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Introduction to video games, their publishers, and social responsibility concerning video game addiction

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Introduction

In recent years, a multitude of signals have started originating both from practice and scientific research that video games, especially online video games, can be associated with a form of compulsive behavior that strongly resembles addiction. The current report summarizes state-of-the-art research in the field of video game overuse or 'addiction' and explores the social responsibility of the video game industry with regard to this topic.

Video Game Addiction and Social Responsibility

Over a period of thirty years, video games have evolved from Pacman to massively populated three-dimensional virtual environments. Sales for the Dutch video game-development industry are closing in on a billion Euros in 2007. This means video game development has already surpassed the Dutch movie industry.

Video games are also rapidly becoming more diverse. The game industry is currently actively opening up new markets: young children, girls (traditionally games were very male oriented), and the elderly. Case in point is the success of the Nintendo Wii, a very easily controllable console system aimed at a more casual audience (sold out for months on end in 2008). As a result of these developments, large differences now exist between popular game types. Experiences vary from endless gameplay in virtual worlds such as World of Warcraft, bloody shoot outs with terrorists in Counterstrike, and the innocence of virtual bowling on the Nintendo Wii.

Research by IVO, such as the Monitor Internet and Youth presented in 2007 (Van Rooij & Van den Eijnden, 2007), confirms that video gaming (gaming) is a popular activity. Over 70% of children between the ages of 10 and 15 play an online game on a weekly basis while almost 60% play offline game at least once a week. Other recent research by IVO (Van den Eijnden, Van Rooij, & Meerkerk, 2007) shows that patterns of game over-use or 'compulsive use' (Meerkerk, Van den Eijnden, Vermulst, & Garretsen, 2009) indeed develop in some gamers. Signals from professional addiction care confirm this. For instance, in 2008 the Smith and Jones Clinic opened a second specialized location for in-house treatment of an additional 50 game addicts (ANP, 2007). Because of these signals from practitioners, some scientists are even arguing in favor of creating an official diagnosis for "video game addiction" (AMA, 2006; Block, 2008; CSPH, 2007).

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While the debate on the existence of 'video game addiction', its potential diagnosis, and prevalence / incidence is likely to continue for a while, it is clear that some people exhibit a pattern of over-use. This brings up the following question – if games can lead to a pattern of over-use, should the gaming industry consider this when designing games?

The current review summarizes state-of-the-art of research in the field of video game over use or 'addiction', gives an overview of the industry behind video games, and explores the question of social responsibility for this industry. In order to reach this goal, the following research questions will be answered.

1. Which are the most popular videogames and game-types?
2. Who are the major stakeholders in the game industry, both Dutch and International?
3. What evidence exists regarding the existence of "video game addiction"?
4. What is the (social) responsibility of the video-game industry with regard to prevention of video games overuse?

1. Which are the most popular games and game-types?

The most popular games will have the largest influence on the public. The following analysis will take a pragmatic approach to mapping out the most popular gametypes and systems. The emphasis will be placed on providing some background on top-games instead of trying to be exhaustive. This approach fits well with the overall nature of the video game industry, where a few multi-million copy-selling game-franchises generate large profits while smaller developers try to survive.

Method

A survey by eBizMBA, an online knowledge base, is utilized to determine the most popular game websites as off June 2008 (individual game sites, publisher sites, retailers, and online 'pop' games sites are excluded from their list). The eBizMBA survey utilizes a mixture of independent internet traffic tracking machines such as Inbound Links, Google Page Rank, Alexa Rank, and U.S. traffic data from Compete and Quantcast to establish the number of visitors (eBizMBA, 2008). The top five of those websites is surveyed for game systems and game types. Additionally, a game ranking site is utilized to find the current most popular games (Game Rankings, 2008). Reviews are used instead of sales data since reliable independent sales data are not available for some popular games due to the subscription based business models. Only mutually independent websites that focus on journalism were included. Table 1 summarizes the top five most popular websites below.

Table 1: Top five most popular western video game websites

		Organisation	Monthly visitors^a
1	IGN.com	IGN	5.200.000
2	Gamespot.com	C-Net	4.100.000
3	Gamesradar.com	GamesRadar UK	1.900.000
4	UGO.com	UGO Network	1.700.000
5	Yahoo Games	Yahoo!	1.200.000

^a Quantcast.com

Results

Video games are invariably played on a video game system or platform. Traditionally, those systems for home use are divided into personal computer (PC) and video game 'console' systems. A video game console is little box that accepts standardized game cartridges and, more recently, DVD's or blue-ray discs that contain games. Consoles are generally designed to be connected to a television, with the exception of hand held systems such as the Game Boy.

Obviously, both consoles and pc gaming have been steadily developing since the commercial introduction of the first video game console (Magnavox Odyssey in 1972). The market for game consoles is heavily competitive, which is why new game console models tend to be released close to each other. Table 2 summarizes the current main page coverage of game systems by the five leading western video game websites.

Table 2: Main page coverage of game platforms, retrieved august 2008

System	Producer	Generation ^a	IGN	Gamespot	Gamesradar	UGO	Yahoo
Personal Computer (PC)	-	-	x	x	x	x	x
Wireless / Mobile	-	-	x			x	
PC – web browser / java	-	-					
Xbox 360	Microsoft	7th gen.	x	x	x	x	x
Playstation 3	Sony	(2004-...)	x	x	x	x	x
Wii	Nintendo		x	x	x	x	x
DS (dual screen)	Nintendo		x	x	x	x	x
PlayStation Portable	Sony		x	x	x	x	x
Xbox	Microsoft	6th gen.			x	x	x
Playstation 2	Sony	(1998-2006)	x	x	x	x	x
Gamecube	Nintendo				x	x	x
Gameboy Advanced	Nintendo						x

^a Based upon History of Video Games (Anonymous, 2008b)

Video game consoles

Table 2 shows that while the sixth generation of consoles is slowly phasing out, its champion – the widely successful Playstation 2 – is still hanging on. Apart from the obvious upgrades such as high definition graphics, the current seventh generation of video game consoles introduces two important new features to the general public.

Firstly, controlling games is rapidly becoming easier. Take the Nintendo Wii for example. After fighting an uphill battle against competitors for a while, Nintendo decided on a new strategy. Rather than compete on high quality graphics, Nintendo’s Wii focuses on new types of game play experience and new ways of controlling the console. The basic Wii model comes complete with a motion sensitive nun-chuck controller that allows the user to control games in a new way. One can play a bowling game by actually making a bowling motion with the right arm while holding the controller, or play a fitness game by jumping while holding the controller.

Secondly, online (and wireless) functionality is now available in the three major console systems (PS3, Wii, Xbox360) and to a limited extent also in the two handheld systems (PSP and DS) systems. This allows multiplayer gaming over the internet, downloading new content for games or even downloading entire games. Microsoft took the lead early on by offering the paid Xbox Live service. This unified online service for all its games was very successful and has now been emulated by both Sony, and to a lesser extent Nintendo (Iwatani Kane, 2008). As of 2008 there are some signals that Sony (Jordan, 2008) is taking back market share rapidly with its free service. The following table summarized the introduction of online gaming services.

Table 3: Introduction of the online gaming services

Service	Developer	Introduction	System
Xbox Live	Microsoft	2002	Xbox, Xbox 360
Nintendo Wi-Fi Connection	Nintendo	2005	Wii, DS
PlayStation Network	Sony	2006	PS3, PSP
Various (using the Internet)	-	1990's	Personal Computer & Notebook

Personal Computer & wireless gaming

The main difference between consoles and pc gaming is that improvement and change in PC's is far more continuous than in console systems. Every PC user can construct and customize his or her system from the component level up, while console users have to deal with pre-made (black) boxes. While this requires slightly more knowledge about computers, it has been gradually getting a lot easier for the average consumer to install and use a PC for gaming. The current 'average' PC gamer will most likely have a system that is somewhere in the middle between the 6th and 7th generation console systems in terms of hardware performance.

Console systems have been adding multiplayer functionality at a rapid pace in the last decade. While interesting, it is based entirely upon copying the success of the personal computer in this area. Following the widespread introduction of the internet in the nineties, a variety personal computer games began to incorporate network multiplayer capabilities. One of the earliest games with such capabilities is Doom, one of the most well known 'first person shooter games' which provided network play for 2 to 4 users.

During the 1990's, PC games began to utilize the network possibilities offered by the internet which resulted in a wide variety of games that could connect to each other over the internet. As a result of these developments a variety of old game genres could be played a new ways – such as death-matches in Doom. But equally as interesting – a variety of new game types emerged that were entirely based upon online play. Most notable examples are the development of persistent online worlds and small browser based games.

On a more recent note – mobile telephones and organizers are becoming sophisticated enough to run more than the simple games that they used to contain. Especially the Iphone, which was released halfway through 2008 in the Netherlands, is certainly video game capable with its large multi-touch screen, software support for additional programs and excellent sound. With this development, it seems a new market has opened, which will be undoubtedly be developed further over the coming time. In some ways wireless gaming can be considered the hand-held console version of the personal computer, as mobile phones and organizers improve at a continuous pace due to the large number of suppliers.

Game Genres

Table 4 summarizes some of the currently popular game genres. It is hard to make an exhaustive list of game genres because crossovers are frequent. For example, Portal, a game mentioned in the table, is a quite innovative kind of puzzle game because it creates three-dimensional puzzles the player actually has to walk around in. In doing so it resembles a first person ‘shooter’ though. Same goes for the popular Grand Theft Auto, in which the lead character drives around and does a lot of shooting – it resembles both third person shooters and racing games but is still generally classified as an action-adventure game.

Table 4: Popular game genres as surveyed from the big five gaming sites (inclusion: mentioned on three sites)

	IGN	Game spot	Games radar	UGO	Yahoo	Description	Examples
Shooters	x	x	x	x	x	First person, third person, or tactical shooting games	Doom, Quake, Unreal
Role Playing	x	x	x	x	x	Traditional and online multiplayer games primarily driven by character development.	Final Fantasy, World of Warcraft
Strategy	x	x		x	x	Strategy oriented (top down) games of the real time or turn based kind, resembles a mix of ‘playing with plastic soldiers’ and chess	Command and Conquer, Starcraft
Adventure		x	x		x	Allows the player to follow through a specific storyline or adventure	Metal Gear Solid 4, Grand Theft Auto 4
Sports	x	x	x	x	x	Various types of games based upon sports (soccer, football, etcetera)	Fifa Soccer, NHL 09
Racing	x	x	x		x	Various games that involve high speed racing (generally in cars)	Need For Speed, Nascar Racing
Fighting	x	x	x		x	2 and 3 dimensional games based on virtual hand to hand combat	Streetfighter, Soulcalibur 4
Simulations	x	x			x	Alls kinds of simulations: flight / machines, real-life, pets, etcetera.	The Sims 2
Puzzle	x	x			x	Games that are based mainly upon problem solving	Portal, Brain Academy

Obviously the previous table is not exhaustive. The game genres that did not make it in were the following: platform, gambling, card-battle, educational, party games, and music / rhythm games. The last three are of interest due to their recent quick rise in popularity. Firstly, both educational games and party games fit the Wii's marketing strategy well and have been gaining market share pushed by that console. Furthermore, they open up an underdeveloped market – the videogame can and will be utilized further as both an education tool and as 'group' entertainment. Music and rhythm games seem to be on a strong rise over the last two years as well. In these games the player can use a fake (plastic) instrument to follow the rhythm of the music by pressing the right button at the right time, thus emulating the feeling of really playing an instrument. It is currently (2008) hard to find a game store where no Guitar Hero or Rockband console is set up for play testing.

Modes of playing

Given the rapid developments in the area of online gaming, the mode of gaming has to be included when looking at games. Mode refers to the preferred context in which the game is to be played – team (multiplayer) based, single player storyline, parties in the living room, or to play on the internet? Game reviews often note that we are dealing with an 'online sci-fi shooter' or a 'massive online fantasy role playing game'. The following table proposes a distinction in modes of playing that fits well with the current video game market.

Table 5: Summary of popular modes of video game playing

	Explanation
Single Player (on- and offline)	The most basic type of gaming, single player gaming on a local system. Online single player utilizes the internet to play single player games on a server, mainly small browser based games.
Multiplayer Game	'Living Room' setup – Gaming by having multiple people plug a controller into a local system.
Multiplayer Online Gaming	Resembles a virtual Living room. Brief gaming sessions in temporary environments, often with anonymous co-players though teams (clans, guilds) exist and have active online communities (oftentimes regulated through forums)
Massive Multiplayer Online Gaming	Virtual worlds - persistent worlds where cooperative long term social structures can be created; often combined with the genre of Role Playing Games which results in the popular term 'MMORPG'

Popular games in 2007 and 2008

As noted before, it is currently impossible to map out video game sales completely. This is mainly because some games are currently on a subscription based setup or can be downloaded through services, which means that sales data is basically only available at the game-publisher - and it is sometimes not in the publisher's best interest to release this data. However, this does not preclude some educated guesses at popular game types. Reviews, for instance, are publicly available. Review-collecting site Gamerankings.com is utilized to find the 20 highest graded new releases in 2007 and 2008 (minimum of 20 reviews). They are summarized in the following tables 6 and 7 below (multi platform games are combined).

Table 6: Top ranking - high profile franchises (Gamerankings.com)

	Developer	Platform	Mode ^a	Genre
Call of Duty 4: Modern Warfare	Activision	PC, X360, PS3	SP, MOG	Shooter (first person)
The Orange Box (includes Half-life 2, Portal, and Team Fortress 2)	EA Games	PC, X360, PS3	SP, MOG	Shooter (first person), Puzzle
BioShock	2K Games	PC, X360, PS3	SP	Shooter (first person)
Grand Theft Auto IV	Rockstar Games	PS3, X360, PC	SP, MOG	Adventure (action)
GRID	Codemasters	PC, X360, PS3, DS	SP, MG	Racing
The Elder Scrolls IV: Oblivion	Bethesda Software	PC, X360, PS3	SP	Role Playing Game
Rock Band	MTV Games	X360, PS3, PS2, Wii	SP, MG	Music / Rhythm
Burnout Paradise	Electronic Arts	PC, X360, PS3	SP, MOG	Racing
Resident Evil 4	Capcom	GC, Wii, PS2, PC	SP	Shooter (third person)
Guitar Hero II	RedOctane	X360, PS2	SP, MG	Music / Rhythm

^a Single player (SP), Multiplayer Gaming (MG), Multiplayer Online Gaming (MOG), Massive Multiplayer Online Gaming (MMOG)

Table 7: Top ranking titles - platform-specific (Gamerankings.com)

	Developer	Platform	Mode ^a	Genre
Mass Effect	Electronic Arts	PC, X360	SP	Role Playing Game
Ikaruga	Treasure	X360 (arcade), GC	SP, MOG	Shooter (scrolling)
Mass Effect	Microsoft	X360, PC	SP	Adventure
WoW: The Burning Crusade	Blizzard	PC	MMO	Role Playing Game
Crysis	EA Games	PC	SP, MOG	Shooter (first person)
Galactic Civilizations II: Dark Avatar	Stardock	PC	SP	Strategy (turn based)
Sins of a Solar Empire	Stardock	PC	SP, MOG	Strategy (real time)
Sam & Max Episode 205	Telltale Games	PC	SP	Adventure (traditional)
Braid	Number None Inc.	X360	SP	Platform
Halo 3	Microsoft	X360	SP, MOG	Shooter (first person)
Geometry Wars: Retro Evolved 2	Bizarre Creations	X360 (arcade)	SP, MG	Shooter (2D)
Rez HD	Q Entertainment	X360 (arcade)	SP	Shooter (rail), Rhythm
Metal Gear Solid 4	Konami	PS3	SP, MOG	Shooter (fps / stealth)
MLB 08: The Show	SCEA	PS3, PS2, PSP	SP, MOG	Sports (baseball)
God of War II	SCEA	PS2	SP	Adventure (action)
Super Mario Galaxy	Nintendo	WII	SP, MG	Adventure (platform)
Super Smash Bros. Brawl	Nintendo	WII	SP, MOG	Fighting

^a Single player (SP), Multiplayer Gaming (MG), Multiplayer Online Gaming (MOG), Massive Multiplayer Online Gaming (MMOG)

While it is by no means a complete overview, the previous tables do a nice job in summarizing two opposing forces that characterize the gaming industry at the moment - namely multi platform franchises and 'big' platform specific titles. It is very efficient for game developers to produce titles that can be played across multiple platforms. Since the Xbox, PS3, and PC are comparable in terms of graphics, the effort in transferring the game to another platform ('porting') is much lower than developing a new title. Since the game can be marketed for several platforms at once, the benefits also extend to marketing. With the recent developments in online gaming services on Xbox360 and Playstation 3, online gaming can still be included in the game. Notice that the main multiplatform titles are all very 'casual gamer' oriented though – the games all involve direct action (exception to the rule being Oblivion which is an action-RPG). The main alternative for these massive, large scale titles are the platform specific titles or franchises, which often have the goal of attracting the consumer to a specific platform. Best known is of course the Super Mario franchise, which has been around for decades and is still

going strong on the Wii. Another staple is the widely successful Halo series developed by Microsoft, which is purely available on the Xbox 360 (and installments 1 and 2 on Windows PC's).

Some platforms are better suited for specific game types. Traditionally console systems are well known for platform jumping games (Mario), fighting games (Streetfighter), and other direct action games, while typical PC games tend to be more drawn out and strategic – such as strategy games, and role playing games. Over recent years, the new genre of MMORPG has established a firm foothold in the PC gaming market, while no successful console based MMORPG has yet appeared for various reasons (worse online infrastructure, patching the continuous content updates is harder). Best known is the market-dominating World of Warcraft (and its expansion – Burning Crusade), which is played by over 10 million subscription paying gamers worldwide according to press releases by its developer (Blizzard Entertainment, 2008). Note the various strategy games in the table that are available for PC only. On the other hand, the Xbox 360 Live Arcade service (remember the arcade halls of the past) provides “small” arcade games that can be downloaded through the Xbox Live service.

2. Who are the major stakeholders in the game industry, both Dutch and International?

In the eighties and even in the nineties, very small teams of developers and artists were sufficient to develop a video game. In the wake of fast technological progress, development of games became more and more expensive and intensive. As a result, the European video game market is currently dominated entirely by large North American companies and Asian companies operating through their Western branches (Nintendo, Sony). The video game industry will now be discussed. Given the stated research questions, the main focus will be now placed on the nature of the software development (as opposed to focusing on the hardware side).

Method

A combination of several perspectives will be used to survey the current gaming industry. Firstly, a combination of scientific articles and online media will be used to illustrate the structure of the industry. Secondly, industries tend to organize themselves in order to advance their collective best interest. One example is the American organization ESA (ESA, 2007), whose website can be utilized as a source of information on industry-wide developments.

Results

It is important to understand that several different types of organizations are involved in the process leading up to the arrival of the latest new video games in the living room. There are four basic activities that traditionally make up the production-chain (Cadin & Guérin, 2006; Williams, 2002), namely development, publishing, manufacturing, and distribution. Table 8 provides an overview and illustrates some alternatives to the regular chain. The major console manufacturers (Sony, Microsoft, and Nintendo) play a special role in this process – developers require a form of licensing and are bound to certain restrictions before they are allowed to develop a game for the specific console system. Console games involving nudity do not exist outside of Japan for example.

Table 8: Examples of vertical integration in the video gaming industry

	Development	Publishing	Manufacturing	Distribution	Retail
Traditional	x	x	x	x	x
In house developers		x	x	x	x
Downloadable content	x	x		x	
“Rogue” developers	x			x	

Traditionally, developers work on contract basis for the publishers, much like in book publishing or the music industry. Publishers are in charge of promoting and financing the games to distributors (in case of pc-gaming) and console manufacturers. Developers tend to get paid when achieving certain predefined goals and the publisher obtains the intellectual rights for the produced games. Because many developers are often small and work on one project at a time, game development is a risky business. As a result, successful developers tend to be assimilated into the role of ‘in house’ developer for a publisher– in which the publisher both develops and publishes the game. Ensueingly, the game is manufactured and distributed to retail.

As the video game industry matured over recent years, both vertical integration (up and down the supply chain) and horizontal integration (mergers) are seen across the entire industry (Williams, 2002). While this creates a lot of benefits (economies of scale, spread risks) for the new ‘super publishers’ they still have to deal with at least two other stakeholders – namely the ‘big three’ console manufacturers (Sony, Microsoft, and Nintendo) and the retail sector.

It seems the retail sector is bypassed more and more often lately, because both consoles (through x-box live for example) and PC’s now offer software for downloading games directly of the internet. The “Steam” application from very successful developer Valve is one example, and has gained a lot of attention because their very successful Orange Box game-compilation utilizes the Steam network. The network has reached 15 million users in 2008 (Steampowered.com, 2008a) and is now offering developers a chance to develop specifically for the steam network (Steampowered.com, 2008b). While ‘cutting out the middleman’ caused a lot of legal disputes, it is probable that small developers will utilize networks such as these to reach customers directly in the future.

Current global situation

As noted, market integration is happening at a rapid pace as the industry is maturing. This maturation has another important side effect: content in games is becoming more and more mass oriented. In expansion on the previous chapter: the video game industry is driven by a select number of hit franchises and often referred to as a “hit or miss” industry. Consequently, the standard of content in popular games is changing from French cuisine to McDonalds. This might be the reason that online forums are often populated by angry hardcore gamers bashing super-publisher Electronic Arts for their latest “uninspired” game or Nintendo for making Wii games “simple and childish”. A second side effect of this maturation is that underdeveloped markets such as women, education, and music games are rapidly being opened by these professional super-publishers (Williams, 2002).

As of 2008 the major players in video game publishing are Electronic Arts (EA) and Activision-Blizzard (AB). Electronic Arts has been market-leader for a while (Electronic Arts, 2008) and is attempting to assimilate Take-Two (Dobbyn, 2008), which holds the rights to top selling franchise in may 2008 Grand Theft Auto (NPD, 2008a), see also table 9. Activision-Blizzard has very recently been formed (July 2008) by means of a merger between the French organization Vivendi and Activision (Activision-Blizzard, 2008). Blizzard games tend to be very high quality and World of Warcraft completely dominates the MMORPG market. Both EA and AB hold the rights for series of very successful franchises.

Table 9: Jan-july 2008: Top 5 Video Game Titles Top Global Markets Report Ranked By Units (rounded)

Rank	Title	Total	US	UK	Japan
1	Grand Theft Auto IV	6,293,000	4,711,000	1,582,000	--
2	Super Smash Bros: Brawl	5,433,000	3,539,000	213,000	1,681,000
3	Mario Kart Wii	4,697,000	2,409,000	687,000	1,601,000
4	Wii Fit	3,604,000	1,433,000	624,000	1,547,000
5	Guitar Hero III (L.o.R.)	3,475,000	3,037,000	412,000	26,000

Source: Top Global Markets Report / Retail Tracking Service, (NPD, 2008a)

When interpreting the previous table it is important to emphasize once again that both PC based games are more and more often moving from a transaction (sales in the shop) system to a subscription and online-transaction system, which means that sales charts are by definition incomplete (only part of the total sales can be tracked in either system).

The Entertainment Software Association is the trade association for the Computer and Video Game Industry in the United States. It was formed in 1994 as Interactive Digital Software Association (IDSA) but was renamed to ESA in 2003. ESA manages video game ratings, combats piracy, combats government censorship and regulation, and organizes trade expo E3.

Almost all major publishers in the Western video games industry were members of the organization up until very recently. In the first quarter of 2008 Activision & Vivendi (AB), LucasArts, IdSoftware, and Crave left the ESA for unknown reasons (Anonymous, 2008a; Chris, 2008; Sliwinski, 2005, 2008). Regardless, combining current ESA members with those leaving generates a complete overview of the current major publishers.

Table 10: Western Video Games Industry, major publishers

Ex-ESA	Activision-Blizzard, Crave, IdSoftware, LucasArts,
ESA	Atari, Capcom USA, Codemasters, Eidos Interactive, Electronic Arts, Take-Two Interactive Software, Epic Games, Her Interactive, Konami Digital Entertainment, Midway Games, Namco Bandai Games America , NC Interactive, SEGA of America, Square Enix, THQ, Ubisoft Entertainment
ESA, big three console	Sony Computer Entertainment America, Sony Online Entertainment, Nintendo of America, Microsoft Corporation
ESA, cross sector organizations	Disney Interactive Studios, Warner Bros. Interactive Entertainment, MTV Games

Dutch Videogame Industry?

With all the major publishers dominating the market from across the ocean, is there any chance for a Dutch video game industry? The answer is both no and yes. Firstly, the big game publishers are non-existent in the Netherlands, apart from having local offices to manage sales. Moreover, European headquarters are often located in either the United Kingdom or France. However, as discussed before – game publishers rely on game developers for development, unless they develop their games in-house. Regardless of in-house development, small creative teams under pressure – in other words small game developers - have a tendency to generate innovative ideas (Piret, 2006).

Consequently, large publishers still rely on independent game developers for innovation. This is where Dutch game developers come into the picture. Though low in number, it is not unknown for big titles to originate from Dutch developers. Most well known example is Killzone,

a first person shooter developed by Dutch developer Guerilla Games and published by Sony Europe in 2004. Another example would be Overlord, a strategy game released in 2007 by Dutch developer Triumph Studios and published by Codemasters.

One sign of industry development is the emergence of organizations that advance the collective best interest of the industry – and remarkably enough the Dutch industry has one as well. As off February 2006 the BGIN exists, “an independent organization committed to the stimulation and development of a stable and vibrant Benelux videogames industry (NLGD, 2008). Table 11 lists the 22 Dutch developers who have a membership in the organization. This includes internationally successful companies Guerilla, Triumph Studios, and Streamline Studios.

Table 11: Benelux Game Initiative, membership

Name	City	Name	City
Cannibal Game Studios	Zoetermeer	RanJ	Rotterdam
Coded Illusions	Rotterdam	Soepel	Amsterdam
Codeglue	Rotterdam	SonicPicnic	Utrecht
Creative-Artists	Amersfoort	Streamline Studios	Amsterdam
Elements Interactive	Almere	Triumph Studios	Delft
Fantazm	s Hertogenbosch	Tygron Serious	Delft
Guerrilla	Amsterdam	Gaming	Utrecht
Khaeon	Den Haag	Utrax	Rotterdam
Little Chicken Game	Amsterdam	VSTEP	Amsterdam
Company	Utrecht	W!Games	Amersfoort
Nixxes	Leiden	White Bear	Utrecht
Paladin Studios		X-form	

Besides the Benelux Games Initiative, two other industry initiatives are notable. Firstly the “Stichting Nederlandse Gamesdagen” (NLGD, 2008) – a government supported initiative to platform to develop the Dutch gaming industry. No reliable estimates of industry size are available, partly due to the fact that a lot of developers are privately owned and that development transactions are not public. However, the NLGD also gives an unreferenced estimate of the Dutch gaming industry of 0.7 billion euros on their website (estimates like this are notoriously unreliable for reasons stated before). Additionally, as of 2007 the Dutch game industry has its own magazine “Control” (Control Online, 2008).

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Another source on the state of the Dutch games industry is index-site “game-industrie.nl”, a mixed initiative originating from NLGD, BGIN, the Dutch Government, a local innovation platform, and several college’s in the field of game-design. It lists a total number of 92 companies as of august 2008, divided over the following categories.

Table 12: Dutch video game industry – company numbers in august 2008 (game-industrie.nl) A

“Game developers”	#	Publishers	#
Advergames	22	Console-PC	7
Audio Design	9	publishers	3
Console games	15	Mobile	3
Handheld games	6	Mobile Game Portals	4
Interactive television	4	Webgameportals	
Mobile Games	15		
Outsourcing	6		
PC Games	18		
Porting	3		
Serious Games	30		
Simulation	14		
Technology	5		
Tools and engines	11		
Webgames	31		

A Companies can be listed in more than one category

3. What evidence exists regarding “video game addiction”?

“When I played World of Warcraft I felt confident as my status in game grew, but little did I know that while my confidence ingame soared, my confidence outside plummeted. I gave up nearly all sport, I couldn't be arsed with any sort of academia.” – Anonymous (26/03/2007).

Pathological gambling pretty much remains the only well studied behavioral addiction to date (Potenza, 2006). However, the existence of “gambling addiction” provides a very fundamental piece of information on human behavior. For if one type man-machine interaction can lead to pathological behavior strong enough to warrant inclusion in psychiatric manuals, who can deny that other examples might exist? According to Griffiths a growing movement views a number of behaviors as potentially addictive “e.g. gambling, computer game playing, exercise, sex, and now the Internet” (Griffiths & Davies, 2005). Conceptually, the discussion on video game addiction is strongly related to the broader issue of behavioral addictions.

In psychiatric manuals the term “addiction” is not used. The DSM-IV, the most well known standardized manual for psychiatry, refers to strictly to “dependence” or “abuse” in case of substances and “impulse control disorder” (ICD) in the case of gambling (American Psychiatric Association, 2000). Interestingly, recent findings show strong similarities between pathological gambling (PG) and substance use dependency (SUD). Similarities are found in areas of personality (high scores of impulsiveness and sensation seeking), biochemistry (several similar neurotransmitter systems have been implicated), and neurocircuitry (the mesolimbic reward system), co morbidity (high rates of co-occurrence of SUDs and PG), prevalence, and course: many people recover on their own after periods of intense problems in early adulthood (Brewer & Potenza, 2008; Potenza, 2006; Reuter et al., 2005).

The strong similarities between pathological gambling and substance use dependency have lead scientists to argue in favor of grouping behavioral addiction and the various forms of substance dependency in the upcoming DSM-V (Brewer & Potenza, 2008; Potenza, 2006). While this remains an undecided academic debate, it does show that there are strong similarities – even neurologically – between classical substance abuse and impulse control disorders.

This brings about the following question. Can video games be conceptualized as an impulse control disorder – and thus, perhaps also as a behavioral addiction - such as pathological gambling? While some scientists argue in favor of creating an official diagnosis for

“video game addiction” (AMA, 2006; Block, 2008; CSPH, 2007) there are others – like Wood – who argue that the concept of video game addiction is in fact less based upon scientific fact than on media-hysteria (Wood, 2008a, 2008b). It seems the evidence at hand is insufficient for any definitive conclusions regarding “game-addiction” (CSPH, 2007). Or as Griffiths puts it: “Until addiction researchers agree on what it is to be addicted, we will never get agreement on whether behavioral excesses like videogame playing can be classed as a ‘genuine’ addiction” (Griffiths, 2008).

Mark Griffiths, one of the foremost writers on the topic of video game addiction, poses the following main questions that need to be answered before concluding anything definitive about the existence of video game addiction (Griffiths, 2008). What is addiction? Does videogame addiction actually exist? If videogame addiction exists, what are people actually addicted to? Unfortunately these questions go beyond the scope of the current chapter. However, Griffiths’ suggestion does provide a useful framework for presenting a more modest set of questions. In posing these questions, the addiction issue is sidestepped and the emphasis is placed on the (consequent) behavioral aspect. Before looking at causes of the behavior - be it addiction, bad parenting, bad influence of peers, sociological change, lack of social skills or other psychological issues - the problematic behavior needs to be defined. This leads to the following set of questions:

1. Does video game overuse exist?
2. Does this overuse lead to adverse consequences for the gamer?
3. Does video game overuse differ per game type?

Pretty much any activity that offers some kind of reward, be it food, drugs, sex, work, gambling, or video gaming has examples of people that overindulge in them – such is human nature (Orford, 2001). Besides numerous stories of ‘game addiction’ in the media and on internet forums the main evidence for the existence of video game overuse originates in studies of prevalence. Those studies tend to utilize self-report questionnaires to gather information.

The NPD (a major market research firm) released some insightful information in 2008: “of the 174 million gamers who personally play games on PC/Mac or video game systems, 3 percent are Extreme Gamers” (NPD, 2008b). Extreme gamers play an average of 45 hours per week. Grüsser and colleagues sampled 7069 gamers for an online survey and found that 12% of those gamers fulfilled diagnostic criteria of addiction concerning their gaming behavior (Grüsser, Thalemann, & Griffiths, 2007). To provide some contrast for this information,

prevalence of problematic gambling is estimated at 1% in Ontario (Room, Turner, & Ialomiteanu, 1999; Turner, 2008).

In the Netherlands previous research by IVO, such as the Monitor Internet and Youth presented in 2007 (Van Rooij & Van den Eijnden, 2007), confirms that video gaming (gaming) is a popular activity. Over 70% of children between the ages of 10 and 15 play an online game occasionally, while almost 60% play an offline game. A small group of 3% was identified as being a compulsive online gamer - playing online games at least 4 days a week and a positive score on the Compulsive Internet Use Scale (Meerkerk et al., 2009).

Time spend on video games alone does not constitute a problem without video games actually causing some kind of problematic outcome. Literature confirms that game overuse can be severely disruptive to school, work, and “real life” social contacts. Of course, overindulgence in any singular activity tends to disrupt people’s lives (Chappell, Eatough, Davies, & Griffiths, 2006; Grusser et al., 2007; Wan & Chiou, 2006). Several important unanswered questions remain. Does video game overuse have worse effects than the over indulgence in other pastimes? Is video game overuse a symptom or a cause of underlying problems?

Video game overuse seems to differ per game type. While the case reported by Keepers in the early nineties dealt with Pacman (Keepers, 1990), it seems that Role Playing Games and online games in general are associated more often with video game overuse. For example, the 2007 CSH report refers to MMORPG’s as being associated more often with video game overuse (CSPH, 2007). Both Korean and western research confirms this fact: “Role playing game users showed significantly higher internet addiction scores than web board and sports game users.” (M. Lee et al., 2007) and “it is clear that the accounts presented by players and ex-players appear to be ‘addicted’ to EverQuest in the same way that other people become addicted to alcohol or gambling.” (Chappell et al., 2006). In a way this is not surprising – these types of games have the longest duration of any game type up to date. Role playing games revolve around character development and online games offer the added benefits of social interaction – both of which offer more varying and rewarding game play experience than an offline game that can simply be finished. For instance, there are more kinds of rewards present in comparison to traditional games, among which the social dimension, but gameplay is also open ended and pretty much endless.

It is very likely that certain elements in those online / RPG games, such as randomized rewards, open ended gameplay, social rewards from impressing other players, and several other elements. Griffiths and Davies have done some work in categorizing game elements for

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arcade machines from a gambling perspective already (Griffiths & Davies, 2005; Wood, Griffiths, Chappell, & Davies, 2004):

- The requirement of response to stimuli that are predictable and governed by the software loop
- The requirement of total concentration and hand–eye coordination
- Rapid span of play negotiable to some extent by the skill of the player (more marked in videogames)
- The provision of aural and visual rewards for a winning move (e.g., flashing lights, electronic jingles)
- The provision of an incremental reward for a winning move (points or cash) that reinforces “correct” behavior
- Digitally displayed scores of “correct behavior” (in the form of points or cash accumulated)
- The opportunity for peer group attention and approval through competition

Unfortunately, little is known about the relationship between structural characteristics of video games lead and video game overuse yet. In closing: new niches are being unlocked as we speak. Developers are already working on porting Online Role Playing games to consoles. If we take into account that this type of game is most often implicated in cases video game overuse and that console systems have more market share than PC's, this means the number of “video game addicts” will increase in the coming time.

4. What is the social responsibility of the industry?

Exploring Vana'diel is a thrilling experience. During your time here, you will be able to talk, join, and adventure with many other individuals in an experience that is unique to online games. That being said, we have no desire to see your real life suffer as a consequence. Don't forget your family, your friends, your school, or your work.

- Developer Square Enix: A Word To Our Players (2008, Final Fantasy XI)

Pinball machines do not have an overuse warning message stamped on the side of the box. Neither do bicycles, soccer balls, guitars, nor video games up until the current 'online multiplayer age'. So why is the previous message presented to players of Final Fantasy XI? And why are the following messages suddenly presented to players on the World of Warcraft loading screens since 2007?

"Take everything in moderation (even World of Warcraft)" / "Bring your friends to Azeroth, but don't forget to go outside of Azeroth with them as well."

- Blizzard Entertainment (2007, World of Warcraft loading screen messages)

The scientific principle of Occam's razor poses the explanation of a phenomenon should make as few assumptions as possible. Which in this case means the following: the developers (and publishers) of these online games know that at least some players spend excessive amounts of time on their games. While they cannot directly admit it because it would prompt both government, public, and legal action, the conclusion is pretty obvious since they do seem they do take some responsibility into their own hands through these warning messages. Nobody except for the people within the companies themselves know exactly how high the percentage of over-users is and how much time they spend. Given the NPD data referred to in the previous chapter, which stated 3% of gamers spend an average of 45 hours playing (NPD, 2008b), the percentage of "extreme gamers" within the potentially more addictive MMO's can be assumed to be at least higher than 3%.

If some people over-use video games and might even be addicted, who is to blame and who is to take responsibility? Do we blame restaurants for cardiovascular problems and obesity? After all, they just try to make the tastiest food. However, video game overuse is often compared to pathological gambling. And the gambling industry has a long history of worldwide regulation. Even the recently developing online gambling industry is not escaping this regulation

(Smeaton & Griffiths, 2004). In the Netherlands the only legal casinos are run by the government (“Holland Casino”), a governmental organization. Of course, substances such as alcohol, cigarettes, and ‘hard’ drugs (opium, heroine, cocaine) all have a long history of governmental involvement as well. Lobby groups, health care, and academic research tend to provide information that spurs the government into action such as restrictive legislation.

While games are not the same as hard drugs, cigarettes, gambling, it is obvious from the previous that at least some people struggle to limit their game-use. One might argue that there is something wrong with these persons or their environments, but the same can be argued for pretty much any addiction. The process of addictive behavior is now generally explained on multiple levels of abstraction: neurobiological, psychological, and sociological. Which is not a new thought since Zinberg already argued in favor of including both environment and person in 1984 (Zinberg, 1984).

So who is to take responsibility for video game overuse? It is pretty clear from the media what happens if a game publisher announces to publish a game with excessive violence (Dead Space, Manhunt), random car jacking (GTA), or abundant drug use (Fallout 3). Local governments tend to intervene. Thailand has banned Grand Theft Auto 4 after a cab driver got carjacked in a similar fashion to the game, Fallout 3 will be published in a censored version in Australia, and Dead Space is banned by three countries (including Germany) before even being released. While these interventions by governments are arguably based more on media hyping and lobby group pressure than on sound scientific research, they do happen (violent crimes have steadily decreased on nation wide scales in spite of growth in the video game industry). In summary - when it comes to commercial activities / industries producing products that are potentially detrimental to mental or physical health of people governments tend to take action.

In spite of being a topic of much discussion in media, game overuse has escaped governmental action so far in the Western world. As opposed to Asia, where China restricted the hours that gamers can play online games in 2005 and South Korea has government agencies organizing a yearly “no internet day”. The following figure 1 summarizes connection of the video game supply chain to stakeholder in (Dutch) society. The dotted lines are lines that are currently happening, and the striped lines will most likely happen eventually, which leads to the following hypotheses.

H1. From 2008 onwards, Western lobby groups and health care organizations will pressure local governments to take action regarding video game addiction.

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H2. In response to future lobby group pressure, governments will pressure game publishers into modifying games.

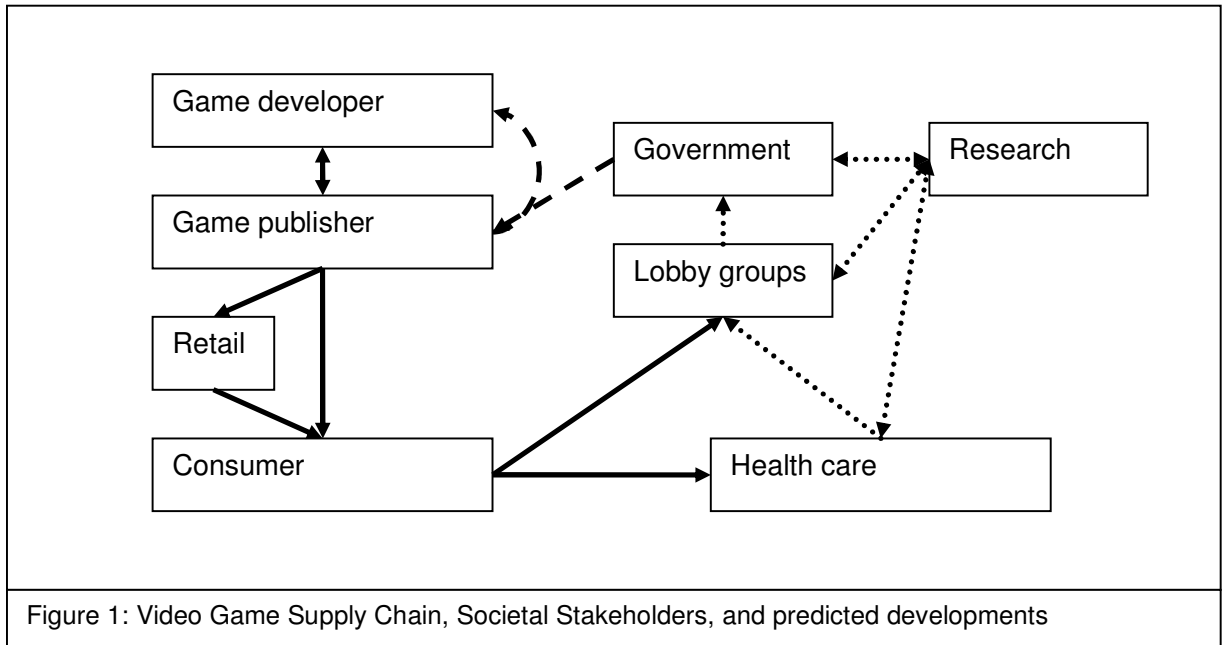


Figure 1: Video Game Supply Chain, Societal Stakeholders, and predicted developments

Social responsibility in action

Obviously industry executives have most likely already considered the previous scenario. Through warning messages the game industry is already addressing social responsibility in the area of prevention of video game overuse, albeit to a rather limited extent. Furthermore, some games (such as WoW) have a parental mode that allows parents to restrict play time for their children. Media are generally not picking up on these facts because they are usually not involved in the video game communities that closely.

Obviously, this creates a chance for the industry to start prevention to address the 'addiction' theme before it actually becomes a major issue similar to aggression and video games. See for example the website for the Entertainment Software Association (ESA), a major industry organization in the U.S., where a special report addresses the fallacy of linking aggression to video games (ESA, 2008). Notice the absence of any information on addiction risks (as of august 2008).

Additionally, some extent of self regulation (players addressing each other) and community-developer interaction is also happening. For example, World of Warcraft expansion, Wrath of the Lich King, is announced to appear at the end of 2008. A symbolic and unique in-game title was announced to be rewarded to players who progress their character to the maximum level of 80 fastest on each server (realm first titles). After several pages of forum debate in which players expressed their concern about people "taking unhealthy amounts of time off school and work (page 1 of the forum thread)" to reach the titles the following official message appeared on the forum.

"We've decided to remove the titles for the Realm First Feats of Strength that are associated with reaching level 80. We've also removed the titles associated with the Realm First Feats of Strength associated with gaining 450 skill in the professions and secondary skill. Lastly, we've removed the title associated with Realm First to accomplish the Northrend Vanguard achievement."

- Quote from: Tigole (Kaplan, 2008), post 106

In summary, companies are most likely well aware of potential risks of their games. Note though, that (online) gaming is not in itself a negative activity. The benefits likely outweigh the negative sides for the 97% that does not game in "extreme" amounts. Also, most (psychosocially) healthy gamers are perfectly capable of deciding for themselves when enough

is enough. Take the following statement for example, made by a member of a high-end Final Fantasy XI guild after they gave up on a poorly designed boss fight that lasted over 7 hours.

“People were passing out and getting physically ill. We decided to end it before we risked turning into a horrible new story about how video games ruin people’s lives.”

- Player Sylphet from “Beyond The Limitation”, a FF-XI Linkshell (2008)

Action

While discussing the concept of video game addiction and the impaired individual control over behavior that might be a cause for addiction, Wood concisely noted the following:

Consequently, it is the role of any responsible gaming operator to make sure that they take this into account and strive to minimise any potential harm to those individuals.

Good game design, customer care, and referral services can all help to achieve this.

(Wood, 2008a, p. 192)

Customer addiction-care and referral services are currently unheard of with regards to video games. The most visible action so far by the gaming operators is the introduction of loading screen warning messages, and in case of WoW some tuning of the more “hardcore” gameplay mechanisms – which might just as well be done for marketing purposes because the majority of gamers play casually. Academic research supporting interventions is currently lacking in all areas.

While history has taught us that the interests of a free market industry might very well be at odds with public health (Munro & de Wever, 2008), the hypothesized government intervention is not in the best interests of the video game industry either. We therefore propose to pro-actively approach the main video game publishers on basis of the preceding argumentation. The goal will be to explore options for collaboration between academics, health care, and video game industry in order to provide proper referral, customer care, and information to the general public. This will benefit the consumer because they will be better informed and properly referred in case of problems. The industry will benefit because it will be able to prevent both media hyping of game addiction and prevent the hypothesized government action.

References

- Activision-Blizzard. (2008). Vivendi And Activision Complete Transaction To Create Activision Blizzard. Retrieved from <http://investor.activision.com/releasedetail.cfm?ReleaseID=320652>.
- AMA. (2006). *American Medical Association: Warning Labels on Video Games*. AMA.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington DC: American Psychiatric Association.
- Anonymous. (2008a, May 23). BREAKING: id Software Leaves ESA. *GamePolitics*. Retrieved from <http://www.gamepolitics.com/2008/05/23/breaking-id-software-leaves-esa>.
- Anonymous. (2008b). History of video games. In *Wikipedia.org*. Retrieved from http://en.wikipedia.org/wiki/History_of_video_games.
- ANP. (2007, July 5). Keith Bakker begint kliniek tegen gameverslaving. *Nu.nl*. Retrieved from <http://www.nu.nl/internet/1141885/keith-bakker-begint-kliniek-tegen-gameverslaving.html>.
- Blizzard Entertainment. (2008). World Of Warcraft® Reaches New Milestone: 10 Million Subscribers. Retrieved January 21, 2008, from <http://www.blizzard.com/us/press/080122.html>.
- Block, J. J. (2008). Issues for DSM-V: Internet addiction. *American Journal of Psychiatry*, *165*(3), 306-307.
- Brewer, J. A., & Potenza, M. N. (2008). The neurobiology and genetics of impulse control disorders: Relationships to drug addictions. *Biochemical Pharmacology*, *75*(1), 63-75.
- Cadin, L., & Guérin, F. (2006). What Can We Learn from the Video Games Industry? *European Management Journal*, *24*(4), 248-255.

Introduction to video games, their publishers, and social responsibility concerning video game addiction

- Chappell, D., Eatough, V., Davies, M. N. O., & Griffiths, M. D. (2006). EverQuest —It's Just a Computer Game Right? An Interpretative Phenomenological Analysis of Online Gaming Addiction. *International Journal of Mental Health and Addiction*, 4(3), 205-216.
- Chris. (2008, June 24). Add Crave Entertainment to the List of Ex-ESA Members. *Gaming Today*. Retrieved December 14, 2008, from <http://news.filefront.com/add-crave-entertainment-to-the-list-of-ex-esa-members/>.
- Control Online. (2008). Control. Het tijdschrift over gamesontwikkeling. Retrieved May 5, 2009, from <http://www.control-online.nl/>.
- CSPH. (2007). *Council on Science and Public Health - Emotional and Behavioral Effects, Including Addictive Potential, of Video Games*. Retrieved from www.ama-assn.org/ama1/pub/upload/mm/467/csaph12a07.doc.
- Dobbyn, T. (2008, August 20). An EA merger with Take-Two gets U.S. antitrust OK. *Reuters*. Retrieved December 2, 2008, from <http://www.reuters.com/article/technologyNews/idUSN1842132920080820>.
- eBizMBA. (2008). Top 25 Most Popular Video Game Sites June 2008.
- Electronic Arts. (2008, May 13). EA reports fourth quarter and fiscal year 2008 results. Retrieved from http://media.corporate-ir.net/media_files/IROL/88/88189/Q4Release.pdf.
- ESA. (2007). *2007 Sales, Demographic and Usage Data, Essential Facts About the Computer and Video Game Industry*. Washington DC: Entertainment Software Association.
- ESA. (2008). *Essential Facts about games and violence*. Entertainment Software Association.
- Game Rankings. (2008). Game Rankings - Best and the Worst: reviews. Retrieved from <http://www.gamerankings.com/>.
- Griffiths, M. D. (2008). Videogame Addiction: Further Thoughts and Observations. *International Journal of Mental Health and Addiction*, 6(2), 182-185.

Introduction to video games, their publishers, and social responsibility concerning video game addiction

- Griffiths, M. D., & Davies, M. N. O. (2005). Does video game addiction exist? In J. Raessens & J. Goldstein (Eds.), *Handbook of Computer Game Studies* (pp. 361-369). Cambridge: MA MIT Press.
- Grusser, S. M., Thalemann, R., & Griffiths, M. D. (2007). Excessive Computer Game Playing: Evidence for Addiction and Aggression? *CyberPsychology & Behavior*, *10*(2), 290-292.
- Iwatani Kane, Y. (2008). Keeping Up Nintendo's Momentum. *The Wall Street Journal*. Retrieved August 3, 2008, from <http://online.wsj.com/article/SB121780805792108617.html>.
- Jordan, J. (2008). PS 3 is definitely beating 360 in some areas of online. *Develop Magazine*. Retrieved from <http://www.developmag.com/news/30310/PS3-is-definitely-beating-360-in-some-areas-of-online>.
- Kaplan, J. (2008, September 4). MMO-Champion BlueTracker - Constructive Feedback for server first titles (Tigole - a.k.a. Jeffrey Kaplan). Retrieved January 9, 2009, from <http://blue.mmo-champion.com/1/9336520906-constructive-feedback-for-server-first-titles.html>.
- Keepers, G. A. (1990). Pathological preoccupation with video games. *Journal of the American Academy of Child and Adolescent Psychiatry*, *29*(1), 49-50.
- Lee, M., Ko, Y. H., Song, H. S., Kwon, K. H., Lee, H. S., Nam, M., et al. (2007). Characteristics of Internet use in relation to game genre in Korean adolescents. *CyberPsychology and Behavior*, *10*(2), 278-285.
- Meerkerk, G. J., Van den Eijnden, R. J. J. M., Vermulst, A. A., & Garretsen, H. F. L. (2009). The Compulsive Internet Use Scale (CIUS): Some Psychometric Properties. *CyberPsychology & Behavior*, *12*(1), 1-6.
- Munro, G., & de Wever, J. (2008). Culture clash: alcohol marketing and public health aspirations. *Drug and Alcohol Review*, *27*(2), 204 - 211.
- NLGD. (2008). NLGD Foundation. Retrieved May 6, 2009, from <http://www.nlgd.nl>.

- NPD. (2008a). Leading Market Research Firms Join Forces To Provide First Multi Continent View Of Video Game Software Sales.
- NPD. (2008b). Extreme Gamers Spend An Average of 45 Hours Per Week Playing Video Games. New Study Profiles Seven Gaming Segments by Key Behavioral Metrics, Usage Patterns and Purchasing Preferences. Retrieved August 10, 2008, from http://www.npd.com/press/releases/press_080811.html.
- Orford, J. (2001). Addiction as excessive appetite. *Addiction*, 96(1), 15-31.
- Piret, R. (2006). Nicolas Gaume's views on the video games sector. *European Management Journal*, 24(4), 299-309.
- Potenza, M. N. (2006). Should addictive disorders include non-substance-related conditions? *Addiction*, 101(s1), 142-151.
- Reuter, J., Raedler, T., Rose, M., Hand, I., Gläscher, J., & Büchel, C. (2005). Pathological gambling is linked to reduced activation of the mesolimbic reward system. *Nature Neuroscience*, 8, 147 - 148.
- Room, R., Turner, N. E., & Ialomiteanu, A. (1999). Community effects of the opening of the Niagara casino. *Addiction*, 94(10), 1449-1466.
- Sliwinski, A. (2005, May 16). Breaking: LucasArts leaves the ESA [update]. *Joystiq*. Retrieved December 16, 2008, from <http://www.joystiq.com/2008/05/16/lucasarts-leaves-the-esa/>.
- Sliwinski, A. (2008, May 2). Breaking: Activision and Vivendi discontinue ESA membership. *Joystiq*. Retrieved from <http://www.joystiq.com/2008/05/02/breaking-activision-and-vivendi-discontinue-esa-membership/>.
- Smeaton, M., & Griffiths, M. D. (2004). Internet Gambling and Social Responsibility: An Exploratory Study. *CyberPsychology & Behavior*, 7(1), 49-57.
- Steampowered.com. (2008a). Steam Reaches 15 Million Accounts. Retrieved February 6, 2008, from <http://store.steampowered.com/news/1431/>.

- Steampowered.com. (2008b). Steamworks Development Kit Available Now. Retrieved April 30, 2008, from <http://store.steampowered.com/news/1574/>.
- Turner, N. (2008). A Comment on "Problems with the Concept of Video Game 'Addiction': Some Case Study Examples". *International Journal of Mental Health and Addiction*, 6(2), 186-190.
- Van den Eijnden, R. J. J. M., Van Rooij, A. J., & Meerkerk, G. J. (2007). *Excessief en Compulsief Internetgebruik. Een Kwalitatieve Analyse [Excessive and Compulsive Internetuse. A Qualitative Analysis]*. Factsheet, Rotterdam: IVO.
- Van Rooij, A. J., & Van den Eijnden, R. J. J. M. (2007). *Monitor Internet en Jongeren 2006 en 2007. Ontwikkelingen in Internetgebruik en de Rol van Opvoeding [Monitor Internet and Youth 2006 and 2007. Developments in Internet Use and the Role of Parenting]*. IVO Reeks, Rotterdam: IVO.
- Wan, C., & Chiou, W. (2006). Why Are Adolescents Addicted to Online Gaming? An Interview Study in Taiwan. *CyberPsychology & Behavior*, 9(6), 762-766.
- Williams, D. (2002). Structure and Competition in the U.S. Home Video Game Industry. *The International Journal on Media Management*, 4(1), 41 - 54.
- Wood, R. (2008a). A response to Blaszczynski, Griffiths and Turners' comments on the paper "Problems with the Concept of Video Game 'Addiction': Some Case Study Examples" (this issue). *International Journal of Mental Health and Addiction*, 6(2), 191-193.
- Wood, R. (2008b). Problems with the Concept of Video Game "Addiction": Some Case Study Examples. *International Journal of Mental Health and Addiction*, 6(2), 169-178.
- Wood, R. T. A., Griffiths, M. D., Chappell, D., & Davies, M. N. O. (2004). The Structural Characteristics of Video Games: A Psycho-Structural Analysis. *CyberPsychology & Behavior*, 7(1), 1-10.
- Zinberg, N. E. (1984). *Drug, Set, and Setting. The Basis for Controlled Intoxicant Use*. Yale University Press.