

Criminal and offensive behavior involving multiuser virtual worlds

Heikki Jungman



Business Information Technology

<p>Authors Heikki Jungman</p>	<p>Group BIT</p>
<p>Title Criminal and offensive behavior involving multiuser virtual worlds</p>	<p>Number of pages and appendices 78+0</p>
<p>Supervisors Anne Valsta</p>	
<p>This thesis is a study about criminal and offensive activity involving virtual worlds. It will cover cases purely taking place inside virtual worlds, as well as cases connected to them in some other way. The thesis will also discuss about the problems that current legislature and enforcement of norms have in virtual worlds, and find out solutions to those problems. An overall look on the state of virtual worlds of today is also made.</p> <p>The issues of real world are increasingly influencing virtual worlds. Among these influences are crimes and offenses connected to these synthetic worlds which have risen during the recent years, mainly because of the commodification of these worlds. For the same reason, and because of the rise of said crime, the pressure for introducing more law and control into the virtual worlds will rise. However, the current legislature is ill-suited to tackle the problems of virtual domain. There is a fear that if applied, the current legislature and control would destroy the unique aspects of virtual worlds.</p> <p>The cases where court has given sentence for crime connected to virtual world were found to be rare, but existent. Offenses where no legal action were taken, on the other hand, were much more widespread. The most common offenses and crimes seem to be connected to money; getting one's account password with one way or another to steal the virtual assets, and sell them for real-world money. Another type of offense in virtual worlds is communication tort, such as defamation. The legal status of many copyright- and trademarks violations in Second Life, and selling of assets accumulated in massively multiplayer online role-playing games with real-world money is under debate, and unclear at the moment. To prevent the offensive- and criminal activities discussed, two suggested solutions are presented in the thesis.</p> <p>The research was mainly study of written sources, but two interviews and a survey was also conducted for the thesis. The survey was carried out purely inside Second Life. This thesis also discusses experiences about the survey, which can be useful for anyone planning to conduct research purely inside virtual worlds.</p> <p>The scope of the thesis is limited to multiuser virtual worlds that are operated in the internet, for example Second Life and World of Warcraft. Small scale multiplayer computer games, chat's, IRC, social networking websites or blogs are not discussed. Also excluded are traditional forms of computer crimes, instead the thesis concentrates to special aspects of crimes involving virtual worlds.</p>	
<p>Key words virtual world, virtual crime, computer crime, Second Life, MMORPG</p>	

Table of contents

1	Terms and abbreviations.....	1
1.1	Discussion of the key terms of the thesis.....	3
2	Introduction.....	5
2.1	Background of the research.....	6
2.2	Objectives and research questions of the thesis	7
2.3	Scope of the thesis	8
3	Earlier studies of Virtual Worlds.....	9
3.1	Literary and studies	9
3.2	Electronic sources	10
3.3	Authors background with the phenomenon.....	10
4	Study methods.....	12
4.1	Research of literary and electronic sources	12
4.2	Survey.....	12
4.3	Interviews	14
5	Understanding Virtual worlds of past, today and future.....	16
5.1	A short history of the virtual worlds	16
5.2	Practical uses for the virtual world technology.....	19
5.3	Large commercial worlds	22
5.3.1	Lure of virtual worlds; endless play and social interaction.....	22
5.3.2	Economy	25
5.3.3	Business models.....	26
5.3.4	Technology and its limitations.....	27
5.4	Future of the virtual worlds	29
6	Crime involving the virtual worlds.....	32
6.1	The reasons behind crime involving virtual world.....	32
6.2	Example cases.....	34
6.2.1	Gold farming.....	34
6.2.2	Mr. Bungle.....	37
6.2.3	Corrupted blood disease.....	41
6.3	Other crimes and offenses involving virtual worlds	43
6.3.1	Stealing of virtual property and assets.....	44

6.3.2	Identity crime, embezzlement and extortion.....	45
6.3.3	Defamation.....	46
6.3.4	Copyright and trademark violations	46
6.3.5	Virtual worlds as a tools for terrorist	47
7	Virtual worlds, governments and the law.....	49
7.1	The current involvement of the states in virtual worlds	49
7.2	Problems of law and virtual offenses	50
7.3	Different approaches to introducing more law in virtual worlds.....	51
7.3.1	End user licence agreement	51
7.3.2	Act of interration.....	51
7.3.3	Control by community	53
8	Results and conclusions	56
8.1	Results and analysis of the survey.....	56
8.1.1	General notes from the answers	56
8.1.2	Results	57
8.1.3	Experiences from conducting the survey	59
8.2	Conclusions from the research.....	61
8.3	Summary and Recommendations	63
9	Bibliography.....	66
9.1	Literary sources.....	66
9.2	Electronic sources	67
9.3	Interviews and presentations	73

1 Terms and abbreviations

2-d -Two dimensional. In the thesis this term is used to refer to the technique used in computer graphics, where objects are constructed on two planes, X and Y (PC magazine Encyclopedia.)

3-d -Three dimensional. In the thesis this term is used to refer to the technique used in computer graphics, where objects are constructed on three planes, X, Y and Z. This allows more realistic simulation of real-world, than two dimensional graphics (PC magazine Encyclopedia.)

Avatar – An identity that participant of virtual world, game, chat, instant message etc. selects or creates to represent him/her. An avatar can be a textual description, graphical representation or combination of both, but not only name. Sometimes avatar is also referred as character.

Expansion pack – A small amount of officially published extra content to a video game, usually the customer has to pay for this extra content even though he had already purchased the original game.

Blade server – An architecture where multiple server modules are inside single chassis. (PC magazine Encyclopedia.)

Bot – An automated program, agent or macro. In this thesis the term is used to describe automated avatars.

Community – Community in this thesis is understood as virtual community; a group of people, who communicate, socialize and interact with same medium, in this case in same virtual world. These communities further include sub-communities, which are formed by group of people sharing similar interests. For example the users of Second Life form a virtual community, but there is also a community of those who role-play inside Second Life. Further, there might be community of people, who role-play certain game in Second Life.

EULA – End user license agreement. A document written by developer of virtual world that states the legal position of different parties of virtual world. Often user is required to press

“agree” -button to continue with installation of the software, or when one tries to log in to the world. (PC magazine Encyclopedia.)

Gold farming – A term that is widely used to describe activity where one masses game currency by repeating simple task. Gold farming is part of game play of many MMORPG -games. Persons, who do this activity for real world profit, are called Gold farmers.

Griefing – A term used in multiplayer computer- and video games to describe activity where someone is intentionally trying to harass others in order to ruin their game.

Guild – a term often used in MMORPG games to describe a group of people who have formed an long lasting alliance, or just play together for fun. In some games this is also called a clan.

Lag – a term that is used to describe instances where computer program responds to human input with delay or freezes for a long time. Lag can be caused by many things from insufficient processing power or -memory to problems in the network or servers. In virtual worlds lag is often caused by the delay between the client software and server.

Magic circle – In modern game studies this term is often used to describe the line dividing normal world and game space.

MMO -Massively multiplayer online. A game that is played by dozens-, hundreds- or thousands people over the internet. Although players join in the game and log out all the time, the game world is permanent and the game is running all the time. (PC magazine Encyclopedia.)

MMORPG -massively multiplayer online role-playing game. A role-playing game played by dozens, hundreds or thousands players over the internet. In these games people join in the game at different times, take roles and leave as they wish, but the game world is permanent and the game is running all the time. MMORPG's are not static but the world changes over time by the actions of developers and game-players. MMORPG's are considered to be part of MMO -genre of games. (PC magazine Encyclopedia.)

MUD – multi-user dungeon, multi-user domain. A computer program, often run over the internet, that allows users to interact with the world and with each other. (PC magazine Encyclopedia.)

Npc -non-player-character. Character in a computer game that is not controlled by players, but instead by scripts or artificial intelligent. (Allbusiness.com Business Glossary)

Patch – A small update to the program to fix an error or to add a new feature.

Party – In MMORPG -games party is a small group of people, usually 2 to 5, joined together temporarily, usually to overcome a tough foe or challenge.

Raid – In MMORPG -games raid is a dozens or hundreds of people joined together temporarily, usually to overcome a tough foe or challenge or to attack somewhere with coordinated force.

Sim – In Second Life sim is a term used for a region in the world.

Social space, social world -In this thesis this term is used to describe virtual world which is not primarily a game world, but world dedicated to social interaction and/or creativity, and in some cases also to business.

Teleport – In virtual worlds teleporting is activity where avatar instantly travels from one place to another. Teleporting might be restricted to certain avatars, be possible only by some items or places in the world or, like in Second Life, possible to do by anyone.

Wizard – In some virtual worlds, especially MUD's, wizards is an avatar with god-like powers. Often wizards are administrators of the world or designer of the world. In some MUD's it's possible to become Wizard by playing the game enough.

1.1 Discussion of the key terms of the thesis

Here a short explanation of the key terms presented in the title of this thesis will be discussed. For this purpose the title will be broken to parts, and each will be viewed in separate paragraph. This will provide reader a better understanding of the key concept that are handled in

this research. Some of these terms may have many different definitions and uses. Here the definitions will be given, as they are understood and used for the purpose of this thesis.

Criminal and offensive behavior

The adjective “criminal” is described by Princeton University WordNet (WordNet 2009) as “Involving or being or having the nature of a crime.” The term is used with such function in this thesis. Because this would imply that thesis handles only cases where law is broken, which is not always the case, a second adjective “offensive” was added to the title. WordNet gives following description of the term: “Causing anger or annoyance.” (WordNet 2009.) This means, that thesis also covers cases where the activity of individual or group of people may not be considered criminal by law, but is seen as abusive or harmful behavior by the victim and notable part of virtual world community. Because offenses in virtual worlds are rarely taken to the real-world court, and because the governments have minimalistic, if any, law enforcement inside virtual worlds, this addition is necessary.

Involving

It is important to note, that the word here is “involving,” not “in.” This means, that this thesis is not constrained to the cases that are taking place purely inside virtual worlds between avatars. It also includes cases where the crime or offense is somehow connected to the virtual world. In these cases the virtual world either acts as a motive or as a tool for the offense.

Multiuser virtual worlds

The term “virtual world” has been suggested to cover anything from theater plays to operating systems to multiplayer games. In my thesis it is considered to describe a computer generated representation of world, with its own rules and laws of physics, although they might be modeled from real physical world, populated by users who can interact with other users and the world. Such virtual worlds are for example social spaces such as Second life or There, massively multiplayer online games such as World of Warcraft or Ultima Online and MUD's (multi-user dungeons) like DragonMUD or LambdaMOO. The virtual world doesn't necessary have to be three dimensional, or have any graphical presentation at all. The term “multiuser” delimits the scope of the thesis; virtual worlds that are only for single user are left out of thesis.

2 Introduction

Virtual worlds are often perceived as just games. It is true that many of the worlds are pure game spaces, synthetic worlds dedicated to play, or otherwise contain game-like elements. However, over the years virtual worlds have grown to become spaces with sides other than just play and fun; the real world has increasingly started to influence virtual domain, whether the stakeholders of these worlds want it or not. In turn virtual worlds are beginning to have influence to real world, as more and more people invest growing amount of time and money to them.

The influence of real world in virtual worlds can be seen in many things, in good and in bad. The biggest impact probably is the commodification of virtual worlds; virtual property has monetary value in real world. The users of virtual worlds also many times have a strong mental bond to their virtual lives. These facts lure other parts of real world in, including the dubious and criminal.

The presence of unlawful acts involving virtual worlds is widely reported fact, as can be seen later in this thesis, but the law is not yet ready to tackle the problems. Many of the legal problems connected to virtual worlds remain unsolved, norms and laws of virtual worlds undefined. It is as with internet, but with virtual worlds governments and organisations are even slower with their actions. Eventually, however, the governments and law will start to make presence in virtual domain.

This thesis is about three main topics; about the virtual worlds in general, the crime and offences in these worlds and about the challenges faced when more law and control is introduced to virtual domain in an attempt to fight this crime. The thesis consist of three parts; first part covers chapters 1, 2, 3 and 4 and introduces the topic in addition to giving background about the research; its reasoning, goals and methods. Second part is the theoretical research of the subject. Here an overall look to the virtual worlds will be had in chapter 5. In chapter 6 an example cases of crimes and offenses involving virtual worlds will be presented and discussed. In chapter 7 a look for the problems that current legislature have with offenses in virtual worlds is provided, as well as discussion how these problems could be solved. The third part includes chapter 8, and present results of the survey conducted for this thesis as well as conclusion and recommendations from the research.

In this document I introduce a lot of claims and facts from the written sources, as well as from the interviews and survey. I will comment and analyze these findings along the way. In the results chapter I will mainly only gather the most important points and revise them. Because of this structure of the thesis it is recommended, that reader will go through each chapter in order. However, if the content seems very familiar or not interesting, one can jump to the next main chapter.

In the thesis I have used two virtual worlds, World of Warcraft and Second Life, as common examples to represent two different kind of virtual worlds; World of Warcraft is a MMORPG (massively multiplayer online role-playing game,) while Second Life is a social space. I will mention other worlds as well, when required because of some special characteristic of them, or when some especially interesting case is connected to them but these two worlds will be used as main examples.

2.1 Background of the research

During the last decade virtual worlds have become more and more important part of the entertainment industry and their use for other purposes are increasing as well. Their popularity has been in steady rise ever since introduced first time commercially. Now their users are counted in tens of millions. As their popularity keeps rising they will increasingly affect the society and real world we live in. Trends and incidents inside virtual worlds will have effects also to real world. This means that, sooner or later people, organisations and even governments, who aren't interested about virtual worlds, can't totally ignore the trends and phenomena's connected to them.

A reader of this thesis might sometimes think that I personally have a very negative attitude towards virtual worlds, because of the negative topic of the thesis. I do not however. I think that virtual worlds are marvelous result from long-lasting evolvement of computer technology. And I think that they offer great possibilities for social interaction, research, rehabilitation, commerce, entertainment and more. Maybe the greatest aspects of them is the fact, that in some way they allow people to realize their dreams; to do something they cannot do in their real life. But I am not as naïve as to think that virtual worlds would be perfect places without their problems. Because every time one logs in to the virtual world one brings with him a piece of real world to the virtual domain. The challenge that we face now is how to keep the negative aspects of these worlds as minimal as possible without destroying the great unique

qualities of them. From many different aspects of virtual worlds I selected the criminal, offensive and unethical as a topic for my thesis, not because I wanted to scare people not to use virtual worlds. I selected it because I wanted to find out how we can overcome this challenge.

2.2 Objectives and research questions of the thesis

On the very basic level the main objective of this thesis is to help people, including myself, to better understand virtual worlds. The thesis can be used by those not yet familiar with virtual worlds to learn about them, and hopefully to try them out themselves, especially before giving them their own final opinion. The people already more acquainted with the subject can use this thesis to gain more broaden insight into the field, whether they agree with my conclusions or not.

I wanted to find out what kind of possibly criminal or dubious activity there is connected to virtual worlds, and how people, communities and governments should act to prevent such activity. I understand that many of the topics I cover in this thesis are in the so called gray area; some people may consider certain activities criminal, dubious or unethical, while some do not. This is another challenge for this study.

To find answers to these questions I come up with the following, more precise research questions:

- How are virtual worlds used today and how they are possibly going to be used in the future?
- What kind of crimes and offenses there has been connected to the virtual worlds, and what kind of crimes there will potentially be in future in the virtual worlds?
- How should real-world society and virtual communities respond to these crimes?

The first question is a general mapping of the whole research area. As the thesis scope is quite big it is important that reader can fully understand the whole area before delving deeper in to the problems of the research. Especially important is to understand the difference between various types of virtual worlds and the special characteristic of each one. For this reason different uses for virtual world technology, as well as the common uses for the most popular worlds will be covered. The answer to this research question is particularly useful for those who are not very familiar with virtual worlds as it helps them to understand these worlds better.

The second question tries to find as diverse range of cases as possible, that could be considered criminal. Known cases will be discussed, as well as theoretical crimes and offenses. In part of answering this question I also try to find out how common possible offenses might be, and discuss whether or not they actually are considered criminal by the community of the world in question.

In third question I try to find an answer to what should be done, if any, to prevent the crimes connected to virtual worlds. Who are the right parties for taking care of reducing offenses? And most important of all, how this could be done without affecting damage to the unique characteristics of virtual worlds?

2.3 Scope of the thesis

Although I consider normal computer games, like for example Counter Strike or Grand Theft Auto to be in way virtual worlds, they are left out of this thesis to keep the research scope manageable. Neither does this thesis cover different kind of chat's, IRC and e.g. social networking websites nor blogs which are not considered to be inside the term of virtual worlds as it was defined earlier. The thesis will be concentrating to special characteristics of crimes in Virtual worlds and not to a more traditional computer crime, which I feel is a lot more thoroughly studied and familiar to people.

This thesis will not discuss about the reasons behind virtual crimes at length. Although some general reasons are considered in the chapter 6.1, no psychological reasons for offenses or profiles of offenders are provided.

3 Earlier studies of Virtual Worlds

3.1 Literary and studies

During this decade, as the popularity of virtual worlds have risen, so too have writing about them. The quality of these texts varies, but good quality studies, essays and books concerning the topic certainly exist. When the gaming aspect of virtual worlds is concerned a studies in Ludology can be found very useful. Although a new and still fairly unestablished study area, there are many great books and studies published. Some examples of these published in Finland include Markku Eskelinen's report "Pelit ja pelitutkimus luovassa taloudessa" [Games and game-research in creative economy], which I found very useful for the purpose of this thesis, and "Mario-Sofia. Elektronisten pelien kulttuuri" [Mario-Sofia. The culture of electronic gaming,] which include writings of varying quality from different writers.

The cultures of other phenomena's of internet and network society that are connected to virtual worlds have also been studied extensively, since late 1980s. For example "Virtual Culture. Identity & Communication in Cybersociety" -contains quality writings mainly about the network communities from the nineties. Another example of general writings of varying grade is "Johdatus digitaaliseen kulttuuriin" [Introduction to the digital culture.]

When going from general writing of the network culture to the more specialized area of virtual worlds the amount of writings decreases. Still a number of scholars and writers are specialized in this area. One of such writer, and one that seems to be quoted most often in media, is Edward Castronova, who has been intensively interested about the economical aspect of virtual worlds, especially MMORPG -games. Although his writing seems to be overall good quality, his views tends to be quite exaggerated and popularized, as in his book "Exodus to the Virtual World" where he suggest that all aspects of modern society should in fact be remodeled after societies of virtual worlds. His writing style maybe also explains the interest of media. Nevertheless, his studies and work on the field are important and very intriguing for anyone interested about the subject, and contains wealth of knowledge if read carefully.

Other well established writers on the field include Richard A. Bartle and Raph Koster, both former game designers, and Julian Dibbell whose "Play money: How I quit my dayjob and made millions trading virtual loot" is considered a classic on the field, despite its corny name. Unfortunately the book was not available during writing of this thesis.

From Second Life itself a myriad of books has been written, but almost all of these are guides of how to enjoy the world, or more often, how to make money in it. Although such books can be used to check specific facts about the virtual world they cannot be considered scientific writing. One exception is "Virtual law: Navigating the Legal Landscape of Virtual Worlds" -by Benjamin Duranske. The book was not available for me during the writing of this thesis, so I cannot comment about its quality.

Featuring many of the aforementioned writers and scholars, a "State of Play" -conference have been held six times since 2003. It was specifically started for discussion about virtual world's intersection with the law. The high quality writings created from the presentations of the conferences was a gold mine for my thesis.

3.2 Electronic sources

The internet is of course full of writings, articles, news and blogs about virtual worlds. Although I have used news stories and articles quite a lot in this thesis, the reader should be aware of the sensational way things concerning virtual worlds are often handled in news. For example, the deletions of one's avatar can become "virtual murder" in news stories. But if looked with proper experience with the worlds that the news stories are handling, there is useful insight to be gained from them.

Blogs are even more doubtful source of information for this study, as they often contain opinions and rumors, but in few cases the only source I could find. I was quite surprised how hard it is to find information about Second Life outside blogs and Linden Lab's official pages. So some information in the thesis is based on these, a fact that reader should realize. Also, I couldn't find good, reliable sources concerning history of Second Life. For this reason the part of the thesis that is discussing this topic is the only one that is based on Wiki article. There are good sources in the internet too, however. For example the Daedalus project, which was a long running study of online game players by Nick Yee, is excellent collection of studies.

3.3 Authors background with the phenomenon

My own experience in the area comes from the long interest of computers and computer games, which I consider to be Virtual Worlds of their own. I started my hobby with comput-

ers before going to school and have been playing computer games and following phenomena's connected to them regularly ever since. The first experiences with the massively multiplayer worlds, that this thesis covers, I had early in this decade with free massively multilayer online games such as The Fourth Coming and Ashen Empires. The world I have most experience is World of Warcraft which I played some three years.

During the recent years I have crown more interested about the phenomena's around games and gaming, more than the games themselves, as well as culture and phenomena's of internet, its different communities and computers in general. For this reason I believe that I have acquired the necessary distance to these worlds to achieve objective view for this research. This will be research done more by an ex-gamer than hardcore gamer.

From Second Life, which is the other virtual world used as a major study subject in this thesis I had little experience beforehand. Fortunately! I think that getting to know another virtual world thoroughly, beside World of Warcraft, would diminish one's real life to nonexistent. Certain inexperience that I have concerning practical things about Second Life can maybe be seen by more experienced Second Lifer's, but on the other hand, this gives me an objective view to the world and its culture.

Another area concerning this thesis, that I have very little experience is law. I have not studied law, and so in this thesis, in such occasions where legal matters are discussed I will fully rely on the writings of others more experienced in that field.

4 Study methods

During my research I of course spent some time in two of the virtual worlds that I use as a main example in the thesis; World of Warcraft and Second Life. This was done to get more firsthand experience of them and in hope to get affirmation to some claims of written and electronic sources. In addition to this observational method, other approaches to get more reliable information were used, including literary research, survey and interviews. In this chapter a detailed description of those methods will be given.

4.1 Research of literary and electronic sources

A big part of the thesis research was study of written sources, because of the nature of the thesis scope; report like structure of especially chapters 5 and 6 needed extensive research of this type. As a foundation for every chapter a study of what has already been written of the topic was done. Apart from literary a large amount of electronic sources were used; due to the novel nature of many phenomena's discussed in this thesis I could only find electronic sources of them. Chapter 5 and 6 could be completed mostly with the written sources, while in chapter 7 and 8 I had a more use for interviews and survey.

The written sources were used to answer research question 1. They also provided almost all of the cases handled in answering research question 2. However, the literary sources alone didn't give satisfactory answers to all research questions. Especially with research question 2 I was interested of how common the crimes and offenses found in the texts really were, something that was very hard to tell. To found out this was one of the main goals of the survey discussed in chapter 4.2. For research question 3 literary were important- but not extensive source. Although necessary for this thesis, the written sources didn't handle everything I considered essential; the survey and interviews revealed several things I would had missed altogether.

4.2 Survey

For the thesis a survey was conducted, with two aims. Firstly to support the written sources, and to find out answers to some questions that I could not find answers elsewhere. Second goal was to test, and get experience of conducting research fully inside virtual world. I wanted to see what would be the advantages and disadvantages of this approach compared to more traditional ways to conduct a survey, for example in street, by e-mail or in message boards.

The survey was conducted inside Second Life and an avatar especially for this purpose was created. The interviewees were selected purely by chance much the same way the people are selected in normal street surveys; I approached avatars that happened to be at the same place as my avatar was with the questions.

It is probable that people sharing same kind of views are hanging around in same areas. For example the avatars in “Newbie Island” will most probable contain users that are new to Second life, EduFinland Island will have users interested or linked to Finnish universities and schools and so on. To counter this homogenization of interviewees I tried to travel as much as possible in Second Life and interviewed avatars in as different areas as possible. To save time I had the questions of the interview ready in a text document from where I pasted them to Second Life. I approached avatars in instant message window in Second Life to keep the interview private and easily manageable. The survey was left to be quite short on purpose, so that it only would took couple of minutes to conduct it. This way, I hoped that even the busiest of avatars would have time to answer all of the questions.

I was also interested to hear people's opinions about Second Life and virtual worlds in general, so after my short questionnaire, if people wanted to chat with me about these issues I encouraged them to do so, and had conversations with them. Because of this I received interesting views which proved to be very useful for my study.

Here the structure of the survey will be presented, with short explanations. The results of the survey, critical analysis of it, as well as my experiences of conducting it will be represented in chapter 8.1.

Background variables, which I recorded:

- Area in Second Life, and short description of the area.
- Is the avatar male, female or creature.
- Time of the interview.

Questions:

- What country are you from? -This question was a background variable. By asking this question I got to know where interviewee was located, and also what was their local time when they answered. I wanted to know their time and location, because I was

interested to find out if there was some possible correlation between the time interviewee was online and his/her answers. For example, would avatars that are online late at evening notice more questionable actions in virtual worlds.

- How long have you been in Second Life? -Another background variable. The reason for this question was much the same as in previous question. With this question I would find out, for example, if long experience with virtual worlds has made the user to stumble to some questionable actions in virtual worlds. The time when the avatar is created can be seen in his profile, but it is possible that the avatar I interviewed was not the person's first one. By asking this question I hoped to find out the real time the person behind the avatar had been in Second Life.
- What are you now doing/planning to do in Second Life? -With this question I wanted to map how people use second life. I hoped to get some support to research question 1 with this question.
- Why did you decided to get familiar with virtual worlds originally? -This was also to support research question 1. I hoped to find out what seems to be the most common reason why people go online into the virtual worlds in the first place.
- In Second Life, or in any other virtual world, have you stumbled upon activity that you consider criminal, dubious or unethical? -I asked this question to have an idea of how common it is to stumble upon questionable activity in virtual worlds. Something that was hard to find in written sources. I deliberately asked about other virtual worlds than second life too, because my thesis also covers other worlds. I hoped that this would help me with research question 2.
- Do you think that more enforcement of laws and norms are needed in virtual worlds? If yes, which is the right party for this task (for example; the operators of the worlds, users, governments...)? -This question was designed to help me with research question 3. Again I purposely asked about all virtual worlds, not just Second Life, because I was also interested if avatars want to make difference between different virtual worlds.
- Any comments about Second Life, virtual worlds or this questionnaire in general? -In my last question I hope to get some good thoughts about my thesis subject in general. And maybe some feedback about the questionnaire.

4.3 Interviews

For the thesis an interview of Marylka Yoe Uusisaari was conducted. Yoe Uusisaari is a Doctor of neurophysiology and one of the authors of book "Nettielämää. Sosiaalisen median maa-

ilmat” [Net life. Worlds of social media] (BTJ Kustannus 2009.) Interview was conducted and recorded by using Skype. My hope was that this interview would provide me additional points to the research question 1, to complement the written sources. I also wished to get more cases for research question 2. Finally, and most importantly, I wanted to get a view to the problem presented in research question 3 about controlling the virtual worlds. Questions were not provided beforehand, but Marylka Yoe Uusisaari was more than capable of giving her views about them. Although she felt that many things discussed in the interview are just speculation or visions, not tangible information based on facts or figures.

To get a view of organisations that want to make a presence in the Second Life another interview was conducted of Päivi Karvanen and Markku Ruottinen, who are responsible for a project to build a presence for HAAGA-HELIA in Second Life. They were interviewed in the premises of HAAGA-HELIA. Although questions weren't provided beforehand to the interviewees they were able to answer questions very well. Markku Ruottinen was well aware of the practical side of Second Life, while Päivi Karvanen provided information from the perspective of HAAGA-HELIA expectations and feels for the project.

The interview of Marylka Yoe Uusisaari was successful at meeting its goals. I received some new views to research question 1 concerning educational use of virtual worlds, and their future. I also found out about a case in Second Life that I had otherwise missed that is described in Chapter 6.3.4. One of the most important results of the interview was the concept of control by community, discussed in chapter 7.3.3, that I had heard earlier but would have missed in this thesis without the interview.

The second interview also provided a lot of useful knowledge, about the organisations point of view of Second Life. Unfortunately because of time and space constraints these things are not handled in this thesis. Nevertheless some facts learned from this interview could be used in the thesis as a further source. In addition the interview, as well as the one conducted to Marylka Yoe Uusisaari, also revealed a lot of general information about Second Life, that is utilized throughout this thesis.

In the interviews mainly opinions were asked, not hard facts. This means, that the answers are very reliable, but one should remember that as opinions they aren't the absolute truth. The facts that were acquired on the other hand were mainly about Second Life, of which there was a knowledgeable person in both interviews.

5 Understanding Virtual worlds of past, today and future

5.1 A short history of the virtual worlds

The history of the virtual worlds is tightly linked with the evolving of computers and especially digital games. The close relationship with digital games originates from the fact that many virtual worlds are in fact computer games or have at least some kind of activity resembling computer games. Even virtual worlds with strict practical use, such as military and civilian simulators, educational worlds or worlds created for scientific research have been often constructed using technology developed and lessons learned from video games.

The first virtual world is generally considered to be MUD1, developed at Essex University by Roy Trubshaw and Richard Bartle in 1978 (Kangas 2000, 147.) MUD1, which was at the time called just MUD (multi-user dungeon) was a follow-up on the evolvement of text-based single-player computer games, which enjoyed popularity in the 1970s. These were adventure games where the world was described to the player textually and the interaction with the world was done by giving commands in text form, much like using command prompts of operating systems. MUD1 adopted these characteristics from its predecessors and added many features that are norms today in virtual worlds, such as support for multiple users, player avatars, endless play without winning- or losing goals and evolving and changing world. Though the player base of the MUD1 was relatively small when compared to modern virtual worlds, its creators ran into same problems that still plague virtual worlds today, including player harassment and anti-social behavior (Bartle 2006, 34-37).

MUD1 started a new genre of computer games which is now referred to as simply MUD. These games flourished during eighties and commercial MUD's were still operating in nineties. MUD1 was closed in 1999 by its owner CompuServe, but a modern port of the game can still be played at www.british-legends.com. (British Legends, 2009.) MUD's are still played and developed today and many of the today's MUD's are open-source projects with small but devoted player-base.

As stated above MUD's don't feature any graphics as everything, including other avatars, environments, items and npc's (Non-Player Character) are described textually to players. The development of computer graphics made its impact also to the virtual worlds. First virtual worlds using 2-d (two dimensional) graphics were introduced in the eighties. During this time

was also released one of the earliest examples of the modern graphical virtual worlds, Habitat. Habitat was introduced by Lucasarts in 1985, known as Lucasfilm games back then (Damer 2001a.) It included 2-d graphics and graphical avatar interaction by using speech bubbles. (Gregory & Hunter 2006, 21-22) Because of its advanced features and the fact that Habitat was not a game world, Habitat can be considered early predecessor of Second Life type social virtual world. An example of interaction that Habitat offered is presented in figure 2.

Toward the end of the nineties virtual worlds saw wide commercialization. Although not the first commercial virtual world Ultima Online, released in 1997, was the first big commercial success. It also developed the MMORPG genre and virtual worlds by experimenting and developing many of the rules, conventions and concepts that virtual world developers implement today (Damer 2001b).

Ultima Online was still based on 2-d graphics. The first commercially successful virtual world implemented using 3-d (three dimensional) graphics was EverQuest, released in 1999 by Sony Online Entertainment. EverQuest, also a MMORPG game, quickly became very popular and 15 expansion packs and sequel, EverQuest 2, have been made for the brand. (IGN, 2009.) EverQuest was a norm in early 2000 to which all other MMORPG's were compared.

In 2004 Blizzard Entertainment launched its virtual world World of Warcraft, which followed in the footsteps of Ultima Online, Everquest and many others in being MMORPG with Tolkienesque fantasy setting (Blizzard Entertainment 2008.) However, Blizzard Entertainment made their world more appealing to casual gamers with not so much available play time, while at the same time awarding to players spending vast amount of time in the game. World of Warcraft has become the most successful MMORPG to date, and have more than 10 million paying subscribers worldwide (Kotilainen 2008.) A screenshot of World of Warcraft comparing it to its predecessors can be seen in figure 1.



Figure 1. Three generations of game-space virtual world visual presentations. From left to right: MUD1, Ultima Online and World of Warcraft. (MMORPG.com 2009)

In 2003 a virtual world Second Life was released. The virtual world, which has been in development since 2001 by company Linden Lab, was the brainchild of Philip Rosendale who wanted to develop a 3-d virtual world which would allow user-made content. When it was first released Second Life didn't support the attributes that define it today; for example, there was no support for worlds own currency. Over the years Second Life evolved little by little to a many-sided world it is today, gaining popularity along the way. When mainstream media started to take notice about the business aspects of the world its user base raised to new heights. (PC magazine encyclopedia; Second Life Wiki 2009.) The current user base of Second Life is very hard to estimate and has been under debate for years. According to Linden Lab's provided data the most concurrent users in the first quarter of 2009 was 88,200 (Linden Lab 2009.) By using this figure and method described by Cnet News (Terdiman 2007) a rough calculation of 880000 as an active user base for Second Life can be made.



Figure 2. Two examples of social worlds; Habitat and Second Life (Gamasutra 2009)

Entertaining worlds have been dominant in the evolution of virtual worlds, but other new concepts for the usage of worlds have also appeared now and then. Good examples of these pioneering attempts to utilize the possibilities of virtual worlds are virtual city projects conducted in 1990s and early 2000. In Finland alone there were many such projects, for example virtual Turku project by Auria, launched in 2000 (Suvanto 2002, 45.) These worlds usually had financial problems and relatively short age because the development of such worlds is expensive and the user base is quite low. More so because during the change of the century the 3-d virtual worlds still had a lot more technical problems than today. Today most of the services planned for these virtual cities are found in different internet services and downloadable programs such as Google maps, Google earth and Facebook. (Suvanto 2002, 41-49.) It is also not cost effective for small to midsize companies and organizations to construct their own 3-d engines because big commercial virtual worlds like Second Life already offer all the necessary tools to create virtual spaces for these organisations, in addition to large user base of ready made world. The price of buying land for your organisation in Second Life is only a tiny fraction of development costs of building your own world.

Today the computers have become powerful enough and sufficient number of people own broadband internet connection that full 3-d virtual worlds can be ran in most middle- to high-end home computers. It is not necessary to have high tech gaming PC to enjoy the advanced features of the virtual worlds anymore. Many of the companies designing virtual worlds have also understood that the design of the world should be such that people should not necessarily need to invest huge amounts of time to these worlds to enjoy them. These facts and the thing, that the virtual worlds are becoming increasingly available to modern gaming consoles will only raise the potential user-base of the virtual worlds and will probably mean that utilization of virtual worlds also broadens more from entertainment use, for example to education and advertisement, which is still quite rare at the moment (Nichols, Farrand, Rowley & Avery 2006, 74.) Though worlds created for entertainment purposes are probably going to keep their position as largest and most popular virtual worlds for a long time.

5.2 Practical uses for the virtual world technology

During this decade, advertising in virtual worlds have become more and more appealing to companies and organisations. Because MMO (Massively Multiplayer Online) type worlds often thrive to preserve the fantasy or futuristic theme, the developers of these worlds have not opened doors for the outside advertisement. This doesn't mean that the licenses of the worlds

wouldn't get exploited by the companies however; for World of Warcraft alone there is dozens, if not hundreds merchandises; books, comics, board- and card games, action figures, clothing and even movie in the planning. The social spaces on the other hand welcome companies in their worlds, and areas like Coca Cola Island and avatars wearing Reebok shoes are not an uncommon sight. Virtual worlds could be also valuable for real-life companies as a market research tool, as noted by one avatar in the survey conducted for this thesis. Public enthusiasm for new product could be tested in Second Life with very low costs.

As the companies have started to realize the potential of virtual worlds for advertisement so too, slowly, politicians have started to make use of the worlds in their campaigning. Virtual worlds are after all a good way to reach otherwise inactive young voters. Markku Eskelinen forecasts in his report about gaming industry, that the use of games in politics will raise (Eskelinen 2005, 99-101.) In May 2009 member of the Finnish Parliament Jyrki J. Kasvi held a speech in Second Life as a part of his election campaign for European Parliament (figure 3.) According to the organizers the event was first of its kind in Finland and gathered a biggest crowd for the Kasvi in campaign so far (Kasvi, 2009.) As this single instance demonstrates, the virtual worlds can be well chosen tools in this area.



Figure 3. Political campaigning in Second Life

Other practical uses for virtual worlds have been for a long time simulators both civilian and military. Even though rarely supporting large numbers of simultaneous users, often just one, these simulators thrive to portray their environment as realistically as it is possible using the current technology and as such are close relatives of computer games and are often considered to be virtual worlds. The armed forces of different countries are also known to develop and use simulator which support large number of users at the same time. These simulators are in a way virtual worlds constructed for the purpose of training military operations. (Strickland.)

Virtual worlds have also been harnessed for the use of study and education, although worlds constructed for this purposes have only been conceptual and not widely used. The problems of education use of virtual worlds have been the same that have reduced the use of virtual worlds for other than high-end gaming entertainment; the high costs of building and maintaining your world and the big investment for computer technology needed by the users. The potential of virtual world technology for study purposes is huge, from teaching history to children with the same medium they spent their free time, to education of medicine students with a graphical 3-d presentation of human body. Lately many universities and colleges have started to explore the possibilities of ready made commercial virtual worlds for education. For example the Harvard Law School has had courses in Second Life. In Finland eOppimiskeskus (eLearning centre) have their own area in Second Life, from which they rent space for the Finnish schools, colleges and universities. (Koskela, 2009.) According to Marylka Yoe Uusisaari (Yoe Uusisaari, M. 4.8.2009,) one important advantage of 3-d presentation of virtual worlds in educational use is the fact that it makes the distance learning experience more social. People tend to consider 3-d classroom, where they can see each other's avatars more social and life-like, than the traditional 2-d e-learning solutions.

Lastly, the virtual worlds have been found to be useful for the research purposes as they allow an easily controlled closed environment for the research, including the existing ready made worlds. For example, some researchers in U.S. have suggested that World of Warcraft could be used to study the behaviors of terrorist. The game has been already harnessed to study the spreading of contagious diseases. (Thier, 2008). The sociologists also see a possibility to study human behavior in virtual worlds and of course the manners of people when inside these worlds, which often differs from real world behavior. One should be skeptical for such projects however, as there are problems for using large commercial worlds like World of Warcraft and Second Life for research. The problems rise from the fact that the people inside the worlds have often acquired role and identity differing from their real world personalities and

often act quite differently, many times downright irrationally, compared to real world behavior. Any scientist considering doing serious research using virtual worlds as a tool have to consider this fact and how to overcome it.

5.3 Large commercial worlds

Since the majority of the crimes and offences that are discussed in this thesis are conducted in commercial worlds developed for entertainment purposes the reader should first understand some of the special characteristics of these worlds, as well as the technology behind them. For this purpose a discussion of these worlds follows.

The numbers of entertaining virtual worlds are many, most of the worlds with some unique characteristics and great number of similarities with each other. Though the worlds can be categorized with many different ways, the most important thing to consider is the difference of MMO -worlds and social spaces. Although both these worlds share the same goal of entertaining people their means of doing it is very different, and in many cases also the desires of the typical user is quite different. The handling of crucial parts of the virtual world, like economy, player interaction, ownership right to virtual items and property, relation to the influence of outside currencies and even the business model of the company running the world are different in many ways. However, the most defining difference between the two is the play aspect. MMO -worlds are created as game spaces, meaning that they are mainly meant to be played as games. The social worlds in the other hand are just that; places mainly for social interaction, hanging out, creativity and in some cases also doing business. Almost all of the entertaining virtual worlds can be categorized this way, either to MMO -worlds or social spaces.

5.3.1 Lure of virtual worlds; endless play and social interaction

The MMO and MMORPG -worlds have a tight association with computer games and traditional role-playing games, especially “Dungeon and Dragons” -game, which itself had a big influence from the J.R.R Tolkien's Middle Earth (Gregory & Hunter 2006, 17-19.) This history reveals itself in the themes, landscapes, visuals, morals and stories of MMORPG games. Many of these games seem to be set in fantasy realization of mythical middle age world. The difference of the worlds are almost cosmetic, the land areas, cities, monsters, heroes and gods are

just named little differently. Lately there have been some variation in the themes, including science fiction worlds (Eve Online), real-world war inspired worlds (WW2 Online), super hero themed worlds (City of Heroes) and worlds licensed from other popular culture (Star Wars Galaxies, Age of Conan). But even with this small variation the majority of the worlds seem to follow the fantasy theme.

The apparent similarity of the MMORPG worlds would be in itself an interesting topic for a study, but for this thesis it is enough to note that one common characteristic exist for all of the MMORPG games, which explains also the similarity of the themes in worlds, at least partly. The MMORPG worlds allow players to take what Richard A. Bartle, citing J. Campbell, calls a hero's journey (Bartle 2006, 40-41.) The players take part into events that are described to have immense important to the npc-inhabitants of the game world. Every player starts one's avatar as a penniless beginner with lousy equipment, who has troubles fighting against small rats or crafting most simple items. Players enhance their avatar while helping the npc inhabitants of the world, most often by killing a bunch of monsters, and possibly battling against each other. Over time the avatar will gain new skills, better gear, money and wealth which help the player overcome the ever increasing challenges and harder foes. Often more important than these, and the major motivator to many people, however, is the power that the avatar gains in comparison to other players and the fame and respect earned from other players with less powerful avatar. The worlds are designed so that the players never reach the end of their journey. There is always something more powerful to gain, a status symbol to get, a quest to complete. If you don't continue enhancing your character other player's avatars will gain more power relative to yours.

The hero's journey also means that the MMORPG worlds are games with endless play. All of the players start at different times, so in a way there is no beginning to game, and no goals, which would end the play. The game world just stays there all the time, evolving and changing by player interaction. (Eskelinen 2005, 73.) And if player stays out of the world too long he/she might miss something important and definitely fall down in power structure of the world.

The MMORPG -worlds often require social interaction if one wants to develop one's avatar past a certain point, because the hardest challenges are designed to require players to form teams, often referred to as parties or raids, to overcome them. MMORPG -worlds also support forming long lasting alliances or guilds of dozens or hundreds of players. (Nichols, Far-

rand, Rowley & Avery 2006, 51.) This is an important part of the appeal of these worlds as can be seen in a study conducted by Nick Yee (2007, 1-11) as a part of Daedalus -project. His research suggest that among players of MMORPG -games the most common most memorable experience with the game was one involving goal- or achievement oriented experiences, with social relationship experiences being the second most common.

There has been a lot of discussion about the addictive nature of the virtual world, especially MMORPG's. For example, Stiftelsen ungdomsvård, a Swedish organisation offering help to those who suffer from game addictions have stated that World of Warcraft was connected to every single case they handled (Masalin, 2009.) This may seem surprising at first, but many of the regulars in virtual worlds feel that people are spending too much time in them. This can be seen well in the survey conducted for this thesis, where three people brought forth the addictive nature of the virtual worlds, even though it wasn't any way handled by survey questions.

The social spaces contains less game-like elements than MMO -games, and often doesn't include any common goals at all for the users, but they still have a world which can be explored and interacted with one way or another. Often the world is modeled in some extend after real world and offer possibilities for practical uses of the virtual environment. (Kock 2008, 3.) The main attraction of these types of worlds is the social interaction between the users and often the worlds include activities, like mini-games, for the users to try. The main reason for the people to spend time in these worlds is the new social contact they make. Usually users don't know their virtual world acquaintances in real life. Many long lasting users also acquire property in a form or another in these worlds, which makes quitting a little bit harder. Social spaces would die quickly without good tools- and interfaces for interaction with other players as it is the main goal of the worlds. Different kind of social structures, for example friendships, clubs, organisations and the like are formed in any successful social virtual world.

Many of the social worlds also offer users bigger possibility for creativity, than MMORPG worlds. This is achieved by giving users tools and instructions to create their own content into the world. The freedom to do this varies from world to world, but it seems to be important attraction to many; According to Marylka Yoe Uusisaari (Yoe Uusisaari, M. 4.8.2009,) many virtual worlds have flopped, because they didn't offer users as much freedoms to create new content, than their competitor Second Life does. This freedom to create has allowed Second Life to transform to many different uses. There is a thriving role-playing community in

Second Life, which creates their game areas, for example post-nuclear war world, and mechanics by using potential of Second Life. Other, more practical uses are discussed in chapter 5.2.

Finally, when talking about social worlds and Second Life as the most popular of them, one cannot miss the fact that they are widely used for virtual sex play. There has been virtual worlds purely created for this purpose, but also Second Life is popular for this use. The reason of Second Life's popularity among those, who wish to live their sex fantasies virtually, is the freedom it grants for users to create their own content. The strong presence of adult content has aroused discussion, indignation and a lot of media coverage for Second Life. On 2009 Linden Lab made a change to the Second Life, which hid the adult content better from the view of those who does not wish to see it; owners have to flag the zones including adult content appropriately. Access to these zones is only granted to those users who have verified their age in Second Life's web site, by using for example credit card (Karvanen, P; Ruottinen, M. 5.8.2009; Yoe Uusisaari, M. 4.8.2009; Second Life Blog. 2009.)

5.3.2 Economy

Maybe the biggest difference compared to the mediums from which MMORPG -games and social spaces have developed, for example computer games, chats and ircs, is the economy of the worlds. The worlds have their own economy which operates much the same way as the real world counterpart does: virtual worlds sees trade, markets for the property and assets, inflation, market crashes and so on (Castronova 2007, 6-14.)

In addition of having their own internal economy the virtual markets and economies also intersect with real ones: the items, assets and avatars of the virtual world have real world value because people are willing to spend real world money on them (Thompson 2004; Castronova 2007, 15; Freedman 2008, 6, 41-53). For example, when writing this at May 2009, in a Finnish auction site there was bids of 150€ made for World of Warcraft accounts with two high-level characters. The developers of the worlds have two kind of approach to this trend. One is to allow the influence of real world money in to the virtual world. For example Second Life's currency Linden dollar can be freely exchanged to dollars, and vice versa. At the time of writing one Euro was worth 315 Linden Dollars (Eldex Change, 2009.) The other approach is to try to stop all influence of real world economies to the virtual one. Blizzard Entertainment has taken this course with World of Warcraft but its success is only partial at best, because huge

black markets have emerged for the game assets and -currency in internet, as is the case with many other worlds with similar approach.

In 2005 Markku Eskelinen claimed that the value of the shadow economy of the MMO - games would be 800 million dollars (Eskelinen 2005, 95.) According to Clive Thompson, economist Edward Castronova calculated that the average EverQuest player generated in-game wealth equivalent of 3.42 U.S Dollars per hour. When he calculated the Cross National Product of EverQuest, he found out that the virtual world with the \$2.266 per capita was richer than India, Bulgaria or China. (Thompson 2004.) One should react restrainedly to such claims as virtual economies aren't easily comparable to countries' economies for numerous reasons that are not discussed here. However this knowledge can be used to understand, that the virtual world's breed markets of virtual goods. Markets that matters and have value.

Another decision that the developers have to make and one that is directly related to the one discussed in previous paragraph is whether or not the players own the right to their avatars, items they have created and to the assets they have acquired. Linden Lab states that user owned land and user created items in Second Life are really owned by users and not Linden Lab (Freedman 2008, 4.) World of Warcraft have taken the contrary position. Blizzard Entertainment clearly states that it owns all things inside the MMORPG, even though the assets may appear to be in the possession of player avatar and the player is free to do what one wants with one's property inside the game world (World of Warcraft EULA 2009.)

5.3.3 Business models

It is also worth to note, that the business models of the companies running the virtual worlds differ from each other. Almost all of the social spaces -type of worlds provide the world and basic features free of charge to the users. Companies, such as Linden Lab, earn their revenue from many different sources, all connected to their virtual world with one way to another. They might sell advertisements for companies inside the world or in their web pages. The advertisement might be anything from single billboard to branded product inside the world, such as Coke bottles or airplanes with Red Bull logo, to full land areas with the company's theme.

Not only companies and organisations are interested on owning their own patch of land inside virtual worlds. Anyone can buy land or property from Second Life. Linden Lab collects main

proportion of its Second Life revenues from land sales for individuals and organisations, monthly maintenance fee of the land, charging from the currency exchange services and from providing supply of world's currency to stabilize its value (Second Life Blog 2008; Freedman 2008, 42-45.) Lately there have been some speculations that Linden Lab would start to emphasize more the revenues gathered from the sales of in-world items in its business model. In 2009 it bought two biggest Second Life virtual good market places in the web. The web pages collect 5% commission from each sold item. (Second Life Update 2009.)

Most MMO -games business model is simpler when compared to the one Linden Lab use. The companies running the MMO -games earn their revenue from different sources: some companies require players only to purchase the game, some provide the game free of charge and try to get revenue from advertisement. Others sell special in-world items for real money. Most of the big commercial game worlds require the user to purchase the game and in addition to that pay a monthly subscription fee. Blizzard Entertainment uses this model with World of Warcraft. In 2009 the game with both expansion packs cost around 60 € and three month game time 36 €. Other charged services were also available: character re-customization, character name change and character transfer from one realm to another cost from 8€ to 20€. (Blizzard Entertainment 2009a.)

5.3.4 Technology and its limitations

Virtual worlds are outcome of long lasting technological development and major feat of computer engineering. The technology needed to run a popular world is expensive, as the server capacity needed is huge, and the servers have to be as powerful and advanced as possible to provide smooth experience for the users of the world. In April 2009 Tietoviikko reported that company NetEase, which planned to start operating World of Warcraft in China would need to buy at least 1000 blade servers for this purpose (Pentikäinen 2009). Markku Eskelinen claims in his report, that as the developing of MMO -games gets more and more expensive even the huge technology companies, like IBM and Sun Microsystems are becoming interested of developing special hardware and software for the upkeep of MMO -games (Eskelinen 2005, 51). These two examples give some perspective of the costs of just running virtual world, excluding the costs of developing the actual world.

Although the hardware and software used by companies running the worlds are high-tech, the virtual worlds suffer from numerous technological problems, and unlike the image that the

entertainment industry often thrives to create suggest, the technology is far from perfect and severely limits the structure of the virtual worlds (Kock 2008, 4-5.) The biggest problem is that none of the popular worlds could sustain all of its user base gathering to same small area in the world. The number of users are simply too large. If too many users are allowed to gather at the same area, the world will start to slow down, to lag, and usually the server crashes under the load, making the area or world inaccessible for the users.

The companies developing the virtual worlds have approached the problem of lag and server crashes with couple of uniform solutions, each with its advantages and disadvantages. Second Life uses a single server for each of its land areas, called sim, and separate servers for the handling of player items (Freedman 2008, 43.) This approach still reduce the number of users in one sim significantly and combined with the popularity of the world have lead to severe problems with the lag: in crowded areas users notice that their avatar is following the instruction only after seconds delay, avatars are seeming to appear out of thin air just in front of you, and instead of walking they seem to jump or teleport from one place to another. The more avatars in one sim the worse these problems become.

Blizzard Entertainment has tried to solve the issue differently. Word of Warcraft is not actual-ly a single virtual world, but hundreds of smaller versions of the world, called realms, each running in its own server. Before making a new avatar player have to select his/hers realm and once the selection is made it is not easy for that character to switch between realms, although in some cases it is possible, for example by paying extra fee to the company running the game (Blizzard Entertainment 2009b). Each realm have quota of allowed online players. If you try to connect to the realm which has met this quota, you have to wait in line until enough players have logged off. Although this approach provides smoother experience inside the virtual world, the possible long lines for the servers can frustrate users and the population of the realm is only thousands of users instead of tens or hundreds of thousands. It is also impossi-ble to meet your friends' avatar which is located in different realm.

There are other technical problems as well: the virtual worlds have to be maintained regularly, and during the maintenance no user can log in to the world. The capacity of the user's internet connections might be strained with the data needed to be transferred between his/hers com-puter and the server, causing lag. The area the users avatar is, or the whole world might crash because of problem in server or user computer, causing everything to freeze. In addition to these problems the software needed to run the virtual world are numerous and include many

bugs and glitches and the 3-d world might include faults, for example areas where your avatar get stuck. All of these problems are what Eddo Stern refers to as technological artefacts, which breaks the illusion of constant never-ending world and of which the developers should avoid as much as possible. (Stern 2002, 247-259.) Often these glitches are more than mere illusion breakers. Many times they are the reason why people quit the worlds or doesn't get excited about one: the world might be just not fun for them because of the technical problems. Kock (2008, 4-5) identifies yet another problem with the virtual world technology; according to him many of the worlds suffer from non-intuitive user interfaces.

5.4 Future of the virtual worlds

In this chapter a small peek to the possible future trends of the virtual worlds will be taken, providing insight of what might become of these worlds in the future. Generally the near-future of the virtual worlds looks bright, although there is some gray clouds on the horizon, that could become problems for the worlds. One of the biggest is probably the question of, what kind of position the legislature and the governments are going to take towards virtual worlds in the future. This will be discussed in chapter 7.

In 2005 Markku Eskelinen predicted that the user amounts of the MMORPG worlds will stop to rise and maybe even start to drop because of the huge time investment that these worlds require (Eskelinen 2005, 34). This assumption appears to be wrong as the success of World of Warcraft demonstrated. Blizzard have stated that both of the World of Warcraft's expansion packs broke the record of first day sells of PC -games when they were published in 2007 and 2008 (Cohen 2008.) These figures already bring forth the fact that people are willing to play MMO -games. But there are other promising trends as well: the rising MMO -game zeal in China and the fact that the current generation of game consoles have started to use their capacity for MMO -games and virtual worlds. The MMO -game developers have also started to make their world more streamlined and friendly for the casual gamers so that such a big time investment would not be needed by the gamer.

The biggest change for the game-space virtual worlds will probably be, in addition to transforming from computers to gaming consoles, the introduction of new control mechanisms. The full virtual reality, that was much discussed in the nineties, including display glasses, data gloves or even full data suits are unlikely to become available for widespread use. But the innovations that gaming industry have made in the field of game controlling, such as eye toy,

dance carpet controllers and most notably the controller of Nintendo's Wii console, are sure to find their way to virtual worlds. It might be, that soon the players of MMORPG games will not sit seemingly idle in front of their screen, but swing controller as they would want their avatar to do with its battle axe. This would add a new layer of real life physical exercise to the virtual worlds, merging the border between real and virtual even more. (Eskelinen 2005, 75-76.) The realization of this vision took one step forward in June 2009, when two big remaining console manufacturers, Sony and Microsoft, revealed their plans to jump into the motion control bandwagon with their own solutions.

A possible problem that is faced in 2009 and 2010 is the financial crisis that is raging around the world. According to Markku Eskelinen the videogame industry, which virtual worlds are counted to be part of, have been growing for the past 20 years in Europe and North America, defying all of the financial recessions and the bursting of it-bubble (Eskelinen 2005, 8-9.) In the current crisis there have been signs of effect also to the gaming industry. Even though the sales of games and gaming consoles have risen, for example the world biggest game company Electronic Arts, as well as Sony's game department have made losses recently (Pelit.fi 2009; Gamespot 2009.) How badly the current financial crisis will affect the gaming industry and the companies running the virtual worlds remains to be seen. The most popular worlds such as World of Warcraft and Second Life will probably be unaffected by the crisis.

Linden lab is seeing the future of some of the internet's most used services in the 3-d virtual worlds. It has been developing, together with IBM, an open standard for virtual worlds. The latest achievement in this development was a protocol that allowed an avatar to teleport from one virtual world to another. (Linden Lab 2008.) If this technology becomes widespread it would allow an infrastructure for the 3-d web. This development might well be a next step in a long process where some of the traditional services, for example maps and navigators, will little by little acquire 3-d presentation, go online, receive advertisement by companies, information provided by city tourist boards, other organisations and by the users of the services themselves. The result of this development might well be highly practical and widely used virtual world covering major cities with great accuracy and the rest of the world with general detail. And this is just one of the possible utilization for the technology seen in not-so-distant future.

When considering this possibility it's good to remember, that traditional 2-d web and programs are not likely going to be fully replaced by 3-d presentation. The reason for this is sim-

ple; some things are just more easily presented in 2-d format. For example there would be no advantages to present text, in other than in the traditional way, and one can also question the rationality of turning things like operating systems and many web services to 3-d format. (Yoe Uusisaari, M. 4.8.2009.) Also, one can easily see the publicity value of such claims by Linden Lab. In reality, the technology behind Second Life is still quite far away to be suited for 3-d web.

6 Crime involving the virtual worlds

After reading the previous chapter one should have fairly good general understanding about virtual worlds. In this chapter crime, offences and other acts disapproved by community committed in virtual worlds, or involving virtual worlds will be discussed. Interesting cases will be presented here, some of which included legal proceeding and some of which didn't, and the end results will be discussed. Court processing and sentences relating to virtual worlds are still quite rare and the described cases could very well be precedents cases. At the start of the chapter a general view will be given for the reader to understand why there is crime in virtual worlds.

6.1 The reasons behind crime involving virtual world

Why there are crimes in virtual worlds? The short answer to the question is simple; everything that can be found in real world culture eventually finds its way to virtual worlds (Kasvi, J. 11.5.2009.) This is unfortunately true with criminal activity as well. But there are many underlying reasons for this, of which most important are discussed here.

One huge thing that can be blamed for much of the crimes and other activity disapproved by community in the virtual worlds is the fact that virtual economies get mixed with the real-world ones. As discussed in the chapter 5.3.2 the virtual property have also real world value, whether or not the company running the virtual world wants it. The old wisdom of Publilius Syrus from around 100 BC “Everything is worth what its purchaser will pay for it” (QuotationsBook, 2009) also holds true with the virtual worlds. As the virtual property has real world value, it also means that it is possible to make real world money out of it, (Nichols, Farrand, Rowley & Avery 2006, 75, 133) legally or illegally. This simple fact springs host of problems for virtual worlds including account thefts and shams. And the gold farming, that is discussed in detail in chapter 6.2.1.

The fact that virtual worlds have apparent anonymity also helps criminals. Some virtual world operators require information of their users for the billing information for example, but this data is usable only if the company gets to know about the offence and is interested to do something about it. And there are worlds which don't require any kind of concrete information from its users. It is easier to commit for example scams when one cannot see you perso-

nally, or really know anything about you except the look of your avatar. One classical example of a scam is where someone pretends to be an admin of a service asking for a password for it.

Because of the problems that anonymity raises there have been claims, that both the internet as well as the virtual worlds should have system which would allow reliable authentication of users. On the other hand many of the experts on the field agree that this would destroy the unique status of the web as fairly uncontrolled entity promoting freedom of speech. Often the active users of the Web as well as virtual worlds tend to think that the positive sides of the privacy outweigh the negative sides. (Kasvi, J. 11.5.2009.) Even though the privacy in the virtual world should be seen as something worth keeping as it is, there is no denying that it makes the committing of wrongful act in these worlds easier.

Third reason for the crime in virtual worlds, or at least reason which makes it more common is that the presence of authority is often scarce in virtual worlds. The governments are not yet waken to start taking virtual worlds into account in their regulation of society. There are no laws considering virtual worlds, in fact most of the legal problems and boundaries of virtual worlds are unsolved. (Terdiman 2003.) At the present most often the utmost authority in virtual worlds is the company running the world, or the administrators of the world. This raises problems as the legal process in disputes wholly inside the world are what Edward Castronova describes as "...a legal system that stresses speed and efficiency, not necessarily justice -for better or worse" (Castronova 2007, 130-131.) It also means that the utmost authority of the virtual worlds doesn't have any kind legal authority outside these worlds, in real life. This is a problem, because the administrators of virtual worlds have very little means of fighting crime that originates from real life, and governments are slow to understand that criminals can also operate in virtual worlds. According to Tietokone magazine (Pitkänen 2009,) the numbers of administrators are also very small compared to millions of users of popular virtual worlds making their oversight scarce. In a way the legal and cultural position of virtual worlds now is reminiscent to the one of Internet of early 1990s; there is no clear order or law and new great unheard innovations seems possible if you just have enough imagination to come up with them. In a way it is a new digital frontier or "-Wild West." (Castronova 2007, 14.)

When all these things are added together, it is easy to see why there is worry among some virtual world researchers that criminal activity connected to the virtual worlds will grow. It is also feared to be probable that the virtual worlds would eventually be adopted by criminal organisations, or one would arise around them. In fact there have been rumors that criminal organi-

sations have started to run the money farming sweatshops. (Heeks 2008, 57) Another rumor centers on money laundering operations using virtual worlds. This is theoretically entirely possible at the moment, but there has been no proof presented of such activities. According to Heeks (2008, 57-63,) who have studied the phenomenon thoroughly, the evidence that gold farms would be linked any of the aforementioned activities is partial and uncertain.

6.2 Example cases

Here in chapter 6.2 a range of different cases will be presented and discussed. The descriptions of these cases are picked up from the written sources centered on virtual worlds. The cases present as wide range of offenses as possible, from those conducted purely inside the world to those extended also to outside virtual world. After going through all of the cases one should have fairly good understanding of how different offenses concerning virtual worlds can be. And in one case, after consideration of special characteristic of the world, the actions of avatars cannot even be described as offensive

6.2.1 Gold farming

Gold farming is a term that has emerged to describe activity of collecting virtual currency by completing simple tasks repeatedly in virtual world. The structure of the biggest MMORPG - games in the market is such that it is possible to advance to the higher levels in the game or acquire great virtual wealth by doing simple tasks. This way a player not necessarily needs skill to become powerful in the game, just a lot of time. Most often gold farming is done by killing monsters repeatedly, collecting the money they carry and later selling the equipment and items acquired from them, or by harvesting and selling resources from the world, such as rare minerals or herbs. This activity is an important part of the game mechanics of the MMORPG - games and gold farming is accepted way to build wealth inside the game. (Scot 2007.) The thing that has risen a lot of controversy and discussion however is the recent commercialization of gold farming, of which example can be seen in figure 4.

The gold farming has become big business during the recent years. The business model of the companies involved is to acquire assets in the game as cheaply as possible and then sell them online to the time-poor players of the western countries for real-world money. These players have dollars and Euros to invest to the virtual gold but don't have the time to acquire it. The cheap labor of the Asian countries can supply this gold to the players. This equation has seen

the emergent of professional gold farming companies, often situated in China, where the cheap labor is available. (Barboza 2005.) The professionalization of gold farming has also spring forth broker firms, who buy the gold from gold farmer companies and sell it onwards to the game-players for profit (Heeks 2008, 20.) One of the companies, SwagVault, sells 1000 pieces of gold for World of Warcraft for 9,10\$. A service to improve your character to high levels cost 149,99\$ and is promised to be completed in 7 days. Same task often takes months to achieve by normal game players. The company also provides live support and advertises their methods as "safe" and "ethical." (SwagVault.com 2009.)

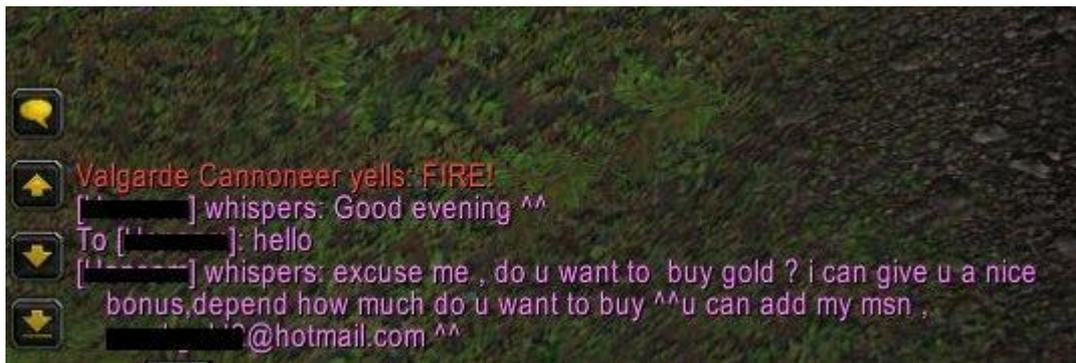


Figure 4. Excerpt from the chat of World of Warcraft; avatar selling virtual gold for real-world money contacted the author of the thesis

The legal and moral status of the gold farming companies are under heated discussion. The big game companies are against them, saying that their operation is violating the end-user license agreement of the games. The companies actively try to trace game accounts belonging to commercial gold farmers and shut them down. Blizzard Entertainment has stated banning as many as 100000 accounts in one month for violating the end-user license agreement (Scot 2007.) Most of the gaming community are also against the gold farming industry, blaming the companies of creating inflation in the virtual worlds, pollution of the so called magic circle, cheating and worse real life crimes.

The fact that many gold farmer companies have known to use very questionable means to bolster their profits only amplifies the accusations. These means include bots that automate the farming process so that minimal human involvement is needed in the process, finding and exploiting glitches in the game to gain money and monopolizing the in-game economy. Companies providing leveling service have known to steal their customers' items or currency once they received the password for the account. There have even been reports of professional hackers working for the companies, whose job is to make scripts for the farmers. (Barboza

2005; Lee 2005.) Many of the writers of virtual worlds, such as Castronova (2006, 68) and Bartle (2006, 44; 46-49,) claim that the real-life money is spoiling the game-like virtual worlds by bringing the real life issues there.

The gold farming companies have also serious real world accusations against them in addition to the problems they create in virtual worlds. The companies are notorious for the exploitation of cheap work force. Reports of the visitors to such companies describe dozens or hundreds of people farming gold in front of their computers for 12 hours a day, seven days a week with a pay of 250\$ a month (Barboza 2005, Jin 2007.) Because of working conditions reminiscent of classical sweatshops of poor countries the gold farming companies are often referred as such. As the legal status of the gold farming sweatshops are questionable in virtual worlds as well as in real world the companies tend to stay out of public (Barboza 2005.) This, combined to the questionable working methods of some of these companies have raised rumors that gold farming business would in fact be moving into the hand of criminal organisations.

The companies themselves defend against these accusations by saying that there is clear demand for the services they provide among the virtual world users. One cannot but agree that there is huge demand for gold farmers when one inspects the figures gathered about the business so far. There are no satisfying estimates of the scale of gold farming industry, because the activity has disputed legal status, but the figures represented so far seem to be incredibly big. According to New York Times the industry employs 100000 people in China (Barboza 2005.) The gold farming companies themselves claim that even million people are working professionally in virtual worlds and that the revenue of the business would be tens of millions of dollars in a year (Pitkänen 2009.) According to study conducted by Institute for Development Policy and Management of University of Manchester, the amount of professional gold farmers world-wide is about 400000 (Heeks 2008, 14,) and that the revenue is as high as 500 million dollars a year. The same study cites Julian Dibbell claiming 2007, that one such company created a turnover of 80000\$ in a year with ten workers (Heeks 2008, 10; 20.)

Several researchers have also pointed out that the gold farms might not be as bad employers as traditional sweatshops. Edward Castronova claims in article of Times Online that the wages of the gold farmers are about the same or better, than local market wages of the area (Hoyle 2006.) Ge Jin (2007), who has visited many gold farms for his documentary of the subject, also mitigates the accusations against the companies. He states that, although the conditions of the

gold farms are poor in the western standards the workers are provided with free lodging, food and reasonable salary and the staff may well enjoy their work. According to his material some even play the game for fun after their shift has ended. Jin also points out that the Chinese government tolerates the business as it reduces the unemployment of young people. He also states that Chinese legal system supports the ownership of virtual property by players, not game companies, which can be seen as a victory to the gold farming industry, as there is no legal conflict with the Chinese government.

The status of the gold farming companies remains uncertain. The game community will continue to shun them and the game companies most probably will continue their in-game hunt for the commercial gold farmers. But as long as the activity is tolerated by governments of the developing countries the gold farming will stay as a kind of shadow economy of the MMO - games. The status of the gold farming companies could be changed by one of the two occurrences: one would be that the governments of the developing countries would start to ban such activity. Most probably this would happen because of the possible connection to criminal activity of such operations or because of the need to regulate the time people spend online. Second would be the acceptance of the player owned virtual property and its value by western legal system and -culture. This would allow people to freely sell their virtual property making also gold farming companies fully legal, as long as they operated otherwise following the rules.

6.2.2 Mr. Bungle

The case of Mr. Bungle is well known and often cited among the writers of virtual worlds. It is good example of an offense conducted purely inside virtual world, without any ties to real world, and consequences to the offender and to the whole community of the virtual world. The incident is quite old already, happening in the year 1993 in a MUD called LambdaMOO, but it is still worth a discussion as many of the questions raised by this case remains important today.

LampdaMOO is a part of subspecies of MUD's called MOO (MUD, Object-Oriented.) While sharing much common with other MUD's, for example the textual descriptions of the world and characters, MOO's have one important difference. They allow the users to create objects, for example items and rooms almost freely, and describe their character as they please. (Dibel 1993.) Because of this freedom to create LambdaMOO can be seen as predecessor of

Second Life, which also defines itself by the freedom to create. This fact should raise the importance of this case in the eye of the reader.

Julian Dibbell have written an synopsis of the case labeled "A Rape in Cyberspace," that can be regarded as an concrete source as he witnessed much of the incident and interviewed some of the actors involved. A description of the case of Mr. Bungle that follows is fully based on Dibbell's account.

Mr. Bungle was an avatar in LambdaMOO, described to be obese, bisquick-faced man wearing dirty, disgusting clown clothing and belt buckle with abusive inscription. He had used the virtual world's freedom to create objects to build him an item, a voodoo doll, which he could use to force other avatars to do things against their will. This dawned to the LambdaMOO community when he appeared to the popular room in the world, full of avatars, and used the voodoo doll entirely unprovoked. Mr. Bungle used the doll to force one avatar of the room to sexually service him. After this he retired to his own private room where he, hidden, continued his attacks using the voodoo doll. He forced several other avatars to unwanted liaison with each other and at least one of them to violate herself with kitchen cutlery, all the while his distant laugh could be heard echoing in the room. Apparently he couldn't be stopped until the users of LambdaMOO summoned an old member of the world with near-admin-like powers to stop him. This near-wizard used his powers to confine Mr. Bungle in to the cage where he and his voodoo doll were powerless. (Dibbell 1993.)

Understandably the rampage of Mr. Bungle caused quite a stir among the LambdaMOO community. Not long after the assault several of the victims angrily demanded varying punishments to Mr. Bungle, finally most agreeing that the toading of a character would be the most fitting one. Toading in LambdaMOO means practically an execution of an avatar, because the character and all its possessions are deleted. However a recent policy change by LambdaMOO administrators, commonly referred as wizards in LambdaMOO, required a common agreement of the whole community before the administrators would use their powers for such grave distribution of justice. So three days after the assault much of the community gathered to discuss the punishment of Mr. Bungle and the general laws and norms of the community. They noticed that this was not an easy task and finally the meeting ended without resolution. After the meeting a wizard, alone and in secret, executed Mr. Bungle by toading him. (Dibbell 1993.)

This didn't seem to be permanent solution as Mr. Bungle reincarnated only days later as Dr. Jest. He had softened his conduct slightly, though, and the community tolerated him. Especially since they understood that the person controlling Dr. Jest could always just make new avatar after the toading. Finally after a long period of inactivity Dr. Jest committed a same kind of rampage than Mr. Bungle and was swiftly toaded. No avatars connected to these two ever appeared in LambdaMOO again. (Dibbell 1993.)

The case had some interesting outcomes in the LambdaMOO community. After consideration the wizards implemented a system, which allowed the avatars to suggest resolutions, which everyone could vote upon. Later a kind of ad-hoc court to solve disputes between users was introduced, that would use mutually agreed avatars as judges. (Dibbell 1993.)

When discussing the case of Mr. Bungle one should realize one important thing first. The whole affair happened entirely inside virtual world. No one of the actors really saw each other during the incident and no-one was really physically hurt. This fact of course has huge mitigating impact when considering the actions of Mr. Bungle and the fitting punishment for him, if any. Many will probably bring forth the question that also Dibbell were pondering at the time; how could anyone take such matter altogether seriously (Dibbell 1993.) However, Many scholars of virtual worlds have argued that the people can feel strong emotions towards their avatar, avatars of others and generally when engaged in virtual worlds (Dibbell 1993; Balkin 2006, 93-94; Castronova 2007, 172.) Dibbell also understood this when one of the victim of the Mr. Bungle affair confessed to him that few hours after the incident "...posttraumatic tears were streaming down her face" (Dibbell 1993.) So, while no physical or material harm didn't come to any of the victims, emotional strain in such cases can be substantial.

It is worth a note, that although big part of the community demanded one of the most severe punishments available in LambdaMOO to Mr. Bungle, it was generally agreed that no real-life legal proceedings would be carried against the person behind the avatar. "He had committed a MOO crime, and punishment, if any, would be meted out via MOO." (Dibbell 1993.) Richard C. MacKinnon discussed the case of Mr. Bungle in his paper where he tries to establish good correctional strategies for virtual offenders (MacKinnon 1997, 208-218; 224-232.) He also comes to the conclusion, that the decision of keeping the matter inside virtual world was right one. However, he argues that the punishment was too severe. In his opinion the toading was a LambdaMoo's equivalent of a death sentence, the most severe punishment available. He states that such severe punishment should be reserved only for the worst offenses, for example the

virtual equivalent of murder. The fact that Mr. Bungle apparently reincarnated as Dr. Jest lessens the impact of MacKinnon's argument; the dead penalty wasn't so final after all. One could also argue that the penalty was effective because it seemed to soften the demeanor of Dr. Jest from that of Mr. Bungle.

The negativity of MacKinnon against taking real world judicial action against virtual offense can also be contradicted. Even though in this case the community were against it, it could be entirely justifiable to take similar cases to court as defamation cases. The line here might be the mentioning of real-world people and places by the parties involved, making the incident more than just virtual affair between anonymous avatars, something that didn't happen in the case of Mr. Bungle. In similar case described by MacKinnon (MacKinnon 1997, 213-214; 226-232) this happened and there was also some real life consequences to the offender. This case is not handled more deeply here though, as it happened in Usenet forums, not in virtual world. Of course the real-life prosecution from virtual offense requires that the person behind the avatar will be identified. This is not always straightforward or even possible. In the case of Mr. Bungle, for example, Dibbell (1993,) suggest that Mr. Bungle's account was in mutual use of one dorm floor of University, and that behind the character could have been many people.

Lastly, it is interesting to observe how the justice system inside LambdaMoo changed in the aftermath of Mr. Bungle's rampage. According to Dibbell the new social order of LambdaMOO, where wizards distributed justice after joint decision of the community, was only months old. Before that the wizards had been the police, judge and punisher of any offences in LambdaMoo. The new direction of legal system in LambdaMOO was so recent that there wasn't any kind of structure or norms for how to operate in such occasions. There was no definition of what rape was in LambdaMoo and what should be the correct punishment for it. The definition of these norms in couple of days provided to be too hard task for the community, so one of the wizards acted on his discretion like in the old days of LambdaMOO. (Dibbell 1993.) This act can be seen as wrongful and it shows how little rights avatars can have in virtual world, and is seen as common problem by some scholars (Koster 2006, 55-60; MacKinnon 1997, 224-225.) As MacKinnon put it "LambdaMOO had not evolved far out of the state of nature" (MacKinnon 1997, 228.) The later development of LambdaMOO's justice system by introduction of the user resolutions, voting system and the system to settle disputes shows, that LambdaMOO's community was able to overcome this justice of the strongest.

6.2.3 Corrupted blood disease

The corrupted blood disease is an incident that happened in World of Warcraft in year 2005. It has become popular news story in media with such publications as BBC, CNN and Reuters taking notice of the incident and its aftermath. As with the case of Mr. Bungle this was totally an affair inside virtual world, but here the events started rolling from the error of the virtual world operator, and was strengthened by the actions of dozens or hundreds of gamers. There have been no reports of any kind of legal actions made by anyone involved, though it is possible that the administrators of World of Warcraft used some discipline methods against most offending players. But there are no reports of such, and the real amount of authority used against avatars is unknown. What is known and well documented on the other hand are the interesting results of the incident. The coverage of the case in literature hasn't been extensive, so the description of the case here is based on the different articles published on the news sites of internet and on my own observations during the time of the incident.

The corrupted blood incident began in 2005, when Blizzard Entertainment, the developer of World of Warcraft released extra content to the game. The release of patches is common to the game, and they often include new areas to explore and new challenges to the high level players. This time Blizzard released a dungeon called Zul'Gurub, where the advanced players could battle against ancient evil god, named Hakkar. Among the arsenal of this god was a disease, that he infected to the players fighting him. This disease, called corrupted blood was highly contagious and deadly; the characters spread the disease to everyone close by and the malady would eat out the life force of higher level players in matter of seconds. The disease lasted only for 10 seconds and was supposed to be confined only to one dungeon. This was not the case however. Someone noticed that if they contaminated their in-game pet with the disease, and then dismissed it the ten second timer of the illness would stop. After this they used the teleportation capability of their avatar to teleport to the major city, and released their contaminated pet to the big concentration of player avatars. (Blue 2007; Marshall 2009; Ward 2005.)

This proved to be disastrous as the major cities are where the biggest crowds of player- and non-player characters are located. Instantly the disease started to spread among the population of the cities. Most avatars were not strong enough to resist the plague's effects and were killed. The non-player characters in the cities would not be killed by the plague but they acted as agents and spread the disease to anyone in close proximity to them. Soon the once populous

capital cities were almost empty, their roads and floors full of corpses and skeletons (figure 5.) The weaker players soon learned to stay in the safety of sparsely populated countryside, although some players tried to intentionally bring the disease even to there. (Blue 2007; Marshall 2009; Ward 2005.)



Figure 5. A popular auction house in World of Warcraft littered with the skeletons of players, who died to the corrupted blood plague (Boston Globe 2007)

It is interesting to note, how Blizzard was unable to contain the disease effectively. At the end the servers that were most badly affected by the disease had to be rebooted and the glitches, that player had found fixed by altering the game-mechanics (Blue 2007; Marshall 2009; Ward 2005.) The estimates for the players affected by the epidemic range from the unlikely four million (Marshall 2009) to more realistic estimate of thousand (BBC News 2007a.) Most servers lacked enough skilled players to confront Hakkar, which made this incident happen only on handful of game servers. This means that the estimation of thousands of affected players is closer to truth.

The incident didn't result in any known court cases. Some players' behavior can be considered to be very abusive as they practically made the most popular parts of the world inaccessible. Blizzard seemed to think here that if code allows you to do it, then it is legal, although it is known not to support this conduct in all cases of abusive behavior. On the other hand, the

players didn't feel harassed enough to take any action against each other or Blizzard. This is probably because the death in World of Warcraft is a minor setback at worst; a killed avatar can be resurrected back to life with only limited affect to its gear or abilities. One could argue, that similar incident in a world with a design where death would be more permanent condition, would bring stronger reaction. Maybe even lawsuits, as players would demand compensation for their lost game assets.

The case of corrupted blood have many similarities with the Mr. Bungle affair described in chapter 5.2.2: The whole incident happened totally inside virtual world and in the bounds of the game code, no one used hacks or stolen passwords. In both cases a player or players assaulted others players and harassed them, and in both cases it was finally needed powers of admin to stop the assault. Why then, that the feelings of players were so much stronger in the Mr. Bungle affair than here. After all Mr. Bungle couldn't kill his victims, unlike the disease spreaders in World of Warcraft. The answer is simple; in World of Warcraft the disease and death is accepted part of the game world, where a rape in LambdaMOO was not. So although annoying, the plague didn't bring any shocking, sudden pieces of real world to the virtual one. On the other hand, if one player would verbally harass other in World of Warcraft similarly to the Mr. Bungle, it would probably have more severe consequences.

The incident didn't happen totally without aftereffects though. After the virtual plague some researchers have suggested that there can be something learned from the case of corrupted blood. According to Reuters UK and BBC (BBC News 2007a; Marshall 2009) two separate studies have been released covering the incident. They suggest that virtual worlds could be used as kind of simulations when studying spreading of contagious diseases and pandemic situations. The studies argue that the uncertainty that thousands of players bring with their actions could be used to complement the mathematical models already used. But as mentioned by BBC (BBC News 2007a), one should remember that such study model would be far from perfect as the stakes of the users of virtual worlds are much lower than the stakes of people in real life epidemic situations.

6.3 Other crimes and offenses involving virtual worlds

In this chapter a short review will be given to other crimes, offenses and problems with the virtual worlds that were not covered by example cases. All of the concepts here are reported or realized by people writing about virtual worlds or companies running the worlds. They will

be handled here only briefly to give reader an understanding of different problems around virtual worlds.

6.3.1 Stealing of virtual property and assets

This is probably one of the most common crimes involving virtual worlds, and one that is by many people not familiar with virtual worlds hard to understand. The main reason behind such thefts is, as mentioned earlier, the fact that virtual property have real monetary value. In some cases the motivation can also be simply the power or status that the items provide in virtual world.

The stealing activity can be anything from borrowing some item in-game and not giving it back to systematical attempts to access peoples online accounts to gain control of their virtual property. In a case reported by BBC news, a user of Habbo hotel -world was arrested in Holland when he moved property of other users to his private room. He had been gained the passwords to users accounts by creating sham website (BBC 2007b.) Among others Blizzard Entertainment (Blizzard Entertainment support 2009) and F-Secure (F-Secure 2007) have warned of sites and e-mails aimed to collect account information of virtual worlds (figure 7.) These kinds of websites seem to have become common enough that it might be possible that behind them is an organized effort to make money out of virtual assets. Blizzard Entertainment have even released a tool to increase the security of its players accounts: Blizzard Authenticator is a device that is supposed to make sure you are actually physically accessing your World of Warcraft account (figure 6.)



Figure 6. Blizzard Authenticator (Blizzard Store 2009)



Figure 7. Part of the World of Warcraft login screen, giving warning of account stealers

Other example of reported case of theft of virtual property is a court case, again in Holland, where two young players of Runescape MMO -game were sued by their fellow player for theft of virtual mask and amulet. The two children had gained the entry to the account by use of physical violence in real world. The case in question didn't handle that aspect of the case though, only the theft of virtual items. The court acknowledged the value of these items and sentenced the two players to 200 and 160 days of community service. (Kuchera 2008.) In U.S, however, the police refused to help player of MMO -game Final Fantasy XI, whose account was compromised and all his virtual items and money stolen. The police stated that in their opinion the stolen goods didn't have any monetary value, so they didn't need to investigate the alleged crime. (Welsh 2008.) This shows how different the stance of authorities towards virtual worlds is in different countries. And probably they also differ a lot inside one country as well.

6.3.2 Identity crime, embezzlement and extortion

All these are closely connected to the stealing of one's virtual property. In most cases of theft of virtual property the perpetrator needed to get virtual world user's account username and password. One can for example pose as an administrator of the virtual world to try to gain access to the password (Arnold 2007, 1-12,) or create sham websites for this purpose. Other

way is to use extortion to force the user to provide this information. This usually happens in real world, for example as a threat of physical violence as described in earlier in this chapter.

6.3.3 Defamation

As noted in chapter 6.2.2, a case involving defamation in virtual world would not probably have any credibility in real life court unless the offender would mention real-world names. On the other hand, according to The Chronicle, among others, an article published by Brooklyn Law Review states that Second Life avatars should be eligible for defamation. The reason being that "the relationship between the avatar and his/hers human operator is comparable to that of a sole shareholder and one's business entity". (The Chronicle.com 2007.) The article argues that because Second Life allows avatars to conduct business that earn people behind them real money, these businesses should also be protected against harmful acts conducted to them by other avatars. Unfortunately the article was not available at the time of writing this, but the existence of such article shows that this is another part of virtual worlds and real-life law that is controversial at the moment. Also Jack M. Balkin (2006, 92) have argued that law should protect avatars from defamation because one's position and reputation in community is harmed in inter-avatar defamation cases. Marylka Yoe Uusisaari agrees (Yoe Uusisaari, M. 4.8.2009.) She points out, that one's net identify will become increasingly important in the future, and that it well might be justified to get compensation to one's damaged reputation in the internet.

It is hard to estimate how common serious defamation cases are inside virtual worlds, because the line between accepted game play and harassing behavior can be vacillating indeed, as discussed in chapter 5.2.3. For example Julian Dibbell states in "A rape in cyberspace" -that raping scenarios in LambdaMOO weren't unheard of (Dibbell 1993.) But surely they seem to be quite rare in large commercial MMO -games. According to Jack M. Balkin (2006, 91-92) communication tort, which also includes defamation, is committed almost every time people harm each other in virtual worlds in a way that law recognizes, though he also includes copyright and trademark violations under this category.

6.3.4 Copyright- and trademark violations

Many of the virtual worlds encourage their users to create new content to expand the world. This fact also means that virtual worlds are favorable ground for copyright and trademark

violations. A user of virtual world might make a virtual presentation of real world item with trademarked logo on it, and possible be guilty of violating the trademark of real-world company. One could also make copies of others copyrighted virtual property without permission and violating copyright laws. In the other hand the users of virtual worlds could invoke their right to freedom of speech in such cases. According to Jack M. Balkin (2006, 92) the nature of the virtual worlds "constitute a perfect storm [of conflict between freedom of speech and intellectual property rights.]" This problem is further escalated, because people making the copies often sell them for real money. There is already an example case of copyright infringement in Second Life. In 2007 a company named Eros sued an individual for copying sex toys they were selling in Second Life. The products had been copied by using a glitch in the program. (Noyes, 2007.) The case was settled when defendant admitted his guilt and agreed not to continue selling copied products (Silvestrini, E. 2008.)

Related to the copyright violations are the problems that may be realized in virtual world, when users create and sell items which sale is prohibited by national law. A creation of explosives and selling it in World of Warcraft is not problem of course, but what about creating and selling Nazi memorabilia to German users in Second Life? (Balkin 2006, 95.) German law prohibits the displaying of swastikas in computer games, but how it will react to foreign user created content in virtual world? Balking (2006, 92, 95) also suggest that as people will invest more and more time to their virtual identities court cases involving intellectual property rights will become more and more common.

6.3.5 Virtual worlds as a tools for terrorist

In theory virtual worlds provide excellent communication tool for criminal organisations that need to keep their plans secret. A terrorist or criminal organisation could use MMO -game for example to transmit information of planned attack from one group to another. The advantage in doing so being that the communication in such worlds is anonymous and hard to monitor. More so now, when governments of many countries seem to overlook the possibilities and threats that virtual worlds rise. Although the games have logs that might record conversations, the communication, if done by the common jargon of the game will easily drown to chatter of normal gamers. This may seem like a plot from cyber thriller, but at least United States seems to take this possibility with some seriousness. Wired has reported of presentation held by Dr. Dwight Toavs from U.S state funded National Defence University which unveiled these concerns (Shachtman 2008.) The presentation shows a fictitious terrorist plot to attack white

house communicated in World of Warcraft. The terrorists use terms of MMORPG -games, like Dragon Fire spell, StoneTalon Mountains, castle guards and mobs to communicate the place, weapon, civilians, guards and so on. (Toavs 2008; figure 7.)

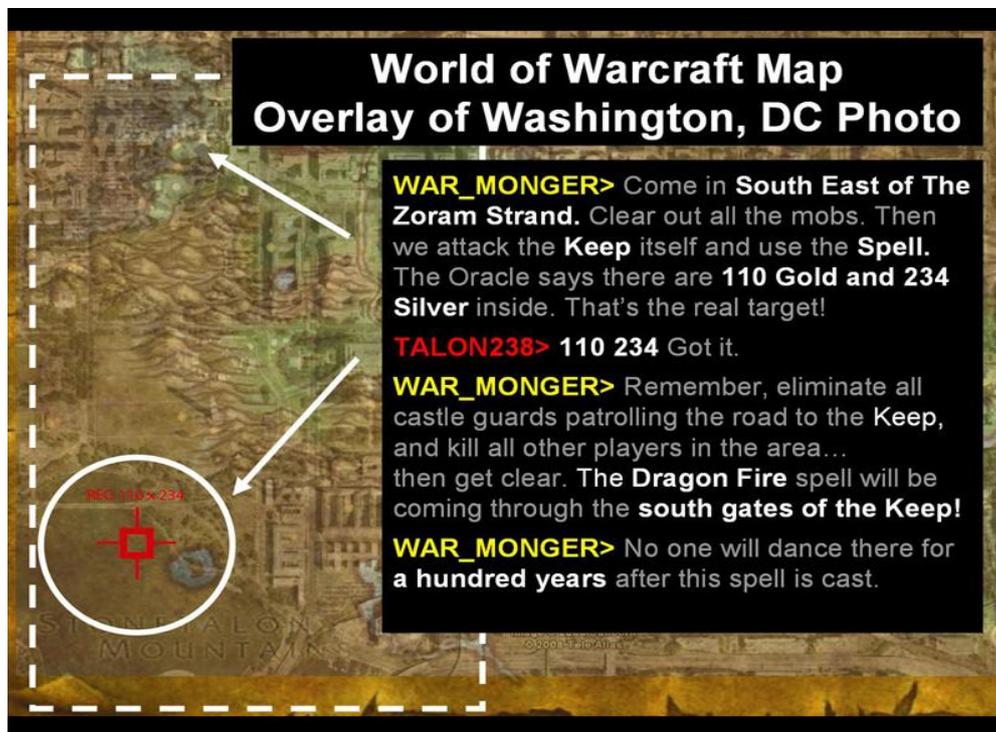


Figure 8. A slide from the presentation of Dwight Toavs, showing a fictitious terrorist plot inside World of Warcraft (Shachtman 2008)

The U.S. intelligence circles seem to be interested also about the possible use of virtual worlds for studying terrorism. According to Wired, the deputy director of the Center for Terrorism and Intelligence Studies, Charles Blair, have stated that even purely game worlds like World of Warcraft could be used to study Terrorism (Thier 2008.) A report of Office of the Director of National Intelligence also suggests that U.S. government is getting interested of Virtual Worlds. According to report, a project named Reynard “is a seedling effort to study the emerging phenomenon of social (particularly terrorist) dynamics in virtual worlds and large-scale online games and their implications for the Intelligence Community” (ODNI 2008, 5.) Whether or not one regards these studies as important aspects of U.S. national defense or just waste of American tax payers money is everyone's own choice. According to Wired (Shachtman 2008) no proof has been given to the public of terrorists using virtual worlds.

7 Virtual worlds, governments and the law

As can be seen from the previous chapter, virtual worlds have some crime and offenses connected to them. Many of legal problems and conventions concerning virtual worlds remain unsolved. It is important, that when answers to such problems are searched by governments and legal institutions in the future they would not destroy the unique status of the virtual worlds. Or as Edward Castronova (2006, 74) have stated with his colorful way; "If legal status [of virtual worlds] are not realized properly, we face the possibility that a tremendous boon to human kind may be irrevocably lost." In this chapter it is discussed, how communities and the governments could handle some problems of virtual worlds without affecting such damage.

7.1 The current involvement of the states in virtual worlds

As stated several times earlier in this thesis, the oversight of laws and norm in virtual worlds is still scarce. The governments have not yet started to take big interest for regulating virtual worlds. By many this seems to be a good thing; in survey conducted in Second Life for this thesis, many avatars stated that the current freedom to create and -express in Second Life is a thing worth keeping. They also voiced their fears, that introducing more law in to Second Life would decay this freedom. Apart from this, Bartle and Castronova, claim that bringing more real life pieces to virtual worlds of fantasy and play will destroy the nature of these worlds as refuges from real life (Bartle 2006, 49; Castronova 2006, 68.) And law and regulations from real world definitely qualifies as pieces from real world. Both writers call for protection of such virtual worlds from real life influence, Bartle by granting ultimate juridical power to administrators (Bartle 2006, 49,) and Castronova (2006, 68) by protecting the "magic circle, the boundary that distinguishes them as play spaces" by law, but keeping the said law out of virtual worlds.

On the other hand, there have been arguments also for bringing more law in virtual worlds. Jack M. Balkin writes, that three important reasons for introducing law into the virtual worlds are protection of intellectual property rights, consumer protection and privacy (Balkin 2006, 112.) Furthermore, whatever one's personal opinion about introducing more control to virtual worlds, it is probable, that governments will eventually want to make a move into the virtual worlds. As Balkin (2006, 112) continues "Virtual worlds will not remain separate jurisdictions left to themselves. The more people live in them, and the more time, money and effort people invest in them, the more they will attract the law's attention." This can already be seen in the

cases described in chapter 6.3, where real-world courts have handled cases dealing with virtual worlds. The rise of businesses, and influence of real world money in virtual worlds can also easily be seen as one factor in bringing more law into virtual domain.

7.2 Problems of law and virtual offenses

The current laws, as they are now, of real-world governments are not well suited to virtual worlds. Here some problems that current legislature have in virtual worlds will be discussed. When trying to introduce more law into the virtual worlds a careful consideration should be given to these issues.

The most fundamental thing to understand when talking about law in virtual worlds is the fact that the conception of what is illegal, legal, allowed or not allowed differs from one virtual world to another. What is perfectly acceptable behavior in one world could lead to lawsuits in other. This can be seen very well in two examples described in chapters 6.2.2 and 6.2.3; a raping scenario was considered a lot more serious offense and resulted in much bigger changes in LambdaMOO, than killing of thousands of avatars in World of Warcraft by using a glitch. When law is increasingly introduced to virtual worlds, and when courts solve cases involving virtual worlds, it is very important, that these kinds of differences are understood. Law should be administered in the local context of each world, and not with context of real-world (MacKinnon 1997, 208-218; 224-232.)

Another problem for bringing in more law to the virtual worlds, and one of the most troublesome, is the fact that the legislature is national but the phenomenon's of internet are global (Yoe Uusisaari, M. 4.8.2009.) It is very hard for example for a person in Finland to get a compensation for a deed done in virtual world from someone who is living in Mexico. This of course calls for international laws and contracts concerning internet and virtual worlds, but this is far away possibility, as countries seem to be long behind the technological development even in their own national legislature. Also, according to Jyrki J. Kasvi (Kasvi, J. 11.5.2009,) the views of countries such as EU, China and Russia about the amount of control of internet are very far away from each other.

7.3 Different approaches to introducing more law in virtual worlds

Because the raise of the control in virtual worlds seem inevitable, how then should such control be organized? How to introduce laws in virtual worlds without dissipation of things such as freedom to express and play? Several possible solutions to this problem have been suggested, some of which will be discussed here.

7.3.1 End user license agreement

The companies running the virtual worlds today try to regulate the users not to do things they consider forbidden by several way. First and the most effective tool for them is the code. Something, which is not allowed by the code, cannot be done inside virtual world. But not everything can be regulated by the code; the way people act, behave and use the virtual world. For this purpose the developers have written EULA's (end user license agreement.) In EULA it is defined what are the rights of users and what is considered legal and illegal inside the virtual world. When logging into the world the users are considered to agree to EULA. The administrators of the world will administer punishments to those they consider breaking the rules of EULA. EULA's would be good solution to bring control into the virtual domain without two fundamental flaws. Firstly, in theory it is easy to get punished by administrators of the world, even though you are innocent, because there is no jury or trial, just the discretion of the admin. Secondly, EULA's are in many ways conflicting with the laws of real-world. Edward Castronova (2006, 76) writes: "By clicking, [agreement to EULA] the user waives a number of significant rights, rights to own the fruits of labor, rights to assemble, rights to free speech... The legitimacy of these clauses seems open to question." So EULA's are not good solution for the problem of bringing law into virtual domains, they seem to narrow the rights of users so much that it is considered unbearable in western concept of justice.

7.3.2 Act of interration

Edward Castronova (2006, 80-81) suggests as a solution for this problem an incorporation of virtual worlds. He argues that similar artificial legal status should be given to the virtual worlds, which corporations enjoy in today's society. By this he means protecting virtual worlds as play spaces from outside influence by law, much the same way that law protects owner of the corporation from personal harm. Castronova calls this act an interration, and explains its purpose:

To create a fictional place. It would also be performed only when the creation of this fictional world would be socially beneficial. The terms of creation and the restrictions it imposes on everyone in society would, as with incorporation, be laid down in the synthetic world's Charter of Interration. The Charter would define where this place is and how people can go there. It would clarify the legal status of events that happen there and of assets that accumulate there. It would define the rights of people in various roles: developers, users, outsiders. The legal status of the interrations would be elevated, in the sense that acts and assets inside it are exempt from most of the laws of the earth. Earth law would in fact state that these protections are necessary for the interrated place to provide the benefits that it does. They are essential for its functioning and that is why an Act of Interration even Exist.

In return for its privileges, the chartered interrations would be subject to strict rules. To be preserved as play space under the law, the synthetic world would have to conform to standards of construction and policy, much as corporations must conform to such standards in order to retain their special status. (Castronova 2006, 80-81)

The act of interrations, as Castronova describes it, would solve many of the legal problems of virtual worlds by isolating them from real world. The developers of the world could decide their relation to avatar rights, much the same way that developers do today with their EULA's. Only with interrations they wouldn't be able to write anything they desire to EULA, and thus would have the support of state and law behind them. Also, the users of the world would know the rights they enjoy while operating inside a specific world in the moment they log in for the first time.

Castronova is mainly speaking of virtual worlds as play spaces, but he also recognizes the fact, that other kind of virtual worlds exists. He divides virtual worlds to two categories, "One invoking fantasy and play, the other merely extending day-to-day existence into a more entertaining circumstance." (Castronova 2006, 68.) The act of interrations would also provide possibility for the former kind of virtual world to thrive. In its charter of interrations the legal status of the world would be just defined differently; to have more real-world laws to protect its avatars business and to allow its commodities to be transacted to real world money.

While the act of interrations seems to be viable, if today still quite far away solution to the problem, Castronova's categorization of virtual worlds to play spaces and those that extend day-to-day existence doesn't seem sufficient. He also suggests that interrations would be used to protect game spaces from real-world influence, mainly from real-world commodification. Jack M. Balkin (2006, 107-108) argues, quite validly, that the need for interrations is more strongly required by virtual worlds, which allow a big portion of real world to pour in. He

further extends the different types of interration's, which might be offered by government to operator of virtual worlds; he recognizes the type of world, that Castronova is mainly speaking that prohibits real-world commodification and instead provides a space for play, and a world which allows real-world commodification. He also suggests other forms of interration for worlds designed for educational, medical, therapeutic, scientific or military purposes. The list of course could be longer if required, but from this list one gets a good idea how the norms and laws of virtual world could be defined in act of interration. For example, military simulation and world devoted to play would consider construction of item which purpose is to harm others legitimate action, while world that allows real-worlds commodification could decide against it. Balkin (2006, 109) further adds, that such system of interrations would improve the rights of virtual world users as well as designers.

Act of interration seems to be quite well suited for most of the virtual worlds, for example play-spaces, such as World of Warcraft. It is however, worth a note here, that such system applied to one very popular world of today would be quite hard indeed, and probably would left many avatars very angry of the outcome. The world of course is Second Life. The special status of Second Life as a world which is still under development and the fact that it is first popular world of its kind have tempted in a lot of people who have very different ambitions for their virtual life. Some people are there to make money and conduct businesses, others use it to create and play games, and for some it is a way to realize their sexual fantasies, and so on. It is clear, that when talking about amount of law in Second Life, the preferences of these people will collide. This can also be seen in the survey conducted for this thesis, where some avatars called for more control to protect their businesses and jobs, while others specially stated that they liked the freedom most. Linden Lab has tried to reduce this problem by allowing people to flag their land for different purposes, for example to allow weapons, mature- or adult content. But this system isn't all inclusive and not extensive enough. For example, the team designing HAAGA-HELIA's property in Second Life felt that it would be desirable to have system, where area could be flagged to require reliable identification of users (Karvanen, P; Ruottinen, M. 5.8.2009.). To put it short, if tried to apply for Second Life, interration would almost certainly destroy some aspect of the world, that define it today.

7.3.3 Control by community

The act of interration is not the only possible solution offered to this problem. Marylka Yoe Uusisaari (Yoe Uusisaari, M. 4.8.2009,) believes, that as the internal laws of states become

more and more unsuited to handle the growingly global phenomenon's of the internet, something else will replace them. This is the surveillance and control of community and its members by its members. Because this surveillance is conducted by individuals it's dubbed as a surveillance by little brother, as opposed to big brother, a term used to describe a control and surveillance of governments, corporations, institutions etc. over individuals (Lindeman 2008, 4-7.) Apart from controlling the individuals the surveillance and control of community also have an effect to the operation of traditional authorities and in fact to every operator in community.

In the real-world the surveillance of little brother has a preventive effect against crimes, because the perpetrator can be never sure if somebody is recording his actions. On the internet and virtual worlds this effect is even stronger as it is boosted more by the technology; one will leave a more clear trace of one's actions in internet. If one behaves antisocially in message board it can be seen for years by anyone, and in virtual worlds one can never know who might be recording the events to his/hers hard drive or saving the chat logs. This control of norms by little brother can already be seen strongly in internet; Marylka Yoe Uusisaari (Yoe Uusisaari, M. 4.8.2009,) described how one start to increasingly look after one's reputation in internet as it comes more important aspect of one's life. Even so, that one's mistakes in real-world don't have as big impact to one's reputation as mistakes made online.

There are a lot of examples of control of little brother from both real-world and virtual worlds. One example from real-world is a case in Finland, where a video showing security guards using excessive violence, shot by bystander and posted in YouTube resulted in public scandal and suspending of the guards. (Lindeman 2008, 28-29) In virtual worlds a control and oversight happens all the time in its own way. For example griefers, players who harass others within the rules of the game, are often punished by community. In World of Warcraft it is not uncommon that people report griefers to other players, which gather to punish someone who is considered griefing, usually by killing the target repeatedly, making it impossible for him/her to play in certain area. Also the characters and guilds that are well known to have a habit for griefing are often killed on sight without mercy. These examples also show that little brother in virtual worlds often also uses punishment to control members of community.

As people will invest more time and money into their virtual lives the surveillance and control of little brother will have an increasing effect in preventing behavior not accepted by communities. Today, although it has definite effect on people's behavior online, the control of

little brother has not succeeded to put down many things in virtual worlds despite strong efforts by some members of community. For example buying virtual assets with real-world money from gold farmers in World of Warcraft is not only strongly discouraged by Blizzard Entertainment, but there is a strong feeling against it by some parts of the community as well. Still this has not been enough to stop the gold farming businesses. According to Marylka Yoe Uusisaari (Yoe Uusisaari, M. 4.8.2009,) in Second Life the designers with high reputation have strongly campaigned against cheap copies of their virtual products, with not much success. Both of these things just are not considered to be serious enough misdemeanors by community as a whole to allow little brother to diminish these activities.

8 Results and conclusions

8.1 Results and analysis of the survey

The survey was conducted in Second Life between 27.7.2009-2.8.2009. Reasoning behind the survey, and its methods are discussed in chapter 4.2. Due to the limited time resources provided for this thesis the number of answers remained very low, only 25 answers was collected. This is only 0,0046% of the people who logged in during the time period of the survey (Second Life Economic Statistics 2009.) Due to this fact it is pointless to draw any statistical conclusions about Second Life users from this sample. Instead it can be used to get general idea how some things might be in Second Life. It is a worth of note, that these conclusions cannot be generalized to other virtual worlds, as every world is different, with their own rules and norms.

8.1.1 General notes from the answers

A few things are worth of note from the answers collected:

- Most of the answers, 68%, were provided by female avatar, although about the same numbers of both genders were approached with the survey. But it seemed like male avatars would refuse to take the survey more often. Maybe the fact that the avatar created for this thesis was male affected this. Among the interviewees there were also two avatars, which were creatures with no apparent gender.
- 14 of the people who answered were from Europe, 9 from North America and 2 from Australia. The answers were collected between 11:20-01:15 GMT+2.
- 13 of the avatars had been in Second Life longer than 6 months, while 12 had been less. The number of long-time Second Lifers is relatively high because of the locations this survey was conducted. For example, I didn't visit new user areas for it, where almost everyone would have been new to the world.
- Three of the interviewees also expressed their concern about the addictive nature of the virtual worlds, and that in their opinion some people spend too much time inside them. This is interesting because in the questionnaire there was no question or mention about addiction. This fact could be seen as a support for the claims and concerns of addictive nature of virtual worlds.

8.1.2 Results

Table 1. What are you now doing/planning to do in Second Life?

Social	Exploring	Creating/building	Running clubs	working	role-play	music	Just visiting
13	7	3	2	1	1	1	1

Most commonly mentioned reason, what avatars were doing at the time was socializing, which is not surprising as that most probably is the main activity in Second Life. One of the avatars was working full time in Second Life. There are not many conclusions that can be done from this question, as the sample was so small. Note, that some avatars gave more than one reasons. (Table 1.)

Table 2. Why did you decided to get familiar with virtual worlds originally?

curiosity	friend urged to try	To find new social contacts	music	Other
13	6	3	2	3

The most commonly mentioned reason for joining Second Life in the first place was simply curiosity. Many avatars also mentioned that their friend urged them to try it out. Only one avatar told that he tried it out because of his work. Again, because of the tiny sample, no generalizations can be made from these answers. Interestingly, two of the avatars had joined Second Life to see music performance. Note, that some avatars gave more than one reasons. (Table 2.)

Table 3. In Second Life, or in any other virtual world, have you stumbled upon activity, that you consider criminal, dubious or unethical?

Yes	No	No answer
10	14	1

From 25 avatars 10 stated, that they had stumbled upon questionable activities in Second Life (table 3.) Though no clarification was asked why they answered yes, 4 avatars specifically mentioned sims created for sexual role-play in Second Life, of which three avatars particularly brought up age play or pedophilia. Two avatars mentioned also their concern about Second Life's users possible violation of copyright and intellectual property laws.

The amount of yes -answers in this question can be considered significant. Again, no generalization can be made from the whole user-base of Second Life. But 10 people from such a small sample, who claim seeing questionable activities in Second Life, could be considered as sign that such content is relatively common in Second Life. On the other hand, only a few of the 10 avatars would classify the activities downright criminal, most just labeled them in their opinion dubious or unethical or didn't specify them. This shows that many of the things considered repulsive by other avatars in Second Life are perfectly acceptable by others. Not surprising, since Second Life is often employed to realize fantasies and activities not possible in real life.

There was no correlation between the time avatar was online and the fact if they had stumbled upon questionable content or not. However, the longer time in Second Life seemed to have effect in this sample. From 13 of the avatars that had been in Second Life longer than six months, 8 answered yes to this question. While only 2 did so, of those 12 who had been in Second Life less than six months.

Table 4. Do you think that more enforcement of laws and norms are needed in virtual worlds? If yes, which is the right party for this task (for example; the operators of the worlds, users, governments...)?

Yes	No	No answer
8	16	1

Of all the avatars eight felt that more enforcement is needed in virtual worlds (table 4.) There were no strong correlation between this and previous question; Four of the “yes” -answers become from those who had stumbled upon some questionable activity in Second Life, and

four as well from those who hadn't. Only one of the avatars wanted to make a distinction here between different virtual worlds; to have different amount of control in worlds of different purposes. This was something that I was expecting more avatars to do.

Of those who answered “yes” to this question 4 considered governments the right party that should regulate virtual worlds. Companies running the worlds were mentioned by 4 and users only by 2. Most of the answers suggested combination of two of these. Some avatars also mentioned more precise reasons for their opinion. Three avatars felt that better control to keep minors away from adult content of Second Life was needed. Two mentioned the need for enforcement of copyright laws. Interestingly, one avatar also felt that there was need for labor union organizing in virtual worlds, because of the increasing amount of professional contract work done in Second Life.

Also interesting here are the reasons for the “no” answer, that avatars provided. Almost all of these were connected to the creative aspect of Second Life and the freedom to express oneself. The avatars feared that introducing more control would destroy this unique aspect of Second Life. One of the interviewee mentioned that different kind of virtual worlds should have different laws.

From these answers can be seen, that there is contrast between the avatars who want Second Life to be more controlled entity, where it is safe to do business and meet people, and those who want it to be uncontrolled for everyone to live as they wish and express themselves. This is not surprising, as so early as 1993 Julian Dibbell described his observations of community of MUD to be divided into groups whose views mirrored political views, like “Parliamentarian Legalist's” or “Anarchist's” (Dibbell 1993.) Most probably deeper examination would reveal something similar from Second Life too.

8.1.3 Experiences from conducting the survey

The second aim of the survey was to get experience of doing research purely inside virtual world. Here lessons learned from the survey will be discussed.

The amount of time needed to get the answers was surprisingly long. This was because interviewing one avatar took usually long time, from 10 to 35 minutes. Such a long time usually resulted from the fact that avatars were generally interested about the subject and wanted to

have conversations about it. These conversations were encouraged, because they seemed to be the main advantage of doing the survey this way. Posting the survey to the message boards or sending it by e-mail to people would not allowed the enlightening discussions. This method also allowed me to ask clarifications to some avatar's answers or views. In some cases it might also be possible to make conclusions from the behavior of avatars. But for saving time when conducting the survey this method does not work.

No avatars who were engaged in some apparent activity were disturbed. Only avatars that seemed to be not too busy with something or just hanging out were asked about the interview. Nevertheless, many avatars were not interested to answer the questions. It is of course understandable, that most people come to Second Life to spend their free time and don't want to be bothered with boring questions. Some avatars explained that they didn't speak English, and for this reason weren't able to answer. The best advice for situations where it is hard to find avatar willing to answer questions, for one reason or another, is just to travel to some other location and try again. Many of those who did answer turned out to be very helpful and talkative. Several avatars even offered their help in one form or another for the survey and thesis, and others gave practical advices. These definitely were benefits for conducting the survey inside the virtual world.

Questions 3 and 4 were found not to have great value for the thesis. They were wrong thing to ask. Because the sample was so small no generalization could be made of the reasons people spend their time online. In small survey, like this, it would have been better to ask more questions, which would had encourage avatars to give their views about the issues handled in the thesis. Such questions as the three last ones.

Finally it is worth a note that, as this survey was conducted totally inside virtual world, it is a survey conducted to avatars, not to persons behind the avatars. Most of the people who are engaged in activities in virtual worlds behave differently than they would in real world. So it is possible, almost probable, that some people didn't provide their own personal opinions from real life for the questions. This is a fact that just has to be accepted with such surveys and one that should be noted when analyzing the results.

8.2 Conclusions from the research

Most important goal of this thesis was to increase readers understanding of virtual worlds. Research question 1, “How are virtual worlds used today and how they are possibly going to be used in the future,” is an important part of gaining this understanding. By reading chapter 5 one can find out the answer; the diverse ways virtual world are used, as well as their history and possible future. One can also find the fact that the potential of virtual worlds is not realized and used for full effect. The most important thing to understood in this chapter was the fact, that the currently popular worlds can be divided roughly to two categories; MMO - worlds and social worlds, both with their own characteristics.

Second research question was aimed to find out examples of criminal and offensive activity involving virtual worlds, and how common the said activity might be. One can read example cases in the chapter 6. The cases which are proved to include crime are rare, and so are cases where court has given sentence of virtual crime. The offenses are a lot more common. The court cases will become more common as popularity of virtual worlds rise. It could be argued that the most common unlawful activity connected to the virtual worlds is at the moment gold farming, based on the huge estimations of number of professional farmers and money involved in the business. However, the legal and communal status of professional gold farming is unsolved and under dispute, so one cannot fully label it as criminal or offensive activity.

The most common undisputed offensive act connected to virtual worlds seems to be the stealing of one's account password with one way to another. The use of scam websites, e-mails and such to get account information is reminiscent of activity of criminals who collect credit card information. It is unlikely that this activity will become as common as said credit card data collecting anytime soon, but will probably become more common in the future, as popularity of virtual worlds rise.

Apart from the professional or semi-professional activity of password stealers, there are cases of stolen virtual property, where the perpetrator has been someone the victim new, and shared the password for one reason to another. These cases seem to be isolated and very rare.

The offenses committed purely inside virtual worlds are most often communication torts, such as defamation. Most serious of these offenses can cause significant mental distress to the victim, but as no-one is physically harmed are considered to be defamations. The common-

ness of defamation is hard to estimate, because often the line between defamation and accepted game-play/interaction is vacillating, with different worlds having their own norms. It is also not clear at the moment if law will protect avatars against defamation as not single such court case could be found.

Topic under dispute is the alleged copyright and trademarks violations in virtual worlds. The copying of popular products and brands seems to be very common in Second Life, and there is already a case where designer was able to stop such activity by suing the doer. Other crimes involving virtual worlds, apart from those mentioned above seem to be very rare, and mainly seem to have used some special feature or glitch of certain world to carry out the offense.

When talking about introducing more law in virtual worlds one should remember, that different kind of virtual worlds have different norms and the communities' different views concerning these crimes. Therefore it is not suitable to try to make one uniform policy to reduce the crimes that would cover all the virtual worlds. Instead, different approaches should be made with different kind of worlds.

The third research question asks how these crimes could be prevented without destroying the unique characteristics of each of the worlds. In chapter 7 three views for this was provided. The EULA which is at the moment used by many virtual world operators doesn't seem to be efficient solution to the problem. Another solution offered is to provide possibility for act of interration for virtual worlds. Act of interration seem to be viable solution to the problem, if done right, but the realization of interrations seems to be very far away in the future. Mainly because the governments are so far behind of technological development with their laws, that system like this would take years, or decades to be implemented. Also, the problem with such system, as with all laws concerning internet, would be the national legislature's inefficiency in global internet.

The last suggestion for the problem of regulation of virtual worlds is the control by community. This control is taking place all the time, and its importance is increasing in the real- as well as in the virtual worlds. Furthermore, the more important aspect virtual worlds and other parts of internet will become in people's lives the more effect this control will have to their behavior.

The position of Second Life in all this is problematic. Both of the solutions seem insufficient for its diverse user base; if act of interration would be introduced, it would limit the uses of this world, and drive away part of its user base. On the other hand, the ones doing business and working in Second Life call for more control to protect their assets, something that the control of community isn't able to provide yet. One improvement for the situation would be zoning the land of Second Life even more; to make separate areas for conducting business, games, play and creativity, and to give the owner of the land the possibility to define the amount of control on his property. On some extend this could be seen as compromise between act of interration, and control by community. Something like this was already done, when Linden Lab separated the adult content to own areas in Second Life.

Lastly, one important point must be made to the reader. Much have been said about crimes in virtual worlds and controlling of them. When reading this thesis and when following news coverage of media about internet one can become intimidated of such aspects of virtual worlds, especially if new and unused to the virtual worlds. Even so much, that one doesn't want to try out or fully take benefit from possibilities that virtual worlds and internet offers. This fear is largely unjustified, however. One will not be instantly harassed and scammed when one log's in to the World of Warcraft. Neither will one's avatar be assaulted or raped in Second Life. While in the virtual domain one can steer clear of almost any offensive behavior or content that one considers unethical by just using common sense and having fair knowledge of the net code. The really serious criminal and offensive cases after all are rare.

While virtual worlds will have increasing amount of influence from real world, including the negative things, it is good to consider this quote of Marylka Yoe Uusisaari: "[internet and virtual worlds] are not more dangerous world, than the real world is. There are no more criminals than here in the real world, probably even less." (Yoe Uusisaari, M. 4.8.2009.) And for anyone who hasn't tried virtual worlds one advice can be given; no amount of reading of written material can substitute the real experience, so try out virtual worlds yourself before making a final opinion about them.

8.3 Summary and Recommendations

The most important finding of the research, at least for myself, I consider to be the suggested solutions to the problem of controlling virtual worlds. In a certain extend these solutions can also be generalized to be used in other parts of internet too. Also important, and certainly

interesting, are the different ranges of cases containing crime or offensive element that were introduced and discussed in the thesis. And those who aren't very familiar with the topic will hopefully find a comprehensive introduction to virtual worlds, that this thesis offers helpful.

Although I have years experience from virtual worlds I still find surprising how highly people value their virtual lives, both monetarily and mentally. The strong psychological aspect can be seen often when interacting inside virtual worlds; the avatars form all manner of relationships from love to hate, and have in some cases, I believe, almost the same range of emotions connected to these relationships as in real life. For these reasons alone one would make a mistake when labeling all virtual worlds' just games.

The survey surprised me with the amount of people, who were genuinely interested about the topic. As noted in the chapter 8.1 people who answered to my survey wanted to have conversations about it and even offered their help. This help would have been one of the biggest benefits that the survey would have provided for my thesis; it seemed that by asking these questions in Second Life it would have been easy to build network of interested people. It also would have made a great difference to spend longer time discussing the topics of this research with people in this network. This would have been great groundwork for the actual research. Unfortunately I missed this opportunity because I conducted the survey too late in the research process. For those interested to do similar research I urge to take advantage of this possibility.

While quite long, this thesis has only scratched the surface of the virtual worlds. There would have been many more cases to present, topics to handle and points to discuss. Unfortunately the time and space constrains for this thesis doesn't allow this. One could do a deeper, more specialized research about any of the research questions of this thesis. Also there are a lot of other interesting research subjects concerning virtual worlds from game- to psychological aspect to business to economy. Concerning the topics covered in this thesis, one could make a research and write a whole thesis about gold farmer and their customers. It is curious how big objection there is against gold farmers in virtual communities, but still huge markets exist.

One could also conduct a research purely inside virtual world, much the same way I did, but with better preparations and bigger scale, and collect more reliable data about the views of users of these worlds. For this thesis the survey was in a way only an experiment at doing re-

search in virtual world, but one that succeeded very well, and gave promising results. This is why I encourage anyone planning to do research about virtual worlds to try this method.

9 Bibliography

9.1 Literary sources

Arnold, B. 2007. Identity Crime. Management of Serious Crime program. Australian Federal Police College. Barton.

Balkin, J. 2006. Law and Liberty in Virtual Worlds. Balkin, J & Noveck, B (eds.) State of play: Law, Games and Virtual Worlds. New York University Press. New York.

Bartle, R. 2006. Virtual Worldliness. Balkin, J & Noveck, B (eds.) State of Play: Law, Games and Virtual Worlds. New York University Press. New York.

Castronova, E. 2006. The right to play. Balkin, J & Noveck, B (eds.) State of Play: Law, Games and Virtual Worlds. New York University Press. New York.

Castronova, E. 2007. Exodus to the Virtual Worlds. Palgrave Macmillan. New York.

Freedman, R. 2008. How to Make Real Money in Second Life. McGraw Hill. New York.

Gregory, F & Hunter, D. 2006. Virtual Worlds. A Primer. Balkin, J & Noveck, B (eds.) State of Play: Law, Games and Virtual Worlds. New York University Press. New York.

Kangas, S. 2000. MUD – Verkon sosiaaliset tilat. [MUD – Net's Social Spaces.] Johdatus digitaaliseen kulttuuriin. [Introduction to the Digital Culture.] 2. ed. Vastapaino. Tampere.

Koster, R. 2006. Declaring the Rights of Players. Balkin, J & Noveck, B (eds.) State of Play: Law, Games and Virtual Worlds. New York University Press. New York.

Lindeman, J. 2008. Internet ja video pikkuveljen äänitorvena. [Internet and Video as a Voice of Little Brother.] Lapin yliopisto.

MacKinnon, R. 1997. Punishing the Persona: Correctional Strategies for the Virtual Offender. Virtual Culture. Identity & Communication in Cybersociety. SAGE Publications. London.

Nichols D, Farrand T, Rowley T & Avery M. 2006. Brands & Gaming. The Computer Gaming Phenomenon and its Impact on Brands and Businesses. Palgrave Macmillan. Basingstoke.

Stern, E. 2002. Keskiajan kosketus. Kerronnallisista, maagisista ja tietoteknisistä artefakteista verkkoroolipeleissä. [The Touch of Middle Ages. Narrational, Magical and Information-Technological Artefacts in Online Roleplaying Games.] Huhtamo, E & Kangas, S. Mario-Sofia. Elektronisten pelien kulttuuri. [Mario-Sofia. The Culture of Electronic Gaming.] Gaudemus. Helsinki.

Suvanto, J. 2002. Virtuaalimaailmojen hyödyntäminen verkkoliiketoiminnassa. [Utilizing Virtual Worlds in E-business.] Turun Ammattikorkeakoulu. Turku

9.2 Electronic sources

Allbusiness.com Business Glossary. 2009. URL:

<http://www.allbusiness.com/glossaries/npc/4951689-1.html>. Quoted: 11.8.2009.

Barboza, D. 2005. Ogre to Slay? Outsource It to Chinese. NYTimes.com. URL:

http://www.nytimes.com/2005/12/09/technology/09gaming.html?pagewanted=1&_r=2.

Quoted: 3.6.2009.

BBC News. 2007a. Virtual Game is a 'Disease Model.' URL:

<http://news.bbc.co.uk/2/hi/health/6951918.stm>. Quoted: 6.6.2009.

BBC News. 2007b. 'Virtual Theft' Leads to Arrest. URL:

<http://news.bbc.co.uk/2/hi/technology/7094764.stm> Quoted: 9.6.2009.

Blizzard Entertainment. 2009a. World of Warcraft Account Management. URL:

<http://www.wow-europe.com/en/index.xml>. (Account services only available to paying subscribers.) Quoted: 5.5.2009.

Blizzard Entertainment. 2009b. World of Warcraft -How to Play. URL: <http://www.wow-europe.com/en/info/basics/gettingstarted.html>.

Quoted: 16.5.2009.

Blizzard Entertainment. 2008. World of Warcraft Reaches New Milestone: 10 Million Sub-

scribers. URL: <http://eu.blizzard.com/en/press/080122.html>. Quoted: 15.5.2009.

Blizzard Entertainment support. 2009. World of Warcraft Account Security. URL:
http://us.blizzard.com/support/article.xml?locale=en_US&articleId=20572. Quoted:
9.6.2009.

Blue, L. 2007. World of Warcraft: A Pandemic Lab? Time.com URL:
<http://www.time.com/time/health/article/0,8599,1655109,00.html>. Quoted: 6.6.2009.

British Legends. MUD1 History. <http://www.british-legends.com/history.htm>. Quoted
22.4.2009.

BTJ Kustannus. 2009. <http://www.btj.fi/?file=661>. Quoted 4.8.2009.

Cohen, P. 2008. Wrath of The Lich King Sales Break one-day record. PC World. URL:
[http://www.pcworld.com/article/154267/wrath_of_the_lich_king_sales_break_oneday_reco
rd.html](http://www.pcworld.com/article/154267/wrath_of_the_lich_king_sales_break_oneday_record.html). Quoted: 5.5.2009.

Damer, B. 2001a. Avatars! Exploring and Building Virtual Worlds on the Internet. Appendix
A: Projects, Groups, Events, Philosophers, News and Predecessors in Avatar Cyberspace.
URL: <http://www.digitalspace.com/avatars/book/fullbook/appendix/projects.htm>. Quoted
15.5.2009.

Damer, B. 2001b. Avatars! Exploring and Building Virtual Worlds on the Internet. Gaming
Worlds Section 3. URL:
<http://www.digitalspace.com/avatars/book/fullbook/chcg/chcg3.htm#sims>. Quoted
15.5.2009.

Dibbell, J. 1993. A Rape in Cyberspace. Available at URL:
<http://www.juliandibbell.com/texts/bungle.html>. Quoted: 4.6.2009.

Eskelinen, M. 2005. Pelit ja pelitutkimus luovassa taloudessa. [Games and Game-Research in
Creative Economy]. Sitran Raportteja 51. Edita Prima oy. Helsinki. URL:
<http://www.sitra.fi/Julkaisut/Raportti51.pdf>. Quoted: 2.5.2009.

Eldex Change. 2009. European Linden Dollar Exchange. URL:
<https://www.eldexchange.eu/en/news/index.html>. Quoted: 16.5.2009.

F-Secure. 2007. Virtual Theft at the Habbo Hotel. URL: <http://www.f-secure.com/weblog/archives/00001319.html>. Quoted: 9.6.2009.

Gamespot. 2009. EA Posts \$1 Billion Annual Loss. URL: <http://www.gamespot.com/news/6209194.html>. Quoted: 16.5.2009.

Heeks, R. 2008. Current Analysis and Future Research Agenda on “Gold Farming”: Real-World Production in Developing Countries for the Virtual Economies of Online Games. Institute for Development Policy and Management, University of Manchester. URL: http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/documents/di_wp32.pdf. Quoted: 3.6.2009.

Hoyle, B. 2006. Gamers' Lust for Virtual Power is Satisfied by Sweatshop Workers. Times Online. URL: http://technology.timesonline.co.uk/tol/news/tech_and_web/article648072.ece. Quoted: 3.6.2009.

IGN. 2009. EverQuest Celebrates 10-Year Milestone. URL: <http://pc.ign.com/articles/962/962906p1.html>. Quoted: 15.5.2009.

Kasvi, J. 2009. Virtuaalimellakka. [Virtual Riot.] Jyrki J. Kasvi's Blog. URL: <http://www.kasvi.org/index.php?blog>. Quoted: 12.5.2009.

Kock, N. 2008. E-Collaboration and E-Commerce in Virtual Worlds: the Potential of Second Life and World of Warcraft. IGI Publishing. Hershey. URL: http://www.infosci-online.com/downloadPDF/pdf/ITJ4264_5DQLbS5eNH.pdf. Quoted: 16.5.2009

Koskela, K. 2009. Second Life on jo usean oppilaitoksen kurssipaikka. [Second Life is Already the Course Avenue for Many Educational Establishment.] HS.fi. URL: <http://www.hs.fi/kotimaa/artikkeli/Second+Life+on+jo+usean+oppilaitoksen+kurssipaikka/1135243237117>. Quoted: 15.5.2009.

Kotilainen, S. World of Warcraft -lisäosa teki hurjan myyntiennätyksen. [World of Warcraft - Expansion Pack Broke Sales Record.] Tietokone.fi. URL: http://www.tietokone.fi/uutta/uutinen.asp?news_id=35813. Quoted: 15.5.2009.

Kuchera, B. 2008. Dutch Court Imposes Real-World Punishment for Virtual Theft. Ars Technica. URL: <http://arstechnica.com/gaming/news/2008/10/dutch-court-imposes-real-world-punishment-for-virtual-theft.ars>. Quoted: 9.6.2009.

Lee, J. 2005. Wage Slaves. 1up.com. URL: <http://www.1up.com/do/feature?cId=3141815>. Quoted: 3.6.2009.

Linden Lab. 2008. Linden Lab and IBM to Achieve Major Virtual World Ineroperatibility Milestone. URL: http://lindenlab.com/pressroom/releases/07_08_08. Quoted 12.5.2009.

Linden Lab. 2009. The Second Life Economy -First Quarter 2009 in Detail. URL: <https://blogs.secondlife.com/community/features/blog/2009/04/16/the-second-life-economy—first-quarter-2009-in-detail>. Quoted: 28.7.2009.

Marshall, A. 2009. Online 'Blood Plague' Offers Lessons for Pandemics. Reuters UK. URL: <http://uk.reuters.com/article/healthNewsMolt/idUKTRE53Q4HI20090427>. Quoted: 6.6.2009.

Masalin, T. 2009. World of Warcraft on ”pelien kokaiinia.” [World of Warcraft is ”Cocaine of Games.”] Tietokone.fi. URL: http://www.tietokone.fi/uutta/uutinen.asp?news_id=36976&tyyppi=1. Quoted: 10.8.2009.

Noyes, K. 2007. Second Life Sex Toys Spat Spurs Real-Life Lawsuit. LinuxInsider. URL: <http://www.linuxinsider.com/story/svMVEQnOxvUhq1/Second-Life-Sex-Toys-Spat-Spurs-Real-Life-Lawsuit.xhtml?wlc=1249384964&wlc=1249917308>. Quoted: 10.8.2009.

PC Magazine encyclopedia. 2009. URL: <http://www.pcmag.com/encyclopedia/>. Quoted 31.7.2009.

Pentikäinen, J. 2009. World of Warcraft -sopimus tuottaa massiiviset palvelinkaupat. [World of Warcraft Contract Produces Massive Server Deal]. Tietoviikko. URL:

http://www.tietoviikko.fi/kaikki_uutiset/article273875.ece?s=u&wtm=tt-20042009. Quoted: 2.5.2009.

Pelit.fi. 2009. Sony rankasti tappiolle. [Sony to Make Harsh Losses.] URL: [http://www.pelit.fi/index.php?id=66&tx_ttnews\[backPid\]=58&tx_ttnews\[tt_news\]=1785&cHash=3e0dd0cc2d](http://www.pelit.fi/index.php?id=66&tx_ttnews[backPid]=58&tx_ttnews[tt_news]=1785&cHash=3e0dd0cc2d) Quoted: 16.5.2009.

Pitkänen, J. 2009. Virtuaalisten pelihahmojen kauppa on miljardibisnes. [The Value of Traffic of Virtual Game Avatars are Measured in Billions.] Tietokone.fi. URL: http://www.tietokone.fi/uutta/uutinen.asp?news_id=37376. Quoted: 23.5.2009.

QuotationsBook. 2009. Syrus, Publilius Quote. URL: <http://quotationsbook.com/quote/40426/>. Quoted: 22.5.2009.

Scot, R. 2007. WOW and Gold Buying. BBC News. Available in URL: <http://www.youtube.com/watch?v=89QrJ-OIcEA&feature=related>. Quoted: 3.6.2009.

Second Life Blog. 2009. Upcoming Changes for Adult Content. URL: <https://blogs.secondlife.com/community/community/blog/2009/03/12/upcoming-changes-for-adult-content>. Quoted: 10.8.2009.

Second Life Blog. 2008. My First Two Months at Linden Lab. URL: <https://blogs.secondlife.com/community/features/blog/2008/07/25/my-first-two-months-at-linden-lab> Quoted: 5.5.2009.

Second Life Economic Statistics. 2009. URL: <http://secondlife.com/statistics/economy-data.php>. Quoted 3.8.2009.

Second Life Update. 2009. Second Life Adds Business Model: Land Sales, Currency Exchange, Now Micro Transactions Virtual Goods – Linden Lab Acquisition of Xstreet SL and OnRez. URL: <http://www.secondlifeupdate.com/news-and-stuff/second-life-adds-business-model-land-sales-currency-exchange-now-micro-transactions-virtual-goods-linden-lab-aquisition-of-xstreet-sl-and-onrez/>. Quoted: 2.5.2009.

- Second Life Wiki. 2009. History of Second Life. URL:
http://wiki.secondlife.com/wiki/History_of_Second_Life. Quoted: 28.7.2009.
- Shachtman, N. 2008. Pentagon Researcher Conjures Warcraft Terror Plot. Wired. URL:
<http://www.wired.com/dangerroom/2008/09/world-of-warcraft/>. Quoted: 12.6.2009.
- Silvestrini, E. 2008. Creator Of Virtual Sex Toy Settles Lawsuit In theft Case. Tamba Bay Online News. URL: <http://www2.tbo.com/content/2008/mar/22/me-creator-of-virtual-sex-toy-settles-lawsuit-in-t/>. Quoted: 10.8.2009.
- Strickland, J. How Virtual Reality Military Applications Work. HowStuffWorks. URL:
<http://science.howstuffworks.com/virtual-military.htm>. Quoted: 16.5.2009.
- SwagVault.com. 2009. URL: <http://www.swagvault.com/>. Quoted: 3.6.2009.
- Terdiman, D. 2003. Laying Down the Virtual Law. Wired. URL:
<http://www.wired.com/gaming/gamingreviews/news/2003/11/61188>. Quoted: 13.6.2009.
- Terdiman, D. 2007. Counting the Real 'Second Life' Population. Cnet news. URL:
http://news.cnet.com/Counting-the-real-Second-Life-population/2100-1043_3-6146943.html. Quoted 28.7.2009.
- The Chronicle.com. 2007. Law Review Editor: Courts Should Handle Avatar Defamation. URL: <http://chronicle.com/wiredcampus/article/2482/law-review-editor-courts-should-address-avatar-defamation>. Quoted: 9.6.2009.
- Thier, D. 2008. World of Warcraft Shines Light on Terror Tactics. Wired. URL:
http://www.wired.com/gaming/virtualworlds/news/2008/03/wow_terror. Quoted:
16.5.2009
- Thompson, Clive. 2004. Game Theories. The Walrus Magazine. URL:
<http://www.walrusmagazine.com/article.pl?sid=04/05/06/1929205&tid=1>. Quoted:
16.5.2009

ODNI. 2008. Office of the Director of National Intelligence. Data Mining Report. URL: http://blog.wired.com/27bstroke6/files/dni_datamining_report_2008.PDF. Quoted: 8.5.2009.

Ward, M. 2005. Deadly plague hits Warcraft world. BBC News. URL: <http://news.bbc.co.uk/2/hi/technology/4272418.stm>. Quoted: 6.6.2009.

Welsh, O. 2008. US Police Refuse to Investigate MMO Theft. EuroGamer.com. URL: <http://www.eurogamer.net/articles/us-police-refuse-to-investigate-mmo-theft>. Quoted: 9.6.2009.

WordNet. 2009. URL: <http://wordnet.princeton.edu/> Quoted: 10.8.2009.

World of Warcraft EULA. 2009. End User License agreement. Quoted: 14.8.2009.

Yee, N. 2007. The Daedalus Project vol. 5-3. <http://www.nickyee.com/daedalus/archives/pdf/5-3.pdf>. Quoted: 28.7.2009.

9.3 Interviews and presentations

Jin, G. 2007. PhD candidate in Communications at University of California-San Diego. Presentation "Chinese Gold Farmers in MMORPGs." Available at URL: <http://www.youtube.com/watch?v=rEegohRPsqg>. Quoted: 3.6.2009.

Karvanen, P. Ruottinen, M. Responsible for designing the virtual property of HAAGA-HELIA in Second Life. Interviewed in 5.8.2009.

Kasvi, J. 2009. Member of Finnish parliament. Ph. D in Engineering. Presentation "Freedom or Control in Virtual Worlds". Held in 11.5.2009.

Toavs, D. 2008. Professor at National Defence University, US. Presentation "Emerging Media: Its Effect on Organizations." Available at URL: http://www.wired.com/images_blogs/dangerroom/files/OSC-TOAVS.ppt. Quoted: 9.6.2009

Yoe Uusisaari, M. Doctor of philosophy. Author of book “Nettielämää. Sosiaalisen median maailmat” [Net life. Worlds of social media.] Interviewed via skype in 4.8.2009.