. Trots allt, underhållning och *intrinsic motivation* i spel är några av de främsta och generella anledningar till varför människor spelar och varför de lär sig något. Spel som endast designas för träning är således dömda att misslyckas.

Nyckelord: spel, underhållning, undervisning, motivation, *serious games*, *digital game-based learnin*, *e-learning*

Summary

Games are increasingly becoming a powerful and effective tool for training. The use of games as a training tool increase intrinsic motivation which enhances learning. This study concerns why people play and why they continue play. The study consists of two parts; a focus group and a web questionnaire. The results suggest that people prefer playing together with others, and that they play mainly because of entertainment, fellowship and pastime. Results also show that the participants come to an agreement of five different characteristics a game must have in order for the participants to play; *a pleasant game feeling* i.e.- effects like sounds, characters and environments, *variation* in tasks, *successively* increased difficulty, a *exciting* story and that the game must be *understandable*.

These findings are important because these are factors that game designers must take into consider when designing training games. After all, entertainment and intrinsic motivation in games is some of the general reasons why people play and why they learn, and therefore, a game only designed for training is doomed to fail.

Keywords: games, entertainment, education, edutainment, intrinsic motivation, play, serious games, digital game-based learning, e-learning

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1 Introduction

When someone is intrinsically motivated, one follows one's interests and participates in activities volitionally. When it came to awareness that games increase intrinsic motivation; a factor necessary in order to learn, (Prensky, 2007; Bisson & Luckner, 1996) the use of games as a powerful and effective tool for entertainment and education are increasingly became more and more common. This has lead to two large and recent approaches; learning through games, called *digital game-based learning* (Prensky, 2007) or *e-learning* (Aldrich, 2005), and training through games, called *serious games* (Michael & Chen, 2006). These approaches are developing games that should be played for the purposes of learning and training. Serious games are most known through military training games and flight simulators, but also through fire fighter training and in medicine. Training through games is primarily used in areas where you risk yours or someone else's life. Such games make it possible to train the most dangerous situations that can occur and therefore prepare you for further life threatening situations.

1.1 Purpose

Today's manufacturers of games often seem to focus on the quality of graphic and sound in games, i.e. fidelity - the game should look as real as possible. I believe that it depends on much more, and that we play games for other reasons. What is mainly interesting then is to examine what the users think about games and why they actually play them. The purpose of this report is therefore to examine what it is in games that make us want to play, and also, what it is that make us continue playing.

1.1.1 Scope

This study is only focused on computer games and video games and does not take into consideration other types of games, for example board games or training simulators.

1.2 Background theory

1.2.1 Motivation

The studies of motivation investigate the *why* of behaviour. The theories of motivation are built on assumptions about the nature of humans and about the

factors that make us act in a certain way. For decades the study of motivation has been focused on drives rather than interests. It began as early as 1914, with Freud's drive theory (Freud, 1917), that asserted that there are two important drives – sex and aggression, and Hull (1943) with his drive theory, asserted that there were four – hunger, thirst, sex and the avoidance of pain. According to these views, drives provide the energy for behaviour, for example, if you are hungry - you eat, if something hurts - you stop doing it. For many years methods of behaviour was built after these drive theories, but after much work it became quite clear that these drives did not explain many of the behaviours being observed. A different view of motivation was proposed, called *effectance motivation* (White, 1959), which could complement drives with greater explanatory power. This view could explain a variety of behaviours that was not based on biological drives, such as play and exploration. In later years *effectance motivation* came to refer to *intrinsic motivation.* Side by side with intrinsic motivation theorists began to struggle with concepts like volition, autonomy and choice. Shapiro (1981) considered that drives and impulses account for tendencies *to* act, but they do not *make* someone act. In order to act there needs to be a concept of self-direction. Deci and Ryan (1985) explain that intrinsic motivation and self-determination are concepts that show that the human is an active organism, which behaves in a certain way not only because of drives, but because of free will, thus, intrinsic motivation is a form of motivation that comes from inside the individual. When someone is intrinsically motivated, one follows one's interest, an assertion that was discussed as early as 1890 (James, 1890). In an intrinsically motivated situation the organism will be very interested and excited in what they are doing (Csikzentmihalyi 1975). Deci and Ryan (1985) argue that intrinsic motivation is based in the innate, organismic needs for competence and self-determination.

Several research argue that intrinsic motivation to learn improves the quality of learning and that situations that are autonomy and informational can increase effective learning, intrinsic motivation and self-esteem (Gottfried, 1982). Prensky (2007) writes that motivation is necessary in order to learn, and that you can learn almost everything if you are motivated. Different studies want to show the importance of both intrinsic and extrinsic motivation in learning (Ryan & Deci, 1985). Researches want to emphasize the role of enjoyment and fun that increase both learning and motivation (Bisson & Luckner 1996). Bisson and Luckner writes: "*enjoyment and fun as a part of the learning process are important when learning new tools since the learner is relaxed and motivated and therefore more willing to learn*". If a learning process is fun the learner gets relaxed and motivated, thus, relaxation enables learners to take in things more easily and motivation enables them to put forth effort without resentment (Omrod, 2004). Motivation is one of the primary factors for whether we continue to do something, and practice is necessary in order to learn. Almost everything

we know has to be practiced: reading, speaking, calculating and even working in teams needs to be done over and over again in order to get it right. Thus, learning by doing is the most effective method in order to learn (Prensky, 2007; Omrod, 2004). Omrod calls this active learning. Active learning consists of three parts: experiencing the world in new ways, forming new affiliations, and preparation for future learning. To understand something is an active process in which we subconsciously reflect on the situation and the domain we are in. We can perceive active learning in games, where you meet new worlds, you struggle with many different problems and achieve goals of different magnitude in order to advance in the game. A similar approach is called discovery learning, (Rieber, 2000) one instruction model based on constructivism, where students explore and discover the environment by manipulating objects, check new information against old rules or perform experiments. Games contain much discovery learning where players venture into a fantasy world and explore, taking risks, learning by doing and making mistakes (Siang & Rao, 2003). Transfer of existing skills from one learning context or environment to another is called *Transfer of Training*, a concept in learning theory (Roscoe & Williges, 1980) which can be found effective in games (Bandura & Wood, 1989).

Extrinsic motivation is a form of motivation that comes from outside an individual. The motivating factors are rewards that drive people to do tasks they are not interested in and normally would not do without the rewards. For example, for an extrinsic motivating student, the reward could be a good grade on an assignment, for a pilot trainee, the reward could be better skills or a pilot degree. (Deci & Ryan, 1985)

1.2.2 Games

The existence of so many different games makes it is rather difficult to have one easy and comprehensive explanation of the word game. To some, games need to have rules, to others, games needs to have competition.

Garris, Ahlers and Driskell (2002) argue that there are six main elements that typify games: fantasy, rules/goals, sensory stimuli, challenge, mystery, and control. Malone (1981) argued that there are four main elements that make an activity intrinsically motivated: challenge, fantasy, complexity and control. He also argued that these four elements typify games and make them engaging educational tools. Prensky (2007) writes that there exist six different elements of games that make them a form of fun and play; goals & objectives, rules, outcomes & feedback, conflict/competition, interaction and a story. Studies seem to have quite different thoughts and labels of which aspects characterize games; therefore an explanation of the main aspects will be done below.

Goals are important in games because they are what you measure yourself with. Your goal could be getting the highest score, reach the end as fast as possible or beat the boss. Clear and difficult goals increase motivation and improve performance because the player is determined to reach the goal (Locke & Latham, 1990). Goals push us to try over and over again, and the *rules* of the game make this harder by limiting the possibilities and strategies (Blunt, 2007).

It's through *feedback* in a game that learning takes place. When a player acts in a game and something happens as a result, the player learns constantly how the game works and what she/he should do to win. Prensky (2007) argue that feedback is necessary to maintain performance and motivation. Feedback gives information of how close the player is to reach the goals, which increases motivation and makes the player put in more effort and focus on the task (Garris et al., 2002). A game must have an optimal level of informational complexity, if too little information is shown then the player might miss it, if instead too much information is shown, it may become confusing or too easy to complete the task (Garris et al., 2002). Thus, the game should have mystery, which exists when the information is incomplete and inconsistent (Malone & Lepper 1987). Mystery evokes curiosity in the player, which is one of the primary factors that drive learning and increase intrinsic motivation (Malone & Lepper, 1987).

A balance between the player and *conflict/competition* is important in a game because it makes the game exciting. Rani, Sarkar & Liu (2005) argue that in the most existing games, the level of difficulty is altered to increase or decrease the level of challenge. Csikzentmihalyi (1990) stated the concept flow; it's important that the players' abilities are balanced with the tasks in the game; enjoyment is when one's skills are matched with the difficulty of the tasks. With clear goals, relevant feedback and balance between the players' abilities and the tasks, the players' attention increase. If the tasks are too easy or too hard, the player becomes bored or frustrated. Therefore, there must be an optimal level of challenge (Malone & Lepper, 1987). This can be associated with most work of intrinsic motivation that tells us that the organism functions most effectively in situations that provide a satisfactory level of stimulation (Deci & Ryan, 1985). In digital game-based learning, keeping the state of flow in the game and in the learning is one of the biggest challenges (Prensky, 2007).

I*nteraction* makes a game fun in two ways. First is the interaction between player and computer through feedback, and second you play games together with others, hence, games are a very social activity (Prensky, 2007).

A *story* is very important in a game. The game is *about* something, and the story makes the game interesting. Malone and Lepper (1987) argue that fantasies, i.e., stories, offers metaphors of real-life problems that make it possible for the players to experience different situations form varied perspectives. Rieber (1996) noted that if the fantasy is interesting, the content becomes interesting, and

argued that fantasies are effective motivational tools. Rieber also argued that animated graphics enhance motivation of instructional activities, and found that students returned to those practice activities that include dynamic graphics. Garris et al. (2002) explain that fantasy creates an imaginary world that allows the players to experience perceptions that not always can be experienced in the real world.

1.2.3 Educational games

The strength of using games in learning is a higher level of intrinsic motivation to play and to learn within the context of an interesting story, thus, the students learn when they play (Kickmeier-Rust et al., 2007). The fields that use games for teaching and training are for example management science, economics, psychology, sociology, political science, military science and education. Educational games often has three types of situations; learning situations focused on teaching content, game play situations were the player interacts with the game's environment, objects, characters and a story situation that combine learning and playing in a motivating and engaging way (Kickmeier-Rust et al., 2007). Digital game-based learning is an approach first created by Marc Prensky (2007) that focuses on and highlights learning through games.. Different studies are trying to show that games can be used as a teaching tool in both school and at work (Prensky, 2007; Tüzün, Kizilkaya, Yilmaz-Sozlu, 2008). Research on educational games has shown that students find educational games more interesting than traditional instruction, for example lectures (Cohen, 1969). Findings show that military trainees rated training with instruction received via a computer-based game more enjoyable than traditional paper instructions (Ricci et al., 1996). Research has also found evidence that indicates that computer games may contribute to the development of skills that could be relevant for surgery (Bardram, Funch-Jensen, Grantcharov & Rosenberg., 2003).

1.2.4 Serious games

Serious games are games whose primary purpose is edutainment. Edutainment is a term that arises in 1990s and means education through entertainment (Michael & Chen, 2006). A good definition of serious games is given by Abt (1987): *"Games may be played seriously or casually. We are concerned with serious games in the sense that these games have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement. This does not mean that serious games are not, or should not be, entertaining".* Thus, their primary design is the accuracy of the process or effect being simulated for training, and whether and what the game actually teach. Serious games are most known as military training games and flight simulators, but there

are also examples from fire fighter training and from medicine, for example The Interactive Trauma Trainer (ITT), (Stone, 2005). Findings shows that training through games can enhance trainee confidence, by providing an environment in which users can perform tasks without facing the real-world consequences, something that can be very useful training for complex, dangerous and life-threatening situations (Driskell & Jonhston, 1998). Bandura and Wood (1989) argue that when individuals apply skills learned to a real-world environment, their confidence is bigger and they are more resilient to the situations faced. Military trainees in flight school who trained 10 hours on an aviation computer game performed significantly better on test flights than those trainees who received standard training (Gopher, Weil & Bareket, 1994). Research has shown that training in simulations enhance strategic thinking and procedural skills (Schank, 1995). Simulations can provide effective training conditions, which allows trainees to play when they want because no instructors are needed, at their own phase and focusing on their own skills, something that would be useful in those cases when different trainees have different training requirements. However, what is important to highlight is that serious games are not meant to replace traditional training; it is meant to supplement it (Cramer, Ramachandran, & Viera, 2004).

The line between entertainment games and serious games can be seen rather vague. Though serious games are primarily designed for edutainment it does not mean that all games that falls under this genre are not entertaining. A serious game can be seen as an entertainment game for a teenager and at the same time be seen as a training game for a soldier (Michael & Chen, 2006). For example the 3D game 'America's Army', developed specifically for the US Army, had by early 2005 developed into one of the most successful online games ever (Stone, 2005). However, the probably biggest differences between an entertainment game and an edutainment game is that entertainment games can be both real and fantasy, while edutainment games are designed as realistic and immersive as possible (Cramer et al. 2004).

1.3 Research question

Humans learn better and more effectively when they are motivated. Studies with games show that peoples motivation increase when they participate in a game-based activity (Siang & Rao, 2003), then the questions is; what is it with games that make us play? What is it with games that give users motivation to keep on playing?

2 Method

The method contain two different parts; first, how the focus group was performed and second, the main study, which was a web questionnaire. A focus group was necessary in order to develop the questions that were used in the web questionnaire. A web questionnaire was used because its advantages regarding reaching out to people.

2.1 Focus group

The method used was a semi-structured interview performed within a focus group. The interview was based on the playing of a couple of video games and at the same time discussing different questions about games.

2.1.1 Participants

The focus group consisted of four participants between 21 and 24 years old. There were two men and two women. All participants were students on different programs on the University of Linköping. The participants were recruited by email and at the university.

2.1.2 Material

The participants were given six concise and brief questions on a paper, which the experimental leader then developed aloud through the discussion. The questions were developed in order to show the participants what kinds of questions and subjects the discussion would be about. This made it easier for the participants knowing on what level the discussion would be. Examples of questions given were, *"Why do you play?"* and *"Why are games fun?"*.

2.1.3 Equipment

The equipment used was the video game consol Xbox 360, one hand control, six video games, a projector and an audio system. The video games were two sports games, one action game, one strategy game and one children's game. The video games were used to make the discussion easier for the participants, and hopefully make them think of different games and remembering the feeling of playing games.

2.1.4 Design

The semi-structured interview took place in a laboratory. Before discussing the questions the participants played video games for about half an hour. The entire session was audio recorded and notes were taken during the whole time. The session took about two hours and the participants received one movie ticket each as compensation.

2.1.5 Procedure

The participants were given an introduction paper that described how the interview was going to be carried out. They were also given a paper with a couple of questions and subjects important for the experimental leader. The experimental leader read the questions aloud after which the participants were instructed to read them for themselves once more. The participants were asked to think of the questions while playing video games in about half an hour, which hopefully got them focused on games. After a half an hour the experimental leader began the discussion by asking the first of the six questions. The participants continued to play video games while discussing the rest of the questions. The participants were also asked to discuss outside the questions and therefore also feel free to suggest other subjects.

2.1.6 Results

The material from the focus group was used as input for the questions that would become the web questionnaire.

2.2 Web questionnaire

A web questionnaire were developed and used because of the loss of interest of a specific target group. Therefore, a web questionnaire was the easiest way to collect information from people with different ages and backgrounds.

2.2.1 Participants

The web questionnaire was sent out to 265 people through email, of which 74 people answered. The participants had a mean age of 25, where the youngest was 20 and the oldest 55. There were 44 men and 30 women. 57 of the participants were students, and 17 were employees.

2.2.2 Material

The web questionnaire consisted of 42 questions. The questions asked were both multiple-choice, scales and open answers. The questions were built on the information collected from the focus group. The questions were developed to be short and concise, hence minimizing the possibility for a participant to interpret them wrong. The 7-graded scale was used. The questions were asked in swedish because the participants were swedish speaking.

2.2.3 Equipment

Google documents Survey tool was used for creating the web questionnaire. The main reason was because it sent out the questionnaire via email, and the answers were automatically sent back to an email address. Furthermore, it was easy to transfer the answers into an excel document.

2.2.4 Design

The main study was an explorative study, meaning, the study began at the bottom, exploring peoples thoughts and beliefs about games. The questions used in the web questionnaire were developed based on the input from the focus group.

2.2.5 Procedure

The participants were given the web questionnaire by email, with an introduction of what the study was all about and with information that it was anonymous, optional and that the data was going to be destroyed right after the study was done. The participants' answers were sent back automatically to the experimental leader by email and were then transferred to an Excel-document.

3 Results and discussion

The results will be divided in three parts; the two first sections will answer and discuss the research questions. The third section discusses the remaining findings.

An ANOVA test with "hours played" as dependence variable and sex as independence variable (women X men), shows that the male participants play more than the female participants. ($F_{(1,72)}$=3,99, $p < 0,05$) Men with a mean of 5,90, women with a mean of 3,13.

What is it with games that make us want to play?

47 percent of the participants mainly play computer games and 39 percent mainly play video games. Of the remaining participants 9 percent play other types of games and 5 percent play nothing at all. On the question "What type of game do you mainly play?" they had to pick just one choice. The results show that there is a big difference in game-types between the participants who play computer games and the participants who play video games (see Figure 1). Most of the participants who play computer games play strategy games. Participants who play video games mainly play sports-, role playing- and adventure games.

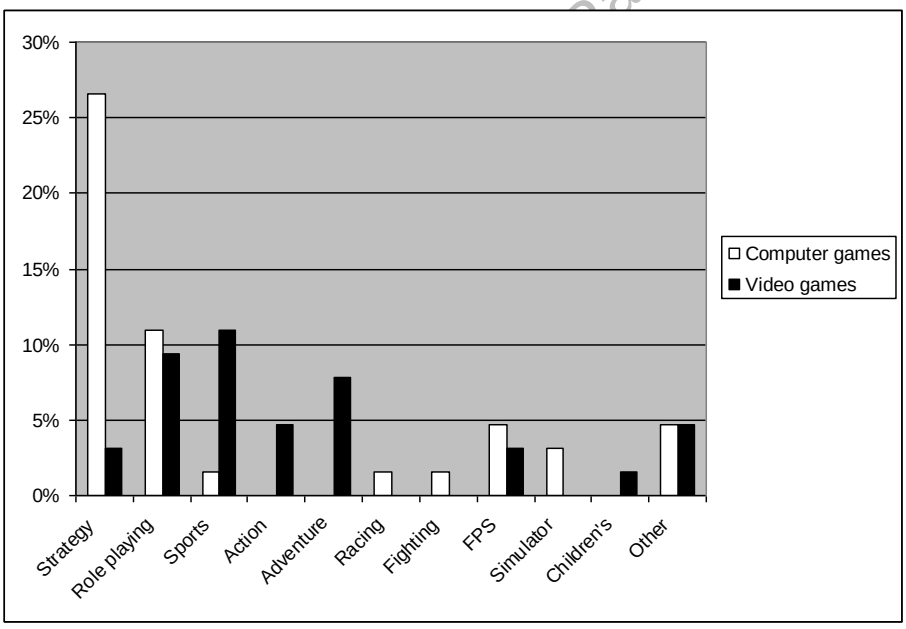

Figure 1: Distribution between the participants who play computer games and the participants who play video games.

The general reasons of why the participants mainly play strategic games, given on the question "why do you play that type of game", are strategic thinking and pastime. One participant answered; *"A good way to pastime but at the same time it demands some sort of thinking".* The participants that mainly play role playing games do it because it reminds them of a book or a film, and often has an interesting story. A participant answered "*Role play, because these sorts of games give you a chance to evolve your own character and experience adventures in an unfamiliar environment, it's often a good story and gives a feeling of improvement when you keep on playing*". Another participant gave the answer *"Role play is interesting worlds that function like any good book and it has a suggestive story"*. The participants who mainly play sport games do it because they are interested in sports, and some few do it because it is easy and do not need any learning.

On the question "Which of these alternatives do you find most important in a game?" the participants were asked to choose three alternatives. The results show that the participants find five main important aspects games must have in order to be fun; a pleasant game feeling i.e., - effects like music, characters and environment, variation, difficulty, an exciting story and that the game is easy to understand (see Figure 3).

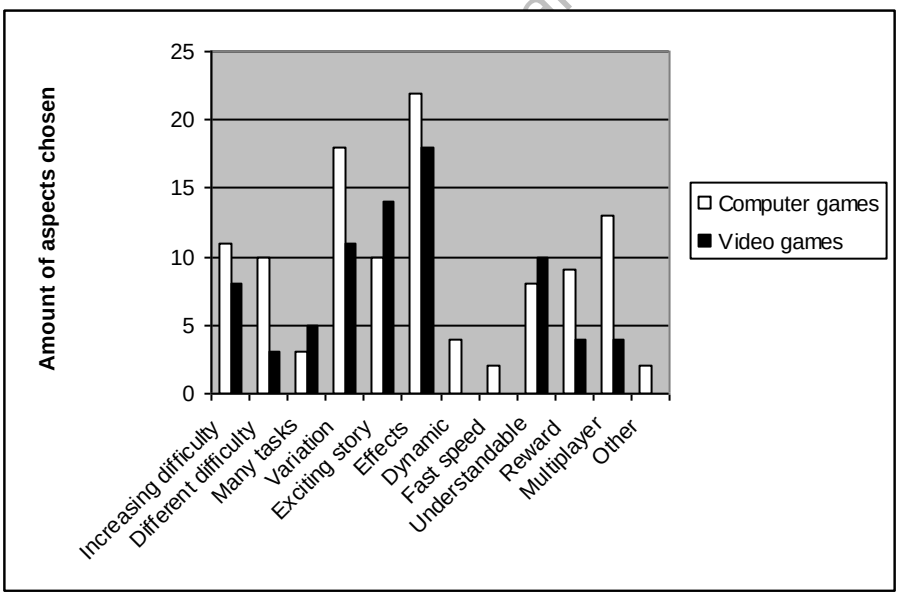

Figure 2: shows how important different aspects are in games according to the participants who play computer games and the participants who play video games.

The results show that it is some difference concerning aspects of a game between the participants who play computer games and the participants who play video games. Though, most of them seem to agree with each other regarding which five aspects is the most important.

40 participants think that games must have *effects* like music, characters and environment i.e. – a pleasant game feeling. The reasons given are mainly that effects are important in order to get the right feeling and the right experience. Effects makes you become a part of and disappear in a game. One of the participants gave the answer *"I think that a pleasant game feeling is most important. In a really good game, you can feel the scents in the environments you play in".* The second most important aspect is *variation* in the game. The general reasons given are that variation in a game prevents the game from being monotonous and dull, and makes the game fun and exciting. Other reasons given were "V*ariation is good because humans can't perform at their best continuously*" and *"a story that is complex and unpredictable maintains my interest and keep me alert*". The third most important aspect is *difficulty*. That the levels of difficulty increase successively seem to be important in a game because it makes the game more fun, and makes a game challenging and stimulating. This refers to the term flow (Csikzentmihalyi, 1990), which makes the game become exciting, and the player's attention increase when it is an optimal level of challenge (Malone & Lepper, 1987).

The forth most important aspect is that the game must have an *exciting story*. The general reasons is that it makes the game fun and interesting, and, quoting one participant *"An exciting story together with a pleasant game feeling forms the very experience of the game, the feeling that you are a part of the game".* Mystery in the story makes a game interesting and makes people want to play (Prensky, 2007). The fifth most important aspect is that a game should be *easy to understand,* i.e.-understandable. Most of the participants agree that if a game is too hard to understand you get tired and bored easier, *"the game should be provocative but at the same time not too hard", "... you lose the pleasant game feeling and give up easier focusing on the goal"*. That feedback is an element that makes games fun can explain why the participants find it so important for a game to be easy to understand. When a player interacts with a game, feedback gives information of how close the player is to reach the goals, which is necessary in order to maintain performance and motivation (Garris et al. 2002). Another participant answered "*if a game is too easy or too hard, you don't continue to play"*. This is strengthen by the findings of flow (Csikzentmihalyi, 1990), it is important that the players abilities are balanced with the tasks in a game. If the game is too easy or too hard, the player gets bored (Malone & Lepper, 1987).

The participants that mainly play computer games seem to find multiplayer as a quite important aspect in a game. One reason can be that most of the computer players play together with others over the internet, and therefore the game must have a multiplayer option. Table 1 shows which aspects the participants find important in order for them to play. The estimations show further indications that an exciting story, different levels of difficulty and variation is important and influence them to play. It shows as well that the game should be realistic is one less important aspect.

Table 1; estimation over the importance of different aspects in games

Means and standard deviation	
Story	5,1 (1,5)
Difficulty	4,9 (1,6)
Variation	5,5 (1,1)
Reward	5,0 (1,4)
Graphic	4,3 (1,5)
Realistic	2,5 (1,7)
Multiplayer	2,4 (1,7)

Variation and different levels of difficulty seem to collaborate ($r= 0,25$, $p <0,05$). This is probably mainly because different levels of difficulty contribute to variation. This can perhaps explain why reward and variation also collaborate ($r=0,25$, $p < 0,05$). That the graphic and that the game should be realistic probably collaborate ($r= 0,46$, $p < 0,01$) because a game can only be realistic with good graphics. A interesting correlation is between the importance of a game having a multiplayer option and the importance of the game to look realistic ($r=0,28$, $p < 0,05$). This probably collaborate with the importance of multiplayer and good graphic ($r=0,26$, $p < 0,05$). Most of the participants who play together with others play sports games and strategy games, a reason can therefore be that these types of games often have good graphic and are quite realistic, at least sport games. The importance of reward in a game seem to correlate with the importance of a game to be realistic ($r=0,26$, $p <0,05$). This result is quite interesting and one reason can be that reward like goals or money make the games more real life.

What is it with games that give users motivation to keep on playing?

58 % of the participants prefer playing games together with others rather than playing by themselves. 20 of the 35 participants who mainly play computer games and 21 of the 29 participants who mainly play video games prefer playing together with others (see Figure 4).

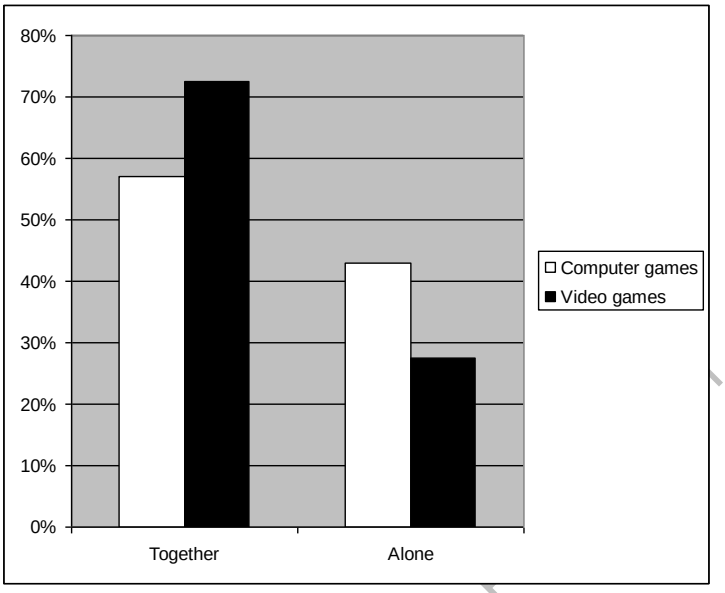

Figure 3: distribution between computer- and video game players in percent.

The general reason why they play together is that it is a fun way to pass time, and the benefits they get from playing with others are fellowship, cooperation and competition. The participants agree that they play games on different get-togethers or at parties. Games provide interactions between players which enhances enjoyment in games (Prensky, 2007), which can explain why 30 of the 43 participants who prefer playing together with others do it because it is fun. Competition is one of the elements that make games fun (Malone & Lepper, 1987; Csikzentmihalyi, 1990) and one of the reasons why the participants play. The participants that prefer playing together with others play mainly strategy games and sport games.

34 % of the participants prefer playing games by themselves. 36 % of the participants who prefer playing by themselves mostly play role playing games The general reasons are that it is entertaining and a good way to pastime, and the benefits are that it is more relaxing and that they can play whenever they want and in their own phase. Most common within the participants are that they play

games alone when they are bored or has nothing else to do, thus, games is not their first choice.. The remaining 8 % of the participants did not play at all.

Many of the participants who prefer playing by themselves get motivated to play because of pastime. Many of the participants who prefer playing together with others had friends as a common motivating factor. Other factors that motivate participants to play, either alone or together, were: seeing their own improvement or chance for improvement in the game, when they want to know what is going to happen, when they reach new goals, accomplish hard tasks and the will to win. What motivates the participants then is: goals, curiosity and challenge/competition. *Goals*, the participants get motivated by seeing their improvement or knowing that they soon reach improvement. As Locke and Latham (1990) argued, clear and difficult goals increase motivation and improve performance because the player is determined to reach the goal. *Curiosity,* the participants kept on playing because they wanted to know what was going to happen. Malone and Lepper (1987) argue that curiosity is one of the primary factors that increase intrinsic motivation and performance. *Challenge/competition*, they wanted to win over the game through accomplishing tasks and reaching the goals. Challenge/competition is one of the main characteristics in a game and one of the reasons why people want to play (Malone & Lepper, 1987; Csikzentmihalyi, 1990). Malone (1981) argues that challenge is one of four factors that make an activity intrinsically motivated. This can be one of the reasons of why 25 participants occasionally play games that they do not enjoy or find fun. One participant answered that he kept on playing a boring game because he wanted to win over the game. He was extrinsically motivated to make it to the goal and finish the game (Deci & Ryan, 1985). Striving to accomplish tasks and goals with different levels of difficulty is a sort of challenge, which mentioned before is one of the main characteristics of games (Malone 1981; Csikzentmihalyi, 1990; Garris et al. 2002; Prensky, 2007). Malone and Lepper (1987) claim that an individual's desire is an optimal level of challenge. Deci & Ryan (1985) argue that intrinsic motivation is built on the desire of competence, which could be one reason of why the participants want to finish a game they don't enjoy.

4 General discussion

Most of the participants agree that a game should contain five main aspects in order for it to be fun playing; a *pleasant game feeling* i.e. effects like sounds, characters and environments, *variation* in tasks, difficulty increase *successive*, a *exciting* story and that the game must be easy to understand i.e.- *understandable*. What makes them play a specific game seem to depend on their interests; some play sport games because they like sports, while others mainly play role playing games because it reminds them of a good book or movie. It is a quite big difference in the choice of game types between the participants who prefer playing alone and the participants who prefer playing together with others. 36 % of the participants who prefer playing by themselves mostly play role playing games. Role playing games have a long and interesting story where the player can develop their own character with their own personality and interests, and is therefore probably better suited for one player (exceptions: online-games). 14 of the 22 participants who play strategy games, and 6 of 9 participants who play sport games, prefer playing together with others. Both are typical multiplayer games were you can challenge other people. It is also a quite big difference between computer- and video game players. Most of the participants who play computer games play strategy games. Participants who play video games mainly play sports-, role playing- and adventure games. One reason can be that different games work better or worse depending on which platform they use.

People get motivated to play because of enjoyment, fellowship and pastime. People prefer playing games together with others because they enjoy competition and cooperation. People play alone when they are bored or have nothing else to do, thus, playing games is not their first choice. Why more participants that play video games prefer playing together with others can depend on that the video game platform is better suited for more players, while a computer are better suited for one player.

A quite interesting result is that 61% of the participants think that a pleasant game feeling is the most important element a game must have. What makes this interesting is the fact that this element is not much discussed in the literature. Garris et al. (2002) are one found for this study who argue that sensory stimuli i.e., effects, is one of the main characteristics of a game, and makes a game interesting and fun. Although the results in this study show that the effects are rather more important than an exciting story, the reasons given by the participants on the different elements shows that these two elements may collaborate. For example, as one participant answered "*an exciting story together with a pleasant game feeling forms the very experience of the game, the feeling that you are a part of the game"*. Other participants explained that it's the music,

characters, colours, environments together with the game's story that creates the general impression of the game.

4.1 Method discussion

The sample used for the study had a very composed distribution, which might have influenced the results. 57 of the 74 participants were students, and the participants had a mean age of 25 years. Although no big differences were found between the participants, the results could have been different with a bigger sample with better considerable distribution.

The use of a focus group to collect data for the web questionnaire was very interesting and profitable, and opened up many different ideas and questions regarding games. What could have made it even better would have been to have two focus groups; for example one with students and one with people with other experiences. This might have produced even more questions and ideas of games.

A web questionnaire is a convenient solution because it is easy to reach out to people with different backgrounds, gender and interests. The web questionnaire contained 42 questions, perhaps too many for the participants to answer seriously on all the questions. For example, some participants answered the last questions very briefly. This could have worked better if the web-questionnaire had not contained as much as 13 open questions. The reason for using so many open questions was because it was hard and sometimes impossible to find good alternatives for the participants to choose from. Since this is an explorative study, open questions work well because they reduce the possibility to influence and affect the participants in their answers.

Some questions were asked in a unfortunately formulated way, for example *"Why do you play video games by yourself?"* should instead been asked, *"Why do you play games by yourself?",* this is because the rest of the questions was asked with focus on "games" and not on "video games". The participants who didn't play video games at all failed to answer that question, which could have affected the results.

Another tool for web questionnaires could have been used. Google documents worked quite well but it had few alternatives and you could not edit it exactly like you wanted. For example, the question *"which of these alternatives do you find important in a game?",* asked the participants to choose three alternatives, and unfortunately, many of them chose less or more than three. This affected the results because all of the participants did not chose the same amount of alternatives, and it was impossible to know which of their alternatives was the three most important. Figure 3 shows the answers made by those participants that play computer games and video games, the participants who answered less or

more than three alternatives is also included, this is because the otherwise loss of data. A tool with in which you can decide how many alternatives participants can choose from would have worked better because then you can force the participants to only choose the number of alternatives you want.

4.2 Future research

Research shows strong evidence that learning through games is more effective than traditional teaching. Unfortunately, many existing educational games fail to compete with entertainment games. Research on a much bigger sample is needed, and a more thorough and comprehensive investigation on games with main focus on users interests and wishes is necessary to be able to get a general apprehension of why people spend so much time playing games. Thus, further investigation is necessary on why's and what's in games that contribute to game addiction and the attractive force games provides. Nevertheless, the most interesting future research would be that of perform focus groups and surveys on militaries, who already use games in their training.

5 Conclusion

The participants prefer playing games together with others. Though it seems that playing games is not often a first choice of activity; they play because of enjoyment, fellowship and pastime. Most of the participants agree that a game should contain five main characteristics in order for it to be fun playing: a *pleasant game feeling* i.e. – effects like sounds, characters and environments, *variation* in tasks, difficulty increase *successively*, a *exciting* story and that the game must be *understandable*.

These findings are important because these are factors that game designers must take into consider when designing training games. We must not forget, although that entertainment games, educational games and serious games have different purposes, training games developers should strive to design games as they design entertainment games, thus with a focus of combining training with the enjoyment games provides. Therefore, the educational games must change their design and use the factors and elements in entertainment games that make them fun and motivating. After all, entertainment and intrinsic motivation in games is some of the general reasons why people play and why they learn, and therefore, a game only designed for training is doomed to fail.

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