



# **FROM SCAPEGOAT TO WORKING MULE**

Views on the Beneficial Aspects of Video  
Games in Everyday Life, Education and  
Business

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## **ABSTRACT**

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While this thesis explores both the negative and beneficial aspects of video games, it was mainly written to highlight the positive effects they have on us, whether we consciously realize it or not.

The reader is first taken through definitions for various video gamer types. After this the thesis moves on to all the most common negative effects we often hear about in the media, following by an elaborate look into what we can actually learn and gain from video games. Since they have a broad range of advantages in different areas, everyday life, education, business and marketing have been taken into account as well as gamification and serious games.

The hope is that this thesis provides the reader, despite only scratching the surface, with new information regarding video games and succeeds in showcasing them in a better light.

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Key words: video games, gamer, learning, positive

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## ABBREVIATIONS AND TERMS

MMORPG (MMO)	Massive Multiplayer Online Role-Playing Game Massive Multiplayer Online)
Raid	Type of mission in MMORPG's where a large group of people engage themselves in boss battles. Depending on the game, raids usually take several hours to finish.
Boss battle	Battle (usually at the end of a stage or level) in a raid where the group is attempting to defeat a generally stronger boss enemy often guarding a specific objective.
IDC	International Data Corporation
ESA	Entertainment Software Association
eSports	Electronic sports, a term for the competitive play of video games.
RTS	Real-time strategy
FPS	First-person shooter
ESRB	The Entertainment Software Rating Board
T-rating	Teen. Content is generally suitable for ages 13 and up. May contain violence, suggestive themes, crude humor, minimal blood, simulated gambling and/or infrequent use of strong language.
ASA	American Sociological Association
BBFC	British Board of Film Classification
DLC	Downloadable content: extra content for an already existing video game.
SUV	Sport utility vehicle, a term used to refer to a high-performance vehicle similar to a station wagon built on a light-truck chassis.
MBA	Master of Business Administration

# 1 INTRODUCTION

Ever since we were introduced to the first video games ever - Tic-Tac-Toe, Spacewar! and Pong – we have been mesmerized by what they have to offer. According to Robert N. Bellah, an American sociologist, even animals game and play. They know games are not real, yet they get mad if someone does not play by the rules (Salminen, 2012.) Therefore it is safe to say we are evolutionally drawn to games.

Although games might be an important part of who we are, some researchers have always doubted their usefulness. According to late Johan Huizinga, a Dutch historian and one of the founders of modern cultural history who came up with the term “Homo Ludens” (“Man the Player” or “Playing Man”), we game and play not only because it is fun, but because it is one of the most fundamental human functions and has permeated all cultures from the beginning. Huizinga argued that although games might help one to relax and vent harmful urges, they are, ultimately, useless. Bellah also concurred this, claiming that games provide no direct benefit, but instead they are just something pleasant, spontaneous and voluntary (Salminen, 2012; Sutton-Smith 2001, 202.)

Despite the fact that Bellah actually talks about the interplay of monkeys and Huizinga refers to the games of his era (1872-1945), there are still many researchers and academics today, who strongly agree that all the modern video games nowadays are simply waste of time due to their lack of “content”, and there is nothing we can learn from them. It is also a common belief that violent video games cause aggressive behavior in people and, in worst cases, result in violence towards others, and sometimes even the death of innocent people. Jack Thompson, Ed Schultz and Wayne LaPierre, to name a few, all believe that video games are the devil to blame for violent behavior. Many others and I refuse to believe that video games provide no educational benefits or that they would be the culprit for such heinous acts.

The thesis has been written to raise questions among gamers, their parents as well as other people alike, and to provide them with an alternative, favorable perspective towards video games. Who knows, maybe even those with the most critical outlook on video games can gain a better understanding of them and their beneficial aspects.

“Video games do not affect kids. If Pacman had affected us as kids, we would all be running around in darkened rooms, munching magic pills and listening to repetitive electronic music.” One of the best-known jokes by Marcus Brigstocke, an English comedian, actor and satirist.

## **2 A VIDEO GAMER, YOU SAY?**

### **2.1 Definition**

The original meaning of “gamer” stood for someone who played role-playing games and war games, but has since become very widely known as a definitional term for a person who spends much of their spare time playing video games.

### **2.2 Different types of video gamers**

Since video games have become such a remarkable part of our everyday lives, being financially world’s biggest entertainment industry at around 100 billion dollars a year (Chatfield 2010, 27), we are now categorizing gamers into casual, mid-core and hardcore players based on their gaming style and the time they spend playing video games. While the internet is filled with different attributes on how to set these categories apart, I do not believe there is a single, unambiguous definition for each of them. What one considers casual gaming, the other might see as hardcore, and vice versa. The definitions mentioned on the thesis are based on different sources in the internet, and therefore should not be considered as “the ultimate truths”, as they often vary depending on who you ask.

#### **2.2.1 Casual video gamer**

Casual gamer is usually defined as a person whose time for video games is limited, therefore concentrating on games that do not require a lot of involvement. Casual gamers tend to enjoy games with relatively simple gameplay and goals, making it possible to achieve more in shorter periods of time. In other words, the player can easily step into a game, start playing immediately and leave as soon as other duties call. Other common denominators between casual games are simple graphics and free trials. Excellent examples of casual games are Facebook’s social games as well as fitness and singing games. A typical casual gamer is older and more predominantly female (Wolverton, 2007.)





IMAGE 1. Candy Crush Saga by King (Crysis TV, 2013.)

Casual gamer can also be used to describe a person who may play video games that require high level of involvement, but who prefers to advance slowly playing considerably less per week than many others.

### 2.2.2 Mid-core video gamer

Mid-core gamer is an ambiguous term, as it can be comprehended very differently. According to Steve Parkis, senior vice president of games at Zynga, mid-core games blend the depth of titles played on a PC or consoles, with the approachability and accessibility of casual games that are mobile, free-to-play and social (Martin, 2013.) Those going by the official definition of the word consider mid-core gamers people who have a wider range of interest than casual gamers, but who do not like steep learning curves and are not involved enough to spend 40 hours a week building a character. Briefly said, a mid-core gamer enjoys games that are less repetitive and more immersive than casual games (Warman, 2012.)



IMAGE 2. Solstice Arena by Zynga (Solstice Arena, 2013.)

While this definition is understandable, it does not leave room for gamers who play a lot and have a very diverse taste for video games, but do not take gaming as far as hardcore gamers. If these people are not considered mid-core gamers, then what are they? In my opinion, a mid-core gamer can be anything between a casual and a hardcore gamer, therefore not having an accurate definition.

If someone asked me years ago what sort of gamer I was, I would have probably answered mid-core. I played a lot (and I want to emphasize “a lot”) of video games ranging from platform, role-playing and action-adventure to first person shooters, but was never interested in “taking it to the next level”, and therefore not considering myself a hardcore gamer.

### 2.2.3 Hardcore video gamer

Hardcore gamers extend gaming into their lifestyle, spending a lot of their leisure time within video games. They tend to stay up-to-date with the latest titles, and are more

likely to try to "master" them by completing as many objectives as possible. Due to these two reasons, the games they play are usually highly detailed in graphics and have very complex gameplay. On top of this, hardcore gamers may also take part in other video game culture related events such as competitions and conventions. Competitions may involve organized tournaments, leagues, or ranked play integrated into the game.

One of the most common attributes of a hardcore gamer are organized, big scale raids within games such as World of Warcraft and Guild Wars 2. These sorts of raids require strong identifying with the game, and a lot of played hours because in order to succeed, the player must know his character and the environment thoroughly (Ratliff, 2012.) It is also important that the gamer has spent time and money acquiring proper gear for the run.



IMAGE 3. Guild Wars 2 by NCSoft (Giant Bomb, 2012.)

## 2.2.4 Professional video gamer

Although PC and console video game industry might not be growing as fast as social network game development – plummeting an average annual growth of 128% over 10 years (Matthews, 2012) – it is still taking a hefty bite of the industry's revenues. Several companies have realized this, hence taking part of sponsoring professional gamers: people (usually male) playing video games for real currency. Particularly in South

Korea and Japan these gamers can easily earn up to 100,000 U.S. dollars a year (Kuro5hin, 2004.) In United States, Major League Gaming, the world's first professional video game league, contracts eSports gamers with 250,000 U.S. dollar yearly deals (Magee, 2006.) The most common video game genres associated with eSports are real-time strategy, fighting, first-person shooter, massive multiplayer online role-playing, racing and multiplayer online battle arena.

Although professional gaming might still not be considered as a "real job", it is gradually becoming a serious industry for people to pursue. There are several international events for professional gamers such as the Cyberathlete Professional League, the World Cyber Games (the largest global eSports tournament, considered to be the 'Olympics of Cyber Gaming'), as well as the Electronic Sports World Cup (Kuro5hin, 2004.)

### **2.3 The average video gamer**

In 2001 the average gamer was a 21-year-old male who spent 9-10 hours a week immersed in a video game (Rahmat, 2001.) By 2011 the numbers had changed drastically: the average gamer was now a 37-year-old male.

The changing numbers gave the distinct impression that the game industry was succeeding in broadening its audience across all age demographics, and holding on to dedicated consumers that grew up with video games as they continued to age (Orland, 2012.)

By the year 2012, however, the age of an average gamer suddenly dropped to 30. This drop was easily explained by looking into ESA's questionnaire: it was now expanded to also include play on handheld, wireless devices such as PSP, iPad and smartphones (Orland, 2012.)

In 2013, the gamer demographics in the United States are as follows:

- 58% of Americans play video games.
- The average age of a gamer is 30 years.
- The average age of the most frequent game purchaser is 35 years.
- 55% of gamers are male.

- The most popular online video game types are puzzle, board, game shows, trivia and card games (34%), following by action, sports, strategy and role-playing (26%).
- 62% of gamers play video games with others, either in-person or online (ESA, 2013.)

### **3 THE HARMFUL ASPECTS OF VIDEO GAMES**

Now that we are familiar with the word gamer and what it actually stands for, we can move on by taking a good look into what sort of beneficial and harmful aspects are affecting people who play video games on a regular basis.

Before diving into the positive aspects of video games, we are first going to familiarize ourselves with the negative ones.

#### **3.1 Aggressive behavior**

Arguably the most common negative aspects of video games are thought to be increased aggressive thoughts, feelings, and behavior, as well as decreased prosocial helping: the voluntary behavior intended to benefit another. Most of these are said to be caused by the excessive graphical violence in many video games today, paired with active participation, repetition and reward for accomplishing violent acts (Raise Smart Kid, n.d.). Repetition has long been considered an effective teaching method in reinforcing learning patterns (Norcia, 2013.)



IMAGE 4. A gameplay scene from Manhunt 2: a stealth-based, extremely violent psychological horror video game by Rockstar Games in which your main goal is to dispatch enemy employees in an asylum. The game is banned in the United Kingdom for its violence (New Scientist, 2007.)

According to Anderson, Gentile and Buckley (2008, 28-31), social psychologists and most researchers studying human aggression have adopted a very specific definition for aggressive behavior.

- a) Action that is intended to harm another individual.
- b) The action is expected by the perpetrator to have some chance of actually harming that individual.
- c) The perpetrator believes that the target individual is motivated to avoid the harm.
- d) Accidental harm is not aggression because it is not intentional.
- e) Harm necessitated by service to a higher goal (e.g. pain caused by dental procedure or a soldier defending his country) is not aggression because the target individual (patient or soldier) seeks out for the higher goal.

On top of this, there are three different subtypes of aggression.

- a) Physical aggression and violence (e.g. hitting, tripping, stabbing, shooting).
- b) Verbal aggression (e.g. calling person hurtful names).
- c) Relational aggression: behavior that harms others through damage (or the threat of damage) to relationships or to feelings of acceptance, friendship, or group inclusion (e.g. spreading rumors).

Before going further into different research results regarding children's and adolescents' aggressive behavior, we have to remember that some of these subtypes of aggression can also be caused by environmental risk factors, such as poor parenting, causing cumulative effects that may not be visible until years after first exposure (Anderson and others 2008, 45.) Therefore it is very difficult to accurately measure the impact of violent video games on an individual.

Despite the fact that we cannot blame violent video games for everything and aggressive behavior can actually be the cause of cumulative environmental factors, these effects apply to video games as well. In Grabmeier's article, Brad Bushman, professor of communication and psychology at Ohio State University, explains it comprehensively.

Playing video games could be compared to smoking cigarettes. A single cigarette won't cause lung cancer, but smoking over weeks or months or years greatly increases the risk. In the same way, repeated exposure to violent video games may have a cumulative effect on aggression (Grabmeier, 2012.)

According to Anderson and Dill (2000) as well as Gentile and others (2004), the time spent playing video games anticipates lower grades in school, whereas the level of violence within a game does not affect school success. The results are directly in touch with the fact that time spent in a video game is automatically off from something else, such as homework.

A research carried out by Slater, Henry, Swaim and Anderson (2003) suggests that exposure to media violence may subsequently cause increased aggressive behavior. At the same time, however, the results were in conflict with a hypothesis in which the relationship between media violence and aggressive behavior is simply a result of naturally aggressive children being drawn to violent entertainment media.



Anderson, Gentile and Buckley (2008) conducted researches three of their own in which they investigated the effects of violent video games in children and adolescents. What they found out was that newer, more interactive violent video games were more associated with violent behavior than non-interactive media violence (TV and movies). It was also irrelevant how realistic or graphic (bloody) the violence was or whether the game had violence at all. Executing violent acts alone within the game led to raised aggression levels. However, parents who took part in the use of media by limiting the game time and content had a big (positive) impact on the aggressive emotions (Anderson and others 2008, 101-102.) Additionally male gender, previous exposure to media violence, a gaming device in the children's own room and preference towards violent media lead to raised aggression levels (Anderson and others 2008, 116.) Interestingly enough games labeled by ESRB as "children's games" generated same increase to aggression level as T-rated games. All these effects applied to both genders, children and college students, those with their own gaming device and those without one as well as individuals with high and low preferences towards violent media (Anderson and others 2008, 191.)

In their second and third research, Anderson and others (2008, 123-125; 148-150) found out that the effects of violent video games were not dependable on gender or previous exposure to violent media. In other words, no one is really immune to the effects. They also concurred with the research results of Anderson and Dill (2000), and Gentile and others (2004): time spent playing video games affected school success but not the aggression level, and violent media in turn affected the aggression level but not the school success.

A thesis written for Bachelor of Health Care by Juho Kukkonen and Tuomo Nettamo studied whether violent video games can actually bring out aggressive tendencies. They read six books and analyzed the research results in them. Half of the books supported the fact that violent video games could lead to violent behavior and half of them were against it. The central findings for supporting potential elevation in aggression suggested that the presence of violence increases violent thoughts, breeds acceptance towards aggressive solutions, and lowers your ability for empathy. Men were more drawn to video games with violence and also more exposed to the negative effects. The central findings against demonstrated that gaming improves social relationships, challenges and trains the player and gives a safe space to vent frustration and anger.

Two of the books came up with no solid evidence for the relationship between violent video games and aggressive behavior. Existing violent tendencies and domestic violence were the primary signs of proneness to violent crimes and interest towards violent video games (Kukkonen & Nettamo 2012, 17-18.)

While the results from these books were mixed, some of the studies conducted had questionable issues with them.

- a) The game used in the research done by Cristopher Barlett, Richard Harris and Callie Bruey (2007) was *Mortal Kombat: Deadly Alliance* which is an extremely violent video game with a lack of decent plot. According to Kukkonen and Nettamo (2012) the plot in the game is very superficial, giving the acts of violence no real motive. In their opinion, a fitting plot ties the violence within a game to the player's moral opinions and motives. The presence of these elements is crucial because they construe why the character behaves in a certain way (Kukkonen and Nettamo 2012, 23.)
- b) The research done by Heidi Bechtoldt Baldacci, Jennifer Baumgarder, Jeanne Funk and Tracie Pasold (2009) did not consider if parents' lack of participation affects the children's empathy levels. Kukkonen and Nettamo (2012) believe that since the research concentrated on children in kindergartens and elementary schools, it would have been extremely important to clarify how exactly the parents explained the violence within a game to their children or whether they explained it at all. If the children's empathy level would have decreased despite the parents' efforts to be actively present, the generalization that video games negatively affect your ability for empathy would have been more sufficient (Kukkonen and Nettamo 2012, 29.)
- c) While most of the results in the research done by Cheryl Olson, Lawrence Kutner and Dorothy Warner (2008) were quite positive, showing that video games do not increase aggressive behavior, the entire study was based on personal opinions and not on unbiased tests. According to Kukkonen and Nettamo (2012) since all the opinions were subjective, the answers given by the interviewees could have been blurred by the firm desire to protect their hobby. It is also possible that the young do not recognize the potential changes in themselves (Kukkonen and Nettamo 2012, 33.)
- d) Three out of six studies should have used more people in their studies to meet the needs of sampling guidelines in statistics.

- e) Five out of six studies used only one or few video games in their studies, applying the results to all violent video games and making unconfirmed generalizations about how they affect children and adolescents.

A former FBI profiler, Mary Ellen O'Toole, points out that there is no evidence to support the notion that video games cause violence.

It's my experience that video games do not cause violence. However, it is one of the risk variables when we do a threat assessment for the risk to act out violently. It's important that I point out that as a threat assessment and as a former FBI profiler, we don't see these as the cause of violence. We see them as sources of fueling ideation that's already there (Lilly, 2013.)

Christopher Ferguson, a psychology professor at Texas A&M International University, concurs with this, saying that a period of "moral panic" often follows the introduction of new media. According to him, in the 1950's, the United States Congress and psychiatrists blamed comic books for juvenile delinquency and even homosexuality.

We're in a mode of worry about -- or panicking about this type of media. We may do some putting the cart before the horse, and we may see some people sort of starting with a conclusion and trying to assemble data in a very selective way to try and support that conclusion (Lilly, 2013.)

In my opinion, the most interesting observation about the relationship between video games and aggression by far was done by ASA, who noted that in ten years following the release of extremely violent action games such as Doom and Mortal Kombat, homicide arrest rates among juveniles fell by 77% despite the skyrocketing usage of video games. ASA also noticed that many of the researches conducted against video games had decontextualized violence.

Poverty, neighborhood instability, unemployment and even family violence fall by the wayside in most of these studies. Ironically, even mental illness tends to be overlooked in this psychologically oriented research. Young people are seen as passive media consumers, uniquely and uniformly vulnerable to media messages (Sternheimer, 2007.)

BBFC came up with similar results in their own extensive research study.

Far from having potentially negative impact on the reaction of the player, the very fact that they have to interact with the game seem to keep them more firmly rooted in reality. People who do not play video games raise concerns about their engrossing nature, assuming that players are also emotionally engrossed. This

research suggest the opposite: a range of factors seems to make them less emotionally involving than film or television (SBBFC, 2007.)

Several academics believe that violent video games are a key factor when explaining the aggressive behavior and violent acts committed by school shooters. However, according to U.S. Secret Service's study, out of 37 non-gang, non-drug related U.S. school shootings between 1974 and 2000, only one in eight of the perpetrators showed any interest in video games and only one in four of them liked violent movies. In other words, there is no "profile" of a school shooter (Grand Theft Childhood, n.d.)

As a matter of fact, a study by Cheryl Olson (2010) suggests that scary and violent video games actually have several beneficial aspects to them. According to her, boys with stress, fear and anger find these types of games a safe alternative for the release of pent up emotions.

It is important to recognize that the controversies surrounding video games exist, and that critics of the games can be extremely passionate and political. Although there are studies carried out that seem to indicate violent video games may be related to aggressive behavior, the evidence is not consistent and therefore the issue is far from settled. Even Anderson and others (2008, 173-174) agree that when examining media violence from a developmental perspective, it is beneficial to perceive media violence as only one of the risk factors possible to cause aggressive behavior.

There are some indications that proper conversations between parents and their children about the risk factors can reduce the negative aspects caused by exposure to violent media. It is important for the children to know that aggressive and violent solutions to conflicts between people are never acceptable. Parents or other authoritative figures should lead practices in which the children are asked to come up with non-violent alternatives (Anderson and others 2008, 229.)

When talking about aggression, we also have to remember that it is possible humans are innately aggressive (a trait inherited from our evolutionary ancestors), making such behavior and thoughts natural part of human life. Sigmund Freud, the world famous neurologists, and Konrad Lorenz, zoologist, ethologist, and ornithologist, both believed that we possess, naturally and spontaneously, a reservoir of aggressive energy that builds up all by itself and must be drained off every now and then (known as

“catharsis”: the purification and purgation of emotions). Failure to do so would result in violent behavior. However, not all agree with this hypothesis, saying that there is no proper evidence to support it. According to one of them, John Paul Scott, a professor emeritus at Bowling Green State University, real aggression throughout animal species is very rare, and cooperation, both within and among species, is far more common than many of us think. Also, if aggression is a natural part of us, would not the most primitive tribes be the most aggressive people? Ashley Montagu, an anthropologist, begs to differ, saying that cultures that are closer to nature are actually the most peaceful ones (Kohn, 1988.)

Regardless of the evolutionary or neurological factors said to underlie aggression, “biological” simply does not mean “unavoidable.” The fact that people voluntarily fast or remain celibate shows that even hunger and sex drives can be overridden. In the case of aggression, where the existence of such a drive is dubious to begin with, our ability to choose our behavior is even clearer (Kohn, 1988.)

It is very hard to say whether aggression is a biological trait that moves through genes from one generation to another, or if it is just something we have learned and grown in to, being an emotion we are actually fully able to control. Elizabeth Cashdan, a professor of anthropology at the University of Utah, says that there is evidence to support both theories. It is important to realize that violent tendencies may have been useful to some species the same way compassion for offspring increases the survival of genes. Today, however, it is the specific environment that decides how and when (if ever) this innate determination is triggered. Biologists call it “norms of reaction”: patterned responses to environmental circumstances. While aggression just for the sake of aggression is rare, certain environmental conditions could lead people to violent acts (Whipps, 2009.)

A NEW VIDEOGAME IS COMING OUT THAT INCLUDES GRAPHIC AND SENSATIONALIZED VIOLENCE. WILL THIS LEAD TO AN INCREASE IN VIOLENCE AMONGST CHILDREN WHO -



THIS JUST IN - I'M BEING TOLD "MOVIES" ALSO OFTEN DEPICT AND SENSATIONALIZE VIOLENCE.



...AND TELEVISION?!



MY GOD - LADIES AND GENTLEMEN, THIS IS NOT A DRILL: CLASSICAL ART ALSO DEPICTS SENSATIONALIZED, GRAPHIC VIOLENCE! PLEASE, STAY IN YOUR HOMES. IF YOU ARE IN OR NEAR A MUSEUM, HIDE BENEATH A TABLE AND CLOSE YOUR EYES.





IMAGE 5: Culture of Violence by Dorkly (Dorkly, 2013.)

### 3.2 Anti-social behavior, isolation and depression

Another worry parents have about video games is the belief of them increasing anti-social behavior, causing isolation from people and social situations and in worst case scenarios, depression. While many believe video games actually cause these mental health problems, I believe the issue might just be the other way around: people with

already developed problems in mental health tend to be drawn to video games, where one does not have to be faced with daunting social situations. Video games also provide a whole new virtual world to explore (MMORPG's especially), making them exceptional places for people to escape to. Douglas A. Gentile, who runs the Media Research Lab at Iowa State University, believes that unhealthy gaming habits fuel children's already developed mental problems, causing them to up their screen time, although it has not been proved by his research. Mark Griffiths, director of the International Gaming Research Unit at Nottingham Trent University, conducted a research of his own and could not find a connection between excessive gameplay and negative detrimental effects. He also pointed out that although children often play a lot of video games, it is not automatically addictive play (Joelving, 2011.)

Even though a 2-year study with more than 3,000 school children in Singapore suggests that 9% of them were addicted to gaming (playing over 31 hours a week) which often lead to depression, poor grades and anxiety, Griffiths believes that if so many children were genuinely addicted to video games there would be a video game addiction clinics in every major city (Joelving, 2011.) Critics of the study point out that they believe Gentile's methodology was poorly designed, leading to flawed results. Griffiths also added that the study most likely looked at preoccupation instead of real addiction (Castillo, 2011.) According to him, the concept of video game addiction is not currently an accepted diagnosis among psychiatrists and psychologists (Joelving, 2011.)

A research conducted by North Carolina State University asked 140 senior citizens if they played video games, and if they did, how often. 61% played games on occasion and 35% at least once a week. Those who played video games demonstrated higher levels of well-being while the non-gamers tended to have more negative emotions and higher levels of depression. Dr. Jason Allaire, lead author of a paper describing the study and an associate professor of psychology at NC State, believes that there is a definite connection between gaming, well-being and emotional functioning (Lilly, 2013.)

Chess has long been praised for its mental health benefits, such as raised intelligence, prevention of dementia and Alzheimer's disease as well as improved creativity, memory, concentration and problem-solving skills. Being a strategy game, it exercises both sides of the brain (ChessVibes, 2012.) On top of this, Chess is a game of two, and



therefore requires social interaction with the opponent. Video games share many of the same beneficial aspects of Chess, helping people of all ages to improve and maintain many important skills in life. Therefore it is not a revelation that they both provide elderly people with positive effects and increase their overall well-being.

Brigham Young University School of Family life reported that parents who play video games with their daughter(s) enjoy several advantages: the girls behave better, have stronger mental health and overall better real-life relationship with their families. The game played, however, should be age appropriate: M rated games, in turn, weaken the statistical relationship (Brigham Young University, 2011.)

In 2012, a team of researchers and clinicians from The University of Auckland created a video game called SPARX (smart, positive, active, realistic and x-factor thoughts) that was designed to fight depression. The game's purpose is to fight and kill creatures that represent negative thoughts, and it was created to study if video games can help teens to beat depression. 168 teens who had sought help for depression from youth health clinics, school guidance counsellors or primary care doctors took part in the test. Out of them nearly 66% were girls and the average age was 15. Half of the group was randomly assigned to play SPARX, while the others were assigned to receive usual treatment, which typically consisted of one-on-one counselling over five sessions. 44% of those who played SPARX and 26% of those who received regular treatment recovered completely. However, when asked if they would recommend the treatment to others, 81% of video game players and 96% of traditional therapy recipients answered yes. According to the researchers, the video game treatment is definitely just as good of an option as regular treatment, as well as cheaper, easier to disseminate and it could provide access to treatment for young people who may be reluctant to have more conventional therapy (BMJ, 2012.)



IMAGE 6: A screen capture from the video game SPARX (Sparx 03, YouTube 2013.)

Researchers at the East Carolina University Psychophysiology Lab and Biofeedback Clinic came up with similar results, showing that online games can outperform pharmaceuticals for treating clinical anxiety and depression. Only thirty minutes of online play a day created a dramatic boost in mood and long-term happiness (Snider, 2011.)

While it is true that time spent within a video games is automatically off from everything else such as social activities, games are not necessarily that anti-social. Raids done with up to forty other people and war games with teams and specific strategies in mind are good examples of gaming situations where constant social interaction is in order. Additionally to make things easier and faster for the whole group, people are often required to use microphones instead of typing on a keyboard. Not only are they enjoying a good video game together, but also landing in a proper conversation. A study by University of Michigan shows that all multiplayer games are very powerful relationship-management tools, because they help us stay connected with people that we would otherwise grow distant from (TED Talk, McGonigal, 2012.)

Maximilian Dichtl, a young man who has dealt with depression throughout most of his life firmly believes that video games are not the ones to blame for mental problems. Depression was what actually led him to love video games. They helped him combat depression to a level where it was no longer detrimental for his well-being. What caused

his depression, then? Divorced parents, father with epilepsy and the seizures that accompany it, abusive mother and stepfather, overweight and a very low self-esteem. According to him, video games were a way to escape the things that were causing his depression.

Whether you play Angry Birds on the train into work, slice a few fruits on your tablet while you are in the waiting room at the dentist, or spend eight hours a day perfecting whatever game it is you enjoy, we are all gamers. It isn't fair to fit every single one of us into this huge mold and then berate us, but media outlets do it anyways for their own motives (Sampson, 2013.)

Due to his parents' divorce the family moved around a lot, making it hard for Dichtl to form the kind of social support network most teens need to navigate adolescence. That is where video games came in to the picture. Dichtl met his best friend in a FPS game called Call of Duty seven years ago and they have stayed in touch ever since. These virtual friends were there for him as he dealt with a difficult home life and thoughts of suicide (Sampson, 2013.)

Caine Smith, 11-year-old boy who has been bullied mentally and physically for his same sex parents and a long hair, says that gaming actually helps him to calm down and get out of the troubling parts of his life by clearing his mind. To him, game worlds are a whole another universe ready to be explored (Mordecai, n.d.).

According to Tom Chatfield, video games can easily be addictive, offering people a refuge from the real world that can, for many of us, cause peer pressure while trying to follow the social norms created by societies. However, not many people like to use the word "addicted" to describe the reason why they spend so much time playing online: for many, the first and foremost reason for dedicating so much time to a video game is due to the friendships and other social connections created during gameplay (Chatfield 2010, 71-73.)

Although there are several studies for and against the possibility of video games causing anti-social behavior, isolation and depression, what we need to remember is that just like with gaming and aggression, the evidence is not consistent. It is extremely difficult to only measure the impact of video games on a person when so many environmental factors affect us on a regular basis as well.

### **3.3 Concentration difficulties**

It is a common belief that video games cause attention problems and greater distractibility. However, according to Daphne Bavelier, a cognitive researcher who explores how the brain adapts to changes in experience, either by nature or by training, studies suggest that people who play video games concentrate better and thus resolve conflicts (e.g. a word “red” with yellow color) faster and more efficiently than those who do not play video games. Due to increased attention capacity, they are also able to keep a track of an object much better (TED Talk, Bavelier, 2012.)

Bavelier also points out that playing video games actually makes parts of the brain to work more efficiently: the parietal cortex that orientates attention, the front lobe that maintains attention, and anterior cingulate that controls and regulates attention as well as resolves conflicts. Therefore gamers are extremely good at switching swiftly from one task to another (TED Talk, Bavelier, 2012.)

### **3.4 Physical health problems**

Video games are often linked to obesity, carpal tunnel syndrome, migraine and vision problems. While there might be a connection between video games and these symptoms, we should remember that everything done excessively can lead to serious health problems, and video games are not an exception. A person playing tens of hours a week may easily gain weight due to lack of exercise, get migraines after staring a screen for hours and hours and end up with a carpal tunnel syndrome after pressing the keyboard and clicking the mouse hundreds, if not thousands of times a day.

I used to play video games nearly 45 hours a week, causing back and neck problems. I played throughout some of the most important developmental phases of my life, resulting in an S-shaped scoliosis on my back and a really bad fitness. While scoliosis is not a serious health issue, and fitness can always be improved, things could have gone worse. I realized afterwards I should have taken a better care of myself, and I am doing so now. I still enjoy video games just as much as I used to, apart from making sure I never dwell in a game for too long. Nowadays, video games are just a small, but definitely awesome, part of my life.

When it comes to video games and health, it is extremely important for the parents to look after their children and control their gaming time, while making sure they are getting enough of exercise and eating healthy.

Bavelier has come up with solid proof (through laboratory studies) that, in reasonable doses, action-packed shooter games actually have some very powerful and beneficial aspects to them. According to her, people who do play action games on a regular basis have a better vision in two different ways: they are able to read small detail in the context of clutter, and distinguish better different shades of grey (TED Talk, Bavelier, 2012.)

## 4 THE POSITIVE ASPECTS OF VIDEO GAMES

### 4.1 In everyday life

While the list for skills that video games can teach us is quite extensive, I have collected here some of the skills that I personally find important. I also believe many of these skills I have today have either been taught or improved by video games.

#### 4.1.1 Following instructions

When a person plays video games, he is automatically forced to follow instructions: how the character moves, what is the game's main objective and what you should do to achieve it. A failure to follow the instructions often results in a dead end.

#### 4.1.2 Problem solving and logic

Grey matter is a major component of the central nervous system, and it includes regions of the brain involved in muscle control, sensory perception such as seeing and hearing, memory, emotions, and speech. By increasing the amount of grey matter in the brain, one can increase his fluid intelligence: the capacity to think logically and solve problems in novel situations. According to Andrea Kuszewski, a behavior therapist and consultant for children on the autism spectrum, fluid intelligence is trainable by anyone and she has come up with five ways maximize the training: new situations, challenge, creative thinking, doing things the hard way and networking. Five things that resemble the very basic patterns of a video game (Kuszewski, 2011.)

Especially video games that have puzzles, mazes or trivia in them improve players' problem solving skills and logic. They train the brain to swiftly come up with new, creative solutions to problems.

**Examples:** Tomb Raider, an action-adventure video game with puzzle elements. While collecting objects and solving puzzles to gain access to ultimate prizes (usually old and

powerful artefacts), the protagonist is faced with dangerous creatures and humans to kill.



IMAGE 7: The newest Tomb Raider by Square Enix. Lara Croft is faced with a difficult situation when the antagonist is threatening the life of her friend (Gamer Chatter, 2013.)

#### 4.1.3 Hand-eye coordination, fine motor and spatial skills

Fast-paced action video games, such as first-person shooters, require players to keep a track of several things at once: the position of the enemy, where they are aiming, how your team is doing and what is the next objective. At the same time the player must move around, dodge bullets and shoot enemies on the run. For this process to be successful, the brain, hand(s) and fingertips must work effectively together.

**Example:** Battlefield 3, a first-person shooter which can either be played as a campaign (on your own) or as a multiplayer experience. It takes place in 2014 when PLR, an Iranian "freedom-fighter" organization causes U.S. Marines to be dispatched in Kurdistan, Iraq.



IMAGE 8: Battlefield 3 by Electronic Arts (Pixel Smasher, 2011.)

#### 4.1.4 Planning, resource management and logistics

Business simulation video games teach players to manage their finite resources, make plans on how to increase their revenues and how to make their business overall successful.

**Example:** SimCity, a city-building and urban planning simulation game. According to The American Planning Association, SimCity has inspired a lot of its players to take a career in urban planning and architecture.





IMAGE 9: The newest SimCity by Electronic Arts (Duuro, n.d.)

#### 4.1.5 Multitasking

Strategy video games require players to be able to multitask: gathering resources, building new structures, growing an army, and fighting enemies. The player must be flexible and able to quickly change tactics.

**Example:** Civilization V, a turn-based 4X (explore, expand, exploit, and exterminate) game, represents a video game where good multitasking skills are vital. The player represents the leader of a certain nation or ethnic group, guiding its growth over the course of thousands of years.



IMAGE 10: Civilization V by 2K Games and Aspyr (PC Gamer, 2010.)

Whether we like it or not, our multitasking skills deteriorate as we age. A study by the University of California found out, however, that elderly people who played a custom driving game where you had to identify road signs while ignoring certain others, did it faster than those who had no prior exposure to the video game. On top of this, the benefits were present even outside of the game (Seppälä, 2013.)

The most interesting finding regarding multitasking was that people who think of themselves as efficient multimedia-taskers (people using several programs and online services, such as social networking sites, at once), are actually really bad at it. This proves that not all media are created equal and therefore the positive effects presented vary depending on the type of the media. For example video games and multimedia have completely different effects on different aspects of cognition, perception and attention (TED Talk, Bavelier, 2012.)

#### 4.1.6 Situational awareness, decision making and accuracy

A research done by the University of Rochester points out that action video games can be used to stimulate stressful events, making them an excellent training tool for real-life situations. The player becomes mindful of sudden situational changes and learns to adapt accordingly. Playing these video games primes the brain to make quick decisions

and, according to the researchers, the decisions made within games are no less accurate. In fact, people who play action video games make more correct decisions per unit time. On top of this, action games train the brain to make these decisions without losing accuracy. The United States Army uses video games to teach these skills to its soldiers.

#### **4.1.7 Developing literacy**

Regardless of the video game's genre the player is required to follow instructions and a possible storyline, teaching him new words, faster reading and possibly even a whole new language. From my personal experience, video games are the main reason for my highly developed English skills today. While I may have learned the basics in school, video games are what refined it to the level I have today.

Olli Uusikoski's Master's thesis in philology studied 500 high school students' gaming habits and English grades. According to the results, the more the students played video games, the better their English grades were. Those who played over 15 hours a week had an average grade of 8,76 whereas those who did not play video games at all, had an average grade of 7,28. It is safe to say there is an indisputable connection between video games and language skills (YLE Uutiset, 2011.)

#### **4.1.8 Inductive reasoning and hypothesis testing**

According to James Paul Gee, video games present similar problems to science: in order to proceed, the player must come up with a hypothesis on how to, for example, beat a boss monster. The player then tries out different tactics and strategies. If the first hypothesis does not work, the player comes up with another and continues to do so until one works. These types of goal-driven experiences are fundamental for learning (Gee 2007, 88-89.)

### **4.1.9 Teamwork and cooperation**

Whether it is a game of two or a raid of 40, video games are excellent at teaching and improving teamwork and cooperation. In all multiplayer games the player's progress depends on how the whole team is doing: the better the group works together, the better the rewards. Multiplayer games encourage individuals to make the most of their own skills to contribute to the team.

## **4.2 In education**

The greatest problem educational games have encountered so far is some educators ignoring and downplaying their possibility as noteworthy tools in education. Due to this, educational games developed so far have been quite unsophisticated and boring, lacking the power to inspire students. As long as educational games are not taken seriously, no decent video games are created and no proper evidence of their enormous potential and impact on learning can be found. This, in turn, discourages educational game development resulting in a vicious circle of bad video games (Edery & Mollick 2009, 101-102.)

A game developer and a teacher Steve Swink bemoans how schools treat students as memory sticks, feeding information into them and then requesting it to be repeated in standardized tests, downgrading the level of education. In his opinion, video games are complicated and can better equip us with the skills and knowledge for the complexities in life. Not only do they teach you many of useful skills, but also encourage you to make something with that newly acquired knowledge, instead of just spitting the information back on a test (Bryan, 2013.)

James Paul Gee points out that when playing video games we are not only improving the eye-hand coordination (among other physical skills), but also learning a whole new literacy of images, graphs, diagrams, artifacts, and many other particularly significant visual symbols, which in turn is a very important skill to have in today's world of mass communication. It is crucial for a student to be able to interpret multimodal texts where the image and text communicate different things. If you cannot read the image, how could you understand the bigger picture? (Gee 2007, 17-18.)

Tom Chatfield firmly believes that video games can, and must, be used for educational purposes. A good example of an educational video game is a game called *Darfur is Dying* that teaches the players, through gameplay, about the poverty-stricken Darfurians that scour the Ethiopian landscape in search of food and water. As hard as it might be for many academics to admit, learning through gameplay has proven to be more efficient than reading something from a book. The fact that the student interacts within the chosen subject of study, forces him to concentrate, solve problems and apply already learned skills into the game, hence being more effective for deep learning: a process of learning something and being able to apply that knowledge to another situation (Chatfield 2010, 182-188.)

#### **4.2.1 The power of Minecraft**

Stephen Reid, a video game teaching advocate, believes that games like *Minecraft* are excellent alternatives to educating children in several different school subjects. Not only can its large maps demonstrate population displacement in geography lessons, but also display the growth of plant life on varied biomes in biology. Also, the principles of Redstone, a raw material used in the game for crafting and brewing, are so similar to real life circuits and logic gates that teachers have started using it as a way to demonstrate electronics to students (Walton, 2012.)

Mike Rugnetta continues the educational possibilities of *Minecraft*, explaining that it can teach everything from probability and physics, to art, history, and language. For English, students can write how-to guides for building structures, mining, fighting monsters, and other in-game activities, or just keep a diary of their character's everyday life. In math, *Minecraft* can be used to solve basic algebraic equations by, for example, counting how many items can be created with the resources available. In history, students can recreate historical events or even build replicas of famous structures and sites, and so forth (MacQuarrie, 2013.)



IMAGE 11: Minecraft by Mojang. A 3D sandbox game, where players can build constructions out of textured cubes, explore the world, gather resources, craft and fight creatures (Voicable, n.d.)

#### 4.2.2 Learning math with Wuzzit Trouble

InnerTube Games is a video game company founded by four people, including Dr. Keith Devlin, the National Public Radio’s “math guy” and Stanford mathematician. The company concentrates on video games that give players the necessary tools for solving mathematical challenges, and their first learning-game, Wuzzit Trouble, was released recently. The game is based on turning gears, which Devlin describes as an instrument on which to play mathematics. According to him, tinkering these gears enacts the functions of arithmetic in the same way that pressing piano keys creates tones. Through practice, the player does not only learn how to rescue the adorable Wuzzits from their cages, but also starts to understand the basics of mathematics without the fear or failing (Shapiro, 2013.)

We start with one simple, yet powerful observation. A musical instrument won’t teach you about music. But when you pick up an instrument and start playing – badly at first – you cannot fail to learn about music. And the more you play, the more you learn. In fact, using that one instrument, you can go all the way from stumbling beginner to virtuoso concert performances (InnerTube Games, 2013.)

Devlin explains that because mathematics is an activity, the best way to learn it is by doing and any other ways are hopelessly inefficient. What makes video games the perfect platform for this is their reward system: having a specific goal, facing a problem, solving it and getting rewarded for doing so. Wuzzit Trouble also takes teachers in account, making the later puzzles challenging enough to require good old fashioned paper-and-pencil algebra.



IMAGE 12: Wuzzit Trouble by InnerTube Games (Forbes, 2013.)

A research by the Deakin University suggests that incorporating video games in the curriculum dramatically changes students' attitude towards more difficult school subjects such as mathematics.

More kids were able to articulate positive emotions surrounding math, as well as an increase in confidence about different concepts. There was more energy for math, more motivation, and ultimately more success. It seemed that playing math

games helped to alleviate the tediousness of repetitive problem solving (Walsh, 2012.)

### 4.2.3 Critical learning

When talking about learning, older generations often overlook learning methods that do not contain information related to intellectual subjects or academic disciplines, such as physics or history. Therefore, according to them, video games cannot teach us any valuable content. However, what they fail to understand is that teaching a student the facts and rules of a subject (e.g. physics) without letting the student to experience the actual physical phenomena, only makes him memorize them without any understanding of what he is learning (passive learning).

In order for a student to actually learn a difficult subject, he first needs to learn, what Gee calls, a semiotic domain. Semiotic domain is an area or set of activities where people think, act and value in certain ways. When one manages to learn a new semiotic domain, he starts to experience the world in a new way, share this domain with other people alike (affinity group) and gain resources that prepare us for future learning and problem solving in the domain. This is active learning. After this the student can move on to critical learning by, for example, discovering new strategies of solving a specific problem (Gee 2007, 18-25.)

Now how exactly do video games fit in this, though? When playing video games, not only do you learn how to play them, but you also start to recognize patterns in how other players think and act. By this you learn to share this domain, perhaps even communicate, with them, allowing you to gather resources preparing you for future problems in that specific domain. Once you have had your share of experience in this field, you will, consciously or subconsciously, start thinking about the video game critically (e.g. what works and what does not) resulting in critical learning (Gee 2007, 31-41.)

The only proper way to experience deep learning is through semiotic domains. However, one must be willing to fully commit himself to the learning in terms of time and effort by thinking himself as a new identity (e.g. a scientist) who can learn, use and value that domain. By successfully learning the ways of this domain, the learner is



quickly valued and accepted by others committed to that domain. Without such commitment, no proper learning can occur. We need to, however, take in account the fact that not everyone is instantly ready for such commitment (e.g. assuming from the beginning that you are a failure). If this is the case, this sort of thinking must be fixed by providing the skeptical student with, for example, a science project that cannot fail resulting in a positive experience. However, the project must not be too easy so that the student is forced to try and put lots of effort into it. "Success without effort is not rewarding, effort with little success is equally unrewarding." (Gee 2007, 55-58.)

Once again, how exactly do video games carry out this experience? According to Erik Erikson, German-American developmental psychologist and psychoanalyst, video games create something called "psychosocial moratorium", a learning space where the learner can take risks without devastating consequences (e.g. you can save a game, load it after dying and try again). Also, the virtual worlds are compelling enough (often due to real-world interests) for the player to put in the effort and practice to master that domain. Obviously, no success is disappointing, but at the same time getting equal rewards to more advanced players would make the video game not very deep or rich. Hence good video games adjust to the level of the player and reward him according to the effort he has put in the game (Gee 2007, 59-60.)

#### **4.2.4 Mastering the subject**

What designers of video games have realized is that we all need to keep practicing the skills learned in order to master them. Therefore a good video game involves the player in constant action and interaction, forcing him to learn a myriad of skills without even realizing that he has engaged in such extended session of practice. So, for example, in a science class, the student should, instead of concentrating on what facts or rules he needs to learn, set sight on his aspirations and goals (e.g. "I want to be a physicist!"). However, in the long run, practicing without rewards is demotivating. Due to this, good video games give players better rewards as they continue to learn new things: if playing becomes too routinized, the game will penalize it by forcing the player to learn something new (e.g. a new routine). According to educators, this is "the very foundation of intelligent practice in the world." A video game operating within the player's resources allows him to master something so well that it becomes automatic, which is

good and necessary in terms of fluent practice, but it can get in the way of learning something new if it does not change. However, at the same time, the learning must not happen outside of the player's resources because it can easily result in giving up (Gee 2007, 65-68.)

Another good example Gee gives us about learning and video games is how parents reading a game manual react: they can obviously understand the text in a literal level, but since they have absolutely no experience of the game itself, they simply cannot understand what the manual is talking about, thus resulting in frustration. After this the person rarely wants to read on. This is how many students feel when they are studying difficult subjects through school books. Unlike books, in video games "meaning, thinking and learning are linked to multiple modalities (words, images, actions, sounds, etc.) and not just words." Through this anyone can understand what the current subject or moment is all about. Also, like mentioned before, video games reward newly learned actions, not just verbal or conscious knowledge (Gee 2007, 99-106.)

#### **4.2.5 Distribution of information**

Another point worth mentioning is information and how it is distributed. In a class, the teacher often teaches everything she has planned to teach during that class, and then asks the students to practice this newly learned information through various tasks. For some this might work, but often it is more beneficial to assess the progress of a student and give overt information that is, at that point, usable. In a good video game, the player learns to play the game by playing in a subdomain (e.g. a discrete tutorial) of the real game: the player learns the most important aspects of the video game by getting information that can be put to use immediately, instead of being showered with long list of information that the player does not, at that specific moment, even need. "With good video games and classrooms learners are not always overtly aware of the fact that they are "learning", how much they are learning or how difficult it is." (Gee 2007, 120-124.)

Transferring prior knowledge mixed with innovation is always encouraged at schools, but often fails. Why? Children nowadays are put into rich environments with little to no guidance, causing them to often start problem solving from the most complex cases (due to their more interesting nature) instead of the easier ones. The problem with this is

that the children miss easier, more basic and useful patterns and generalizations that could be used later in more complex cases. Obviously the point is not to make the children work with something too easy, but to teach them the basics that can lead to the discovery of useful and more complicated patterns and generalizations used for more complex cases, allowing the learner to make real progress in that domain. For this, video games have created tutorials which often are compulsory elements (in other words, cannot be skipped even if the player wants to) as part of the game (Gee 2007, 137-138.)

#### **4.2.6 The importance of non-linear learning**

Last but definitely not least, one of the biggest problems schools have is that they stress linear learning: "movement ever forward toward greater skill until one has mastered one's goal." The problem with this is it does not give the learner a chance to discover important information by himself. Video games do not reward this sort of linear learning. Instead, video games encourage the player to question given directions, and to take your time investigating the area you are in for even greater rewards, information and discoveries. Another problem with the linear learning method is that it sorts people in categories along the lines of better and worse. Video games, instead, are playable by anyone. As a player, you set your own standards for the game and worry about how well you are doing by those standards, not by who is better than you (okay, maybe in some MMO's you do). It is not all about how fast you solve a problem (like in many schools), but the effort you put in solving it, whether it is fighting a difficult boss, trying to figure out a cryptic message or even get the idea of a physics equation (Gee 2007, 173-175.)

In video games, losing is not losing and the point is not winning easily or judging yourself a failure. Hard is not bad and easy is not good. Players intensely solve hard problems and often fail, yet they are playing, having fun and enjoying themselves (Gee 2007, 175.)

How many can say this about school?

### 4.3 In business and marketing

When contemplating over the marketing aspect of large, billion dollar businesses in areas such as retail, electronics, telecommunications, food processing or even automotive industry, one does not necessarily consider video games as the primary means of selling more of your products or services. Although advertising through video games is fairly new, more and more companies and organizations have realized their enormous potential as cost-effective alternative to traditional marketing. Today, nearly all of the largest companies have used video games as a marketing tool, making video game marketing nearly a half a billion dollar business. A great example of this is PlayStation All-Stars Island, a free mobile game featuring already famous video game characters such as Nathan Drake from the Uncharted series.



IMAGE 13: PlayStation All-Stars Island, one of the most recent video game marketing campaigns by Sony PlayStation and Coca-Cola (Picture: Anna Tikkanen, 2013.)

### 4.3.1 Taking advantage of the community

David Edery and Ethan Mollick (2009) explain in their book what are the properties that make video games so compelling.

Games are compelling because, at their best, they represent the very essence of what drives people to think, to cooperate, and to create. Learning is not “work” in the context of a game – it is puzzle-solving, exploration, and experimentation. Cooperation is not a “necessary evil” in the context of a game – it is the best part of the experience (Edery & Mollick 2009, 4-5.)

Due to these very reasons video games are excellent for a wide variety of businesses, utilization ranging from the work environment to the client community. Player communities are usually remarkably active, engaged and generous with their time and effort to voluntarily create and disseminate assets that dramatically increase the value of the product or service (Edery & Mollick 2009, 5.) An excellent example of a community like this revolves around The Sims, a strategic life simulation video game series that has sold over 150 million copies worldwide, making it the best-selling PC franchise in history. The Sims is what video games, at their best, can offer: an outlet for creativity, a new way to engage the world, and many hours of entertainment (Edery & Mollick 2009, 13.) The community in The Sims alone has created thousands, if not millions, of items, appearances and outfits for other players to download, install and use, although some of the creators prefer to charge a small fee for their efforts. There are entire websites dedicated to these creations and the distribution of them.



IMAGE 14: A beautiful interior design by ung999 that differs from the typical Sims decorations. Downloadable against a subscription fee (The Sims Resource, 2013.)

Another good example of an active and extremely productive community was the community around Battlefield 1942, an FPS video game based on World War 2. The fans invested 16.5 million dollars' worth of labour hours in modifications that greatly enhanced the experience of the game. And for how much? Entirely free (Edery & Mollick 2009, 171.)

Most likely the best example of productive community members are Minh Le and Jess Cliffe, the creators of the original Counter-Strike. Counter-Strike is a tactical FPS video game that was originally just a modification of Half-Life. In 2000, Valve Corporation, the creator of Half-Life, bought the rights to Counter-Strike and published it as a full game. Since then, the game has been expanded into a series, which currently includes Counter-Strike: Condition Zero, Counter-Strike: Source, and Counter-Strike: Global Offensive. As of 2011, the Counter-Strike franchise has sold over 25 million units (Makuch, 2011.)



IMAGE 15: A screenshot of Counter Strike's gameplay (Softpedia, 2007.)

According to Julien Wera (2008), a former MMO community liaison, a gaming community is a network with its own language, culture and rules. Because of this, it is unlikely for community members to move to another game, because they will remain loyal to where they belong.

People join a community because they're interested in your game, but if the community brings them what they need in term of entertainment, gaming experience, socialization and accomplishment, they will be more likely to remain loyal to the publisher or the developer who brought it to them (Wera, 2008.)

Keeping this in mind, it is important for the creator of the video game to take the time to get to know the language, culture and rules revolving around the community, to have the knowledge necessary in order to guide the members toward productive, rather than destructive, user innovation. The objective is to create a mutually beneficial situation in which both the company and the community are satisfied. To users feedback and praise from the company is motivation enough to create free modifications and content for the video game they love (Emery & Mollick 2009, 178-179.)

It turns out that user innovation is one of the most important sources of breakthrough innovations. As a fact, the video game industry has been the most successful in harnessing the positive aspects of this phenomenon (Edery & Mollick 2009, 172-173.)

Joy's Law, a principle by Bill Joy, the co-founder of Sun Microsystems, says "No matter who you are, most of the smartest people work for someone else." What this means is no matter how much hard cash you have, there is no possibility to hire the smartest and best people out there. According to Karim Lakhani, a professor in the Harvard Business School, it is actually impossible to even know who are the smartest and best people out there, because complex technical problems are usually solved by specialists in seemingly unrelated fields. To get past Joy's Law, a company should take advantage of a large group of bright minded people outside the company walls (Edery & Mollick 2009, 193-194.) For this purpose, video games are an excellent choice. Many mathematical, technical and biological problems can actually be solved by distributing a video game that gives everyone out there an equal opportunity to display their skills and knowledge, and solve problems are too complex addressed by small, closed group of experts. To make things even more motivating and interesting, some companies are even promising a job within the company for the one who solves the problem(s).

Foldit, a biological online game where the player's objective is to predict a protein's structure in order to understand how it works, was created for this specific purpose. It allows thousands of people to, as their slogan says, solve puzzles for science. As a matter of fact, gamers of Foldit managed to determine the structure of an enzyme that exhibits behavior similar to the enzyme (M-PMV, retroviral protein) playing a key role in the development of AIDS in just then days: a puzzle that the University of Washington had been struggling with for the past decade, since every enzyme has millions of possible combinations in which it can fold its atom bonds (Puiu, 2011.)



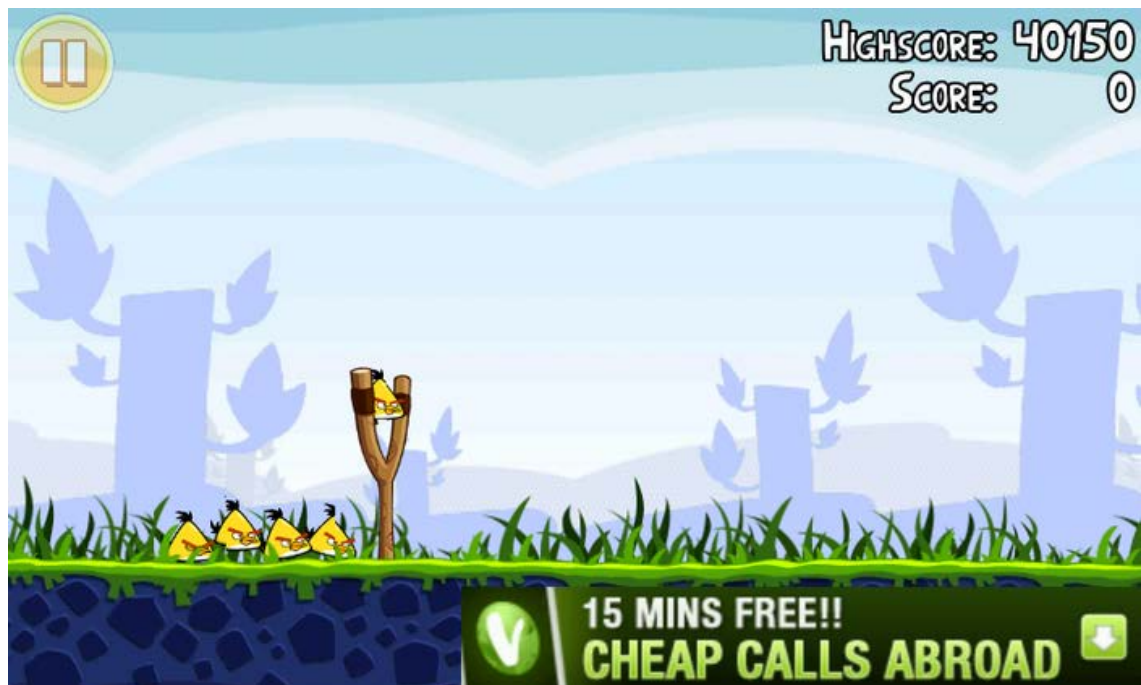


to either buy virtual gold with real cash or embrace a sponsor for free gold (Edery & Mollick 2009, 38-39.)

### **4.3.3 Highly integrated product placements**

Although advertisements between gameplay sessions might be the easiest and most cost-effective way to go, they can also be so tightly and sensibly integrated into the plot or environment of the video game, that the player has no idea they are paid advertisements. In fact, these game-based, highly integrated advertisements can actually improve the gameplay experience by making the virtual environment seem even more realistic. Many of the video games with such advertisements are also played several hours a week, giving the sponsors exposure no television show or film can match. Additionally product placements can be made interactive, making the consumer imperceptibly familiar with the product's key features. A good example of interactive product placement would be a cell phone or a car. The higher our level of involvement with the medium is, the more effective the product placement can be.

Even though advertising this way may be effective, highly integrated product placements require significant amount of effort, they are more expensive than other forms of advertising and they may require the advertisers to sign a deal over a year before the release of the game. When considering in-game advertising, however, it is important to remember that best of them are consistent with the spirit of the game in every way possible. For example, a store standee in a game like Grand Theft Auto should not be bolted to the ground in a way where there is no possibility to drive over it or smash it. According to years of consumer psychology testing, badly fitting product placements can actually create negative brand attitudes. Studies have also shown that happy film or television segments are likely to increase the effectiveness of associated advertisements, while sad or upsetting segments may have the opposite effect. This also applies to video games and therefore highly integrated product placements should be carefully planned to create positive outlook of the brand or company (Edery & Mollick 2009, 40-48.)



IMAGES 17 & 18: Examples of functional in-game advertisements in Angry Birds and Burnout Paradise (Venture Beat, 2008.)

#### 4.3.4 Advergames

Another way for a company to advertise their brand and products effectively is advergames: a video game funded directly by an advertiser and usually distributed to consumers for free. Due to the high demand of advergames, in 2006 a wide range of companies used them to reach more than 21 million people in the U.S. alone (Edery & Mollick 2009, 56.)

The effectiveness of an advergame lies within the features of a regular video game, combined with the fact that they are usually given out for free, making them intriguing for everyone to try out. Just like many other video games, they generally have competitive or collaborative features (appealing to both, people who want help beating the game and people who simply enjoy playing with others), achievement charts (e.g. high scores) and the possibility to share items with friends, persuading them to try out a certain product or a service to get a discount or a free prize yourself (Edery & Mollick 2009, 63-64.) Simply put, advergames are an excellent medium to get plenty of exposure for the company and its brands.



IMAGE 19: Sneak King by King Games. One of the three advergames published by Burger King as a gift for purchasing a meal. In the game your main objective is to stealthily deliver Burger King items to hungry customers. The sneakier you are the more points you will receive (Hardcore Gamer, 2012.)

Advertising through advergames can also be done by “piggybacking” on an existing, commercially successful video game, such as The Sims. Since The Sims is all about simulating real life, it is possible to advertise nearly anything in it: furniture, clothes, cars, you name it. Most likely the easiest way to do this, is through DLC’s (Edery & Mollick 2009, 65.)

To make an advergame successful, the video game has to be first and foremost fun. If the game does not challenge and reward the player sufficiently, it will not stay

interesting enough for the player to continue. Secondly, the strengths of any brand should be represented through gameplay, given that the features have been designed creatively by the game company. Thirdly, to make the game as cost-effective as possible, it should be designed to be viral: online features, collaborative gameplay with friends, and so forth (Edery & Mollick 2009, 72-73.)

#### **4.3.5 Using video games and simulations for recruiting and training**

Not only are video games a powerful platform for increasing the recognizability of a company and its products, but they can also be used for recruitment and training. Far-sighted companies and organizations, such as the United States Army, are using video games to recruit, train, motivate and make employees more productive. America's Army is an excellent FPS game teaching the player skills required on the field, ranging from the use of a weapon to first aid. Colonel Casey Wardynski, the man behind the idea of the game, envisioned "using computer game technology to provide the public a virtual soldier experience that was engaging, informative and entertaining" (McLeroy, 2008.) I played America's Army when I was about 15, and even I managed to learn how to treat a severe bleeding or a patient in shock. According to a 20-year-old Paxton Galvanek, America's Army helped him save a life when he witnessed an SUV losing control, go into a slide and eventually overturn.

I have received no prior medical training and can honestly say that because of the training and presentations within America's Army, I was able to help and possibly save the injured men. I remember vividly in section four of the game's medic training, during the field medic scenarios, I had to evaluate the situation and place priority on the more critically wounded. In the case of this accident, I evaluated the situation and placed priority on the driver of the car who had missing fingers. I then recalled that in section two of the medic training, I learned about controlled bleeding. I noticed that the wounded man had severe bleeding that he could not control. I used a towel as a dressing and asked the man to hold the towel on his wound and to raise his hand above his head to lessen the blood flow which allowed me to evaluate his other injuries which included a cut on his head (Sassoli, 2008.)

The United States Army confirms that America's Army was the most cost-effective thing that they had ever done, giving 30% of Americans between 16 and 24 a positive image of the organization. The game alone had more impact on recruits than all of their

other form of advertising combined (Edery & Mollick 2009, 141), while the marketing costs were only 10 cents per person in 2005 (Tochen, 2005.)

The best assets of recruiting games are that they attract a large number of suitable candidates, give the applicants a sense of what the job will actually be like and give the employer a chance to filter them based on their skills, education and/or previous experience (Edery & Mollick 2009, 140.)

In addition to recruitment, organizations of different nations (such as the armies and police departments) are also using video games to train their employees in different disciplines. As a part of the police force training in Tianjin, China, more than 300 police officers took part in an organized Counter Strike competition to, according to the officer and co-organizer Zhang Bin, sharpen anti-terrorist skills by playing a video game that closely resembles real-life situations (Truta, 2007.)

Alternatively, an avid gamer, surgeon James Rosser Jr. uses video games to prepare for laparoscopic surgeries that require intensely fine finger movements to remotely guide surgical instruments inside a patient. According to his study, there is a significant correlation between video game skills and surgical skills. He first noticed this during his time in medical school when his fellow students who did not play video games had more trouble with fine surgical skills than he did. In his research, out of 33 participants, those who had a history playing video games for more than three hours a week, made 37% less mistakes and completed tasks 27% faster than those who had never played video games (Layton, n.d.)

A research conducted by University of Colorado Denver Business School found that employees trained with video games actually do their jobs better, have higher skills and retain information longer than workers learning in less interactive, more passive environments. Traci Sitzmann, assistant professor of management at the Business School, points out that video games work best when they engage the user, rather than instruct them passively (Kelly, 2010.)

A research by the Office of Naval Research indicates that video games can help adults process information much faster and improve fundamental reasoning and problem-solving abilities. Those who played video games performed 10% to 20% higher in terms

of perceptual and cognitive ability than non-game players. Ron Goldman, CEO of Kognito, explains that video games provide a platform where users can engage in risk-free activities that resemble the ones they encounter in real life while doing it in a considerably more fun and interesting environment (Steinberg, 2012.)

According to a research by IBM and Seriosity, people who play MMORPG games, such as World of Warcraft, learn collaboration, self-organization, risk taking, openness, influence, and how to earn incentives linked to performance and be flexible in the way they communicate: skills that are usually taught to MBA's (Edery & Mollick 2009, 119.) James Paul Gee (2007) concurs with this saying that online video games can, through guild and social activities, improve many of the skills necessary for your career: memory, planning and organizing, problem-solving, creativity, teamwork, concentration, situational-awareness, multitasking, management as well as enhanced presentation and debating skills. If you have never played such games, something like this might sound outrageous to you. However, when we are talking about a person organizing and leading a guild of hundreds of people (and running them through well planned raids and group events), it is simply not enough to be "good at video games".

From a company's perspective, video games improve employees' ability to work in shifting and diverse teams, teach systems thinking, and enable them to learn from virtual experience when real experience would be too expensive or difficult. According to a research the quality of teamwork explains half of the success of innovative projects in certain industries. Teams in which individuals feels comfortable communicating with one another are more innovative, learn faster, are less prone to errors, and work better with other groups. For this, video games are engaging solutions (Edery & Mollick 2009, 111.)

Training done using video games does not depend on age or whether the person has previous experience with video games or not. A relatively scarce research that exists on games and business training has not found a strong link between age and ability to learn from games, despite speculation to contrary (Edery & Mollick 2009, 98.)

To make work fun and engaging, companies should learn from the qualities that make video games so attractive. Firstly, assignments should be interesting enough to result in a flow, a mental state of operation in which a person performing an activity is fully

immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity. Secondly, any activities should have clear goals and the employee should constantly receive unambiguous feedback. Lastly, the tasks given should have a right level of difficulty to adjust the challenges in tune with the evolving abilities, giving the employee higher motivation and greater productivity (Edery & Mollick 2009, 158-159.)

#### **4.4 Gamification and serious games**

Since gamification can be used in personal life, education and business, I decided to treat it as its own chapter. Gamification, in its simplicity, means “adding elements and mechanics to things that are not designed to be games” (Catalano, 2013.) Gamification can be used to make non-game context more interesting by taking advantage of people’s natural desire for competition, achievement, status and self-expression. Just like with advergames, “gamifying” something usually means adding elements that keep people motivated, such as leaderboards and trophies. The gamified activity or task does not need to be anything complicated: pretty much anything can be made into a game-like challenge.

For example, a community of people can be encouraged to conserve water or electricity by connecting each household to a leaderboard. The friendly, competitive peer pressure motivates the families to keep an eye on their water or electricity consumption more efficiently to achieve the best score and possibly receive online trophies for doing so. Gamification can also be used by stores and restaurants to draw people in by offering badges through different mobile apps, and possibly giving discount to those who have collected a certain amount of them by visiting different locations. Foldit (image 16, page 48) is an excellent example of a gamified, problem solving challenge that people are drawn to in hopes of hitting the top leaderboards while helping real-life researchers figure out all the possible structures of a protein.

In education, gamifying exercises makes them significantly more interesting and better suited for the students’ current skill level. Unlike regular exercises or tests, after completing “a level”, the student is automatically rewarded with a new learning opportunity (leveling up) and, for example, an achievement badge. Especially for



younger children, a colorful badge instead of a regular grade on a paper motivates them to continue. Game-based learning also keeps the students motivated for a longer period of time, because they are concentrating on a specific, predetermined goal. Gamified education allows people to learn by doing, removing the traditional, ineffective learning methods of memorization and regurgitation. Since video games are well known for encouragement and reinforcement after completing a task, these basic elements are often used in gamification as well. Instead of writing the student's essay full of corrections with a red ballpoint pen and punishing for failure, why not try praise for the good effort? (eSpark Learning, n.d.)

In business, gamification has many benefits. First and foremost it gives companies a chance to collect very powerful customer data easily. In order for a customer to receive different awards, badges and trophies, he must first sign up, giving the company vital information on, for example, spending patterns or what their most common target groups are. When signing up, the customer usually has to give up his email in order for the company to be able to send newsletters and other important information. These emails form an enormous database for the company, which then can be used for other purposes, such as crowdsourcing (Brousell, 2013.) Crowdsourcing is "the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers." (Merriam-Webster Dictionary.)

While gamification is an excellent way of promoting your business in a more interesting way, it does have some pitfalls as well. For one, the player's motivation caused by the game-like environment might actually be towards the game itself, and not the product or a service the operator is offering. At the same time the demand for having the highest rank in the game can cause the player to disregard everything else the company has to offer. Last but not least, just like with advergames, gamified sites have to be well designed and thought out. As mentioned earlier, badly fitting designs can actually create negative attitudes towards the company (Smith, 2012.)

According to Gartner Inc., 50% of all organizations that manage innovation processes, and more than 70% of Global 2000's apps will be gamified by 2015 (Egham, 2011.)

## 5 PUBLIC OPINION

56 people (37 male and 19 female) were interviewed, through a questionnaire, about their general thoughts of video games: do they believe video games could be beneficial or harmful to players, and do they feel like they have learned or received something important from them. The oldest interviewee was 40, the youngest 17 and the average age came down to 25.8 years.

When asked about the potential negative effects on players many believed that, whether the game contains violence or not, video games alone cannot be held responsible for aggressive behavior or other severe mental disorders, but they can, however, trigger underlying problems of already unstable individuals. Although none of them really knew if and how violent video games affect young children, many pointed out that the rating system was created for a reason and it is parents' responsibility to make sure their children do not get their hands on games rated 18. Additionally, it is important to remember that children can easily be affected by violent movies as well (in other words, video games are not the only culprit), hence also having age ratings that should be followed.

One believed that even children can play video games designed for older people if the parents help their children to understand the content by explaining the violence, swearing, sex and horror in them, why they are there and what is their meaning, as well as what is the difference between fiction and reality. The child should also understand what is morally right and wrong. However, even he agreed that ultimately every parent should use their best judgment on what the child is ready to see and experience. For example, GTA is probably not the best driving game series for a first grader.

Some said video games can cause alienation from other people and social situations, leading to cases where the individual loses a track of everything else around him. This in turn might cause negligence at school or work, or even the most basic routines such as eating, sleeping or taking care of their hygiene. People also mentioned distortion of reality, saying that people who play video games excessively tend to forget the order of importance in life, such as physical and mental well-being, as well as education.

One believed that in children's minds, violent video games create a positive image towards killing.

All in all, most seemed to believe that as long as the person is mentally healthy, knows how to deal with the (possibly strong) emotions brought forth by video games and is able to manage his game time, video games should not cause any more problems than any other media. As a matter of fact, video games were seen as an excellent medium for releasing pent up frustration and other negative feelings.

I am a little bit skeptical, and I believe that the detrimental effects of video games are exaggerated in the media. People are naturally afraid of new things, but most fears associated with, for example, books, movies and television have turned out to be unjustified. I can still, however, imagine that for very young children (1-5 years), excessively entertaining video games can affect physical development – video games today can simulate actions and events quite realistically but their set of values and sense of morality are often on a very primitive level.<sup>1</sup>

The next question was regarding the potential beneficial effects on players, and the top skills people believed (or knew) video games teach or improve were as follows:

- Problem solving
- Fine motor skills
- Hand-eye coordination
- Concentration and patience
- Reactivity and reflexes
- Language skills (mostly English)
- Social circles and social interaction

Many also said that video games improve imagination, evaluation abilities and teamwork, and that they are a fun way to relax, “empty your head” and recover from an exhausting situation. Few mentioned video game's potential to expand one's worldview through references to various historical events, cultures and politics.

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<sup>1</sup> “Olen hieman skeptinen, ja uskon että videopelien haittavaikutuksia suurennellaan mediassa. Ihmiset luonnollisesti pelkäävät uusia asioita, mutta useat esim. kirjoihin, elokuvaan ja televisioon liittyneet pelot ovat osoittautuneet nykypäivänä perusteettomiksi. Voisin silti kuvitella hyvin nuorella iällä (1-5 v.) liiallisten viihteellisten pelien vaikuttavan psyykkiseen kehitykseen - videopelit pystyvät nykypäivänä simuloimaan tekoja ja tapahtumia melko realistisesti, mutta niiden arvomaailma ja moraalikäsitteet ovat usein alkeellisella tasolla.”

Gaming in itself is enjoyable and creative building is fun. Maybe life should be dealt with the same way: even if some higher power had come up with a “real” purpose for our life, why cannot we deviate from that plan and come up with something more sensible to do? Games as a context, for example, for social interaction and personal development. Acting with communities built around games can make life more sensible when you find other like-minded people who like the same games.<sup>2</sup>

When I wanted to find out whether or not people had learned or received something important from video games, many listed the skills mentioned before. On top of this people said that they were now better at storytelling and their minds were broadened. One said that he was now able to better appreciate the intrinsic value of satisfaction and pleasure, realizing that while video games may be waste of time, so are many other things in life as well. Despite of this, you decide the meaning of each of these things, making everything in your life, whether it is happiness, learning, money, art, culture, books, entertainment or video games, meaningful and sensible.

Lastly, few mentioned that due to playing, they were better equipped with technological skills, some thought that video games were an excellent place for a momentary escape from the hardships of life, and one received superficial pleasure from gaming (that she would otherwise seek from other, more expensive hobbies, such as shopping).

I have played so much since I was a child that I do not even think I would be the same person if I had missed this culture.<sup>3</sup>

The most commonly mentioned benefit that video games could be used for was teaching school subjects through games, although for this to work, the games should be designed and executed properly. Apart from educational games, regular video games could also have hidden mathematical problems and foreign words in them.

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<sup>2</sup> ”Pelaaminen on nautinnollista itsessään ja luova rakentelu on kivaa. Ehkä elämäänkin pitäisi suhtautua samoin: vaikka jokin ylempi voima olisikin keksinyt meille jonkin ”oikean” elämän tarkoituksen, miksemme yhtä hyvin voisi poiketa tuosta suunnitelmasta ja keksiä jotain mielekkäämpää tekemistä itsellemme? Pelit kontekstina esimerkiksi sosiaaliselle kanssakäymiselle tai itsensä kehittämiselle. Peliharrastuksen ympärille rakentuvien yhteisöjen kanssa toimiminen voi tehdä elämästä mielekkäämpää, kun löytää muita samanmielisiä ihmisiä, jotka pitävät samoista peleistä”.

People also mentioned simulations used by the military and surgeons. They are cost-effective to create, easy to use, and they can be repeated endlessly while being entirely safe. Using simulations is, in many aspects, more efficient than performing real-life situations, such as firing practices or war games.

One person hoped that municipalities would start investing in electronic learning materials in schools. In his opinion, touch screen tablets are more illustrative and easier to use than a mouse and a keyboard. Learning is always more efficient when it is fun and engaging. Someone also pointed out that the learning materials or games do not necessarily have to be about school subjects: they can be anything related to the school environment, such as how children should react to bullying.

The possibility of using video games as a tool to draw attention to the problems around the world was also brought up.

Games should be given more value and we should educate the unaware that they are no longer just children's play, but a serious way to educate and compete, and certainly a way to spend time off.<sup>4</sup>

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<sup>3</sup> "Olen pelannut niin paljon lapsesta asti, etten usko, että olisin sama ihminen, jos tämä kulttuuri olisi minulta jäänyt kokematta".

<sup>4</sup> "Peleille pitäisi antaa enemmän arvoa ja opettaa tietämättömille ettei ne enää ole vain lasten leikkiä, vaan vakavasti otettava tapa kouluttaa tai kilpailla, sekä toki viettää vapaa-aikaansa".

## DISCUSSION

The Flynn effect, named after James R. Flynn who first discovered it, is a name used to describe the substantial and long-sustained increase in fluid and crystallized intelligence test scores measured from 1930 to the present day. While fluid intelligence is the capacity to think logically and solve problems in novel situations, crystallized intelligence is the ability to use skills, knowledge, and experience (TED Talk, Zichermann, 2011.) One of the proposed theories for increasing intelligence is the far more complex and stimulating environment today: increased exposure to several different types of visual media from pictures on the wall to movies to television to video games to computers. Each generation has experienced richer displays, becoming imperceptibly more adept at visual analysis. Raven's Progressive Matrices support this theory being a test that is based on such analysis and having the highest increase in intelligence over time (Neisser, n.d.). It is therefore very wrong to claim that video games are completely useless.

Bavelier gave a pertinent example of the connection between wine and video games: consumption of video games can be compared to consumption of wine. There are some very poor uses of wine and there are some very poor uses of video games. However, when consumed in reasonable doses and at the right age, wine can be very good for health since it contains molecules that can lead to a greater life expectancy. Similarly, video games have powerful ingredients that are good for brain plasticity, learning, attention and vision (TED Talk, Bavelier, 2012.)

Certainly, everyone should have their limits and virtual lives should never attempt to take the place of your real life. As much fun as games are, the important thing we all have to remember about them is that they are not real. In a game you can create yourself a perfect persona, but you can never alter who you truly are, nor should you have to.

Perhaps the main advantage to virtual life is that there are no physical liabilities or distractions, neither is it an issue of maturity. A 50-year-old corporate executive can get along with and enjoy the friendship of a 16-year-old high school student and vice versa. This would unlikely occur in real life. The virtual world is a medium in which people of all ages, cultures, and interests can blend together and see each other as friends and competitors.

I believe virtual worlds will hold strong their position in our everyday lives and become even more popular among new generations. More advanced worlds will be created and technology will root itself ever more so into our society and media. These outlets of creation, expression, and entertainment have given humanity ways to escape the hardships of life.

Virtual life is an indulgence, not a necessity. We should immerse ourselves in these worlds with caution and precision. As with many things in life, moderation is the key. Too much of something can lead to addiction and abuse. Gaming is no exception.

This should by no means tarnish gaming. Any beautiful thing can become ugly when abused. A balanced social and physical life with proper mental health and understanding can lead to the enjoyment and sustaining of many of life's pleasures, a lesson which should always be remembered.

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