

THE ECONOMIC AND SOCIAL IMPACT OF
MMO VIRTUAL MARKETS AND IDENTITIES

BY

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ABSTRACT

Massive Multiplayer Online games or MMOs are virtual worlds that encompass incredible numbers of people constituting communities that span multiple continents and languages. Astoundingly, their numbers have grown over 80% in the past decade, commanding an impressive segment of the digital entertainment industry. With unofficial numbers projecting over one hundred million individual accounts in 2010, the MMO market is expanding beyond expectations with some of the largest profits in the entire entertainment industry. Furthermore, since about 2003 a shadow industry has developed under the MMO market, both of which have remained relatively under the radar of academia for years. Developing in tandem to the success of MMOs, this illicit industry termed “gold farming” has become large enough to define as an economic subsector. Gold farming, roughly defined, is the trade and sale of virtual items, that never exist in the actual. This generates enormous questions that would have never been considered only a decade ago. Some research suggests that the gold farming industry made multiple billions of dollars in 2009 alone. This shadow industry turns traditional economics on its head and raises questions of ownership, productivity and development. The social and economic impacts these emerging industries will leave on history are going to be ‘massive’. Raising the questions: where we will be in its wake, and how can we better understand this phenomenon right now?

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TABLE OF CONTENTS

LIST OF TABLES	4
LIST OF FIGURES.....	5
CHAPTER I.....	6
INTRODUCTION	6
GENERAL ISSUES AND CONCERNS.....	11
CHAPTER II.....	16
RESEARCH STATEMENT	16
METHODOLOGY	18
REVIEW OF THE LITERATURE	27
CHAPTER III.....	50
THE MMO.....	50
MMO INDUSTRY PLAYERS AND SCALE	56
GAMES INDUSTRY, MARKET AND JOBS	70
INDUSTRY TOOLS	77
SUBSCRIPTION FIGURES	87
CHAPTER IV	90
ECONOMIC SUBSECTORS INTRODUCTION.....	90
RMT AND GOLD FARMING.....	97
SUBSECTOR TOOLS AND FUNCTION.....	105
CONSEQUENCES OF RMT AND GOLD FARMING.....	112
CHAPTER V.....	120
RESEARCH.....	120
FOCUS GROUPS	124
INTERVIEWS	134
RESEARCH CONCLUSIONS.....	141
APPENDIX A (Interview Questions)	147
APPENDIX B (System Requirements).....	152
APPENDIX C (Glossary).....	153
APPENDIX D (IRB Forms).....	161
WORKS CITED.....	165

LIST OF TABLES

Table

3.1.....73

Table

3.2.....74

Table

3.3.....87

Table

4.1.....105

Table

5.1.....127

LIST OF FIGURES

Figure 3.1.....	56
Figure 3.2.....	58
Figure 3.3.....	63
Figure 3.4.....	63
Figure 3.5.....	64
Figure 3.6.....	64
Figure 3.7.....	65

CHAPTER I

INTRODUCTION

The online games genre is swiftly becoming the largest entertainment sector in the world. In particular, pay-to-play gaming generates more revenue than amusement parks, Broadway shows, or concerts, and will soon surpass television and movies. The fastest growing and most intriguing of these online gaming segments is the Massively Multiplayer Online game, or MMO. This type of game creates a virtual world where tens of thousands of players interact. The MMO redefines the social relationship between work, play, society and the notion of commodity. Their growth over the past decade has been an explosion; amassing an estimated 100 million subscribers, averaging twenty hours of use per week.

During the same time the MMO industry proliferated across borders and language barriers, a complete ancillary industry formed in conjunction. 'Gold farming' is the practice of selling in-game items and currency for actual money. Commodification of virtual goods in massive multiplayer online communities has had enormous impacts on real world markets over the past decade. These actors are not some isolated group operating solely in the United States. In fact, sales of in-game currencies have been recorded in every country in which MMOs are played, from Germany to South Korea, South Africa to the United Kingdom, and Canada to Mexico. As research in this paper will outline, the United States is not the only producer and purchaser of virtual currency.

There is documented massive-scale gold farming taking place in some of the most improbable locations in the world. In fact, gold farming has even become a strategy in some emerging and developing economies for the social and economic growth of their markets. The infrastructure and startup capital to generate a sizable profit in this economic subsector are extremely low in comparison to traditional methods of industrialized development. These practices and concepts will be examined further in Chapter 4.

The Practice of purchasing virtual goods is not isolated to MMOs, in every digital games sector there are sales of intangible digital goods. There is no question that this behavior is proliferating, and as a practice RMT (real money transactions) have become shockingly lucrative overnight. Simply put, it is easy profit. Commodity generation in the digital sphere is a completely different story than an actual material good. Traditional problems of distribution are simply inapplicable to the virtual. Even the amount of startup capital for a digital game is exceptionally less given new mediums and social networks. Facebook, a social phenomenon all its own, has spawned countless games that have massive followings on its network. One such game, “FarmVille”, has captured an incredible user base, yet the startup capital for this game could have been found in a coin jar. A little digital espionage here, and a little programming there, and FarmVille is conceived in a single living room with less than 100 dollars. Today, FarmVille has four times as many people using it on a daily basis than the active number of Twitter accounts. It is astonishing that something like FarmVille never gains the same level of media attention, considering the buzz surrounding Twitter. With incredible sales of virtual tractor fuel so that users can plant their virtual carrots, FarmVille begs the question: what

is a commodity in this digital age? Users logging into the game on hourly intervals to ensure their strawberries and corn are growing properly raises questions surrounding work, time, labor, and digital addiction.

Much of the research on digital gaming has focused on addiction; yet human addiction research is not a new notion. The basic desire to escape and to lose ones inhibitions has left a trail of collateral damage across centuries. Even harmless card games have crippled entire lives, and been the subject of formal research. This is not simply a reference to poker. There were serious Bridge addictions that used to destroy college students grades at the turn of the twentieth century. Marathon Bridge playing became an obsession, running into all hours of the night and sometimes for days at a time. Some of addiction's victims were students who received performance based scholarships at prestigious schools, only to lose their student status to their Bridge obsession. The game still has support groups for the obsessive today, and Bridge even today draws a significant crowd.

Enhancing the capacity for addiction, the digital era is defined by its ability to captivate the audience, bringing new levels of connectivity and depth to experiences. The digital revolution in entertainment is a continuous driving force towards technological hardware advancement; the emphasis here is on hardware. Certainly the majority of computer use goes to word processing and web content. While these software applications are important, the amount of processing power to render them is negligible. The video game industry has single handedly forced computing technology to advance exponentially. The development from Pong to Mario, Mortal Kombat to Golden Eye, and Halo to Crysis enabled Hollywood to push the envelope in major blockbusters like

Avatar, offering incredible visual effects and three dimensional rendering using the same 'super computers' gaming enthusiasts employ to satiate their World of Warcraft habit. The same Autodesk software programs like Maya and 3ds Max are the same vehicles which render games and movie characters and explosions. It is without a doubt that the video game and its ever expanding market have been the catalyst for computer hardware innovation over the past ten years.

Due to the incredible processing power today the virtual spaces that are rendered in these virtual worlds are astounding. The immersing effect of the virtual world is difficult to articulate. Imagine a place so vast it would take weeks to explore its entirety. Some of these worlds are nearly impossible to differentiate from the actual, because of their attention to detail. These virtual worlds offer waterfalls, valleys, plains, mountains, cities even oceans that cover distances unfathomable except within the digital context, visually stunning in a way only the virtual can achieve.

While the visuals in MMOs are little different from what other consoles and games have to offer, what makes them so different is that the user experiences all of these incredible things within a virtual world populated by other users as real as him or her. The social context brings the virtual space to life. MMOs have user populations with millions of real people, only reinforcing the reality of the virtual. Implications of this kind of reality have been misunderstood only until recently.

Academia was turned on its head when a few pioneers suggested that over the past decade the MMOs industry's subscription base grew to a population larger than the United Kingdom and Canada combined. At the same time a completely underground economic subsector grew to a multibillion dollar venture without ever generating

something tangible: selling items and currencies that never existed for profit. Even more shocking, this clandestine industry had existed widely undetected for nearly half a decade. In the shadows, gold farming warehouses in third world and developing countries flourished. These "sweatshops" took advantage of the relatively small amount of competition in a market. With little to no regulation, these predatory companies have taken a ride on the back of the MMO industries success, and will stop at nothing to pull as much profit from the MMORPG¹ (Massively Multiplayer Online Role Playing Game) while they can. It is the relative anonymity that has enabled the success of this market subsector.

GENERAL ISSUES AND CONCERNS

Concerns of addiction, relationships and priorities make for serious social problems from MMOs. Questions surrounding this new media are crucial because of the games' effects on the economy and society. The next few paragraphs will outline several of the concerns facing both our society's and economy's inevitable collision with the MMO paradigm.

Social relationships in the United States concerning even the concept of 'game' have been standoffish at best. The idea of 'playing' in our terminology literally means that a person is not working or taking something seriously. This may stem from the Puritan work ethic which maintains vestiges in our collective psyche. However, calling MMO subscribers 'players' is not always the most appropriate term. In some of the MMOs there is no inherent 'game' system, and they refer to their logged on users as 'residents'. Their time engaged in a 'game' is still perceived as 'lost time' because of the misunderstanding surrounding MMOs. Where society believes the resident is not participating in the economy, often this is not the case. There are thriving economies in many of these virtual worlds that see unfathomable return on investment (ROI) in terms of actual profit.

Ethnographic research in Second Life (an immensely popular MMO that mirrors reality), suggests family and friends' social perceptions of the relationship between an individual and his or her avatar become positive once the individual yields actual world money by participating in their virtual community. This perception breaks down barriers between what our culture defines as productive and useful, and time spent in virtual worlds; somewhat shortsightedly, this change remains within the context of the capitalist structure, focusing solely on the profit motive. Hundreds of thousands of the individuals

who reside in these worlds receive immeasurable benefit from participating in a supportive social network, but this does not constitute a measurable profit and users retain a stigma for their time in virtual worlds.

The notion of 'game' brings cultural, behavioral and social norms. Yet 'gaming' in most cases is the wrong language to use when describing time in a virtual world. For the player seeing, hearing, touching and experiencing a virtual world while in an enormous community of like minded participants makes the virtual *as real as the actual*. In fact, ethnographic research concluded that while immersed in the virtual environment, the subscriber's brain registers events and relationships *virtually* no differently than events and relationships experienced *actually*. As far as the brain is concerned, the subscriber's relationship with their avatar is as an extension of their senses: impulses are no different from their nose, ears or eyes. The avatar enables the user to immerse him or herself in a digital projection of their personality. "Avatars make virtual worlds real, not actual: they are a position from which the self encounters the virtual" (Boellstorff 2008).

On the other side of the screen, there is a mounting concern in the MMO industry that directly affects the development and video game production. Alternative markets are exploding all around MMOs and have the potential to create immense amounts of external wealth. Many games have communities, but not until recently did we see outside individuals and companies, who themselves were not developers of the MMO games, seeking to make a profit in the MMO communities. These digital startups do not require massive amounts of capital and do not face the same distribution problems that typically plague new business. These companies create and market 'addons' or modifications that are installed on top of the game to change or improve the user's interface. Nearly all

MMOs support 'addons'. The numbers of businesses that are able to create attractive, quick, and inexpensive modifications are going to continue to increase as these modifications become more attractive and helpful to game play.

At the same time MMOs expanded and began to include supplementary software, the gold trading industry had never been larger. Estimated at over 2bn US dollars in profit in 2009, the underground sale of virtual goods and gold is something that plagues the MMORPG (Massive Multiplayer Online Role Playing Games) industry, yet they seem to do little to stop it. The few major developers of MMOs who tried to curb gold sales, met with monumental failure. Square Enix, publisher of the Final Fantasy franchise, released Final Fantasy XIV (FFXIV) with a massive amount of market buzz. Within weeks of its launch they had lost the majority of their initial subscribers, and only a month later made the game free to play in order to entice subscribers. Eventually, after offering an indefinite trial period (where the free subscription was extended), Square Enix CEO Yoichi Wada had the *entire* FFXIV team step down. From project leaders to game designers, the production team was replaced in early 2011 with hopes of revitalizing the game and resurrecting what they could of their subscribers initial excitement.

Square Enix has released widely successful games in the MMO market before, and understands the formula for success. Their previous MMO release Final Fantasy XI (FFXI) is *the* longest running and continuously successful MMO in the entire industry, pioneering a trend setting interface. With a late 2001 release, FFXI maintained subscription numbers from 2003-2009 at 500,000 accounts, and in 2010 around 350,000 accounts. This is the first MMO that I experienced playing, logging over 40 days of time in Vana'diel, the virtual world Square Enix had created in FFXI. The game continues to

be enormously profitable for Square Enix, even today in 2011 with a game developed and designed back in 2002.

This is why the industry was so confused when FFXIV was released as such a monumental failure. Aside from issues with play mechanics and problems with the interface, FFXIV purposely did not incorporate an auction house. This is the basic system in place in MMOs to facilitate a general trade market between players to purchase and sell goods. After goods are purchased, items are sent to a character via an in game mail system.

Auction houses and mail systems are mainstay concepts in any successful MMO. Players need centralized locations where people buy, sell and exchange trade goods and loot in the game. However, this is also the place where all of the underground gold sales take place. Users seek out these underground services for various reasons ranging from lack of time, to leveling services, to item purchasing, to land purchasing and even character purchases.

More often than not, these illicit transactions are simply virtual currency transactions; wherein a subscriber solicits a service to provide virtual gold or items, or in game services for actual money. This requires the user to log in to an account with a service like PayPal and transfer the actual money at a given exchange rate from dollars to virtual currency. After receiving payment, the service will log on to the user's shard and mail them the in game currency or goods, which is a concept that will be explored in depth in Chapter 4.

When gold sales were a major problem and under intense scrutiny by the developers and employees in World of Warcraft, real money transaction service

companies changed their tactics for in-game deliveries by using the in-game auction houses. This has been one of the standards for RMT activity in MMORPGs now for the past few years. In this scenario, RMT services ask users to post easily obtainable low value items, items the equivalent of 0.000006 US dollars and post them on the auction houses for unrealistically high amounts of gold (in game currency). The service would then log on to the appropriate server and purchase the item at the absurd rate, in this way transferring the virtual money to the user without mailing the currency directly, essentially laundering the funds and absolving both parties of their participation in this underground economy.

CHAPTER II

RESEARCH STATEMENT

Unlike every other game that has been ever produced, the goal of an MMO is not to win. More interestingly, there is not even a way for a user "to win". In essence, an MMO is a pastime, never a 'game'. To retain user subscriptions MMORPG developers have created a item based reward system. Rivalry for better content and more impressive avatars fills in gaps where the developers did not design, instead they counted on the need to be the toughest kid on the playground. In a fantasy world anyone can become the most impressive virtual character, (a.k.a. the toughest kid), which creates an environment of constant competition.

For my connection to these virtual worlds, and what laid the groundwork for the participation action research (which made up the largest portion of my qualitative research) my group of friends used the MMO as a social network which initially kept the group cohesion. Ultimately however the need to be best in these worlds drove some to join alternate groups who are more successful at difficult content, (which garner more impressive rewards for the increased level of difficulty). The interplay between money (both virtual and actual), power, and status generate an incredibly negative environment that pulls in users at the expense of more than just their wallets. People's marriages, jobs, work environments and livelihoods have all fallen prey to the new Monopoly; immaterial rewards for real time.

The MMO has economic, social, cultural, psychological, health and safety, and even political issues at its heart. The topic of pay-to-play gaming has so many different levels, and is so incredibly broad that it required a level of focus to help target research towards my goals. To articulate everything that impacts my concerns surrounding of the MMO paradigm I have constructed the following research question:

"If users increase their time in virtual worlds, what cost does that have on society, its markets, and their productive capacity to generate social wealth?"

METHODOLOGY

The core of this research identifies and considers the unique implications of MMOs. These are specifically the existence of virtual worlds. The thesis describes and assesses the impact of:

1: Growth and development of virtual markets.

2: The extensive nature of virtual worlds and identities.

The implications of these things as this thesis expounds are extremely consequential. This thesis' essential research questions surround the concepts of:

- 1: Rapid technological advancement in the computer industry which has led to the growth of virtual markets and virtual identities.
- 2: The subsequent growth in gaming software has spurred innovation in the computer hardware industry towards incredible technological advancement over the past decade.
- 3: The resulting virtual market has created an ancillary industry, potentially exploitative of outsourced global labor.
- 4: Extensive virtual realities and virtual identities have resulted in very large numbers of individual commitment of extraordinary long hours, with potentially addictive properties resulting but not limited to, social and economic consequences surrounding allocation of productive labor time, domestic discord, and significant financial and economic costs.

Part of my argument is that the growth of massive multiplayer online games will have a detrimental effect in that it redirects skill, time, and resources of a significant demographic group. Who have an average age and median income which propel our

consumer economy in both jobs and in the retail of purchasable goods that drive the domestic market.

The framework for the thesis has been built on several basic research strategies. This is because the experiential knowledge and firsthand information cannot make up for erudition and quantitative data that some of the sources and interviews have offered. To better understand the impact of the MMO industry, many qualitative tools have been employed in unison with the quantitative research. The industry figures from companies were every bit as important as every interview and focus group to better give context to their impact on the subscribers of these worlds. Unfortunately, reliable gold farming numbers were difficult to procure, but there have been recent academic studies which have explored this emerging phenomenon. Using their assertions, simple generalizations and measurements from online sales have outlined the scope and scale of this illicit ancillary MMO industry.

The evolution of this topic has been slow, without necessarily a defined direction from the start. Practical experience with insight into the lives of users in these virtual worlds helped identify key agents, without whom this research would not have been possible. Without the direction of key agents stationed in Iraq, to my real world acquaintances whom have lost relationships to their MMO habits, friends who have purchased large amounts of virtual currency, even an old roommate who plays an excess of 70 hours a week in the virtual worlds of MMOs; these people ignited the passion to pursue this content direction, and have steered the research question from the start. During the writing of this thesis these key individuals have proven crucial to proving points, and ensuring the validity of my conclusions.

These are the users in the trenches of this new social phenomenon, and are the some of the people whose lives have been most affected by it.

The context for all the qualitative research in this paper came from the time spent in virtual worlds. From 2006 to 2011 logging over 11,000 hours in Azeroth and in her communities learning behavioral patterns, social expectations and language. Conducting the Participatory Action Research brought the shift from the everyday MMO user to virtual investigator. In this capacity the regular subscriber begins to see trends and habits through a different lens. Expectations about time, relationships (to the game and to other players), and commitment to community are understood in a different context. None of the PAR work would have been possible without first reading both Tom Boellstorff and Edward Castranova. Their work outlined how to proceed with an ethnographic or economic viewpoint to understand what forms of research have been done in virtual worlds.

Writing a thesis that would be examined by academia there needs to be serious consideration of any validity threats that could possibly emerge while conducting research. The truth of the PAR brings a level of credence to the work, but needs to be used in conjunction with other tools. Considering my level of personal investment in the pay-to-play industry, there can be little question about the validity of my observations. However, those observations need to then be analyzed and cross referenced with other tools of research. The PAR has given this paper an incredible amount of experiential knowledge and will be extremely beneficial when both interviewing and conducting focus groups. Knowing what questions to ask and who to ask, is an invaluable advantage when working to write something academically.

Throughout the PAR a very strong portion of this project was the memo process. What observations and assertions are raised and pondered while conducting investigative studies for this project are crucial to refer back to and formulate questions for later interviews and focus groups. Writing down reactions and experiences while they fresh enabled later qualification of those experiences more completely. Because of the very personal nature of this topic and how it affects people it has been essential to maintain the development of my memos and the process of keeping a diary of any thoughts, reactions or feelings about what was experienced during the exploration of this research question.

Remaining unbiased has required triangulation between all of the research. All of the research from the PAR, interviews, and focus groups had to relate my research to the questions. Without this kind of consistency, there would have been little hope in determining the factors affecting social and economic impacts from MMOs. Maintaining consistent variables was the chief concern throughout all of the methods of data collection, so that any concern of validity would be able to be traced back to my methods and how each of them correlate to each other. It was this work that made the conclusions so important.

My research throughout this process has included strategies to ensure validity and comprehensiveness. The choices were simple when identifying investigative tools, but the implementation was difficult. In no way was one method more important than another, save the PAR in the virtual worlds. Since the only case studies for this genre have been ethnographies in Second Life, there has been no specific work for this research question, and the problem with conducting any research has been time. Secondly, without

the help of funding from my program these tasks would have proved impossible. The outline that follows is the breakdown for my qualitative research:

- 2 Focus Groups
 - Group 1: Casual gamers (from the virtual communities)
 - Group 2: Gaming enthusiasts (from an end content "guild")
- 5 Interviews (3 couples, 2 individuals)
- 1 Participatory Action Research: (Time in virtual world of Blizzard Interactive)

1) Focus groups with gaming enthusiasts

The rich and accessible resource of residents who play MMORPGs has proved to be the perfect cross section of the average user. By soliciting in a general forum I was able to have access to an interesting group of individuals who all understand what MMOs are. Some of the respondents were are hesitant users, unable to devote the hours needed to become end content users, and some were dire hard fans. The focus group atmosphere provided a sense of perspective, giving each a voice and being able to talk with all of them. Each of their unique experiences has proven invaluable for this thesis. This kind of focus group work truly helps articulate the preponderance of the MMO culture and the gaming industry amongst the average user.

There is also a group of players that are in a "guild", an in game group who happen to all be real life acquaintances, and have agreed to be part of a focus group. With a general solicitation, a small army showed up for the focus group, necessitating me having to turn away about 15 people who were freely volunteering their time for this project. These players are called "end content raiders"². Without a doubt they use

theorycraft³ and coordinated strategies in groups of up to twenty five people to tackle end game content, which is intended for those who are at not only the highest level character and gear, but also those who can fulfill certain rules, roles, and organization. These are not a niche within the MMO industry, in fact they are the majority of the accounts that remain active over an extended period of time. They are who the majority of patches and fixes go out to in the MMO community, and receive much of the attention of the industry tools in order to retain their subscriptions. These tools will be explored later in this paper.

In the end the two focus groups had 5-7 people and spent an hour each talking about their expectations, their fears and concerns and even their praises of these games. The time during the spring break in March 2011 proved to be the perfect time to catch these users in both their free time, and when they are most comfortable to talk about their time in virtual worlds. Not one of the people who played MMOs were logged on less than twenty hours per week, or nearly connected at all times. This was especially true for one of the respondents who used an application on their iPhone which was directly linked to the World of Warcraft Armory. This is a database of all the characters in WOW, and displays their current gear and achievements and possible upgrades. The Armory App was used to compare characters amongst some and to talk about some of their time in Azeroth. The insight and experiences have been a validation of this papers premise, and reinforcing of the PAR work that I have done over the past year.

3) Interviews

Interviews made up an important part of the research for this project. With five qualitative interviews with people from all sides of the MMO industry; from sales, to

infrastructure for the games (servers), to players, and family members who have been affected by the fallout of someone who cannot control their impulses to play, or their behavior and inability to stop. The personal narrative about their experiences has said what cannot been said by massive survey results.

In Washington DC, from the 16th to the 20th of March I spent time with participants who were stationed in Virginia in the armed forces. Personal interviews were conducted with each of the individuals in the marriage, as well as a group interview. All of the families during my research were incredibly accommodating and very open to both my questions and probing during my time with them. I simply cannot thank them all enough. What these couples were able to share was immensely helpful. The personal account, and the impact on the extreme micro level sheds light into the real experience of families and users and how they have been forced to interact as society gradually learns to accommodate these new virtual forms of social networking and entertainment.

Family members have illuminated enormous costs on ourselves and society when these virtual worlds take over our actual lives. This is the heart of the research in this thesis. Measuring the immeasurable has always been the goal, and the true purpose of this study; quantifying and qualifying the social and economic impact of the MMO industry.

4) PAR

There is not much in the social sciences that can match the rigor of PAR. The first hand participation, and data checking abilities make this an ideal solution for this research. While immersed in the digital world of Blizzard Entertainment questions and informal dialogue occurs fluidly. The thousands of hours spent in Azeroth have enabled an understanding of the MMO culture and its tendencies, practices and lifestyle.

Time in virtual worlds is undeniably as important as anything else in terms of research for this thesis. Interacting with people in the very environment this paper hopes to explore and explain will enable a level of truth to the conclusions and outcomes of this research paper.

The preponderance of validity threats are impossible to ignore, because this is social research, and so much of it is psychological and emotional. These are the experiences of people, players, family members and industry movers. The question of rigor in my methods must be air tight through the correlation of my variables in the interviews, focus groups and survey techniques. Any of the data that is gathered while in a PAR will only strengthen the outcome of this triangulation of the correlates. The narrative will add to the validity, and ensure that this question of impact, and the role and responsibility of the MMO industry will be clear.

Reporting specifically on happenings in the 11,000 hour PAR in the research section of the paper would be superfluous. Again, what the PAR gave this volume of work is the context for the entirety of this thesis. Not a page is missing the impact of those hours, nor the relationships and connections forged while immersed in the virtual worlds of MMOs, it provided the perspective for this work.

The PAR was the single most important portion of the research, and remains the constant throughout every part of the hypothesis, research question, and ultimately the synthesis of all the work in the conclusions found in Chapter V. Including a report of all 11,000 hours of my time in both World of Warcraft and Final Fantasy would have made this thesis an ethnography, which was never and has not been the purpose of this paper.

The research that has been conducted has been carefully mapped out to best triangulate my goals surrounding my research question.

So much of work that is done in academia is through the lens of numbers or the writings of those who have gone and done real field work, and that is exactly what the PAR in Blizzard Entertainments World of Warcraft was, field work. Noting behavior trends and immersing myself in the communities and activities of the virtual society. Speaking their language (see the glossary), and understanding what drives some to spend thousands of hours, and thousands of their dollars on virtual goods and services, even at times at the cost of their jobs and families well being. This is what the PAR brings.

All of the methods proposed must be used in tandem simply because without the strength of each the validity of my thesis would be jeopardized. The survey and focus groups will never be able to see the whole picture that an interview or PAR will show, but they lack the raw numbers of people that are impacted. Talking with the people that have been involved in the MMO industry will undoubtedly help answer the questions of impact, and what cost this entertainment trend has had on our capacity to generate social and economic wealth.

REVIEW OF THE LITERATURE

Exodus to the Virtual World, Edward Castranova

Castranova is a PhD in economics at Indiana University who was first to quantify the volume of underground gold trading in the MMO industry. His rough figures produced the 'holy bible' for those seeking to explore Massive Multiplayer virtual world economies. Nearly every book I read at some point acknowledges this text, or quotes it directly. Exodus to the Virtual World explores several topics surrounding the newly exploding industry of massive multiplayer online games. Aside from being an individual who plays these games, Castranova is also the Director of graduate studies in Telecommunications at Indiana University. Castranova's extensive time in Norrath, (the virtual world of EverQuest) frame his participatory action research for his books, and give credence to his positions.

While many other authors explore the psychological aspects of video game addiction, Castranova was the first to attempt to quantify the massive volume of virtual goods traded on an annual basis. Putting a number to the billions of real US Dollars traded for virtual currency and virtual goods. Castranova attempts this quantification through the lens of several virtual worlds like Second Life, alternative realities that encourage the sale and purchase of in game currency and goods in exchange for real US dollars. There are even countries that recognize virtual goods (or loot) as a personal possession. In South Korea a citizen can sue for losses and damages from an in game

item being stolen. These are all items that never existed in a physical tangible form, but were very real in Norrath, Britannia, or Azeroth.

While there are many things that can be blamed on video games, one of their most important contributions, according to Castranova, is their driving force towards advancements in technological hardware development. The emphasis is on hardware, although word processing and web video are what accounts for most computing, the amount of processing power required to render them is negligible. The video game industry has single handedly forced computing technology to advance exponentially. Without the development from Mario to Golden Eye, Halo to Crysis, Hollywood would have never been able to push the envelope towards major blockbusters like Avatar. The "super computers" that powered the three dimensional experience Avatar offered, are some of the same machines that gaming enthusiasts use to play World of Warcraft.

Castranova explores the lure of the immersive MMO games through his time spent in EverQuest. The requirements and expectations of life for the MMO player are not present in virtual worlds. Their lack of daily structure frees the players psyche, and stimulates the human desire for open frontiers. In some games like Second Life the world is continuously expanded, to infinity. The only limit to the size of virtual worlds and their ability to expand frontiers is the amount of space on hard drives, whose capacity has exploded in tandem with these virtual worlds, accompanied by a video rendering revolution over the past decade. I believe this is no coincidence.

These virtual frontiers bear little resemblance to the American West. On the contrary, the millions of players on the hundreds of thousands of servers around the world who populate these virtual worlds, reach a natural equilibrium. Virtual societies

with little more than a behavior agreement between developers and players give birth to complex political and social orders. Developers offer vast open worlds which provide basic necessities. Individuals have a right to work and be compensated for it, they can quest, farm or complete mundane tasks for a set amount which is always consistent. People can become who they want to be, not who they are at their jobs. By day a cashier at a grocery store, by night a shimmering and gallant paladin who snuffs out evil and is the envy of thousands. This is why so many turn to these games for escape, devoting more waking hours to these games than their day-to-day lives.

Castronova finally examines how most of the fantasy worlds owe their heritage to J. R. R. Tolkien, who wrote the playbook for immersive worlds. These MMOs offer the same characters and the same myths that were envisioned by Tolkien, and owe their millions of active accounts to that legacy. There is a beauty in the MMO simplicity. People create "societies of fun", where living as a human being on planet earth, has little to do with their true identity. Endless activities, complete freedom of work and reward, and the ability to gain prestige based solely on their actions have generated some of the largest communities ever recorded, spanning multiple continents.

Castronova provides an interesting perspective on political mobilization through his exodus of virtual worlds. Drawing from a BA in international affairs and a PhD in economics, Castronova believes the power of the virtual worlds and their measurable impact on the tangible reality will proliferate past economic and social issues and become a political question. His views on the virtual worlds' "right to work" and ability to be rewarded for tasks will become something people look for in their actual lives. Being a free agent in these virtual worlds, (someone who can complete "quests" for compensation

and feel empowered by their efforts with no contract or obligation) is something that anyone who feels trapped at a job could desire, and would hope to find in their non virtual lives. Access to basic necessities are provided for everyone in the virtual society through NPCs (non player characters) at a standardized cost, making things like basic materials and food unaffected by auction house price fluctuation. By making travel, food, housing or anything else an avatar would need simple to attain, the MMO brings freedom from the constraints of the actual world.

Castronova believes that incentives for doing things in our society are going to eventually bore the increasing digital generation. While money is important to the United States and many capitalist oriented economies, Castronova believes the goal of amassing wealth as the ultimate aspiration towards personal fulfillment will no longer maintain itself as the status quo. He predicts a massive political movement towards a reforming of our society's values to fit a generation who identifies with different ambitions. "Societies of fun" are a very interesting concept that have yet to be explored by any other academic or researcher.

Exodus to the Virtual World has become a benchmark for academics exploring virtual worlds. Castronova was the first to really explore these games as an academic observer, cataloguing his experiences and interpretations with care. This text effectively quantifies the scope and scale of these virtual economies, and their economic impacts on US markets. There simply cannot be something that takes 40+ hours a week from millions of people that doesn't generate some form of wealth, culture, or change.

Synthetic Worlds: The Business and Culture of Online Games, Edward Castranova

In Synthetic Worlds, his first published book, Castranova writes about the economic and industrial impact of MMOs like EverQuest, in particular the MMO companies' role in the game and its explosion as a new successful media. Castranova blew people's minds with the assertion that the in-game currency in Norrath, (the fictional world in which EverQuest operates) was stronger than both the yen and lira, and equivalent to that of Russia or many Eastern European countries. Castranova was the first to try and quantify the value of underground markets for things like gold-trading and goods-farming in virtual worlds, his work mobilized an incisive investigation into the industry. As it turns out he was not only right, but the first to illustrate an entire shadow industry evolving alongside the MMO revolution.

It was work like Synthetic Worlds and its exposé that forced companies like Blizzard and Square Enix to seek out the aid of security companies like Vasco, massive conglomerates that handle security for governments, and huge information technology corporations. MMO companies now implement some of the same technology governments use in their security protocols for their subscribers to protect them from account theft: the virtual equivalent of identity theft. All the goods, items and crafting materials acquired in these virtual worlds can be sold for gold, that gold can be sold for real US dollars. These are the dollars that make up the billion dollar industry that is referred to as RMT (real money trading), or in the vernacular gold farming and gold sales.

In *Synthetic Worlds*, Castranova speaks at length about the blending of the physical reality and the virtual reality, and how the transition between the two of them is becoming smoother and more difficult to recognize. He believes when this transition becomes seamless, actual non virtual diversions will become less and less important. If the virtual reality becomes an unnoticeable transition, the user's ability to relate with the real world will become less relevant. This will have massive social, political and economic ramifications for traditional markets.

While this text is exhaustive in its exploration of the MMO industry, it is approachable in its explanation of the actual markets in which these virtual worlds have evolved. This explanation is Castranova's most important analyses in this book. The realization that these virtual worlds' currencies are as relevant and tradable as any other currency has immense political questions; particularly when these users span several traditional nation states. Users, companies and developers are going to have very big questions resting on their shoulders as the virtual reality market becomes more and more comparable to the physical reality market.

There are complete sweatshops devoted to the trading of gold and gold services. Some users go as far as to have multiple accounts all watching different in game auction houses, like the stock market. Castranova projects the sale of gold into the billions of dollars internationally across the MMO market, illustrating that there is a market for just about anything. In these games the most precious commodity is time, by purchasing gold from an RMT service users are purchasing time. As the common adage goes "time is money". MMOs are the only form of digital entertainment that require dailies, (an activity you do every day to gain reputation, compensation or reward). The ability to buy

gold online, which in almost every case is against the policies of the MMO developer, enables the user time to do the other things that are sometimes more entertaining.

Castronova's experience in the fictional world of Norrath has given him the unique perspective inside these digital worlds and the ability to offer both prescriptions for the gamers and warnings for the industry. While this text was written before Exodus to the Virtual World, in my opinion *Synthetic Worlds* was the stepping stone for that book's writing, and still has much to offer. This book provides groundbreaking economic predictions and the first real scholarly undertaking of exploring the scope of the 'gold farming' industry, and Castronova does an excellent job articulating every experience surrounding his time in Norrath.

Play Money: Or How I Quit My Day Job and Made Millions Trading Virtual Loot,

Julian Dibbell

Play Money was absolutely critical to the understanding of "farming", an aspect of massive multiplayer online games that is unique unto them. This entire industry has evolved alongside the MMO gaming industry, and has found similar success. "Farming" is the phenomenon that generated alternative markets with in-game currency valued at or higher than most **real** economies in the world. This is an entire industry, thriving in the shadows as an illicit and illegal trade system for MMO users to acquire otherwise difficult items, houses, and money. Farming is what has turned MMORPG's into multi-million dollar ventures for individuals, and for some full time businesses with staff, offices, and in some cases "sweat shop" operations.

In this context, the term farming does not have anything to do with popular browser based games like Farmville. Farmville is a single example of a browser based game that has made millions of dollars for its parent company, Zynga. Zynga was recently appraised at just over a billion dollars by Google in Jan 2011. But this is not the focus of this paper, and for all intensive purposes, even though FarmVille is a strange digital phenomenon it has followed quite traditional channels of production and distribution comparatively to the 'gold farming' subculture in MMOs

In all fantasy MMORPG's there is a "crafting" aspect where a character can create goods to sell to other players. These goods can be obtained by picking, mining, spinning, forging and all other manner of fantastical creation. To gain these things anyone can just go out and "get" them, mining nodes respawn, and flowers virtually regrow nearly

instantaneously, these resources are available to anyone, this means resources are all infinite except one, time. The time it takes to create, or harvest a goods is what generates their projected value in the virtual world, just like here in real markets.

In Play Money, Dibbell took a trip to Tijuana, Mexico to visit an operation by a company called Blacksnow Interactive. This organization made so much money that they were able to front the costs to set up a ‘sweat shop’ in Tijuana, where Mexican workers were employed to play games like World of Warcraft, Ultima Online, EverQuest and all manner of fantasy MMORPG. These workers would spend 12 hours a day crafting, mining, spinning, and baking things that never existed on planet earth, yet generated tens of millions of dollars annually for Blacksnow Interactive from the sale of virtual goods for US dollars.

Dibbell’s basic premise for this book is that he can make a million dollars while playing these games. He does so in the fictional world of Britannia from the patriarch of MMOs, Ultima Online. This money comes from acquiring items from auction houses, in game homes and other players. At no point does Dibbell delve into account theft which has become extremely prevalent since the publishing of Play Money. Dibbell works very hard to get into the underground world of buying and selling digital goods. To get his foot in the door, he makes connections and becomes an errand boy for someone who made millions trading virtual loot. Ultimately, Dibbell breaks out on his own and by the time he concludes this participatory action research he had sold hundreds of thousands of dollars of goods and gold, and his current stock of goods he valued at nearly 800 thousand US dollars.

Dibbell's style of writing makes his book feel like a diary of exploits while exposing these black market enterprises and subculture phenomena. *Play Money* was absolutely captivating and extremely well written as Dibbell is a content editor for Wired Magazine. Dibbell ultimately plunged himself into the trade for the sake of his finances, and for the book. He bought and sold these virtual goods across different servers, watching in game auction houses like real time stock market tickers, seeking the lowest cost for the highest turnaround possible on everything from in game houses to magical swords. All to sell the in game currency for real US dollars on websites and trade sites like EBay; a million dollar adventure.

Play Between Worlds: Exploring Online Game Culture, T. Y. Taylor

Taylor, a social scientist, takes a personal trip into the MMO EverQuest over the course of a few years. EverQuest, juxtaposed with Ultima Online pioneered much of the culture and expectations people have come to have from fantasy MMORPGs. She explores the emotional connections and the social constructs that these games create for players. To the users, these games are not games, they are real in every sense that the concept of reality can exist. The players become their avatar, and before Match.com, Facebook or any of the social or online dating sites had really exploded, Taylor explores players interaction, and connection over the internet within the context of these games. Nearly ten years before internet dating services, hundreds of players that met in EverQuest and Ultima online, have since married. Initially these players only had the game for a connection, but because MMOs are so immersive they enabled connections that no one thought possible. Forming relationships and marriages are now practices not uncommon within users of these fantasy worlds.

The MMO experience has the interdependence built into it, forcing users to seek out others in order to succeed in tackling more difficult in game content. Taylor's ethnography illustrates things this research would have missed, (since I am trained as a political scientist). Complex social problems and ramifications that massive multiplayer online games have and their social significance are of the utmost importance, and are which Taylor explores extensively through the lens of EverQuest. The connection players have to their avatars is not that of an avatar or representative, but an extension of his or her personality and self. Depending on how strongly the role playing element exists in the

game or on the server a person will speak, interact, identify and even become their digital self.

While Taylor's book is now a dated when taken in context of how the industry has changed and grown in the past five years, many of her theories about MMO impact on culture have proven prophetic. She discusses how the company is simply that, a company, and while they produce the product they are not the owners. Individuals have made this their own world with mythologies and books that Sony Online Entertainment, owners of the EverQuest franchise had nothing to do with. The companies may be the creators of the content but they are not the owners of the worlds and societies, those belongs to the players.

Massively Multiplayer Online Role-Playing Games, R.V. Kelly

This text was interesting because Kelly wrote this in the pre-WOW days just as the game was being released in 2004. Since then, World of Warcraft has set the standard for all pay-to-play games in the genre, and Kelly didn't write much about it, even writing it off. Because Blizzard had a significant lack of storyline and serious flaws when compared to established games like EverQuest and Dark Age of Camelot. What is interesting is now Blizzard stands on top of the MMORPG community quite possibly because of its serious lack of back story.

While in recent expansions Blizzard has employed massive amounts of manpower into its current story, Kelly writes at length about the "lure of lore". The games allow for users to express themselves and role-play as someone in these fantastical worlds. The time that people play was relatable to the amount of lore there was in stories which in some cases is true, but the most successful in the MMORPG genre have evolved into no more than dress up with an endless system of rewards for progressing through content, for no more than an "epic" hat. This text is the oldest, but Kelly is able to show the progression that the industry has taken towards user involvement and account retention.

Virtual Worlds: Rewiring Your Emotional Future

Jack Myers writes exclusively from a psychological and sociological perspective on the digital phenomenon Second Life. While this game failed to capture the mass audience of fantasy games like Lineage or World of Warcraft, Second Life did many things different and in many ways has become the poster child for the alternative virtual world that so many identify with this software genre. With only about 100,000 subscribers currently Second Life still manages to capture a large amount of virtual goods and funds trading. According to David Kirkpatrick of the New York Times that at Second Life's 2007 peak 1,525,670 unique users logged onto Second Life, while the number of repeat logged on users that year hovered around 250,000.

Myers asserts that the way people identify themselves emotionally is changing, and how we perceive that connection is different. This he says is most apparent in advertising which has taken on new roles and a different identity. Instead of relying on things like the Neilson rating, he says that companies are dumping millions of dollars into emotional research prompting companies like Fox, Coca-Cola, and AT&T to all rethink their strategies surrounding their advertising plans. Sears and Roebuck Company changed so drastically they became involved in television, prompting the series Extreme Home Makeover. This action was like taking a step to the side from their usual business, but tying themselves emotionally with an incredibly successful show generated massive amounts of revenue.

Delving deeply into the mechanics of how our brains process information and emotions Myers is able to add something to this thesis that could never have been

brought to the table with any of my formal training as a political scientist. It is now thought that the insula a ‘prune like’ part of the brain located underneath the two frontal lobes is what registers ‘gut’ feelings. While the traditional thoughts of your brain process your senses and then disseminate that information to become emotions is wrong. When users are immersed in virtual worlds that are for all intensive purposes indistinguishable from their everyday reality, the emotional connection to them becomes just as strong and as true as something that exists in the non virtual world.

And why not, Myers is truly onto something. If your visual senses are telling you that what you are looking at must be thought about, critically analyzed, emotionally felt, and is being experienced with other people it would certainly satisfy your visual sense. If your ears can hear the actions and listen to the interaction of your avatar with your world, and then connect to others voices would seem perfectly natural for a users sense of sound be satisfied? All of this is happening in a dynamic environment with other people who experience the same alternative reality you do, reinforcing the reality and the shared experience. The outcome of which Myers believes will turn conventional interaction, emotion and sexuality on its head.

The senses act directly upon the gut and the emotions, we have been trained to then determine if what they are doing is appropriate by our brains. Myers believes that future digital generations will make their decisions based on their guts, and hearts because of the uninhibited nature of the virtual world and that the way our entire society operates has the potential for revolution. What Virtual Worlds: Rewiring Your Emotional Future has done is answer sociological questions about addiction, and helped formulate many of the conclusions and prescriptions for this thesis.

Coming of Age in Second Life, Tom Boellstorff

Tom Boellstorff is a trained anthropologist. Without a doubt the most scholarly work on virtual identity has been his exploration of the MMO Second Life. So much of the debate surrounding 'gaming' is a vague and amorphous elephant in the room for researchers. Even the term gaming is not truly applicable to the virtual world of Second Life. While industry leaders like World of Warcraft can without hesitation be called 'games', Second Life is something completely different. Second Life is truly the ultimate expression of a virtual identity. Coming of Age in Second Life is able to capture the Second Life community at a point where it was at its highest, with their largest virtual community to date in 2007. Peaking around a million and a half people who simultaneously exist on some of the most massive servers explored in this thesis.

Boellstorff had a simple methodology which he describes in detail. Without a focus on something like economics or governance, Boellstorff simply asked the question: What can ethnography tell us about Second Life? The title of this book is a direct homage to Margaret Mead's book, Coming of Age in Samoa. Which despite a considerable amount of controversy stands as one of the strongest ethnographic studies in the field. One of the largest hurdles for my exploration into virtual worlds has been the concept of a virtual identity. While I have immersed myself in some of these games and can identify with much of the social orders, I by no means am a trained anthropologist. Boellstorff has been able to articulate things that I was neither trained for, or privy to concerning ethnographic identities, or how to chart communal behavior.

Boellstorff has a simple goal for his book, to track and qualify the enduring cultural logic shared by those who participate in Second Life. He does this by looking into the absolutely mind boggling number of subcultures in Second Life. While none of these subcultures may seem connected on the surface, there is a strong connection between them all. While these groups may disagree on the purpose of Second Life, as he puts it "...these variations and disagreements are only intelligible because articulated against a set of grounding assumptions." By taking cross sections of subcultures Boellstorff has been able to understand an entire community without getting to know the million or so inhabitants of that virtual world. This book is as much an ethnographic study of Second Life, as it is an experiment using Second Life to see if the traditional tools for anthropological study will remain relevant for the digital, and virtual age.

What makes this book so crucial is its exploration of identity in virtual worlds. Initially, when the idea of virtual reality became vogue people looked to create headsets and gloves so that your body could be interacting in a virtual world. Boellstorff debunks this trend by pointing out that no matter how real you make it for your body, your body is used to interacting with the real, physical world. What has become so important is the avatar. A term coined from Sanskrit, originally referring to the reincarnation of a Hindu god Vishnu, Boellstorff says. While the term was used to describe the process of moving from the immaterial to the material, the term now is used for our relationship with our digital selves, the material to the virtual.

Our relationship with the digital self is in many ways an extension of our senses. Instead of donning awkward helmets and gloves to manipulate reality, we immerse ourselves in a digital projection of our personalities. As Boellstorff says "Avatars make

virtual worlds real, not actual: they are a position from which the self encounters the virtual" (Boellstorff 2008). He argues with good credence that when Linden Labs moved to add voice as an option to Second Life, the mass protests were not in most cases because it would expose the characters (in some cases this was the concern), but rather that it would be bringing the actual to the virtual. Transforming the experience of Second Life into a mere extension of the actual, breaking down the walls of Second Life's own constructed reality and in doing so destroying what made their virtual world so important.

Much of my discussion about the virtual self has been influenced by this text. Boellstorff has done one of the most exhaustive and important studies in virtual worlds and identities. His use of language, method and science make for an exciting and fascinating look into what is surely one of the pioneering platforms for virtual worlds. The cultural norms and expectations that develop in Second Life carry over to many of the other virtual worlds that exist in the digital realm. There will be discussion about this work for decades, and rightly so. Coming of Age in Second Life explores something that is little understood but has a massive impact socially, economically, and politically on hundreds of thousands of people.

Literature Review: Summary

Many of these books helped formulate what the research could encompass. There was so much that I did not have a firm grasp on for my base of knowledge before starting this research. There was an entire body of ethnographic work into virtual worlds that was completely unfamiliar before this literature review. To be up front, this thesis does not hope to be an ethnographic study. It does however need to base its research in previous work and existing protocols. Concepts of identity both individual and collective generate so many of the social customs in every society be it virtual or actual. Boellstorff helped answer so many questions with his study in Second Life that in no way would the research in this work have been able to. By exploring social norms and societal behavior Myers and Boellstorff developed a framework for anyone looking to better understand the concept of identity within the lens of a virtual world.

So much of what helps develop a thriving online community and functioning economy exists because of agreed cultural norms of the virtual space. This contract is true for the actual and the virtual, these standards dictate more than individual behavior, they outline expectations of one's self within the community. Just because there is a user agreement for subscribers of MMOs, does not mean that the residents of the virtual will not develop their own behavior patterns with expectations that have nothing to do with the developers intentions of the universe.

In essence the universe of the virtual is so much more dependent on the people than the actual. Sure, if the developers had not created the space for these communities to exist across impossible distances, connecting people that would be otherwise hard

pressed to develop a community without the normal physical proximity, the worlds could not continue. But without a thriving community of residents these virtual worlds would cease to exist. They are part of a dependant relationship unlike the actual. Planet earth will thrive, grow, and evolve outside of man. Azeroth will fade into virtual history the moment people stop visiting her cities, trading in her auction houses, and populating her lands.

As these standards become the status quo within these virtual worlds, ancillary identities and alternative markets develop in tandem with the expectation of thriving based in the same cultural contract. The market space in virtual worlds exists because everyone simply cannot be everything, partly by design, but also by necessity. While some fantasy MMO games have roles for characters designed specifically into the programming, games without such limitations develop these same cultural roles nonetheless. In many cases in response to the programmed markets individuals develop an entire underground economy where many of the difficult items, and wealth are attainable for a fee. This is where the research of Castranova and Dibbell come in to this thesis, and it was this work that I had stumbled upon while immersed in these virtual worlds.

With very little researched in the past two years MMOs have exploded in popularity. Most of the quantitative studies that had been done of political mobilization and economic wealth generation in the virtual has exists from about 2002-2008, when the industry was in its infancy. Now World of Warcraft represents a massive segment of the MMO market, and with over twelve million subscribers if even in my own research I could project 10% of the users purchasing gold regularly, or even on a limited basis this

would completely reinforce Castranova's findings of the billion dollar underground economy of MMOs.

With the research that was done in EverQuest and Ultima online these writers and scholars were able to find a considerable market and even make a million dollars using only in game items and trades. This means that while Ultima is the patriarch of the MMO, and EverQuest the former king of MMOs they together only ever represented a number at their separate peak subscription of about 3 million people, less than a quarter of the population of Azeroth currently. With games like Aion (around 3 million subscribers as of Jan 2011) and Rift (released March 2011 with over 4 million pre-orders), the practice of gold farming and gold sales is not going to go anywhere soon. While developers have taken a hard stance publicly towards gold sales, they have not particularly implemented measures to truly prevent it, and they could. It is a feature that they do not provide, but for some of the most avid or time pressed it is a solution to get levels, equipment and in game prestige. There is however a company that did implement measures against gold sales and auction houses, but was explored earlier when discussing FFXIV's failure at the start of 2011.

In the same way email has developed over the previous decade, MMOs need to find their equilibrium. Offers in game for illegal gold sales are impossible to miss, with private messages from companies that intend to send you to websites that will install malicious key logging software to get your in game currency are numerous; ultimately so they can turn your time in a game for an actual profit. Companies have evolved in their execution of gold sales and currency trading exponentially, even developing conglomerates and cooperatives. Julian Dibbell, a content editor for Wired Magazine

delves into the underground of Ultima Online, the progenitor of the MMO market and first to gain a wide appeal of the MMO audience.

What was impossible to ignore were the factories devoted to farming goods and materials in these worlds. By examining Blacksnow Interactive, a company whose sole purpose was the sale of in game currencies from Ultima, EverQuest and a laundry list of others, Dibbell brings truth to the rumors of sweatshops of workers mining titanium and gold, weaving tunics, and cooking fantastical creature meat into in game goods for actual US Dollar profit. The multimillion dollar success he explores remains elusive and hard to pin down, ultimately his trail goes cold after Blacksnow goes into litigation with Mythic Entertainment, the developer of UO. What is interesting was the case before the California court, about rights to ownership of in game goods.

The essential question that was raised here was who owns their time? Because Mythic is the developer there stance is that everything that is produced in the virtual world is theirs, yet it would never be produced unless the user spent the time to gain the item or currency. These questions of ownership would have never even been thought possible a decade ago, yet today there are issues of intellectual property rights, rights of ownership and cross country barriers for trade that boggle minds because none of these items have ever existed in the actual. They are all virtual, but because time and money both very real constructs to our society have been implemented in their procurement, these lawsuits will only increase over the next decade.

With a background in political science and economics there is a strong capacity for theory, and economic observations and prescription. Yet, there is no framework on how to explore cultural and societal norms. Many of these books enabled this papers

capacity to effectively and correctly diagnose problems, at the same time the literature review imbued dependability into whatever conclusions or recommendations for changes to policy or trends in virtual worlds the research may lead to. While there have been trailblazers into the realm of the virtual, the time has come for a reevaluation of our societies relationship with the MMO, and our political and economic responsibility to understand this exponentially growing industry.

CHAPTER III

THE MMO

Modern social games can hardly be called ‘video games’, they are not parlor activities that appear on a screen. These social forums are complete immersions in virtual worlds, with incredibly elaborate storylines, political organization, fully functional economies that evolve within an alternate reality in which consumers invest themselves. Individuals live their virtual avatars for hours, weeks, months, and even years. There are so many types of ‘games’ that they can hardly be called just a passing entertainment trend. The video game industry is varied and vast, with production houses of big sale games having offices on every continent and programmers and testers from every country, dialogues and storylines being translated into every language imaginable. According to Gameinformer in January 2011, Activision and design company Treyarch's most recent installment of "Call of Duty, Black Ops", made a game that sold more copies in one weekend than any entertainment media ever created; outselling Avatar, Hollywood and every major television network.

Governments are using video games as tools for propaganda machines; the US Army has had a very successful game called US Army, and they are not alone in their state use of digital media, the Chinese government has had several propaganda campaigns utilizing the video game as the vehicle for their message. Even fundamentalist terror groups have been rumored release a downloadable game to target specific age

groups that will train you to do various activities to spread their message of fear. With so many people exposed, and the cost of getting the information out in mere ‘bytes’ the incentives to create things digitally that can manipulate, train, and inform are irresistible.

Currently the largest US demographic for video game consumption is males 21-35, which is quickly being out purchased by males 30-45. These are the people who are working to support families, and in some cases working some of the highest paying jobs in the US. These users from 30-45 have access to the most discretionary income of any other demographic, and encompass the group with the largest overall purchasing power in the United States. Like any smart market segment the video game industry is going to go where the money is, and this is the most profitable demographic. To grab the attention of this group requires longer stories, larger rewards, more immersive graphics; bigger and better is quickly where the industry is going to move to in order to captivate the older audience. Deepening the commitment of the player and furthering the need for more addictive elements, and more time consuming content.

As it is now, World of Warcraft reports their active accounts with over 20 hours a week of average game time. This is a company that has over 12 million *active* users all committing millions of hours a month playing their virtual avatar. What is important to remember is that this statistic represents the number of active, used accounts, not total subscriptions. What this mean is that there are accounts that may remain inactive for periods of time, yet still are paying the monthly fee for the content. What fantasy MMOs like World of Warcraft bank on is the accounts that are reporting an average of 40+ hours a week. This is their most stable account base and represents millions of users. But what the company and the society are not taking into account is that this is more time than a

full time job, with about 5% of their accounts recording in around 60+ hours a week. A productive member of society simply will not be able to maintain relationships, their actual work and professional life on top of their health and wellbeing while keeping a schedule living in a virtual world for the majority of their week. Never mind the people who are living two lives, their 40 hours of work, plus a rigorous 40 hours of raiding a week.

The people that are suffering from these habits are not just the individuals that are playing the games, (although in some cases these people are able to strike a balance). It is the jobs in the actual, businesses that count on these users as employees, the facilities that are losing time and productivity, and the families and children that are neglected that are the ones experiencing the imbalance. In some circles, there is joking the next day at work much like the thirsty Thursday hangover of the past, on Wednesdays; employees are exhausted from skipping sleep to raid the end game content after the server reset every Tuesday in World of Warcraft, not an uncommon story. Forgoing one socially accepted escape (alcohol), for the new immersive escape that a virtual world has to offer.

So, how does a simple game keep millions of users logged on indefinitely in a game that there is no possible way to win? Reward structures. Ever evolving, ever changing cycles of virtual loot⁴ which keep users chasing something that will never enable them to be the best. The item based reward systems offer esteem and status that come with obtaining loot from content that is immensely difficult includes a sense of pride, but with every expansion the game retain their users at the same time making their previous rewards essentially defunct. In some cases games and consoles are including achievement awards or points that will encompass past successes but this does little for

the user who plunges themselves into content for a certain item to find out later it is akin to yesterdays leftovers.

Games that prescribe to these incentive structures encourage more play time, taking our collective time. This means a permanent loss in discretionary time, and in some cases the loss of time at work, home and with loved ones. This is more than just the users time, this is something that the participant will never be able to get back, but also something society will never be able to regain ground on either. Permanently putting everyone at a temporal disadvantage. The incredibly expansive and exciting worlds that video games can now create have seduced millions, causing a mass shift in our collective priorities. This comes because there simply is not enough time to maintain two identities (virtual and actual), yet millions struggle to accommodate for both.

Rewards structures are not a new construct, every game has incentives otherwise there would be no incentive to play it. If participants do not feel rewarded for playing the game there would be no player base. The chief concern for this portion of research is the MMOs choice of structure for its reward systems. To encourage massive numbers of people to agree to a monthly occurring fee to play the game outside of the initial cost of the game disc requires more than just good graphics or a story line. The traditional lifecycle of a game is inapplicable to an MMO. These MMO companies do not produce a single play one time use consumable game; there is no way to hook a player base on a monthly subscription with something participants can beat. MMO companies have no incentive to give the players content they can ‘win’, instead the endless cycle rewards becomes the goal. It becomes a challenge to keep up with the content, and to keep up your virtual ego.

Imagine a group of players (twenty five to be exact) each of the users participating to fulfill a role as part of the whole to defeat certain "end game" content. There are two tanks⁵, generally four healers⁶, around ten ranged dps⁷ who are both casters⁸, and hunters⁹. There are also around nine or ten melee¹⁰ dps. Depending on the raid¹¹, the boss¹² mechanic may require a different group build¹³ with various specs¹⁴ in order to down¹⁵ the "instance or encounter"¹⁶. This typical setup if you do not have all the requisite players can take hours simply to assemble. In fact based on participatory action research, end content raiders spend at least half of their time online either working in the game to gain money to purchase gems, flasks, food and enchantments¹⁷, or waiting for their raid parties to assemble and prepare for the dungeons.

A popular online cartoon called "Control Alt Delete"(and nod to the command in windows to force close programs and manage windows functions) has a boy standing waiting for a train. The next scene shows a clock on the wall almost 45 minutes later. Then one boy turns to the other and says, "How can you be so patient? We've been here for nearly an hour!" The other boy responds, "I play MMOs, this is nothing." The cultural acceptance of the dreaded LFG¹⁸ creates a shared social experience and a uniting identity for the subscribers of these games.

Issues surrounding this trend in the gaming market are numerous. The cost of having so many playing for so many hours a day takes away from the productive capacity of the United States, and all of the worlds markets. There is no measure for the cost to society for this kind of activity. Can we measure the broken families, the strained marriages, jobs lost and friends neglected to this level of virtual proliferation? Many people who subscribe to these alternative realities already report closer relationships with

people in their virtual worlds than in their real lives, at what point will society stop and question this behavior? Or will we learn to integrate the virtual with our collective actual?

MMO INDUSTRY PLAYERS AND SCALE

The MMO sector has several genres each with iterations all their own. There is no single arch type for an MMO. Yet, according to mmodata.net fantasy games make up over 95% of the massive multiplayer industry, with science fiction and "other" rounding out the genre percentages. This means that even though each of the MMO stories are incredibly different and their execution in programming, aesthetics, and lore are all unique; they each owe a debt of gratitude to the fantasy world of J.R.R. Tolkien. This does not mean that every game has goblins and ogres. However, this does mean that many games do.

Currently, because of serious market dominance, one fantasy game makes up about 20% of the entire MMO market. This means the entire MMO fields with about 60 million subscribers may not all be playing one type of game, but the 12.3 million people currently subscribing to World of Warcraft are playing a fantasy game. What is also important to remember that there is no other MMO currently with over 4 million active accounts. World of Warcraft invariably throws the data in the favor of the fantasy genre just because of their market dominance.



FIGURE 3 1 (MMODATA.NET 2011)

Essential to a full analysis of the market is an understanding of the MMO industry leaders. These companies set the pace for the content and performance levels for the majority of the games in the market. Only a handful of developers make up the companies with more than 500,000 subscribers, while the companies with more than a million customers are an elite few. By noting which companies seem to be on top of subscription numbers, researchers could presumably point out the companies who will remain relevant and continue to thrive for years, or at least which MMO formulas are successful. Unfortunately, this technologically dependant industry is constantly changing, and any guess is as good as another when attempting to determine the success or failure of an MMO. Square Enix by many accounts was designing the “WOW killer” with Final Fantasy XIV. As mentioned earlier it met with complete disaster in late 2010, even with enormous presale and hype. Before World of Warcraft was orbiting the stratosphere in its untouchable industry success, it was initially written off as a poorly executed MMO to the majority of the then industry leader's EverQuest community.

Understanding the basic figures surrounding subscriptions enables several answers about how people are spending their time, and if anything like gold farming could even be possible in the game, enabling generalizations about habits in certain uses, and in genres. For instance games like World of Warcraft and Aion have a deep and rich gold sale sector, with hundreds of millions estimated in 2009 of black market sales of in game currencies and items. This is because of the rich crafting¹⁹ that exists in these games. In some games like Final Fantasy XI (which is still a huge industry success despite its 2001 release date) the majority of items like clothing and weapons do not "bind on equip"²⁰ or "bind on pickup"²¹. What this means for the underground market of

these games is that they continue to expand with more items as more people play, and will continue to be sold and traded even after a character wears or uses them. This creates a huge community of underground demand, where a nearly immeasurable amount of real US Dollars are traded for these goods.

By illustrating subscription figures and following industry leaders it does not take long to follow the money trail. Below are the top five MMOs by subscription in 2010:

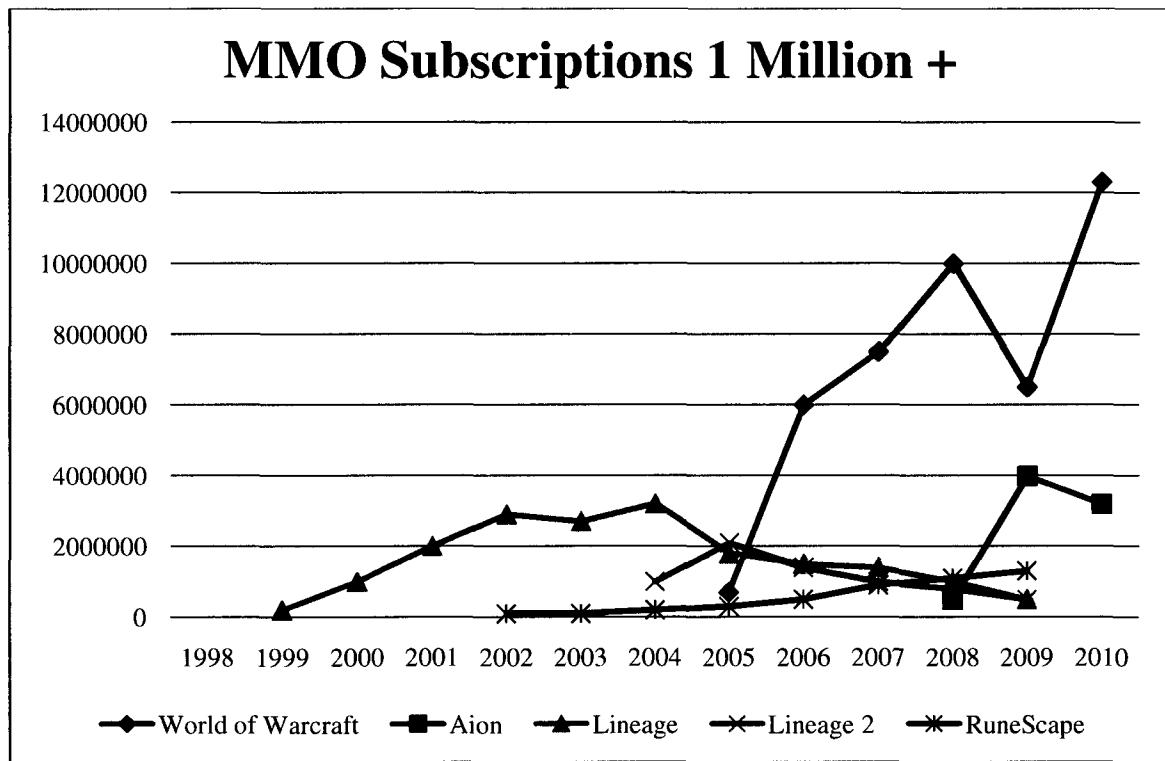


FIGURE 3.2 (MMOData.net 2011)

Graph 3.1 represents very rough figures of company *published* numbers. None of these companies despite their success go out of their way to do rigorous reporting of subscription numbers. In fact, many game developers will inflate their user account reporting to increase success. If something is perceived as a huge hit, it obviously will generate more attention from the industry. Players will feel encouraged to hear something is successful, and sign up for accounts to a game based on nothing more than buzz in popular websites, magazines and online forums. Much like Nielsen ratings for television, a MMO game's subscription numbers directly link to its success.

Certain players, especially end content users depend on an MMOs success to purchase a subscription. This is because end game content in MMOs depends on groups and 'massive' numbers of people to accomplish programmed goals. This dynamic encourages people to develop connections outside of just the mechanics of play. By establishing relationships with people it makes the virtual experience just as real, and just as emotionally satisfying with the interaction of other players. This built in mechanic is a self sustaining programming and story technique, by forcing relationships and connections people will in turn become more connected to the game and the community.

What 3.1 also shows is a massive drop for World of Warcraft from 2009 to 2010. This was a period between two major patches; Wrath of the Litch King to Cataclysm. The drop in active accounts for that period was so massive it was larger than the entire subscriber base for any other MMO, which means the likelihood of a second drop in subscription when the content in Cataclysm has run its course could see an even greater drop with larger contenders in the MMO market. By the time Blizzard (World of Warcraft's parent company) releases "Titan", their very hush-hush new project MMO for

2014, Blizzard will have an enormous amount of ground to gain to return to previous subscription figures, and by no means will be the only large player in the MMO market by then.

The MMO market is made up of hundreds of players but only a few key franchises make it past the 100,000 subscriber benchmark. In most cases this is seen as a successful franchise, and it quite profitable. Currently, no other MMO has ever gathered the support or the resources to even maintain a virtual world the size of World of Warcraft with its current 12.3 million user population. Many companies do not even aspire to have this kind of customer base. Trion, a developer who released a game in March 2011 received the most buzz since World of Warcraft. When asked if they saw themselves as a WOW killer, Trion's response was a simple homage to the players saying that they had no intention of competing with a game that has had six years to develop content and a customer base, and they want to be in touch with our users and bring content that they want to play. No company can touch Blizzard right now, but with a significant contender for the first time in half decade it will be interesting to see where the industry goes from here.

As mentioned before developers do not need to achieve a subscription base over a million to remain a profitable and successful virtual world, quite the contrary. The infrastructure required to maintain a massive scale MMO is incredible. Complaints abound for these industry kings. Things like their inability communicate with their subscribers, attending their questions and concerns in a timely fashion, even to remain a game that the player base wants to continue to pay for in the first place. This was obviously a factor in the incredible drop in subscriptions for World of Warcraft from

2009 to 2010. The content was something that the programmers wanted to release, and much to the disenfranchisement of the end content consumers players felt frustrated with how simple and distilled the content had become to have a mass appeal.

While this group made up roughly only a portion of the players in the game, when the new World of Warcraft content failed to meet expectations Blizzard subscriptions plummeted. By remaining close to their users wants and needs franchises like Ultima Online (the patriarch of the MMO), EverQuest, Final Fantasy XI and many others have been able to be sustainable and consistent virtual environments for their residents. Some virtual worlds like Final Fantasy XI were able to remain at about 500,000 subscriptions for nearly six years. This is an incredible statement to consider. This means that for over half a decade content was always consistent, servers and services were always reliable, and new content came at a steady predictable pace which consistently challenged their users for nearly a decade now.

These games are incredible generators of wealth. Unlike a console game that has a onetime purchase price, is consumed and discarded. MMOs provide a stream of income the entire time they are live²². Games like Final Fantasy may have 3% of the total subscriptions that World of Warcraft has but they still generate 12.95 a month from every single user. In Final Fantasy a user can have sixteen characters per server on every server, unlike World of Warcraft where you can have up to fifty characters across all the realms with only ten per realm. In Final Fantasy each extra character on top of the first is an extra dollar per month. This is one of the variables that can seriously skew projected revenue in games like FFXI. This is because of a practice not uncommon to MMOs called alts²³. These characters are a specific crafting or gathering profession, or even

something called a mule²⁴, or a character that's simple purpose is to carry items and sell things on a auction house. This is crucial in games like Ultima, FFXI, or EverQuest because characters can only have a set amount of things auctioning actively at once or on their character.

So while in Figure 3.3, Final Fantasy XI hovers around 500,000 actively accessed accounts it makes a serious amount of income for the parent company Square Enix. Assuming each person simply paid the \$12.95 subscription fee with no additional characters, Square Enix stands to generate a profit stream of nearly six and a half million dollars a month (6,475,000), and has done so since 2003.

Other games in Figure 3.3 may not remain as consistent in their subscriptions as Final Fantasy XI, like Warhammer Online (developed by Mythic Entertainment) that peaked at nearly 800,000 accounts over a three year period, Mythic Entertainment still stood to make an impressive 11,960,000 a month for nearly two years. Calculating very round figures this game roughly made \$287,040,000 in two years in subscriptions. This doesn't include the \$49.99 cost of the game at retailers for the initial purchase either, all of those subscribers had to buy the game too on top of the monthly subscription fee. While Mythic may see the collapse of their community by 2010 as a failure; certainly nobody left with empty pockets. Being a political scientist I have to coin my own phrases, and in this case I like to call it the "Warhammer effect". While the MMO industry may consider Warhammer Online brief climb to the top a disaster, financially for the company it generated incredible amounts of wealth and by any measure, was extremely profitable.

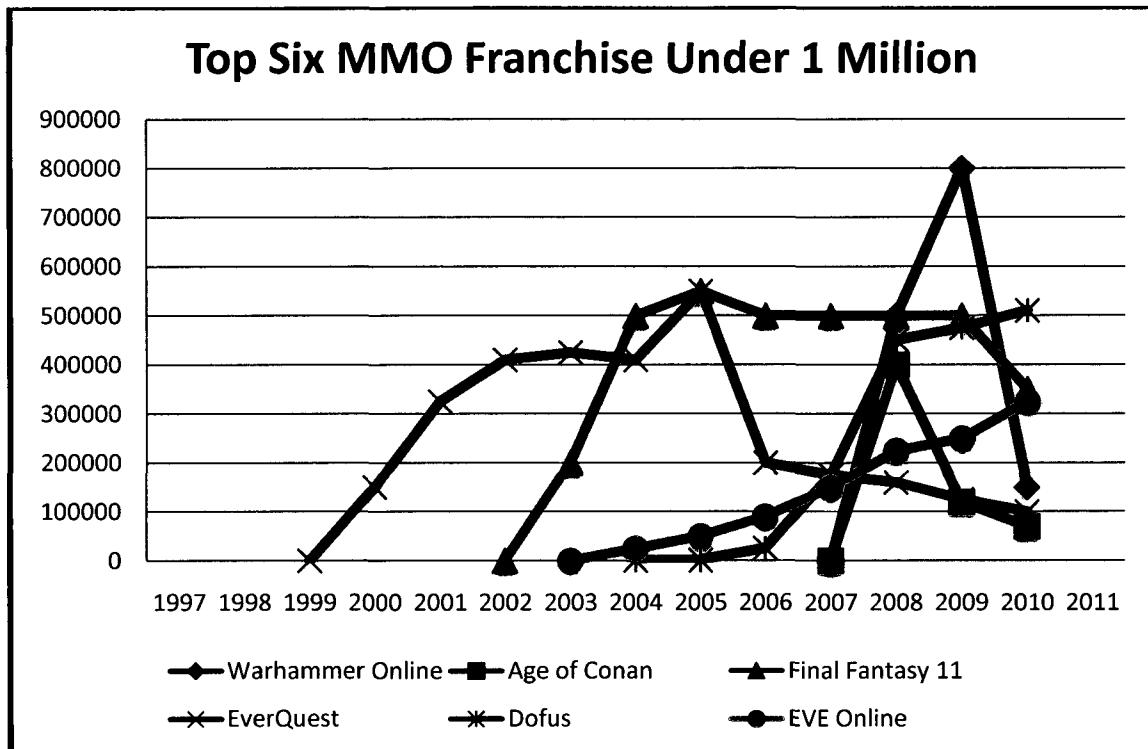


FIGURE 3.3 (MMOData.net 2011)

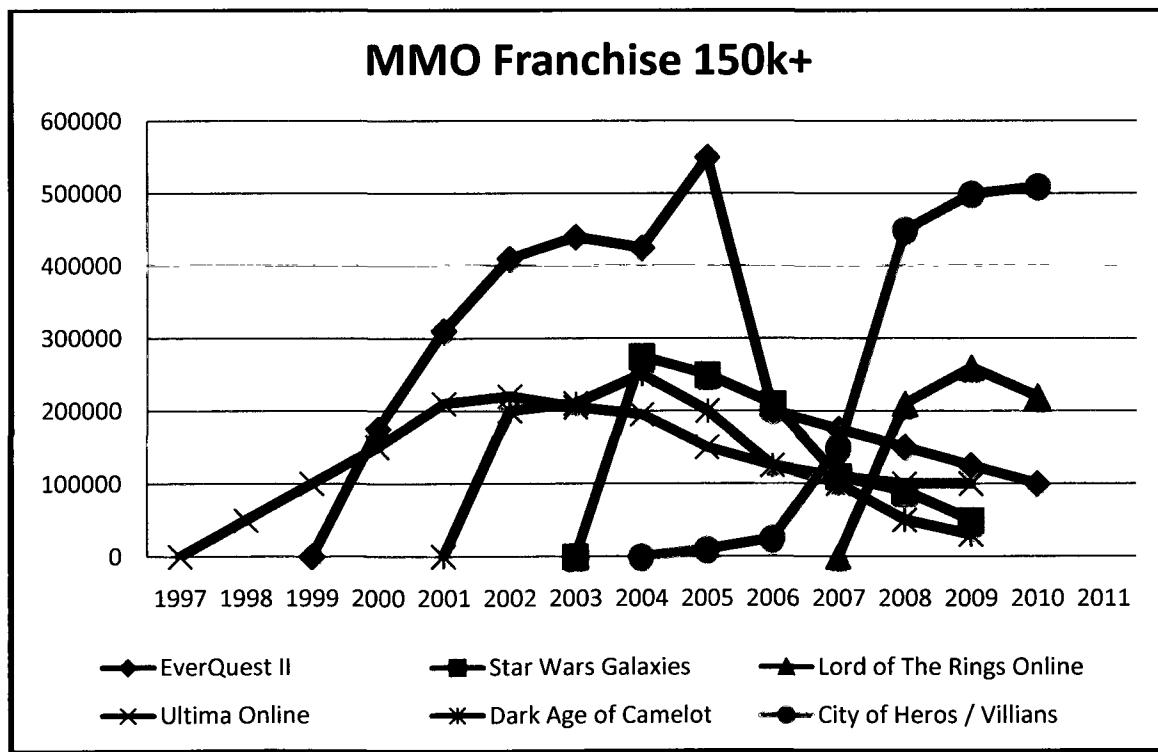


FIGURE 3.4 (MMOData.net 2011)

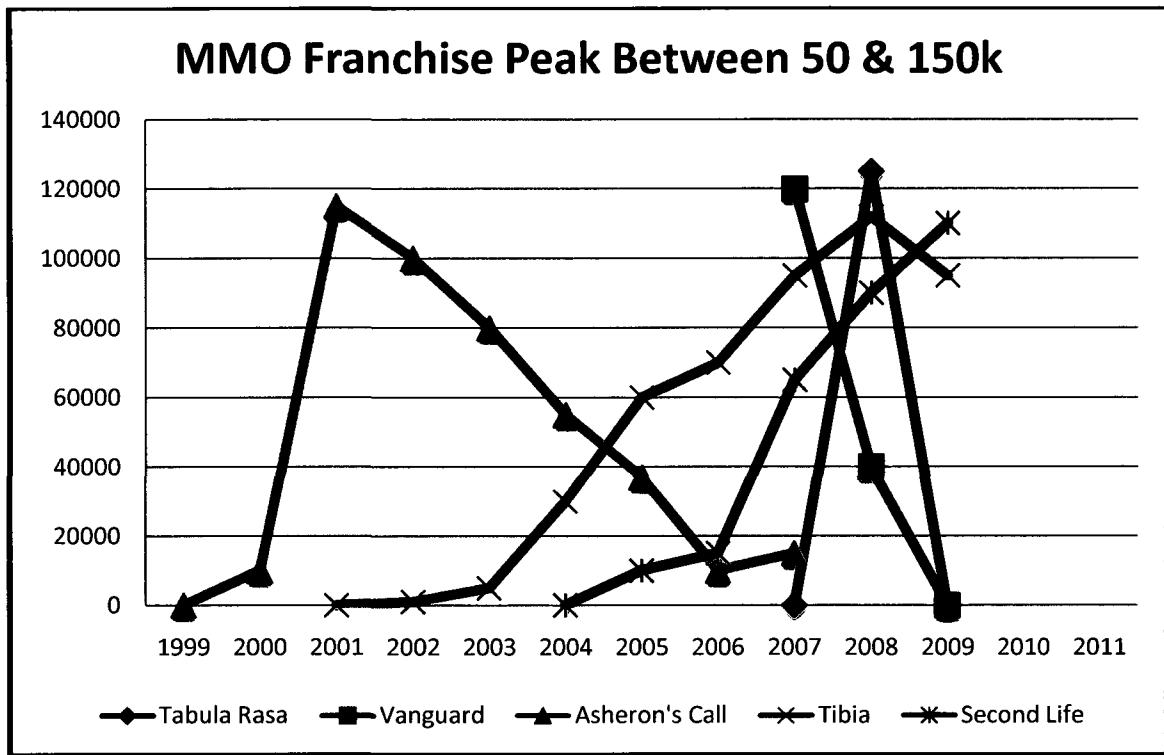


FIGURE 3.5 (MMOData.net 2011)

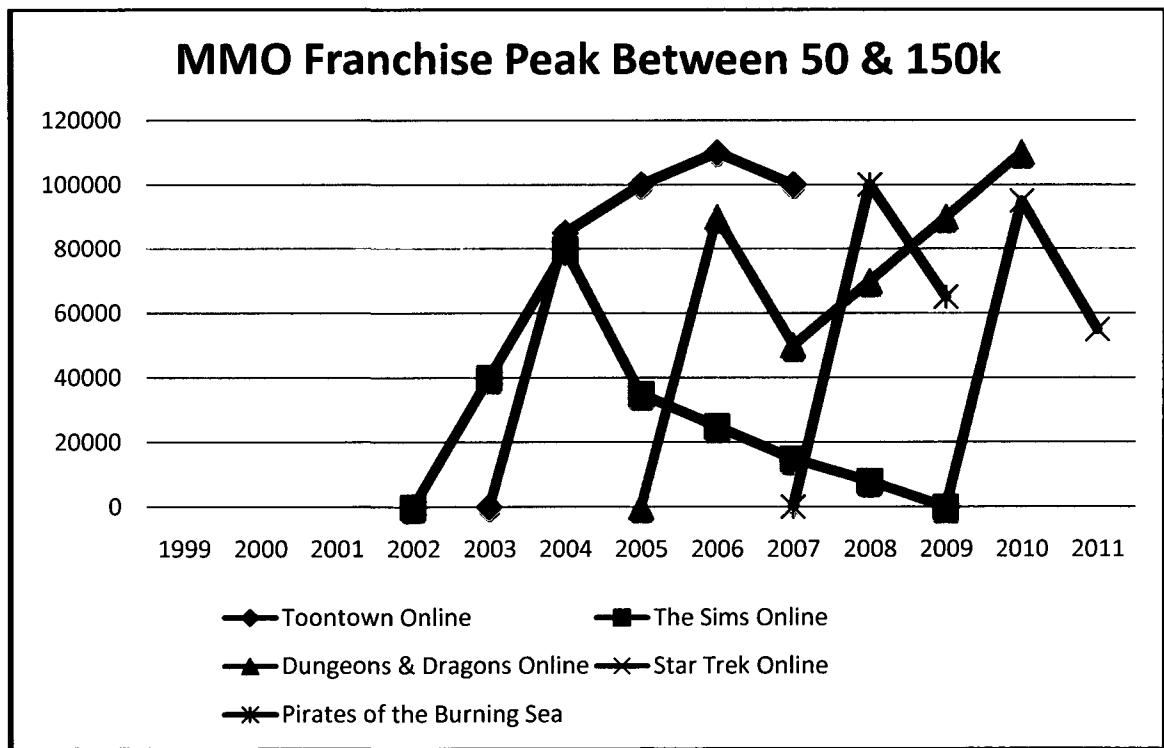


FIGURE 3.6 (MMOData.net 2011)

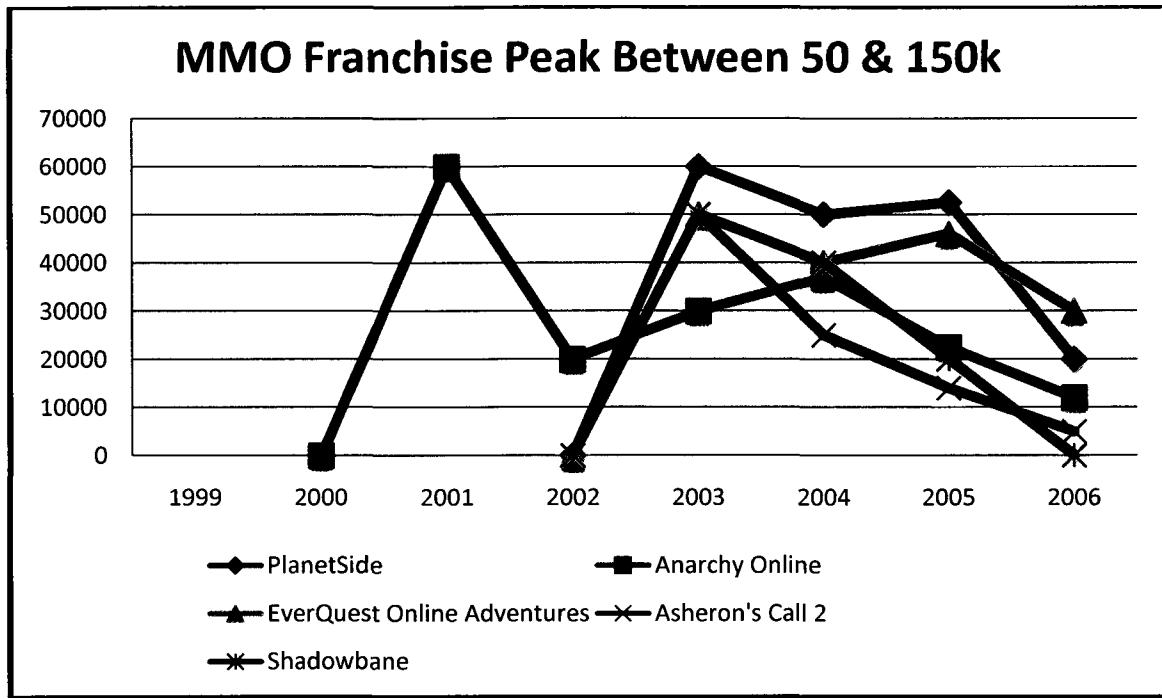


FIGURE 3.7 (MMOData.net 2011)

What developers in the MMO industry produce in their virtual worlds is something the entertainment industry could only dream of a few decades ago. These companies have found a way to sustain a thriving community devoted to the content and story of the developers, and will consistently pay a fee to access the world and societies that these games have to offer. In some cases these virtual spaces are so encompassing they have attracted business ventures physically in the virtual space.

In Figure 3.5, paid subscription figures for Second Life seem incredibly unimpressive when compared to the massive hype the virtual world received. However, this figure is deceiving. Linden Labs only requires a monthly payment from residents who want specific content. There are two types of accounts in Second Life, a free or premium subscription. Residents who pay for the premium account pay a monthly fee for

in game privileges like land ownership on the mainland as well as a stipend of L\$300 a week, Linden Dollars, the in-game currency.

While users can confirm their age without paying for a premium account and have access to all of the areas in Second Life, the users who are most likely to purchase large swaths of land on the mainland are businesses. There is a huge presence in Second Life of corporate culture and capitalism is alive and well in this virtual world. Residents can shop for themselves or for their avatar at any of the millions of shops and boutiques that the other residents have made, but also brand names like Calvin Klein, Nike, and even Microsoft all have a presence in Second Life. The developer Linden Labs encourages land ownership and makes most of their revenue from premium accounts, Linden Labs also enables residents to purchase L\$ with real US Dollars with a constantly variable exchange rate. Second Life hit its peak in transactions in 2008 with L\$7.9 billion in user-to-user transactions (\$29 million). Before the gambling ban in 2008 around L\$9.7 was circulating around the virtual economy about \$36 million dollars (Reuters 2008).

Simply looking at the number of paid accounts for a virtual world like Second Life does not encompass the entirety of the community or social network in the Linden Labs world. These are however the users who are accessing the adult only areas, and are the residents most likely to engage in sexual relationships in Second Life. Second Life raises many questions of identity, sexuality and community that other fantasy games in the MMO industry do not. While the majority of power residents are companies there are hundreds of thousands of users who purchase L\$ for items for their actual and virtual selves. Unlike the gold farming industry explored in chapter 4, L\$ are completely legal in the virtual world to sell and purchase, and the company even encourages. This creates an

interesting balance in the virtual space, the environment is so greatly constructed around the virtual economy, and capitalist goals for wealth generation.

Figures 3.4 - 3.7 give a generalization about the number of actively accessed, paid accounts exist. However, there is an entire industry aside from the MMO P2P²⁵ (pay to play), and that is the free to play industry which is extremely successful as well. Games like Guild Wars unlike many of the games listed above released free to play, it was not a technique to retain customer base. Guild Wars a free to play, or B2P²⁶ game, means that the initial cost of the game in the stores is the only cost the user has to incur to play the game, there is no monthly subscription fee. In 2009 Guild Wars had nearly six million users, this makes it larger than every other MMO in the industry save the industry leader World of Warcraft. B2P games do not keep monthly or even in most cases quarterly subscription figures posted because the users are seen as more fluid, there is a less pressure to log in and get your money's worth.

Unlike P2P, B2P MMOs do not have the resources to maintain consistent patching and monitoring services. But these companies still stand to make massive amounts of money, instead of patching and releasing new content on a weekly basis MMOs like Guild Wars release occasional fixes. When there needs to be a content shift they release an entire expansion. The expansion is usually 29.99 and is an update to the game with more items, content and usually new areas to explore. Guild Wars Prophecies (2005) was the initial version of the game, and came as a 49.99 dollar game. Each expansion, Guild Wars Factions (early 2006), Guild Wars Nightfall (late 2006), and Guild Wars: Eye of the North (2007) all extended the gameplay and increased the content

available. Assuming each of the six million users had to purchase these expansions that equals $49.99 \times 6,000,000 + 29.99(3) \times 6,000,000 = 839,760,000$... not a bad turnover.

This figure is likely incorrect because the game is now offered in bundle packages and there is no way to find out what the users paid for their expansions, because depending on when they purchased them the game was a different price. Currently on Steam® (an online game client for purchasing games developed by Valve© the developer of the Half Life franchise the most successful single player PC games to date) the original Guild Wars is only 19.99 and occasionally they offer package deals. All of this is tertiary to the first two points that B2P retain a massive portion of the MMO market, and they make incredible profit. It should be noted that developers Arenanet® and publishers NCSoft® refer to Guild Wars as a CORPG²⁷, or competitive role playing game because of its vastly different mechanics from traditional P2P MMORPGs.

While the absurd amount of acronyms seems like just a company trying to differentiate themselves from the pack, this distinction is important. Unlike traditional MMORPG virtual worlds like World of Warcraft which require players to find other *users* to fill the roles (tank, healer and dps) within a raid configuration in order to tackle end game content, CORPGs have NPC (Non-player characters) and AI (artificial intelligence) that will play the roles of other party members for the user. The mechanic enables the player to choose if they wish to make their experience a social one or not. A user does not require other people to see end game content. This leads to much less strict rules for dungeons and raiding, and much less formal communities and guilds. This also means that the social network is not as strong as it would otherwise be in a traditional MMORPG.

Regardless of how the developer or distributor classifies their game, if it contains a world in which millions of players group up to interact to achieve in-game objectives for a monthly fee, it is an MMO. Even a virtual social space in which hundreds of thousands can interact in an economy and society that thrives because of the virtual space, it is MMO by design. It is even possible to keep the traditional acronym and create a title that encompasses all of the titles: Massive Multiuser Online, MMO.

The industry will continue to surprise analysts over the next few years as this economic powerhouse refines its tools and new competitors to the World of Warcraft regime continue to evolve and learn from Blizzard's mistakes and successes. In chapter three industry players and subscription bases have been examined. But how does an MMO thrive, and what do they need to do to provide content for all of their users on a 24/7 basis? They can't. Next This chapter will explore mechanics of what the video games job market is like and how the industry delivers these services.

GAMES INDUSTRY, MARKET AND JOBS

Economic analysts have taken an interest in the video games market over the past few years. This is not surprising, with games outpacing the sales of every other entertainment medium it is easy to see why they have garnered so much attention. This does not mean that video games are main stream in terms of analysis. Because of the 'games' stigma they have been dismissed despite nearly twenty years of impressive profits.

Video games as a whole are still a seriously misunderstood and little explored industry by market analysts. Currently, quantifying the industry in terms of real growth and job generation is nearly impossible without some serious number crunching and assumptions. Employment numbers are very elusive, even though the video game industry's value added to the Gross Domestic Product (GDP) was \$4.9 billion in 2010 (Siwek 2010). Because of how the industry is categorized, MMOs fall into the same category as Microsoft Windows and packaged discs and cartridges. The North American Industry Classification System considers them all 334611, which is a bit absurd considering they are inherently different products with considerably different customers. An MMO for example is a membership to an entertainment medium, not a tangible cartridge, or an operating system.

Due to this classification system, numbers of US employment at the individual level in the video games industry are difficult to obtain, and require a triangulation of US Census, Bureau of Labor statistics, and industry conjecture to acquire. According to a report by the Entertainment Software Association the total US employment both direct

and indirectly depends on some serious assumptions but hovers somewhere between 100,000 and 150,000 jobs (Siwek 2010).

Moreover, the same report concluded that about 32,000 jobs went directly to employees in game development and programming. This certainly makes the industry a relatively small employer, but a positive industry for employee growth and opportunity. In 2009, video game employees received \$2.9 billion overall, making the average compensation per employee (when considering wages, salaries and employer contributions for pensions, insurance and government social insurance) at \$89,781 (Siwek 2010).

Furthermore, while the US was experiencing the worst economic recession in over a century the video games industry was exploding. While Blizzard released its MMO industry leader World of Warcraft, the overall games market was experiencing a boom the likes of which the entertainment industry rarely sees. Real annual growth rates of 10.6% from 2005-2009, and 16.7% from 2005-2008 turned heads and only now has captured the broad scale attention of market types (Siwek 2010).

With sales of games like Call of Duty: Black Ops skyrocketing, keeping shelves stocked has proven nearly impossible, US sales of computer and video games have grown from 226 million copies in 2005 to over 273 million units in 2009 (Siwek 2010). This kind of growth translates into a serious mover and generator of jobs. While the majority of my thesis outlines the negatives consequences surrounding the growth of the industry on the user and their family, it is important to note that the industry is not a bad thing for the economy, or for jobs when strictly speaking about the development and production of these games. It is astounding to consider that according to The Game Developer Salary

Report 2004-2007, wages and salaries consistently grew (in billions) 2005: \$60.2, 2006: \$64.2, 2007 \$71.9 and 2008 \$72.2.

According to the Entertainment Software Association the US game publishing industry employed only about 23,000, yet by 2009 it had shot up to somewhere around 32,000 employees. This kind of increase means an annual growth rate of 8.65%. While during the same period software publishing as a whole increased from 237,900 to 256,200 a growth rate of only 1.87% (Siwek 2010).

The most important thing that Siwek and the Entertainment Software Association found in the numbers for the video game industry had to do with the growth rate that the market sector saw in the past decade. The real annual growth rate of the US game industry exceeded 10.6% in 2005 - 2009, but the economy as a whole only saw a 1.4% increase in growth. Furthermore before the recession hit families pocketbooks hard in 2009, the game industry from 2005 - 2008 saw a 16.7% growth rate where US markets only saw a 2.8% growth rate. This is a resounding call for jobs and growth in the games industry as a whole, and MMOs made up a huge portion of that market.

Total game sales according to News Zoo in the US were at \$24.7 billion dollars in 2010. This ups the estimates from the Entertainment Software Association by double, and are most likely a more accurate depiction of the scope of the market, because the data confirms the inclusion of not only all console games like the Sony PlayStation, the Microsoft Xbox, Nintendo Wii and DS, but also sales of PC boxed games and PC games which had been digitally downloaded, Game portals on the internet, Social network games, mobile devices and MMOs.

Being able to employ research from hundreds of hours of work, enabled the analysis of the Games Industry Black Book to be contrasted to findings from a host of other research papers, books, and industry analyst reports. Specifically, The NewZoo market research was clearly the most comprehensive and incorporated data not only from US markets but from a few other European markets. The Black Book published data that proved invaluable to gaining a macro perspective of each of the segments in the gaming industry.

While the NACIS may consider the gaming industry a small blip in the software market, the gaming industry couldn't be more different. Within the gaming industry itself segments of game types are quite distinctive, each on a different platform and each requiring massively different infrastructure to operate. The table below illustrates numbers the absolute share of the online population over the age of 10 with internet access. The table has been compiled with figures from the 2010 Games Industry Black Book.

	US (billions)	Germany (millions)	UK (millions)	Ireland (millions)	Netherlands (millions)	France (millions)
Consoles	56%	46%	62%	59%	40%	43%
MMOs	24%	21%	23%	24%	14%	19%
PC/Mac Boxed	38%	48%	41%	40%	31%	31%
Pc/Mac Digital	34%	34%	36%	31%	24%	25%
Online Casual	53%	21%	43%	37%	46%	44%
Social Networks	41%	30%	42%	34%	27%	36%
Mobile Devices	36%	38%	48%	35%	26%	28%
Absolute %	282%	238%	295%	260%	208%	226%

NewZoo.com 2010

The United States is a massive market with more citizens than any of the countries on this table, yet per person the UK has more gamers according to the NewZoo findings, and Germany and France are not far behind. MMOs are not a US phenomenon. What would be really interesting would be for a company like NewZoo to get accurate numbers of users from China, South Korea, and Japan all of which are large user communities and in some cases developing software. In South Korea's and Japan's case, they both manufacture industry leading MMO titles for many of the consumers in the countries listed above.

While World of Warcraft has nearly 13 million subscribers that does not mean the US owns the MMO market, quite the contrary. Today, the MMO market has players from all over the world and has increasing competition from titles originating from South Korea like Guild Wars 2. Right now, South Korean developers already have virtual worlds operating with huge communities. "City of Heroes", "Guild Wars" and "Lineage II" capture a massive portion of the massive multiplayer online community to name a few. Japan on the other hand has the mega game franchise of Final Fantasy occupying a significant portion of the games and MMO market.

	Total Sales (\$Billion)	Gaming Consoles	Gaming PC/Mac	Gaming Mobile	Entertainment Software	Entertainment Hardware	Entertainment Services
Total Sale 2010 in Billions	24.7	4.9	3.7	4	.53	.41	
Consoles	43%	34%	49%	46%	50%	47%	
MMOs	11%	10%	7%	7%	6%	7%	
PC/Mac Boxed	9%	23%	14%	17%	15%	19%	
Pc/Mac Digital	10%	10%	8%	7%	9%	5%	
Game Portals	15%	10%	11%	14%	15%	13%	
Social Networks	6%	6%	4%	4%	2%	5%	
Mobile Devices	6%	7%	7%	5%	3%	4%	

NewZoo.com 2010

Within the gaming industry, the MMO segment saw nearly 2.6 billion dollars in 2010. With this kind of economic growth, and job generation seen in the games market sector, its ability to transform the employment landscape for the next decade cannot be ignored. Hopefully, within the next few years industry analysts can begin to catalogue the video gaming industry as something separate. This would enable hard data and information to illustrate the impact video games have had on the economy. MMOs are just such a different product from a package of CD-ROMs, they should not be considered the same by the NAICS.

While MMOs specifically are a very niche portion of the gaming industry they still have somewhere around 160 million users around the world, and that is no small figure. Their impact can be seen on every continent in the server managers, the developers and the retailers who sell the games. The monthly subscriptions fuel jobs for game masters who manage day to day issues and the industry, (while there is no concrete way to illustrate with official data) it is obvious that MMOs employ a larger force than a game that is purchased, consumed and then ignored.

MMOs have thriving communities that require constant maintenance and monitoring, and have huge populations who are living within the developers virtual vision. These games are fascinating because there has never been anything that connects so many people from so many different places all into one cohesive community. Ancillary industries like RMT and gold farming have emerged and raise questions of ownership, intellectual copyrights, money, and the very existence of a virtual commodity which was never, and will never be tangible.

Certainly there are issues about the way these games are used, but as I will explore in the conclusions of my thesis, the developers themselves are not to blame necessarily in this case. These producers and developers are generating a product the likes of which the world has never seen, and making a killing in the process. MMOs are enthralling captivating and immersive, and the industry that produces them is only going to flourish in an ever connecting ever expanding digital world. That means more jobs, and more opportunities for the industry and as far as the market analysis is concerned it means real, measurable growth for markets from real, virtual worlds.

INDUSTRY TOOLS

There are going to be questions, questions like what kinds of properties makes the MMO unique, why would it require something different than any other digital game? As explored in the jobs section, the gaming industry has more employees than just the programmers and the developers. MMOs have entire infrastructures that separate them from any other digital experience. The MMO on the scale it is today would have been impossible ten years ago.

So much of what we use as a technological society has changed during my lifetime. In grade school it was imperative to teach us how the library cataloguing code system worked so that if need be, information could be tracked down and researched. Microfilm was the cutting edge of secretive storage and the complex web of connectivity rested in phones. Now entire industries rely on incredible networks of computers linked in a web that can reach anywhere in the world. The entertainment industry is only now starting to harness that capacity with MMOs. The immersive worlds are only possible because of infrastructure, procedures and fleets of individuals who work tirelessly to keep the virtual content streaming to us ceaselessly twenty four hours a day, seven days a week.

In the next few pages this paper attempts to outline the technological innovations, implementations and standards that the MMO industry uses to bring the virtual worlds to life, and to the users screen. There are four basic principles or actions that the developers and information technology specialists use that are somewhat unique to this industry. These are by no means definitive or applicable to every situation by each developer, however they are basic functions that most P2P MMO companies execute.

Servers

The complex web of connections that the MMO industry needs to survive depends on a massive group of computer engineers, server managers and information technology experts. Sure, the programmers, content editors, gamer testers, lore masters, graphic designers, model rendering specialists, customer service reps and sales team are all people that exist within a digital development entertainment company, but what makes a massively multiplayer online game inherently different is that it requires an entire network of servers to exist.

Server is the single thing that makes the MMO different, subscription fees aside. MMOs require massive numbers of server machines to be at every server farm. Each server farm is a network of dozens of computers working in together to send and receive different kinds of information for the game. Generally, there are four types of actions these server machines perform: patching, authentication, database, and world management. There are many multiplayer games that have servers that host millions of games a month from first person shooters like Call of Duty: Black Ops or Halo, but these are not permanent spaces that serve an exact purpose. In this case companies like Microsoft or Sony have allocated server space that will process the maps and items for the gamers and the host is randomly chosen amongst the players in the group. This setup is very different from an MMO server farm.

Patching

The term "patching" most likely came from the process of patching cloth, by performing a spot fix, or error correction with a replacement. This doesn't mean that all

patching is fixing content in the game, or a mechanic in the game engine; patching can be the release of completely new content for a pre-existing game like World of Warcraft. In the World of Warcraft franchise, Blizzard (the parent company) has gone through three 'major patches', or expansions. These releases require that a client on the customers computer download immense amounts of data in packets to be expanded, sorted, and installed to change current game experience. Most games from Final Fantasy 11 all across the board to Aion have weekly, monthly or quarterly updates that address customer issues with mechanics, world zones, classes, or even the color of something; it is all up for change depending on the patch.

More than just video games or MMOs, what the electronics industry has done with the practice of patching is offload massive amounts of testing *onto the customers*. While previous business models involved large amounts of quality testing and rigorous standards that must be met before shipping of the final product; the markets now bug test *software* by checking to see what problems users have with it when they buy it. This holds true for iPads, operating systems, cell phones and video games. Producers know that the hardware in their product works, so what companies can do with this new model is try different ways to change performance by implementing changes to things that they are not sure work in the existing software. Essentially leaving the bug testing to the customers. You see this with Windows service pack updates, iTunes updates and especially here in MMOs. The practice has even begun in console games on things like the Xbox and PlayStation 3 because of the integration of a hard drive and the internet.

For a Massively Multiplayer Online game, patching brings almost a democratic movement into the picture. For content that is unbalanced or difficult, users can use

official forums on the websites of the games to complain or praise a particular patch releases. Companies like Blizzard then only have to hire a few people to monitor the forums online and maintain a list of things that are problems that are in keeping with things that are reported in the game. This is great for bugs, or problems with the actual programming of the game, and does introduce a level of democracy in the patching process. Say if a warrior class is too strong in PvP (player vs. player) content, and enough of the forums are complaining that something needs to be done to even the playing field for the rest of the players, companies like Aion, Blizzard or even Eve Online can then change the dynamics between the players interaction with the content or each other to maintain a more fair environment.

Games by the people, for the people. After all, the MMO industry just saw for the first time what happens when a major publisher releases a game the way they want it to be played, not the other way around (Ch I pg.13, FFXIV). An MMO is not single game like a console game, there isn't a single answer and a definitive end. The MMO must remain appealing for the company to remain profitable. This means content must be hard, but not too hard; rewards must be enticing, and the game must always be what the customer wants, not the other way around. Patching enables companies, especially MMO companies to try things on a weekly or monthly basis and while some things may not always work out, users know that they problems will be fixed in the next patch.

Authentication

Authentication has become an increasingly tricky process for both the user and the company. After gold sales became lucrative, people began to 'hack' user accounts by stealing login information and selling off all their goods and sending the profits off to a site like EBay to be sold for real currency. Companies are combating the 'keylogger' (a virus like program that tracks keystrokes to obtain personal passwords) problem by outsourcing something called an 'authenticator'. This adds a number of extra steps to the login process in an attempt to make the accounts more secure.

Aside from servers that manage passwords and user names, these computers have to tie each name and password to a specific account and character on a separate databases. With the addition of an authenticator, servers are now required to understand and communicate with authenticator programs. This involves a number of intricate algorithms to prevent people from stealing user accounts and selling them for money.

VASCO, the industry leader in digital security login services is the main supplier of these digital access keys for MMO companies. Having two myself for both World of Warcraft and Final Fantasy XI, I am no stranger to the authentication process with these digital tools or with Vasco. An authenticator is a small flash drive sized keychain item that has a button that randomly generates a six digit number based on an oscillating crystal on the inside. The servers recognize the algorithm that the authenticator gives and either rejects or accepts that along with the clients user name or password. There is however always a catch 22, because as a good friend said: "no security is perfect because no one could get in."



(Vasco 2008)

The crystal on the inside of the authenticator changes speed, and because of this changes the 6 digit number you receive. Depending on the temperature, there is always a range of values that the authentication server will accept. In theory, if a hacker was really hardcore they could track keystrokes over a long period of time, create a matrix and deduce the algorithm that the authenticator was operating with. This would enable the hacker access to the account even if the customer had used an authenticator.

The new "gold trade" that the MMO industry has generated with an estimated billion dollars in profit in underground market sales of virtual gold has created an ever more enticing target for the savvy hacker. The incentive to try and break the security code that companies like Vasco creates means more steps, more money *for* the industry, and more money *from* the customer, and sometimes a very frustrating process for the customer simply to access the content they pay for.

All illegal hacking and Vasco aside, authentication servers are incredibly taxed by user login especially at heavy traffic times and require teams of people to ensure their stability. Even if customers are not using any authentication accessories, the computing power required to check login information for customers and link it to an account during

heavy volume times (like say, after a large patch) means that one computer may be trying to validate thousands of users logging in simultaneously.

Database

Database is likely to be the most obvious of the server functions, in that everything a society deals with is in a database form. All of the names, things, places, taxes, credit and awards are all in databases. This holds true for the digital world too, everything that people earn, make, find, achieve and retain in their accounts have are all kept on multiple databases for protection and preservation of the time people have spent in these virtual worlds.

While the computers that the users have are very powerful and capable, they simply could not store the information for everyone on their server with all of their activity. That is what the database server is for, a compendium of information about everyone, and everything they do while in their virtual world.

World Management

World, realm, or zone management servers are computers that handle the actual world and virtual space that the game and players inhabit. There is no space in these games completely open like the real world because no computer could handle it. Instead, areas with different players, cities, or different interests create zones. Each zone in a game makes up a part of the bigger overall world. Much like my home city of Nashua is next to Lowell, traveling between them puts you in very different places. In a virtual world each city would be managed by a different part of a server. These servers handle

the Players, NPC (non player characters) and render the information from the database servers in conjunction with things like quests, special areas, dungeons, instances, and arenas. These are the computers that keep track of where everyone is, and ensures that every subscriber gets that information.

The subscriber has the information on their machine of what is in that world, i.e. the grass texture, or picture of what the grass looks like, but the virtual space is dictated by the server machines that tell your computer where everything and *everyone* else in the virtual world are located. The realm server is what makes the MMO, an immersive experience enabling character interaction with other players and game content. For games that have dungeon or instance aspects (separate content that usually involves an alternate zone for specific purposes) those alternate spaces like dungeons, arenas, and rooms have their own world management servers.

In the same way that games are completely different from each other, the way those games' servers handle information, population size, or even login information is completely different. Servers are grouped into server farms, and in every game they call them something different. A "realm" (wow) or a "shard" (Ultima, Rift Online), or simply a server like Final Fantasy 11; each game calls their server farms by a name in order to organize a community of subscribers with a group of computers that handle all of their authentication, data basing, patching and world information. Depending on the size of the game, the number of subscribers is what dictates the number of servers there are in a given farm. Some games have low populations and are less popular with 10-50 computers handling the actions, while others like industry leaders can have hundreds of computers working together to handle the shard.

These groupings are what a players community consists of. When you see a statement like 12 million people play World of Warcraft, that simply does not mean 12 million people are running around talking to each other at the same time. That would be utter chaos, and no computer that humanity has created could support such a load of information. Depending on the game, each shard or realm is broken into regions depending on where it is located, (this is done to group those who speak the same language) and to reduce lag (latency) in the connection.

Some games cater to multiple languages like Final Fantasy 11. These MMOs allow people to attach their subscription account to a server farm that may be located on the other side of the world, in say France. This was the case with 'Gilgamesh', my server in FFXI. On Gilgamesh there were people from the UK, Ireland, and Germany, but also people from Japan and France. To facilitate communication across borders in games like this there is always a form of an auto translate function. This allows your character to communicate with people in multiple languages with standard requests, questions, praises and answers. When someone chooses preset phrases like, "thank you", "excuse me", or "would you like to join my party?" it would display on the other players screen in their games default language, facilitating play between massive numbers of players, speaking multiple languages.

Square Enix, the parent company for the Final Fantasy franchise runs some of the largest servers in the industry with hundreds of thousands of players worldwide. Depending on a players preferences, users join a server because of friends, type of realm (PvP, PvE, RP), or because of their time zone or any other myriad of reasons. Again, it is the choice given to players that is another example of something that differentiates

MMOs from other online games. To connect with a friend currently deployed in Afghanistan we can connect to a mutual server talk and type back and forth, dance, and laugh as if they were in the room.

Most of the content in MMOs require multiple users to complete. This isn't a mistake or something that was unintended. Multiple user content is something that will be explored in depth in other portions of this paper. What this kind of content means is that many users have to be able to not only communicate, but simply be available. In most cases individuals choose a server based on its time zone location. This is because the heaviest volume of users is often early evening and early night. To find people that will help and need to complete the content you are seeking require to be connected in a similar language (or have an auto translate function), but also be logged on in a similar time zones so that everyone can physically be present in the virtual space to participate.

There are many different types of user organizations. Linkshells, Guilds, or any other name by which players form a permanent group of people who work together to complete in game content. There are all kinds of guilds just like there are all kinds of organizations. They run the spectrum from casual all the way to intensive time commitment based groups with different goals for all of them. The industry incorporated guilds to further include a sense of connection to the world for their users. Many of the guilds contain groups of friends closer than real life acquaintances, and in some cases friendships in guilds have lead to real life interactions, and even marriages.

SUBSCRIPTION FIGURES

While much of the talk surrounding MMOs has focused on industry leaders and cultural icons like World of Warcraft and Second Life, there are literally millions of players that remain unaccounted for when only those are examined. That being said, World of Warcraft is a bit of a phenomenon. It would nearly take the top 10 MMO games to make up the subscriber base of Blizzards genre killer World of Warcraft. For a quick numbers game, according to the CIA World Fact Book, Cuba has a population of 11,377,459 and Cambodia has a population of 14,453,252; Azeroth, the virtual world Blizzard has created for World of Warcraft has 12.3 million active accounts.

12.3 million people logging in and playing means one thing for Blizzard Entertainment, 12.3 million subscription fee's a month. When considering the industry, numbers are much larger. Using rough approximations, since not every publisher states the number of active accounts subscription figures for top publishers suggest:

Game	Monthly Fee	# of players in 2011	Monthly Revenue
World of Warcraft	\$ 14.95	12,300,000	\$ 183,885,000
Aion	\$ 14.99	3,500,000	\$ 54,465,000
RuneScape	\$ 9.90	1,300,000	\$ 12,870,000
Lineage II	\$ 14.95	1,100,000	\$ 16,445,000
Lineage	\$ 14.95	1,000,000	\$ 14,950,000
Dofus	\$ 6.90	500,000	\$ 3,450,000
Eve Online	\$ 14.95	375,000	\$ 5,606,250
Final Fantasy XI	\$ 12.95	350,000	\$ 4,532,500
Everquest II	\$ 14.99	125,000	\$ 1,873,750
Age of Conan	\$ 14.99	125,000	\$ 1,873,750

...per month

These 10 games gross \$299,951,350 per month, that's 3,599,416,200 per year this does not include every MMO in the industry, nor does it take into account users in games like Final Fantasy XI that pay an extra dollar per month for more than one character for their account, again these are incredible fuzzy numbers for the purpose of expressing the scale of the industry. That is JUST active accounts, many of these publishers have accounts that are not active that are being paid for on a monthly basis.

An active account means one that has seen recent activity. Blizzard defines their recent activity on the Armory (a mega database of every character and guild, listing everything possible about the character from professions, gear, and even achievements which is accessible by anyone on the internet) as a character that has seen play in the past two weeks. This means that 12.3 million people not only have the money to pay the 14.95 dollar monthly fee, the onetime 39.95 for WoW basic levels 0-60, available, and reliable **broadband** internet access, and a computer that can meet the minimum specifications of WoW (See Appendix B (System Requirements))(Blizzard Entertainment 2008). This is not a simple request. For a basic configuration it can run a user easily into a thousand dollars with an appropriate computer monitor, keyboard, and mouse. Many of the users are enthusiasts, purchasing hardware *recommended* by Blizzard (See Appendix B (System Requirements)).

These figures are important, because when specifications are customized out on any popular computer manufacturer like Dell, HP, Toshiba or Alienware, the computers can run into the multiple of thousands of dollars. That means a significant population of users are equipping themselves to play these games with a massive personal investment.

This is critical, because the driving force for computer hardware advancement is not word processing or internet videos. The hardware defining software, is video games.

The emphasis is on hardware, because while word processing and web video are exciting, the amount of processing power required to render them is negligible. The video game industry has single handedly forced computing technology to advance exponentially. Again, it is the development from Mario to Golden Eye, Halo to Crysis, which enabled Hollywood to produce its major digital blockbusters.

CHAPTER IV

ECONOMIC SUBSECTORS INTRODUCTION

All of the estimated 150+ million users playing MMOs are paying real money for their time immersed in these virtual worlds, yet somewhere between 50-75% of those players are also paying for ancillary services called RMT (real money transaction). Even nontraditional MMOs like FarmVille require players to purchase fuel for their virtual tractors, so they can plant non-existent carrots, potatoes and celery; yet there is no reward aside from a two-dimensional picture of a happy farmer. The profit margin is staggering for these types of games when compared to the big budget, large production mega titles that have commercials on the television. Sure, video games are everywhere but they are not all the same. A portion of what the research in this paper hopes to explore is how RMT in MMOs, specifically MMORPGs has captured a "massively" large consumer base.

Trends have pushed visual and digital consumerism into part of our evolving connected culture, maximizing profits and generating a huge market sector for all information consumable. But what has been surprising is things like books, magazines, and newspapers that cannot offer new digital mediums and interactive video are *not* falling behind the internet and things like YouTube. Wired Magazine published magazine readership at its highest level in over a decade, what this means is:

The consumers are simply consuming more.

In this first decade of the millennium, the internet or a function of its connectivity has become the focal point for the majority of every kind of transaction possible. Yet, the internet is not about websites any longer. In fact, according to Wired Magazine the wide open Web is dead. It has been replaced by live RSS feeds, applications on phones, and PDAs with links to widgets that offer quick snapshots of information at a moment's notice; the "www" is going away and being replaced with small applications that offer faster solutions. This instant action is causing a serious decline in attention, with serious repercussions for the traditional media; even television is under attack. Average time an MMORPG subscriber watches TV is less than 7½ hours a week across all ages, with significant drop offs for the young, and in particular youth women (Yee 2007). Attention as it turns out, is not falling in games. "Gaming", as a cultural pastime now consumes more hours than all other entertainment forms when compared as a proportion of individuals spare time.

Having significant personal investment in the franchise that makes up the largest name in the virtual worlds MMO gaming community, this topic hits home. Those strong personal connections to the virtual worlds and the people that make up the other players gives insight and access where other researchers may not have had that level of access. To better illustrate this point: time is the one things people can devote to something, and a certain amount of time make up the milestones in a person's life. For me, in Blizzard Entertainment's World of Warcraft, and Square Enix's Final Fantasy XI make up the single largest commitment in my life. I spent a collective amount of time logged into my avatars for a total of 458 days. That time is not comprised of periods of time over each of

those 458 days; each second is counted while signed into your account. This adds up to 11,000 hours in MMORPGs, the MMO industry's leading genre.

What the shadow industry, RMT or gold farming industry hopes to exploit are the users who cannot commit such a large portion of their personal time to an MMO. By taking their money and purchasing virtual goods and currencies they are in essence purchasing time, and this paper will explore this concept further in the next section.

Gold farmers, or workers engaged in RMT services actually see themselves as service providers. In a web documentary series by Ge Jin specifically targeted to researching the gold farming phenomenon in China, he is able to gain access to some of the closed doors in the RMT industry which has been so secretive for years. In this series Jin is able to talk with young men who are the "workers" whom gather the virtual goods and currency for many of the popular games like World of Warcraft. Talking with these users first hand they see themselves as a service industry, an alternative market for goods that would be otherwise unavailable for the other users who populate these games. The workers in the documentary series expressed frustration with the term given to them: "Chinese gold farmer". They noted that their parents were farmers and that they are simply "service providers".

In the documentary series the RMT workers also recognized that the practice of gold farming may be against the policy of the developers and distributors of the MMOs. However, their work is able to earn a relatively high return for their labor in China's workforce, the equivalent of about 80 dollars a month. This can be a larger return if they get more in-game currency or difficult to obtain items that can be sold for a large profit. These "service providers" simply see no better opportunity, especially when playing a

virtual game is compared to the alternative employment option. In the web series, the workers seemed happy to have the jobs that they do. One of the individuals notes that his title, "professional gamer" is vastly superior to garment manufacturing. An alternative employment opportunity at a lower wage, which comes with none of the current perks like... "playing video games for money". It seems that these workers are experiencing better working conditions (albeit they seemed appalling to me in the videos), and that they are compensated at a higher wage providing RMT services comparatively.

For the gold farmer the MMORPG is the perfect engine to drive the shadow industry market subsector because of the incentive structures built into the game. The need for gear in the role playing massively multiplayer environment and the need for the strongest virtual ego pushes millions a year to spend billions of dollars annually according to Jin, Heeks, Dibbell, and Castranova. In order to remain competitive and keep their avatar relevant to the current content release of the MMORPG the users are taking real dollars and spending them on virtual goods and currencies. This comes to no surprise to economists, who understand that a market supply will emerge wherever there is a demand. But, what no one expected was for the entire subsector to emerge as a relevant money market, with fluctuating currency values, real gold to US dollar standards, and a flourishing virtual goods and currency market nearly half a decade after this industry emerged.

This phenomenon may still baffle many, even some in the industry and those playing these virtual worlds. How can a virtual currency, a made up money in a virtual world or game have value in the actual world? Who the heck would pay actual US dollars amongst other currencies for these virtual goods and services? A user who simply does

not have the time to devote to maintaining their virtual avatar alongside the constant content release of the game developers.

Part of the genius of the MMORPG is the role playing element added to the MMO virtual experience. The consistent progression through story that comes with the RPG formula (which requires multiple users to overcome the challenges presented by the game developers), also has a finite timeline in which these characters, stories, villains and worlds exist. To retain the constant flow of monthly subscriptions from users the game companies have to keep the people interested and excited. Game developers use the patches (mentioned in "Industry Tools" in Chapter III) to keep the game content fresh for the users who often spend up to half of their waking hours in these virtual worlds. After a while, that daily grind through the content can become boring for players so the developers and distributors change the content, release new gear and new challenges. This is all done with the hopes of bigger and better will sell game subscriptions, and to their testament franchises like World of Warcraft have bet their profits on this formula for half a decade, and successfully.

All of these people that progress through this content maintain their avatar in the most current gear so their characters can participate in the most recent content. This means their clothing, weapons and abilities are always in sync with the newest patch being released by the developer. This gear all requires specialized upgrades and work, which takes time... and time is money. To outfit a character can cost mounds of in game currency (this concept is explored in depth in the next section). That currency can be hard to come by if a person has say, a full time actual job. Maintaining a virtual identity alongside your actual identity can be enormously stressful and time intensive. This is why

so many opt to spend actual currency on virtual goods and services. All so they can keep spending time with friends in immense virtual worlds.

What makes the market subsector of RMT and gold farming so interesting is: the moment those individuals take their hard earned cash and put it towards a Azerothian piece of gold, or Vana'diel gil, or any other virtual good or currency via the RMT services, it creates a standard that the entire RMT industry uses to base their transactions on. In effect, spending actual dollars on virtual currency gives the virtual currency an actual value. This turns the currency in the virtual worlds into a real money market. Tradable on the dollar, and an alternative currency like any other countries in the world's economy virtual gold is a paradigm shift in the digital age.

These markets are traded on, moved, purchased, invested, hedged against, and leveraged the same way that money in the actual world systems are. RMT services have systems just like overnight rates, just like the large banks in the actual world do. When a user in an MMO wants to purchase large sums of money RMT services work together to facilitate their needs, this often means that companies like MMObay, Squidoo, or MMOgoldservices are looking to each other to gain large sums of currency when they do not have enough. This means that their reserves of virtual goods and currency must be met on even ground and traded fairly between each other. In effect, the RMT overnight loan rate.

These virtual goods and currency exchange rates fluctuate depending on the game or virtual world, availability of the currency or good and the shard that the user is looking to purchase the currency on. If a user has a character on the World of Warcraft server (shard) Dark Iron, yet the RMT service does not have enough currency on that WOW

server (shard), the RMT company will look to partners who have accounts with enough cash reserves to meet the needs of the client. These deals must be based on assumptions of currency and goods value, heir go a completely ancillary currency market that has an exchange rate tied to the value of the US dollar. A shadow industry indeed.

RMT AND GOLD FARMING

The letters RMT would most likely mean little to anyone outside MMOs. However, the term real money trading was a practice that was very real in the infancy of multiple user games, this is not a new idea. The concept that someone would use actual currency to purchase something virtual has become a huge topic for forums and talk programs, yet this practice should not surprise anyone. A digital game itself is something that never truly exists, but most people make the leap because the consumer walks home nine times out of ten with something in their hands, like a disc or fancy box. However there is no reason for any of it. An online community that is circumventing the entire process of getting in a car, driving to the store, and walking home and putting a disc in your machine to play is now for the most part (save collector's edition packaging) going to be considered archaic. Especially as my generation gets older and the number of new consumers increases that have never even seen a CD player, all media consumed in their lifetime for the 16-24 year old age group has for the most part been digital.

Technology sometimes moves so fast that academic investigation takes years to catch up, and this is the case with RMT or "gold farming". The concept of someone working to make a wage is baked into the essence of the market model. But, what is difficult to understand is the concept of a "playborer"²⁸, or "gold farmer"²⁹ who can generate large amounts of wealth through time in a game. What the MMO industry has seen is an entire shadow industry developing alongside the MMO phenomenon, looking to provide services that are otherwise forbidden or difficult to obtain... for a price.

What RMT or gold farming represents is one of the first examples of what our society may call "cyber-work", especially in developing countries (Heeks 2008). In the

working paper series from the Institute for Development Policy and Management they explore the concept of gold farming as an economic development strategy, and how this newly emerging economic subsector is impacting the larger whole. This paper was strengthened by other preliminary work from authors like Castranova and Dibbell who have attempted to quantify the economic output of the gold farming industry. What these research pioneers have done is explore an industry all its own that operates in the shadows of another very little understood industry.

Gold farming is a millennium take on something that had started back in the late 1980s early 1990s in the first multiuser dungeons. RMT can be traced back to the first cash payments made to players for things in the game. These early games were the first multiple user dungeons and the items that dropped from content were traded for money (Maxson 2006) (Heeks 2008). The initial practice of RMT was something that was isolated to the industrialized countries in the western world, mostly in the United States. With the launch of Ultima Online in 1997 (the first real MMO to reach significant success), each subsequent MMO that would launch would have in game items available for purchase on sites like EBay within weeks of the games launch (Lewis 2006). Users would be able to find the items that were otherwise unattainable; in some cases like Dibbell's work there would be squatters waiting to purchase newly posted housing locations. Depending on their desirableness and location people would pay through the nose to gain access.

Gold farming has origins in any of the shady digital endeavors, which may not be explicitly illegal according to the law, but breaks some rules of conduct or contract with a service provider. Most every MMO provider now has an extensive terms and uses

contract, along with a behavior contract for their subscribers. In virtually every MMO now there is some form of "I will not engage in RMT or gold farming" built into the clauses of the user agreements. Yet, gold farming services are estimated to be higher than ever before.

Summarizing gold farming origins comes from two distinct angles of approach, according to Heeks in his working paper series the two models are as follows:

- ""Inside-out" model: Korean cybercafés being converted into gold farms to serve the local market in 2001 (Huhh 2008); Chinese gold farmers working for Korean and Japanese players from 2001 (Jin 2006) (Heeks 2008)
- "Outside-in" model: US firm Blacksnow Interactive outsourcing to Mexican gold farmers in 2002 from Dibbell 2003." (Heeks 2008)

How is it that these gold farmers can make so much real money? It all comes down to time, and what people are willing to devote to an MMO. For many the MMO represents an escape, yet to keep users logged on for thousands of hours the developers work to create activities and goals that are immensely difficult and time consuming to achieve. The practicality for a normal user to gain the kinds of currency possible to maintain a high level, end content toon³⁰ or character requires countless hours of farming gold for themselves and just is not realistic.

People are connecting in these virtual spaces, so to stay part of a virtual group which my work in focus groups garnered the statement, "were as important as actual

groups of friends", they must maintain a character to a certain level to pursue the same content together. This means that countless hours must be spent to ensure that players have the right gear, items, weapons, mounts, houses, information and skills to play together, and this is why gold farming has become so pervasive to the MMO industry, users frankly do not all have that kind of time.

What services does gold farming offer? This is not an industry that simply moves currency back and forth, exchanging virtual gold for real money. Gold farming is a term given to users who engage in all manner of shady MMO practices, and the ability to get any amount of wealth you wish is not the only service that farm houses offer. There are always legendary or epic items that are called BIS or best in slot. This refers to all of a characters clothing or items where there are physical slots to place new items for the avatar. According to the PAR in World of Warcraft any BOE (bind on equip) item that was nearly as good, or the BIS item for a character could fetch as much as several hundred, to several thousand US dollars. According to Dibbell, houses in Ultima Online sold for as much as 20,000 US dollars; a staggering price.

Gold farming is but one of the things that someone who engages in RMT does. Sure, you can purchase gold to buy things for your avatar but you can purchase quite a few other services as well. In every MMORPG there is some system for crafting items. This involves skills in things like blacksmithing, or leatherworking, even cooking. All of these professions in MMORPGs take an astounding amount of time and resources. To gather all of the herbs to level a main characters alchemy skill in World of Warcraft, players in "Reason" (a guild in World of Warcraft during the PAR) would level a completely separate character. This is not uncommon, to get all of the resources to level a

character is very expensive and can take days of play time. Not a few hours every day, but literally counting every one of the seconds for this specific task: days.

One of the most popular services that gold farming operations offer is something called power-leveling. Power-leveling is a process where all of your login information is given to someone else, often to a college student, or similarly aged worker in South Korea or China (Heeks 2008) and they will level your character's physical level from 0 - whatever the games level cap is, or they will take the time to gather the herbs, minerals, leather or whatever it takes and level your professions on a given character. These services can range anywhere from fifty all the way to a few hundred dollars. To have a character that is level capped, and profession capped is crucial to a user who is seeking end game content.

Another service offered by RMT and gold farmers which by all accounts fetches the highest price is the selling of characters. Yes, consumers go onto websites and find a hunter, warrior, priest, or any other character class and look to see which in game perks the character has, i.e.: What level is the character they have (is it a level capped character 85 in World of Warcraft), what mounts they have (horses, tigers, elephants or all other manner of vehicle a user can ride), what achievements they have completed (what content they have accomplished and received credit for), what professions the character has (as described above like cooking, leatherworking or jewelcrafting), and what kind of gear the character will come with (weapons, trinkets, rings, clothes, armor) all factor in to the price of the purchase. These kinds of deals can become very expensive very quickly. In some cases gold farmers sell entire accounts with alts who have alternate professions all mastered with perks all their own in addition to the avatar the customer is looking to

purchase. The accounts can go for thousands of dollars, especially if the toon was an original or "vanilla" (character since the game's first release) character.

There is always a set number of roles an individual character can play in fantasy worlds, this is because having a single character that can do everything would seriously unbalance the gameplay towards people who do have time constraints on their virtual experiences. In nearly every MMORPG a single character was limited to having two to three professions save the basic ones like fishing or cooking. This was not the case in Final Fantasy XI however, like most of the games that are not made in the West, it is understood that the leveling will be much more grind³¹ intensive, and take a much longer time to complete content than a US or Western developed game. It would not be uncommon in a game like Final Fantasy XI to see people crafting for weeks at a time of their gameplay. Again this does not mean that for a few hours a day, for a few weeks, these games count every second that the character is logged into the virtual worlds and it would take weeks to master crafting in Final Fantasy XI. This is why gold farming services were so popular when they offer power-leveling options for consumers.

While many of the companies or individuals that offer these services represent a legitimate illicit shadow alternative alongside the MMO industry there is another side to this story. Regrettably some of the gold farming websites are in actuality malicious attack sites. These sites represent a sinister element for RMT and gold money services, and taint the previously harmless RMT and gold farming ventures at the dawn of the MMO from 1996-2004. These attack sites are much like a drug dealer in some dark alley. The creepy dealer has the potential to rob someone and take their money instead of doing the illegal deal and never giving the unfortunate junky the "goods". In this capacity there are fronts

for RMT and gold farming services that do the virtual equivalent, and in some cases the bully sites take the gold they stole from the unknowing suckers and turn a profit by selling it to equally as oblivious users. There are several ways this can happen, some of the "leveling services" that gold farmers offer are really steal your account services. There is also a much more complex, advanced, malicious, and invasive form of account theft. This was referred to earlier in this paper when the term "keylogging" or "keylogger" was explored for digital security. These websites lure in players with promises of champagne wishes and caviar dreams, only to secretly install software onto the users machine to track every keystroke the individual makes. Eventually when they log onto their World of Warcraft, Final Fantasy XI or EverQuest account the software will be able to relay the information back to the shady operation headquarters, (which could be an entire company devoted to account theft and gold sales, or an individual hacker).

Once these parasite individuals or organizations have access to a character they will take all of the in game gold, and items that the character has accumulated and sell them off immediately. Just like a mugging must to happen quickly for the attacker to get away with their crime, if someone were to logon while an account thief was in progress the bandit would be booted off and discovered.

Account theft through keylogging is not an uncommon practice, during the PAR of the 150+ members in guild, over a third experienced account theft. But, there are other ways for individuals to gain access to an account, and while keyloggers are extremely prevalent there are also other sinister hacker subcultures in these games. If someone is on their World of Warcraft account in a main city and has expensive trinkets, mounts, and

end game content and gear everyone notices, it is a status thing. However, this also puts individuals in danger from those who would attempt to "hack" their account. Players would develop complex codes to virtually stalk the desired character, eventually through trial and error break the account security password. This is what lead to the outsourcing of security measures.

Blizzard along with many other MMO developers have resorted to using third party digital security measures. As discussed previously in the authentication section of server function, companies like VASCO offer solutions that MMO companies are ill equipped to provide themselves. Security keys are usually around seven dollars, (this was the experience during the PAR in both FFXI and WOW) and provide a nearly fool proof method of account protection. Protecting something that users on average spend between 20 hours a week and even more hours for end content users, it is simple to understand why someone would not wish to lose something that took 30% of their week, and 45% of normal waking hours.

SUBSECTOR TOOLS AND FUNCTION

Table on Real Money Trading estimates (from Heeks pg 9-11. 2008):

Year	Sources				
2004	US\$83m (Russell 2004 cited in Steinkuehler 2006) [Asia only: minimum]	US\$417m (Russell 2004 cited in Steinkuehler 2006) [Asia only: maximum]	US\$887m (Castronova 2006)		
2005	US\$143m (Davis 2006) [Japan only]	US\$200m (Leupold 2005)	US\$500m (Lee 2005)	US\$550m (Lewis 2006) [South Korea only]	US\$880m-US\$1bn (Lewis 2006)
2006	>US\$100m (Castronova 2006) [Minimum]	US\$200m (Castronova 2006) [More likely]	>US\$1bn (Castronova 2006) [Possible]	US\$1.1bn (Davis 2006) [South Korea only]	US\$1.6bn (Lehtiniemi 2007) [plus US\$463m primary RMT in East Asia] US\$2.7bn (Anonymous 2005) [Extrapolation from 2005]
2007	US\$1.8bn (Dibbell 2007) [using Lehtiniemi data]				

(Table from Heeks 2008)

Two US MMO developers have unpublished research suggesting that gold farming and RMT may generate as much as eight times the amount as subscription fees. While there has been no affirmation of these claims, this could mean the shadow industry stands to make as much as \$20bn a year in profits (Heeks 2008). While the US and Western markets are large purchasers of RMT and gold farming services, there still is a largely undocumented portion of East Asia that is both engaging in these activities and also selling to Western customers. This market has the potential be 'massive'. Unfortunately, there is very little way to pinpoint these operations, with little to no concrete way to discover the RMT or gold farming ventures without the company or individuals offering up that information.

There are however documented locations of RMT businesses. According to work done at University of Manchester Institute for Development Policy and Management, RMT and gold farming operations are found in several key hot spots around the world. What's more, every reported location of gold farming activities were places where United States had previously outsourced labor, (in some cases completely unrelated industries like textiles). This raises questions about globalization and networks where RMT and gold farming would be probable, and it is possible to estimate where there might be locations for serious RMT and gold farming activity where it is not being reported currently.

From Julian Dibbell's writing we can say with certainty that there are serious gold farming operations that have gone on in Mexico and South America. With the Tijuana sweat shop turning around incredible profits for Blacksnow Interactive, it is highly improbable that they were the only operation going on (Dibbell 2005). According to work done at University of California San Diego, Ge Jin explores the new wave of gold farming in China's markets. His videos illustrate a strong and thriving community of gold farmers in China.

"In the gold farms, you can see they are enthusiastic about their job and they got a sense of achievement from it, which is rare in any other sweatshops. Most of the gold farmers I met do not have better alternatives. All the gold farmers I met are male, usually in their early 20s. They were either unemployed or had worse job before they found this job. Many of them were already game fans before they became "professional". In some sense, they are making a living off their hobby, which is an unachievable dream for many people (Jin 2006)."

Jin's work exposes a very secretive world that is making large profits, and according to assertions from the University of Manchester Institute for Development Policy and Management these RMT and gold farming operations may be blue prints for cyber-work, or "playborer" regional economic development strategies (Heeks 2008). With little more than a computer with reliable internet workers can see an incredible turnaround.

Another serious question raised by Heeks' work was why there has not been much push for RMT or gold farming in India. While there are many hypothesis why gaming as a culture has not caught on in India in the viral way it has in other developed nations; in both the Far East and Western industrialized states for instance. Heeks proposes a fairly reasonable answer that is neither cultural or social. Investment in information technologies physical mediums like high speed lines, which are required to be a user in any of the MMOs. "China had some 66m broadband subscribers, equivalent to 44% of its total Internet user population and 5% of its overall population... ...India, by contrast, had just 3m broadband subscribers, equivalent to 23% of its total Internet user population and 0.3% of its overall population (Heeks pg 12, 2008)."

While nearly everyone who participates in this economic subsector seems to serve the US MMO market, much of the Chinese RMT and gold farming services are for the South Koreans. With South Korea's NCSoft being one of the largest names in the MMO industry next to Blizzard and Square Enix. South Koreans have the second largest gaming culture in the world; being second only to Ireland and closely followed by number of gamers per capita by the Japanese (PricewaterhouseCooper 2009). In these cases it is noticeable that the broadband infrastructure is strong and prevalent, especially in Japan,

South Korea, and Ireland who have all invested massive amounts of money into their IT capabilities in the past decade.

RMT and gold farming are prohibited by every mainstream MMORPG currently on the market. However, as a profession RMT and gold farming could be serious generators of economic development in regions that would otherwise require massive investment and heavy construction to facilitate a traditional supply chain and manufacturing base. The ROI on RMT is staggering, and the workers based in Tijuana in Dibbell's research were paid nearly twice the amount of an average sweatshop worker in Mexico (Dibbell 2006). This kind of salary per hour results in a huge difference in wealth for the workers, giving them opportunities that the majority of Mexican factory workers could only dream of.

The following categories are from the University of Manchester Institute for Development Policy and Management, who have hypothesized that there are four types of wage compensation for RMT and gold farmers in the MMO industry.

Regular wages, or the traditional hourly wage much like what was suggested in Dibbell's work with Blacksnow Interactive in Tijuana, Mexico. (Heeks 2008)

Piecework, this is the kind of work described by what Dibbell himself experienced when he engaged in RMT himself for his book "Play Money". Here a worker is asked to obtain certain items, resources, or land and sell it off to a larger broker who then pays based on a cut of the earnings. (Heeks 2008)

Quotas, which are most likely the kinds of systems that Jin encountered during his fieldwork in China's gold farming industry. Here individuals who are gathering resources or drops from specific raids or dungeons must meet certain goals, at which point they receive payment for their work. In quotas it should also be noted that the gold farmers also have the prospect of earning a bonus for extra loot. Finally there is *target* based work, where much of the same practice from quotas, but here there is no addition of a possible bonus for more items or resources. (Heeks 2008)

What should be noted about these gold farms is that because of the sensitive nature of the equipment and the importance of the laborers in comparison to a factory worker, the conditions are often much more amenable. In "Play Money", Dibbell explores a sweatshop, and interviews directly the owner of the operation. During the course of the interview it was noted that because the computers must be kept relatively cool the workers gain the additional benefit of working in a temperature controlled environment.

It was also noted that on a regular basis the workers were given the three college food groups (soda, pizza and Chinese food) at some point on their shifts while at work. Even though this does not factor into their wages, this is an externality and a direct benefit for the workers who do not have to bring or purchase their own lunch while working. To hypothesize as to why behavior like this was common practice, means you have to understand the work involved. Industrial factory workers have very simple repetitive tasks, while a person engaged in RMT or gold farming has to be alert and able to respond to a myriad of virtual situations from complex dungeon raiding to gathering

resources on PVP servers (player-vs-player) where at any point while mining or picking flowers a member of another faction can come and kill you.

This kind of game time would negatively affect their productivity, and to have someone able to react and respond appropriately to these situations is crucial. The "college-food-pyramid" has kept students awake for decades studying for tests, in this context, the same foods are keeping a valuable resource valuable, and productive.

While this phenomenon has only grown in the past three years since the publication of the University of Manchester Institute for Development Policy and Management's work (the only comprehensive research on the subject), not much has changed about our collective understanding of RMT function or prevalence. Imagine an entire industry sector with no real theory or understanding. When academics attempt to incorporate RMT of gold farming into a traditional framework like Porter's diamond, answers fall short.

The supporting industry to the RMT is obviously the MMO, but the questions get a little fuzzy around the edges. RMT and gold farming obviously have "home-grown" advantages like Porter suggested in the players who already engage in the virtual worlds. These users provide an incredibly skilled workforce, and create the "factor endowment" for the framework. As discussed before these RMT ventures must also be in a region that has access to high speed internet. This is a location restriction, but not in a classical concept of a location problem for business theory. The very nature of digital growth makes this model superior to every other competitive analytical framework, and perfect for this virtual subsector.

In this particular model the restrictions of startup, and location are nearly irrelevant. RMT and gold farming act as a single industry but from across many national and state borders. They agglomerate, but not in the traditional sense. RMT and gold farming services share clientele. During the PAR, gold sales actually came from several sources and not necessarily all from the same company. On a French server in Final Fantasy XI, the gold sales site which sold the currency would accept the payment and refer the customer to their French associates who would make the trade of gil (FFXI currency) to you, from a completely separate company than the customer had initially contacted. There was no way to know if the company initially contacted, the one who took the real currency was merely a broker. However the experience was clear: these RMT companies were working together across impossible distances to solve traditional distribution problems, and making a killing doing it.

CONSEQUENCES OF RMT AND GOLD FARMING

When a game initially goes live there is a scramble to get the best gear and newest items on the market. There was a perfect case for this recently when World of Warcraft's latest expansion called *Cataclysm* released. In *Cataclysm* Blizzard reworked the entire game, this was in part because their previous expansion *Wrath of the Litch King* was so poorly received. In fact, in the months before *Wrath of the Litch King*'s release the gold to dollar standard dropped over 600%. When the dungeon *Ice Crown Citadel* opened, (the final patch for *Wrath of the Litch King* expansion) some of the most populated servers had 10,000 gold going for \$60 US Dollars. If a character wanted to gem, enchant, and purchase all of the end game mounts and pets this could easily cost 100,000 gold. That means users who use RMT services could have easily spent 600 US dollars to outfit and equip their avatars in *Ice Crown Citadel*.

To combat some of the extra gold in the market Blizzard implemented items called "gold sinks" which were items that people could purchase from vendors (NPCs non player characters) for incredible amounts of gold. For instance, there was a mount (vehicle) that would transport three people that looked like a giant mammoth, and another mammoth that came with vendors on it, and even a motorcycle for which the materials necessary to make it by an engineer were obscene. These were all efforts by Blizzard to take gold in circulation out of the market, yet, in the end these items did little more than create a greater demand for gold farming and RMT services, ultimately driving up the price for gold.

By the time the last few weeks before *Cataclysm* had counted down, the price for 10,000 gold had reached 12 dollars. The market since has not yet recovered, partially

because of the loss in demand and partially because making gold in Cataclysm is much easier, devaluing the gold standard in the game. In the third expansion, leveling a character from 70-80 a user could hope to make somewhere between 2-5 thousand gold depending on whether or not they sold off the quest rewards. In Cataclysm, simply by leveling a character and selling the quest rewards it was possible to make nearly 10-15 thousand gold.

This devalued the currency and hurt gold farmers, but not entirely. In World of Warcraft there are still things called BOE (bind on equip), epic items. By their nature of being epic, these are some of the hardest items in the game to come by. BOE items however encourage individuals to sell them for a high price more often than simply equipping them. At any time of day from 6pm, to 6am regardless of the server residents in cities can see in trade chat (one of the chat channels in the game available only while inside a major city), someone from an RMT shouting for the sale of BOE epic items and gold prices.

The RMT industry has shifted to a strategy that is already in use in other MMORPGs which have been around for a long time like Lineage, or EverQuest or Final Fantasy XI where the BOE items are the cash cow for RMT services. In some games like Final Fantasy XI, no items bind to your character, save "rare AF" (artifact items specific to your class). All of the other gear in FFXI is tradable, even after being worn by a character. That means that if a user purchased a chest piece or weapon online for \$50-100 US dollars when they out leveled it, they could turn around and sell it back to a RMT service at a cut, or look to sell it in game for gil.

The product lifecycle for gold in games follows the same curve as all goods, eventually there becomes such a supply that the demand falls off and there is no way to recuperate the loss in sales, at which point RMT services have to reevaluate their strategy and move to BOE epic items or another game entirely. Fortunately, in this MMO industry there is no shortage of new and upcoming games that are exciting and hold unknown potential for incredible profit.

While previous concerns listed have been for the RMT services, there are even larger number of issues with the practice of RMT and gold farming on the MMO industry and players themselves. As any reasonable economist can imagine a drastic shift in the market value of any good or currency can have unfortunate impacts on the economy. MMORPGs are no different. Every expansion essentially wipes clean the wealth of the majority of the characters in the game. In World of Warcraft's case this means that only the people who have saved up massive accumulations of wealth will be able to continue unaffected in the next expansion, and everyone else who's wealth was in goods or resources that were from the previous expansion will be left penniless. This is built in so that there is not an unfair advantage for some, and to remove some of the wealth accumulated in the game.

For example, in Wrath of the Litch King the mineral that fetched the highest price was called titanium. A node of titanium ore would yield 1-4 pieces of ore. Two pieces of titanium ore were combined in smelting to create a titanium bar. Titanium bars were used in the highest level crafting of weapons and armor, and when combined three titanium bars, and three other elemental ingredients the user would create a "titansteel bar"--the most coveted and difficult to procure metal in Wrath of the Litch King. For miners and

blacksmiths who had massive reserves of these materials when the next expansion came out; titanium was no longer used for recipes. Instead, obsidium, elementium and pyrite were the new materials. Each expansion had materials that were the equivalent of the previous expansion in that there were always several tiers of materials. Pyrite is the new titanium, and three pyrium bars combined with three elemental ingredients creates "true gold", the new coveted item for World of Warcraft. All of this illustrates a baked in recipe to control the supply, and value of gold by Blizzard. But this kind of control is designed and planned by the developer. Large influxes of gold from RMT services can have the same effect. Yet they are not planned, and the fallout can be catastrophic on a specific servers economy.

In normal raiding guilds there are several ways to gain loot from encounters: one is round robin, where the loot drops to the next person each time (never used); master loot, where the raid leader controls the loot (most common); and all out random bidding wars where people will use the command "/roll" and a number randomly will be generated from 1-100. When gold farmers flood the market with huge injections of gold on a server everyone notices. The price of the same item on different servers will be drastically different and painfully obvious that a particular server is suffering from RMT. In some cases there are even tactics by RMT users to gather resources up on servers like this by using PUG (pick-up group) raids, that have players pay with gold for the items that drop via bidding wars. There are addons and mods (software modifications) that will track everyone's progress through the raid and for how long they have been present. In some cases these software programs track this information for multiple raids for everyone in a guild and post them onto a website. Each boss will award something called DKP or,

dragon kill points. The name is irrelevant, and the players are not always slaying dragons but the acronym DKP is now synonymous with points awarded in raids. What this means is that players use that DKP to purchase items that drop while in a raid with friends from the same guild. It makes the playtime fair, and favors users who make the time to show up for more guild events. Some guilds even award DKP for every hour spent in an instance, because sometimes the bosses are too hard to defeat and they want to reward their friends for working together to progress through content.

PUG raids by RMT users which use DKP are called GDKP or gold-DKP raids. Users purchase the DKP with gold in increments of 250, 500, even a 1000 gold per bid. Imagine a group of 25 people that are going through a long dungeon with 10-15 bosses, this has the potential to generate massive amounts of gold for the raid leader / master looter. The people who set up the raid and do not need any of the gear stand to make a significant amount of gold. These are the users who will have an advantage when the next patch comes out with the extreme disparity in wealth. This makes the game extremely stressful for individuals who do not want to purchase gold, but want to pursue content with friends. As the price gets driven up, users are required to spend more time attempting to generate wealth simply to have fun with their friends. According to my PAR about 50-75% of the time in game users are not playing with friends in a raid, rather they are attempting to generate wealth to pay for their play time... they're working!

Blizzard tried to combat the gold problem by offering something called dailies³² in "Burning Crusade", their second expansion. This trend has extended all the way through to Cataclysm, and is a system where users gain reputation through doing repetitive quests every 24 hours for a small stipend that is supposed to support their habit. Unfortunately,

the 100-200 gold a person can make in a day is simply insufficient. Some users have multiple characters able to run dailies, who stood to make much larger amounts of gold. During PAR research, between patches during *Wrath of the Lich King*, members in an end content guild called were selling off thousands of gold per week for personal profit to RMT services. The gold farming and RMT companies were happy to buy the gold from users at about 40% of the going rate. Most of these RMT services would hold onto that gold until the next patch when prices for gold would go up again.

The price of gold in the PAR was directly related to the patches that Blizzard was releasing. End content gear during both *Burning Crusade* (Jan 2007) and *Wrath of the Lich King* (Nov 2008), was always given a numeric value based on the difficultly of the content, and the size of the raid. With every new patch release the cost of gold would skyrocket as users scrambled to get the best gear. World of Warcraft was a prime example of the old adage, "hurry up and wait." Users, for reasons explored in the research section in CH V, this would boost their digital egos and status in game by having the highest item level gear. This means that aside from Tier gear³³, users were pushing in raids and purchasing items on the auction house. RMTs made a killing every time any MMO releases new content, with the innovation problem removed from their business strategy, all a gold farming or RMT service has to worry about is keeping up their inventories.

With so much gold swapping so few hands, a problem in the virtual world began to mirror the actual world. A few hundred players amongst tens of thousands were keepers of all the wealth. With the ability to pursue end content sooner, some guilds were able to sell off items and goods they no longer needed to users who would pay out

through the nose for them. Average pricing for the best BOE items and weapons ranged from 10 to 50k gold on any given servers' auction house, which in terms of the dollar to gold standard at the time, meant it was feasible for individuals to spend anywhere from \$100 US dollars, to \$500 US dollars on in game goods every single patch release. This for a single male or female living on their own poses little problem if they could balance their work and play lives. However, RMT services spelled disaster for many of the families whose sole bread winner, or one of the incomes was spending hundreds, even thousands of dollars for virtual items on a regular basis. Gold farming and RMT play to the weaker players, and the individuals who do not have the time to devote to a serious character, giving them the option to be the best, but at what cost? Certainly, this is more than just a financial concern. RMT and gold farming's impact reaches far past the virtual economies they distort with their niche market and addicted users. These shady services are able to prey on those who in many cases, cannot help themselves from their addiction. Later in Chapter VI, I explore how destructive the combination of RMT and MMOs have been on families and lives.

Finally, I leave numbers posted by VASCO, an digital security site who specialize in virtually all of the virtual loot protection in the market today.

"On the global black market, your e-mail password is worth \$4.00, your credit card number is worth \$0.40, your social security number is worth \$1.00, your bank account is worth \$10.00, [but,] your level 70 undead rogue with quest blues and a flying mount is worth \$425.00." (Vasco 2008)*

This tells a story that makes it obvious to understand how account theft by RMT services is a lucrative venture. This also illustrates why it is so detrimental to the reputation of MMOs, and how it can hurt both the player and the industry.

CHAPTER V

RESEARCH

Researching human subjects provides a rich and qualitative resource when the subjects habits and behaviors can be directly related to the numbers gathered in quantitative research. The human subjects provides the narrative for any good set of research. But, qualifying a person's habits are a difficult task. Unlike a controlled experiment in a lab, people are reactive creatures. They change, develop, analyze and make choices based on their situation that affect a researchers methods. Depending on the environment where the information is gathered, the challenges the subject faces, and the purpose of the research--two academic researchers could come to completely different conclusions from the same sample of subjects. Even using the same procedures, by its very nature qualitative research is extremely difficult to conduct and control for validity and repeatability.

That being said much of the work done in both the interview process and the PAR yielded similar results from every subject. I am confident that the time I spent with people talking about habits, experiences and challenges surrounding the MMO industry are going to be valuable for the field as a whole, in that to my knowledge this topic has not been explored before using these methods. My perspective comes from someone who's generation's exposure to digital media was set in the midst of a perfect storm. Growing up as an "echo boomer" or child of a baby boomer, developmentally we were

able to grasp how to manipulate and cohabitatem with the coming surge of digital media without preconceived notions or expectations. The level of access and interconnectivity has always been part of how this group lives and defines itself. All the while that same generation over the next decade will be evolving into the largest demographic with discretionary income. The digital media and video game industry have become a multiple billion-dollar-a-year enterprise and have targeted my generation for future profit.

Over the past six years I have spent nearly a sixth of my life playing those games averaging around 5 hours a day, every day, for six years. Assuming a student in high school spends all six hours learning during their day over the course of a 180 day school year, in four years a student will have spent 4320 hours learning in high school—logged into those virtual worlds I spent a collective 11,000 hours. Every one of those seconds brought experiences from the virtual worlds and virtual economies, but very real people. This is the focus of both the sociological and economic questions that make up this paper, and was the basis for the questions that were posed in the focus groups and interviews.

Part of the major challenge for devising a set of methods for the interview and focus group process was identifying the things that mattered most for MMOs, mattered because of the benefits or issues they may generate. Obviously both the benefits and problems have been expressed for the MMO industry in Chapter III, and the RMT subsector in Chapter IV. These challenges raise serious questions of capital, money trading, exchange rates, sleazy business practices, and equitability. At the same time these both industries generate impressive profits, massive amount of wealth and an enormous number of jobs with every new MMO. Those who feed off the innovation and profitability of MMOs will continue to buy and sell in the shadows, making estimated

billions of dollars annually. It is impossible for the user to not see the impacts of this. It does not matter if billions move on the stock market or in the auction houses of Azeroth, people who live in the world it happens see the bubbles, and watch as they burst.

This kind of fallout carries its own kind of emotional baggage. To hammer in a phrase that truly makes the point of the reality of these worlds from Chapter I written originally by Tom Boellstorff: "Avatars make virtual worlds real, not actual: they are a position from which the self encounters the virtual" (Boellstorff 2008). The impacts for the users, and the problems they face in these worlds are as emotionally complex and challenging as the actual world for one reason. No designer can design out the human condition.

These virtual worlds all become real because of the people which inhabit them. Each new resident brings with them their own set of ideals, morals, ethics, views of human nature and roles of the government. The complex task of organizing a group of people in the actual world to accomplish a daily mundane task in a work environment is magnified because of the loss of the minutia of human expression. Imagine trying to organize 25 people to finish a single task, but without the ability of face to face communication. Tempers flare quickly because everyone is devoting so much time and energy, and the conflict is often because of a simple miss communication. Text can never relate the real human condition, and even when there is voice you cannot see the speakers face; sarcasm, frustration, even humor are often lost.

On top of the social challenges these virtual worlds present the users with add the extremely frustrating fear of account theft, RMT and individuals who intend to prey on other players in PUG raids with "ninja"³⁴ loot. One can quickly see that while these

virtual worlds are often pass times, they come with as much frustration and challenge as the real world. The accomplishment of defeating content is no small achievement, and every end content user with the release of every patch works hard to tackle new challenges and gain the next tier gear, and highest item level possible (See Table 5.1).

All of this comes down to time, and the success of the gold farming and RMT services in MMORPGs is because these companies give users more time who are willing to pay a fee for it. For individuals who are unable or unwilling to pay for gold farming or RMT services, this means that they have to devote countless hours to gaining the requisite honor, reputation, experience, and gear to be able to enjoy time in the game. Imagine the impact this could have on a family, or a person unable to set socially appropriate priorities. These are all questions that were poised to the focus groups and interviewees.

FOCUS GROUPS

Without a doubt, the information gathered in a focus group setting can be hectic, and sometimes difficult to control. This is especially an issue when the members of the focus group are part of a close knit community. By posting on a public forum, you never really know who is going to show up for participation in a focus group; there have to be reasons people are willing to help. It may be for personal reasons like the food being offered like pizza (although that did not apply in every case). Subject participation could also be because certain personalities are more likely to contribute to things like research. Maybe it is because sometimes people feel like they have something to say... or quite the opposite. Possibly a subject simply wants to be part of something. And sometimes, participants may elect to be part of a focus group because they were just bored. In the focus groups run for this thesis, every one of these flavors showed up. However, because of their position in the virtual communities they all had something interesting to add to the subject of MMOs, virtual identity, and social and economic impacts of these virtual worlds.

Two of the focus groups were conducted with individuals who consider themselves for the most part end content users. This means in MMORPGs these subjects pursue content that is the most difficult, time intensive, and often requires multiple numbers of users in organized groups to tackle complex in-game mechanics. Groups in these games often organize themselves into smaller groups for the expressed purpose of completing these tasks, and those organizations are called guilds. Although, not everyone in the focus groups were part of the same guild.

A guild can range in size, but for the members who participated in this focus group the guild had a membership of about 200 members around 75% of whom were at the level cap (highest level, 85) and pursued end game content. It is important to note that a player cannot engage in end game content unless they have achieved the current level cap for the content. The roles in an MMORPG are very telling of the kinds of personality that a user may have. Castranova explores this in *Exodus to the Virtual World*, when he talks at length about his character who was a priest. Not every player has the desire to "bash an enemy's head in", as Castranova puts it. These characters cast spells that restore lost health, he describes it as "it is triage, in effect, except that the group is still under attack, and letting the wrong fellow die means that everyone dies." (Castranova 2007)

These roles are crucial to understanding the dynamic in these worlds, because if a user is playing a crucial class then they cannot simply step away from the game. If twenty five individuals have all taken the time to pursue this content, there is a serious stigma in every one of these virtual worlds when someone abandons or "drops" group. Getting someone to fill that role is difficult because if the raid has already defeated a boss and is in the middle of a dungeon players who join get "locked" into that raid ID³⁵. When you are locked it means that you may not join a separate group to get back the bosses that you may have missed earlier in the dungeon.

Respondents who are committed to a schedule in an end content raiding guild gather at specific times each week when the raid lockout³⁶ resets and the group can start from the beginning of the instance to down bosses again for loot that individuals may have missed from the previous weeks random drops. Every boss in an MMORPG drops loot, in some cases this means that the same loot drops every time. However, this is not

the norm. In a normal setting a boss in an instance will have something in their list of possible loot for pretty much every class in the game, this encourages everyone to participate in the communal act of downing a boss. So, if one week something does not drop, players will just go storming back in the next week in hopes of their drop that week. This is why the DKP system discussed earlier is so important, it enables users to bid on items that drop. With each new patch higher level gear drops, encouraging players who wish to stay on top of the content to continue pushing forward through raids.

For example, there were four major patches to player vs. environment content during *Wrath of the Lich King* (WOTLK). First was Naxxramas (Nax), which was a redesigned raid from WOW's initial release made playable for level 80 characters, with level 200 and 213 gear respectively (10man raids, 25man raids). Ulduar (Uld), was the second raid in WOTLK. It served as the prison of the Old God Yogg-Saron and the residence for the titanic watchers who have fallen under its influence. Gear from Ulduar was 219 to 226. Next came the Crusader's Coliseum (ToC), with trial of the crusader offering 232 and 245 item level gear.

Finally came the Ice Crown Citadel (ICC). ICC was the fourth and final major patch to WOTLK, where users saw the end of the storyline surrounding Arthas (the Lich King). Arthas was a character from Blizzard's RTS³⁷ WarCraft III: Reign of Chaos (2002). The WarCraft franchise started with WarCraft: Orcs & Humans in 1994, each game in the franchise was a real time strategy game (much like chess on the computer screen). WarCraft paved the success and storyline for Blizzard to create their MMO epic, World of Warcraft. For the raid in Ice Crown Citadel, gear was 251 and 264 respectively. What is important to remember is that for every one of these raids it was possible to

pursue heroic content, or at the very least difficult mechanics which awarded higher item level gear.

During the same time the content mentioned above was released, a new zone introduced with WOTLK offered up different kinds of BOP (bind on pick-up) virtual loot. This new instance type was a hybrid PVP (player vs. player) PVE (player vs. environment) zone, called Wintergrasp. After one of the two factions in World of Warcraft (Alliance or Horde) defeated the other and earned control of the zone, they were rewarded with the availability of the corresponding raid.

With each large scale patch mentioned above a new boss was added to Wintergrasp (WG) in a dungeon called the Vault of Archavon with respective item level gear. This was both a 10 player and a 25 player dungeon, but it dropped both Tier gear, and PVP arena³⁸ level gear.

Dungeon	10 Player	25 Player	Heroic 25man Last boss:
Naxxramas	200	213	226
Ulduar	219	226	239 Heroic, 245 Legendary Mace
Trial of the Crusader	232	245	25man Heroic gear 258
Ice Crown Citadel	251	264	25man Heroic 277, 25man last boss 271, 25man last boss Heroic 284
Vault of Archavon	200	213	n/a
Vault of Archavon	219	226	n/a
Vault of Archavon	232	245	n/a
Vault of Archavon	251	264	n/a

This table is crucial to understanding this loot system, because it is the driving force for World of Warcraft's continued subscription base. The never ending carrot that is dangled before the user within gear based MMORPGs like World of Warcraft ensure that players will continue to need the next best item, and the newest gear. The push to get items for all the gear slots: head, neck, shoulder, chest, belt, pants, boots, bracers, gloves, ring 1&2, trinket 1&2, cloak, weapon, offhand, and ranged item was exhausting.

After reigning in the conversation around this topic at the table, respondents began to vent frustrations with the process of content release. There was a unanimous feeling that raiding would be better if the dungeons were designed to be longer to defeat, and the content lasted. The ceaseless pursuit of gear that was insufficient was something that a few felt was unnecessary. At the time of the research, Cataclysm had come out. This was the expansion which replaced the formula which World of Warcraft had been following in both expansions for *Burning Crusade* and *Wrath of the Lich King*. Now in dungeons 10 and 25 player raids dropped the same item level loot, just more or less of it depending on the raid. Everyone seemed pleased with this formula, in that smaller more cohesive groups could tackle content together.

Going around the room every respondent thought about the amount of time they spend in virtual worlds, from raiding, questing and making in game money. Not one of the participants in the focus groups who identified themselves as an end content user in an end content guild spent less than thirty hours online a week, with most respondents commenting that they spend at least 40 - 50 hours a week in these virtual worlds. This kind of figure was not surprising for those who were currently enrolled as students, but only four of the participants in the end content focus groups were registered students.

Students made up only about 25% of the subjects in the end content study. Which begs the question, how on earth could someone support a job, themselves, or a family spending nearly 44% of their waking hours playing games? This also means that if they had a normal 40 hour a week job, these participants only had 3 hours a day that was free outside their time in an MMORPG or work. This would have to include eating, showering, travel time to work, and time spent with families. Obviously, something had to give.

- $7 \text{ days} \times 16 \text{ waking hours} = 112 \text{ hours}$, $50 \text{ hours of play} / 112 \text{ hours} = 0.44$, or 44%
- $50 \text{ hours of play} + 40 \text{ hours of work} = 90 \text{ hours occupied}$, 112 hours of time not sleeping - 90 hours occupied = 22 hours for everything not work or MMORPG,
 $22 / 7 \text{ days a week} = 3.14 \text{ hours a day}$

One of the participants spoke at length about why they play MMORPGs in the first place. Since they had graduated college his relationship with his girlfriend had been on again / off again, every few months. The common denominator for its success or failure was MMOs. Whenever they broke it off for a period of time he would come back to playing World of Warcraft for the community and "for something to do". The girlfriend despised the games believing that they consumed too much of his time. Remarking about the virtual world the respondent added, "WOW is a better girlfriend, she never cheats on you." This prompted snickering from the other participants, yet I could not be sure how much of that comment was said to be humorous and how much

was said in truth. It certainly illustrates how real the community is for the players, and how an MMOs support structure can be every bit as real as one found in the actual world. It also prompted questions for me, like if the participant had paid more attention to the significant other would they have sought out attention elsewhere? Or perhaps the girlfriend had issues with infidelity in the first place. Since I am neither qualified, or was I in a position to ask the girlfriend these questions I moved on.

The vast majority of MMORPG players are male, and all but one respondent in the end content raiding guilds were male during this research. This however is not the entire case. According to figures posted by Castranova in *Synthetic Worlds*, female players made up nearly 8% of the users in Norrath, the digital world of EverQuest. If we applied this percentage to all of the MMOs currently in the markets of the US, the UK, Germany, France and Netherlands with over 61 million users (Black Book 2011), that means that there are nearly five million female players in just those markets. Since there is no reliable source to get this kind of data for all markets, analysts at sites like GameIndustry.com can only guess at the moment. However, with number projected around 150 million worldwide, this means a very large number of players are female, even if it is not a great percentage (12 million female players would make a population larger than Cuba or Greece [CIA World Fact Book 2011]).

Later in this research I interview a couple who plays together, but this was not during these group discussions. With these participants the most interesting questions came about the practices they had surrounding buying and selling in game items. While companies like Blizzard and Square Enix all promote virtual items they produce that you can purchase for your game with real currency, there are developers that are engaging in

the same behavior who are not considered strictly MMO producers like Riot Games' incredible hit, *League of Legends*. This game is free to play but users can purchase characters and upgrades with real currency, and the company is making a killing. It follows a similar RPG setup, mixed with an element of RTS and even MMO, Riot Games is quite acronym savvy. In any case, every respondent in the focus groups had paid for a service or item by the developers *outside* their subscription. When someone has a friend on a different server, in most MMORPGs users can pay to transfer their character across realms to be with their friends for a \$25 US dollar fee. Users can also pay to swap factions in game to play with their friends, from either the Alliance or Horde for \$30 US Dollars. If the participants had not engaged in character transfer they all had purchased either a rideable mount, or an in game vanity pet, (\$25 and \$10 US dollars respectively). This is a complete stream of revenue for companies like Blizzard, they simply have to program the horse, or dancing panda once and then sell off millions on their website for use in game, no distribution costs, no materials, just pure profit.

What was more interesting was listening to stories of how each of the participants had in some way engaged in gold farming, or transactions with RMT services. Nearly everyone in the focus groups had made the transition from Final Fantasy XI to World of Warcraft, and a few still retained subscriptions to both. However, many of them when they made the switch from FFXI to WoW, they sold off their characters, gear and gil. Some had spent nearly the same number of hours playing FFXI and had characters who had reached the level cap (at the time) of 75 in multiple jobs. (Unlike World of Warcraft that only allows a user to level one character with one job at a time i.e. one rogue, one warrior, one priest, etc; Final Fantasy XI enabled users to level every job on one

character and have two jobs active. For example you could have a Thief 75, Ninja 37 as one role, with both jobs leveled to their maximum of 75. The sub job was always half the level of the 75, but enabled characters to have multiple specialties.) This made selling a character with multiple level 75s a much more lucrative venture, and could fetch thousands on EBay for an account, and for a few of the participants this was exactly the case. By posting the statistics for each of the jobs the character had earned it injected value into the sale. One of the respondents sold a Tarutaru (a small teddy bear looking character generally good at magic jobs) 75 Summoner, 75 Blackmage, 75 Whitemage, 75 Redmage, 37 Ninja, 37 Dark Knight, 37 Warrior with several professions maxed for \$2500 US dollars.

Subjects also had engaged in RMT transactions with gold services. A few respondents were members of a community called Aion. This is a game that instead of being broadly focused on player vs. environment, Aion was broadly focused on player vs. player content. The game was considerably "grindy"³⁹, according to the participants, which was a determining factor in why they purchased large amounts of kinah (Aion currency). A few of the other participants had purchased both gil for FFXI and gold for World of Warcraft. None of them engaged in RMT services on a regular basis but they had all at one point either sold a character, or purchased a virtual currency. That means 100% of the participants had all in some way engaged in the shadow industry of gold farming or RMT.

Finally, one of the subjects admitted to botting⁴⁰. This is a practice that Julian Dibbell describes in Ultima of characters that are controlled by a simple computer program to make currency. In Dibbell's example, to purchase cloth and turn around and

make it into a bandage would vendor to an NPC (non player character) for an amount greater than the initial investment of the cloth. Before GM's (game masters) caught on to the trend of "cloth-ing", computer programs would buy make and sell at a speed impossible for a human hand to coordinate. Because the profit margin was so small this had to be repeated thousands, if not millions of times to make a reasonable return. So residents would go online and purchase a bot⁴¹ program, bot being short for robot. These simple programs would control your character for you while you were not at the computer and do these simple tasks repeatedly for hours on end, often like in my respondents case, while they were sleeping in the actual world. While they botted in World of Warcraft, it was easy to see why they did, he claimed that each month he makes about 300-500 dollars since Cataclysm's release. This also happens while he is not playing his character, so there is no time commitment for his deals with RMT sites. I am guessing that if he were to do the legwork, he would be able to set up his own RMT service and make three, four, even ten times the profit. In the end he had this to say on the matter, "[sic] ...fuck dude, it's so easy. If I lose my character because someone catches me using a bot, I'll make another account, it's no big deal."

INTERVIEWS

Often, the allure of the massive multiplayer online game is the "hero" role. The author T. L. Taylor explores the gamers need for something that is missing from their daily lives, and comes to the conclusion that users frequently seek out these games because they have no way to be a "hero" in their daily lives. They don't protect and provide for their friends and families the way that would have been required a few centuries ago. What these games allow the consumer to do is assume the identity of their avatar and connect to a completely different world and become important. The connection with the avatar becomes so real, so much more tangible because it rewards those primal instincts that are often lost in a market system.

This was the experience for many of the people that were interviewed. One of the individuals who was part of this research process was the person who dragged me kicking and screaming into Azeroth nearly four years ago during Blizzard's second expansion for World of Warcraft, *Burning Crusade*. Every single person interviewed was either the family member, or the actual participant in these games. They had all in some way been touched by the invasive nature of MMOs in their lives. Each participant had a similar story, yet there was no solution for any of the couples as to how to integrate the games into the lives of families where not everyone played the game.

Of the interviews with individuals, the most interesting was with someone who worked for a server management company that housed massive numbers of servers for Blizzard. In fact, in one room his company housed every east coast server for World of Warcraft, which represents nearly 70 separate realms and over 2.8 million subscribers. Needless to say he had a few insights to how the technical aspect of running an MMO

worked, this is where much of the information was gathered for the Industry Tools section in Chapter 3. What was interesting to learn was how the servers were mostly maintained. His company's hardware was simply the vessel for Blizzard's information, and the people that worked at his company do not do maintenance on the hardware themselves. Instead, his company merely reports issues electronically to Blizzard headquarters. At which point if it is a problem that cannot be fixed remotely, Blizzard literally has a task force of informational technology ninjas that fly out, and fix the problem. This participants company is merely a keeper of the computers, which are rack mounted blades of hard drives and processors.

Being a person who had played these games, the server worker appreciated how hard Blizzard worked to keep up their systems. He also noted that his company was an incredibly important link in the chain of people that help bring the services to the users. Noting when a world server drops and people complain , "oh someone must have tripped over a chord, 'haha'... yeah that has never happened at our server." Their hardware was never the cause to his knowledge of a server being down, it was always a load issue because the number of players, or because of software issues in patches.

By understanding the links between businesses in this industry a larger picture becomes clear of the 'massive' effort required to maintain this kind of infrastructure for the number of people who play these games. It is no small undertaking to be responsible for the lifeblood of an entire virtual world, never mind seventy of them, each with populations in the thousands and tens of thousands. It is important to remember that while much of this research is a critique of the MMO industry, as mentioned in the jobs section in CH3 it is crucial to understand how large an employer the MMO video games

sector is. As an industry it employs more people than merely the individuals who are involved in game development and distribution. There are complex networks of people from sales, maintenance, and information technology services who ensure these games stay up to date and running for everyone who plays them.

That being said, the interview with the information technology expert came as a recommendation because of their time in the virtual worlds. Both an enthusiast of games and MMOs they played EverQuest, Final Fantasy XI, and were the only one of two "vanilla" users who I was able to talk to during this research. Being an original player gave them a perspective that was different from most of the other residents in this research. They saw the evolution of the MMO as Blizzard moved into market dominance, and the tactics which changed over the course of the games development across four separate stories, and multiple patches.

At a point during the release of every major patch this participant stopped playing feeling disenfranchised by how little their gear they attained from the previous expansion mattered. They said, "My tier 2 and tier 3 gear should have taken me straight to level 70 dungeons, and it just didn't. When I saw that the green drops were better than my raid gear I just quit." He went on to say that all the time spent in raids with friends felt like a wash. Yet, he would go back time and again after a while to the same grind to do it all over again. In the end, a question which I asked every respondent was if someone asked them to stop playing these games flat out, "cold turkey", someone who was important to them would they? His response after a very long pause was a solemn, "No."

The other interviews were with a few couples whom all had been touched by MMOs in one way or another. Each couple expressed their frustrations with these games

in different ways, yet only one of the couples had come to an equilibrium with their spouses play time, and their lives together. What's more is that every couple that I spoke with answered the same when confronted with the number of hours their spouse was playing per week. In each case, the husband would say they logged about 20 to maybe 30 hours a week playing MMOs. When in reality their wives would outline a very different account, adding up somewhere between 40 to even 60 hours a week. In the end, this would turn out to be the more appropriate figure.

This means that in at least three of the couples, the husband (who in each case had a 40 hour a week actual work responsibly) would log between fifty and sixty hours of time in a virtual world. Applying similar math from the focus groups these spouses were left with 3.14 hours a day, or in the worst case scenarios: 12 hours free for everything else a week, or 1.71 hours per day to eat, bathe, and spend time with their families. That is simply socially unacceptable.

- 50 hours of play + 40 hours of work = 90 hours occupied, 112 hours of time not sleeping - 90 hours occupied = 22 hours for everything not work or MMORPG,
 $22 / 7 \text{ days a week} = 3.14 \text{ hours a day}$
- 60 hours of play + 40 hours of work = 100 hours occupied, 112 waking hours - 100 hours of occupied time = 12 hours a week = 1.71 hours a day

Interestingly, there was one couple who had developed an actual relationship together in tandem with their virtual identities. Playing together nearly seventy hours a week they were married in the actual, and the virtual. They spent their time as a couple

working in the actual to make the means to live in the virtual. Their swords and spells became the medium for their communication on a regular basis. To them their relationship was perfect, and they felt they had found the perfect partner. However, to other couples (one who was also interviewed for this thesis) the digital lovers had become removed from their once very rich actual social network in favor of their new virtual social network. Ultimately, distancing themselves from their actual friends. Eventually, it seemed their MMO habit won, and they continue to explore the virtual worlds of World of Warcraft, Aion, and now Rift.

Of the couples I interviewed for this research all had come to an ultimatum in the relationship, or a breaking point for their habits. This was the point of collision between their virtual identity and their actual identity. There is no question for me, both of these identities are real, and they both feed the soul of the person who lives them. The provider, the husband, the lover, the father, the worker made up only one sphere of the identity for men who felt their lives were missing something. This was something primal that was made whole by forging an identify as the healer, the tank, the damage dealer, the epic rider, the raid leader, ...and the hero. It is hard to reconcile these concepts for someone who has never lived them.

Rationally, when in the actual user is in the actual they can mostly maintain their priorities. Unfortunately, the occasional lapse in judgment is misunderstood by society as them being neglectful and selfish, and in a way they certainly are. Yet, this is why research needs to be done further into this field. For the most part these users can understand they were in a game. But as explored by Boellstorff, those experiences while they are happening in the virtual, fire synapses in the brain as if they were real. Your

shield is really stopping that giant dragon from hurting your group, all the while your friends are at your side risking their virtual lives to defend each other in a strange virtual band of brothers.

Problems in relationships and issues ranging from economic hardship to becoming a social pariah all stemmed from time spent in virtual worlds. Our society is not prepared to integrate multiple personalities in a person's life. Because so much of our system depends on the 40 hour work week there simply is not time to have a family and a virtual identity. Frustrated wives have always complained about their husbands going out to the bar, or playing poker, but at some point in good relationships they came home. Someone who lives a virtual identity cannot let go of that persona. They talk about it, think about it and let it consume their waking hours. the figures above were for people who slept 8 hours a day, every day in a week. That is preposterous. But important for the data because there is no way to know how many hours of sleep are lost on average because of MMOs. This lost time in every respondent in this interview affected their work performance, and their ability to be a good husband, or father.

While the research was on a very small scale for this thesis, so much more needs to be done especially with couples, to encompass every walk of life an MMO can touch. Of the military families in this research, some are suffering profoundly from the impacts of the virtual lives on their family. Imagine a spouse or father deployed 66% of their lives serving their country, this means their family only gets so much time with them. Yet, these virtual worlds are the only escape for countless while deployed, the virtual social networks are what help keep many of the soldiers minds sane. Upon returning home,

these soldiers have developed entirely alternate lives in these virtual worlds while deployed, and many found it impossible to separate themselves from their virtual identity.

In each case, regardless of where they worked each respondent replied they would have difficulty walking away from these games if asked to by a spouse or family member. That says something deep about their hold on the individuals identity as a person. One respondents wife said, "it's good we came to a compromise, because I'm not sure what you'd do with yourself if you didn't have these games."

RESEARCH CONCLUSIONS

In the research portion of this paper, time spent in virtual worlds for every couple in some way detracted from their ability to experience the actual world. For most of them this meant their relationships with their wives and children felt the cost of parents and spouses developing mild mannered alter egos. Our society does not value the role of being a mother or a father, a husband or a wife the way that they should. These are the super heroes. Yet to fulfill something inside them the users of these games need to escape the monotony of the actual world's daily grind. The actual worlds market model offers nothing to someone who feels that their job as a salesperson, a clerk or a doctor is unfulfilling.

Without a doubt, after delving into this industry the answer to my thesis question is simple. But, I find as I research and talk with more people that the answer is so much more complicated than anyone in our society can imagine. On the one side, the MMO industry is just that: a market sector who moves on the profit motive to generate a product that users consume. Uniquely to MMOs these companies have devised a way for their product to develop and evolve so that it can consume the most possible amount of time out of their customers. This is because the longer they spend in the virtual worlds of the developers, the more monthly fees the company will accumulate in their revenue stream. This is not a value judgment on the companies who develop and distribute these games. They have been incredibly successful and employ an army of hundreds of thousands across the globe to ensure that the users have access to their virtual worlds. But with our society unprepared for this oncoming virtual storm what kinds of costs will this industry and its profit motives have on our society.

Users certainly have increased their time in virtual worlds, and in many ways the cost has been measured in terms of dollars. The MMO industry itself has been enormously successful, the super slimy shadow industry of RMT and gold farming has also experienced unprecedented success, and exponential growth in the past few years. But, when considering the cost of all of this on the individual, like each person in my interviews the picture changes.

Individuals who devote half their lives to MMOs, undoubtedly have increased the amount of time they spend in virtual worlds, it is impossible to pronounce that their work, families, and even health are not impacted. In *Exodus to the Virtual World* Castranova speculates instead of seeing workers on a Friday morning all hung over from a thirsty Thursday's night out drinking at bar, there will be the Wednesday glaze: an entire workforce of zombies exhausted from their adventures raiding the night before because of the content weekly reset. This kind of commitment obviously has enormous ramifications on society, our markets, and the workers productive capacity. Without a doubt when examined in this context the MMO industry is siphoning time from our lives, and not returning it to us in a productive capacity.

If husbands and wives increase their time in virtual worlds their relationship with things in the actual will deteriorate. There is no question. With the research which focused on married couples there was significant evidence that their lives had been seriously impacted with the introduction of MMOs. Responsibilities, and relationships had been shifted to accommodate the new identities that were forged in the virtual worlds. While these are gross generalizations the data is there in this small sample, the respondents experiences are very real, even if they happened in the virtual. These

identities in nearly every case were detrimental to the unity in the relationship. In cases where couples played together they saw a disconnect with their friends in the actual to make way for their new relationships with individuals in the virtual. In all cases it is my sound belief that the MMO when integrated into a stable relationship has the serious potential to impact couples integrity. There needs to be a level of communication and understand on every party, so that while the new entertainment medium is incorporated it will not engulf someone's waking hours, it just is not healthy.

If fathers and mothers increase their time in virtual worlds it will have an enormous collective cost on our families. The numbers are simple. Even if a user is dedicating the average number of hours a week as reported by the industry at twenty hours this means, 52 hours a week free or 7 hours a day to drive to work, shower, eat, and spend time with your families. If anyone has tried to bathe a child they know this is no quick or simple task, it's a production. Helping with homework or cooking dinner, it is almost impossible to be everything with so much time taken out of your day.

This number is not impossible and it is important to note that if a virtual identity is taken in moderation, there can be an equilibrium reached. In my PAR however this was not the average time played. Among the 26 members in the guild whom my avatar "Wilkie" pursued end content with, the average number of hours in virtual worlds was around 40. This figure changes the equation above drastically when these respondents average is input. This figure gives my respondents a little more than four hours a day to commute to work, bathe, eat, and spend time with their families. This number unlike seven hours a day is not workable, and leaves something in the list of obligations and

expectations to the wayside. Ultimately, it is my conclusion that the time with family will be what suffers first.

The disconnect between the amount of time we spend in virtual worlds does not coincide with our social awareness of the phenomenon. America now has 40 million intensive MMO players (Black Book 2010), this means more than 12% of our population ($40,000,000 / 311,059,427 = .012859$, or 12.859% [US Census]) is spending nearly a quarter of their time in virtual worlds. The cost of users increasing their time in virtual worlds, already has enormous impacts on personal productive capacity. This time loss is inevitably spilling over into the markets, and in the end our collective social wealth.

MMOs are supposed to be diversions, forms of digital entertainment. The companies and corporations who design, produce, distribute and maintain these virtual worlds are not some giant conspiracy. Like any other guilty pleasure, when approached in moderation they offer rich digital worlds, and dynamic social networks where individuals can live out dreams they never thought possible. "Remember to take everything in moderation, even World of Warcraft..." appears on a splash screen when loading the virtual worlds of Azeroth, and they could not be more on point with what I took away from the research in this thesis. If an individual finds him or herself spending actual currency outside their monthly MMO fee they should step back, and decide if it is really important. Decide what the cost of spending that money could really mean. This thesis also tells the story of individuals driven by their need for competition or for digital ego, fame or for friends, they took something to the extreme and lost something of their actual selves when they constructed their virtual identities.

Given the time a large scale interview process concerning the impacts on a larger sample group would be helpful for understanding MMO impacts. If given the resources real MMO subscription figures should be found, not just for research, but for the industry jobs and raw numbers too. Black Book 2010 by NewZoo and GameIndustry.com along with other media outlook agencies would most likely find this sort of information invaluable. Ultimately however, a survey in the virtual worlds agreed upon by the MMO developers about habits would prove invaluable about users choices and their behavior in virtual worlds.

In the end this thesis can only offer what a master's thesis on the topic of MMOs can: a broad understanding with academic exploration into a greatly misunderstood industry. An industry which has exploded in the shadows over the past decade. Our markets and society are still playing catch-up to understand this digital phenomenon known as the massive multiplayer online game. Given the right budget and the right support, this could be the groundwork for some very interesting ground breaking research.

I believe this work can be summed up with Final Fantasy XI's disclaimer on their loading screen, which is even more articulate than Blizzard's disclaimer. The words by Square Enix encompass the essence of what this thesis articulated:

"A Word to Our Players

Exploring Vana'diel is a thrilling experience.

*During your time here, you will be able to talk, join,
and adventure with many other individuals in an experience
that is unique to online games.*

That being said, we have no desire to see your real life suffer as a consequence.

*Don't forget your family, your friends, your school,
or you work."*

APPENDIX A (Interview Questions)

MMO Virtual Markets and Identities Social and Economic Impact

Do you play any video games? (please circle)
Yes / No

Are you Male or Female? (please circle)

What age group do you fit into? (please circle)

- 0-18
- 18-25
- 25-30
- 30-40
- 40+

Which platforms do you utilize? (please circle)

- PC (Personal Computer)
- Xbox
- Xbox 360
- PlayStation 2
- PlayStation 3
- Sony PSP
- Nintendo Wii
- Nintendo DS
- Other handheld

About how many hours a week do you spend playing these games? (please circle)

- 1 - 5
- 6 - 10
- 10 - 20
- 20 - 30
- 30 +

Would you describe yourself as a multiplayer or a single player game enthusiast? (please circle)

- Singleplayer
- Multiplayer

Do you play browser based games like Farmville?

- Yes
- No

Do you subscribe to an online network like Xbox Online, or PlayStation Network?

Yes

No

Do you subscribe to any MMOs, or Massive Multiplayer Online games like World of Warcraft?

Yes

No

Have you ever been recruited to play these games by a friend or family?

Yes

No

Are you part of a clan that participates in specific game content on Xbox or PlayStation Online?

Yes

No

Are you part of a guild or group in these games that explore, quest, raid or pursue in game content?

Yes

No

Are you part of a guild or group in these games that have met outside of the games for an event?

Yes

No

Do you have connections in these games that you would consider your friends outside of the game?

Yes

No

Do you have connections that you have made solely online that you would consider your friends?

Yes

No

Would you recruit someone to play with you in an online or multiplayer experience in order to spend more time with them?

Yes

No

Have you ever changed plans in the real world to accommodate an in-game obligation?

Yes

No

If asked to stop playing these games, would you be able to stop?

Yes

No

Have you ever considered taking a break because of the time commitment of MMOs?

Yes

No

Have MMOs affected your sleep?

Yes

No

Have MMOs affected your work?

Yes

No

Have MMOS affected your personal relationships?

Yes

No

If approached by your friends or family and asked to stop your time in virtual worlds would you?

Yes

No

Talk a little bit about your relationships in the game.

Talk a little bit about how your wife / girlfriend / husband / boyfriend feels about MMOs.

Do you think the way they feel is fair?

Do your friends and family accept your MMO time?

Do you believe that your MMO time has value?

Do you see yourself playing MMOs in the future, 5 years, 10 years, for the rest of your life?

If something that was entertaining was available, comparably priced, and not in a virtual world, would you consider this as possibly an alternative to MMOs?

Yes

No

Talk a little bit about your normal activities while logged on

How often do you pursue end game content?

- Daily
- Weekly
- Monthly

How many characters do you have, and what levels are they?

How do you feel about the loot system, do you like the content?

Do you feel that the gear is easy to obtain, talk about your gear

Have you ever paid for services like character transfer or for vanity pets offered by the developer?

- Yes
- No

Would you purchase gear if it was something you thought was a BIS or upgrade with real dollars?

- Yes
- No

Have you ever engaged in RMT (gold farming)?

- Yes
- No

Have you ever purchased currency from an RMT service?

- Yes
- No

How much currency would you be willing to purchase?

- Yes
- No

What is a fair price for the virtual items or in game currency?

Have you ever sold something on EBay, privately using a service like PayPal, or to an RMT service?

- Yes
- No

Do you ever think about who, or how your RMT goods were obtained?

- Yes
- No

Would you ever consider selling an account for money?

Yes

No

If a New MMO came out other than WOW / Aion / FFXI, would you change to that one?

Yes

No

What is so enticing about MMOs, why are they so exciting to you?

If you could go back, and get all the time you spent in virtual worlds back to spend in any other way, would you?

Yes

No

Do you think that MMOs are made to be addictive?

Yes

No

Are you addicted to MMOs?

Yes

No

APPENDIX B (System Requirements)

System Requirements

"Windows® System XP/XP64/Vista/Vista64/7** OS (w/ latest Service Packs updates):

*Intel Pentium 4 1.3 GHz or AMD Athlon XP 1500+
1 GB or more of RAM
NVIDIA® GeForce® FX or ATI Radeon™ 9500 video card or better
25.0 GB available HD space
4X DVD-ROM drive (Downloadable Installer also available)
Broadband Internet connection
Keyboard/mouse*

Mac® OS X 10.5.8, 10.6.4, or newer:

*Intel processor
2 GB RAM or higher
25.0 GB available HD space
4X DVD-ROM Drive
Broadband Internet connection*

**Note: Due to potential programming changes, the Minimum System Requirements for this game may change over time."*

Recommended system settings below

"Windows® System Vista64/Windows 7 OS:

*Dual-core processor, such as the Intel Pentium D or AMD Athlon 64 X2
2 GB RAM
256 MB NVIDIA® GeForce® 8600 or ATI Radeon™ HD 2600 or better
Multi-button mouse with scroll-wheel*

Mac® OS X 10.6.4 or newer:

*Intel® Core™ 2 Duo processor - NVIDIA® GeForce® 9600M GT or ATI Radeon™ HD 4670 or better
4 GB system RAM
Multi-button mouse with scroll wheel"*

APPENDIX C (Glossary)

²³ Alts

Alternative characters, secondary to the main account character.

AI

Artificial Intelligence, in the context of MMOs this refers to NPCs, (non-player characters). These “AI” are programmed digital personalities that serve different purposes from selling items, traders, and quest givers.

³⁸ Arena

A system for end content users to engage in elite, small scale 2v2, 3v3, 5v5 ranked PvP.

Avatar

This term refers to the digital representation of the player’s character, the virtual personality of the user.

Bag

This refers to the characters carrying capacity of in game items.

Bank / Guild Bank

Game mechanic that extends the player's inventory, akin to a safety deposit box.
Game mechanic that extends the players' inventory, akin to a shared safety deposit box for players in the same guild. Separate from bank.

BIS

Best in slot, meaning the item has the highest numeric upgrade in statistics for the characters class.

BOA

Bind on account, an item that can only be traded among the avatars on one account.

²⁰ BOE

Bind on equip, an item that becomes non-tradable to other players when equipped on an avatar.

²¹ BOP

Bind on pickup, an item that becomes non-tradable to other players as soon as it enters an avatar's inventory.

¹² Boss

An NPC-MOB, typically found in dungeons or quests, that present additional difficulty and requires coordination between players to overcome. Often drops special or unique loot.

^{40, 41} Bot

This is a slang term pertaining to an automated/scripted character, a practice that is illegal in most MMO's.

¹³ Build

A predetermined raid configuration to overcome a specific game mechanic.

²⁶ Buy to Play

MMOs which do not employ a monthly subscription fee in order to maintain an account.

⁸ Casters

Any avatar who employs magic as to fulfill their role within a virtual reality (e.g. Druid, Mage, Priest...). This category generally breaks down into those who cause damage (see DPS) and those who reverse it (see Healer).

Class

The term pertains to the categories of or roles that avatars can choose, like a priest, hunter or warrior.

Cluster

A collection of servers that power a single shard or realm, examples like Second Life shards, each powered by hundreds of servers. These help maintain large populations.

Core Raider

The terminology of 'core' means officers of a guild and or committed individuals

²⁷ CORPG

Competitive Role Playing Game. Different from an MMORPG in that end content is accessible without the aid of other actual players.

¹⁹ Crafting

This term refers to the practice of virtually creating goods through professions like cooking, blacksmithing, or leather working. The process of crafting comes from combining raw virtual materials.

³² Dailies

A daily repetitive quest for the purpose of gaining reputation and or in game currency.

DKP

Dragon Kill Points, points awarded in raids by guilds for completing content, used to bid on loot.

¹⁵ Down

To complete a given game mechanic.

⁷ **DPS**

Damage per second

A specific class whose role is to cause damage.

¹⁶ **Encounter**

See Instance

End Content

This refers to the virtual story, quests, dungeons and raids available to a character who has reached the highest level and gear requirements. Often more than just the level is needed in end content raids, pvp and dungeons, which require minimum gear that must be obtained before users may participate in events.

² **End Content Raider**

A character who has reached the given level cap in an MMO who pursues advanced mechanics for the purpose of gaining loot or items to increase their stats.

GDKP

PUG raids by RMT users which use gold for DKP called GDKP or gold-DKP raids.

Gear

Items which can be equipped on an avatar, often altering the appearance of the character and changing stats. (e.g. armor, weapon, rings...)

¹⁷ **Gems, flasks, food and enchantments**

Character enhancement items, different from and in addition to gear.

GM (Game Master)

Game Master, this is a person who works for the game developer and interacts with players directly in the virtual world. They are the first line of communication and service help from most developers.

GM (Guild Master)

The leader of a guild.

²⁹ **Gold Farmer**

The nickname for individuals who engage in RMT.

^{31, 39} **Grind**

Slang for game mechanic that requires repetition of a given task to progress.

Guild (Clan, Corporation , Linkshell)

An organization of players. Most of the time guilds are supported by in-game systems that allow for sharing of resources, experiences, and information with other members.

⁶ Healers

A specific class characterized by magic, whose role is to reverse damage.

⁹ Hunter

Generic term referring to an avatar who does ranged physical damage (contrast with Caster DPS).

¹⁶ Instances

Private non-persistent areas on a server where groups of players experience identical content individually.

IRL

In Real Life

Items

Virtual goods.

Lag

An unofficial abbreviation of the process of latency, when there is a “traffic jam” of digital transmission between the server and the user.

²² Live

The official release of content or game by the developer.

¹⁸ LFG

Looking for group.

⁴ Loot

Virtual items which can be equipped, displayed, or kept in a characters inventory which are obtained from completing in game activities ranging from finishing quests, defeating monsters (mobs), or purchasing gear or items with honor/badge/gold.

Main

The primary character of all the characters on a given users account

Mechanic

Developer requirement for completing content.

¹⁰ Melee

Close ranged DPS.

MMO

Massively Multiplayer Online

see MMOG

¹ MMORPG

Massively Multiplayer Online Role Playing Game

As definition for this thesis means a digital experience that incorporates users avatars in a common space where

MMOFPS

Massively multiplayer online first-person shooter

MMORTS

Massively multiplayer online real-time strategy

MOB

Mobile Object Block

Strictly speaking, Mobs are all computer controlled characters in the game, however, the term "MOB" is only used for non player characters a user can attack.

²⁴ Mule

An alt used for storage. In some MMOs auction houses limit the number of transactions per character, in this case the "mule" serves additionally as a merchant.

Nerf

To downgrade, make less effective.

NPC

non player character

The characters are controlled by the system. A "computer" character.

³⁴ Ninja

To loot something very quickly before anyone else can take it, considered the same as stealing. Also, raid leaders may gain loot and leave the group with the items, this is also considered ninja-ing.

Patch

A downloadable update that fixes bugs, improves stability and introduces new features to a program.

²⁵ Pay to Play

MMOs that employ a monthly subscription fee in order to maintain an account.

PCU

Peak Concurrent Users

The highest number of players online at the same time.

²⁸ Playborer

Edward Castranova's term referring to an individual whose main source of income comes from time spent in MMOs.

PUG

Pick up group

PvE

Player versus Environment

Combat between players and computer controlled opponents.

PvP

Player versus Player

This means for one player to attack another player.

Quest

A task that rewards players.

¹¹ Raid

A raid is a coordinated, large-scale attack on content by a group of players in specific, predefined roles.

³⁵ Raid ID

The assigned identification number for an attempt by a specific group to complete specific content. This is used as reference and by raid leaders to save the attempt from resetting at the weekly reset.

³⁶ Raid Lockout

A game mechanic which prevents a character from completing the same content more than once in a given period of time. This has a weekly reset.

RP

Role Playing

RvR

Realm versus Realm

A factional PvP system.

Rollback

The full state of the game world is usually not saved permanently on the game servers continuously, but is done at intervals. To fix a big problem with a gaming world, the game may be rolled back to a previous state.

Realm

In RvR games realm has essentially the same meaning as a Faction, also realm is a synonym for Shard, however this use is not recommended.

RL

Real Life

As opposed to your virtual life.

³⁷ **RTS**

Real Time Strategy

Sandbox

A type of MMORPG where you have more freedom than more traditional MMOs. Notable examples of Sandbox MMOs are EVE Online, Ultima Online, and Second Life.

Skills

Various abilities the character is capable of using, such as wielding specific types of weapons, wearing specific types of armor, casting specific types of spells, or even creating specific types of items

Server

Servers are a combination of hardware and software that service a clients computer. In the case of MMOs they provide access to the game world, mail system, items and character database.

Even though it is often used as a synonym to a Shard or Realm, it is not the same, there can be many servers in one shard, and many shards can use a single server.

Shard

A collection of servers that make up a single virtual world. Using the term shard is preferred over server or realm when talking about single game worlds.

¹⁴ **Spec**

Slang from "specification", pertaining to the user's statistics (e.g. health, mana...). Also, some MMOs allow users to maintain separate specialties for a single avatar enabling them to swap between roles.

⁵ **Tank**

A specific class characterized by armor and defense, whose role is to absorb damage.

³³ **Tier Gear**

Specific gear for end content users which numerically corresponds to each new developer release of new content. Often considered the BIS PVE gear for a characters class.

Theme Park

A linear MMO, with less freedom and more prefabricated content as opposed to a Sandbox MMO. Notable examples of Theme Park MMO's : EverQuest, World of Warcraft, Lord of the Rings Online.

³ **Theorycrafting**

The practice of mathematically manipulating statistics for your character with gear, abilities, and buffs to generate the highest possible level

³⁰ **Toon**

See Avatar

Zones

Persistent explorable areas on a shard.

APPENDIX D (IRB Forms)



IRB INFORMED CONSENT or AGREEMENT TO PARTICIPATE FORM

IRB No.:11-022-WOO-XPD Rev. No./Date:1/3-7-11

Consent Form Title: Student

Project Title: Social and Economic Impact of MMO Virtual Identities & Markets

Principal Investigator: John Wooding

Contact Information: john_wooding@uml.edu

Co-PI(s):

Student Investigator(s): Christopher Wilkinson

Date Submitted: 03/01/11

*This form has been approved for use by the UML IRB and is valid for up to one year from the approval date.
(PIs -Give a copy of this form to the study participant after they sign it. Originals are to be retained by the PI.)*

Authorized IRB Approval Signature:

A handwritten signature of John Wooding.

Approval Date: March 11, 2011

1. Study Purpose:

We are conducting thesis research on the social and economic impact of Massive Multiplayer Online Games.

2. Procedure and Duration:

You have been asked to take part in a focus group that will help gather data through conversation about your online habits and experiences surrounding these games. This focus group may take about one hour of your time and will involve questions about your online habits. We will be gathering no personal identifying data.

3. Potential Risks and Discomfort:

There are no potential risks or discomforts typically associated this focus group procedure. However, if you have had emotional or other problems as a result of these gaming activities, it may cause you some discomfort to discuss this in a focus group setting.

4. Incentives/Compensation (if any):

You will not receive any direct benefits from participating in this research. However, pizza and refreshments will be provided.

5. Anticipated Benefits to the Subject or to Non-subjects:

There are no direct benefits associated with participating in this research.

6. Right to Refusal or Withdrawal of Participation:

Participation in this study is completely voluntary, and your participation or non-participation will not affect other relationships. You may terminate your participation in this thesis research at any time without penalty or costs of any nature, or character.

7. Assurances of Privacy and Confidentiality

Every precaution will be made to keep your identity and participation in this research private. During the focus group we will be gathering no personal identifying information, nor will we be asking any information that could compromise your identity in work or school. The recordings of the focus groups will only be accessible by the researcher and will be destroyed at the end of this semester June, 2011. There is however always a slight risk of disclosure from participating in any research study, we will ensure that every possible safeguard will be implemented to protect your information and identity.

8. Additional Information (Include contact information for researchers)

If at any point you do not understand a question, or any portion of what you are being asked to do, the researchers will take the time to explain this to you. Questions related to this research project are welcome at any time, and can involve anything from our methods to questions about terms or phrases used during the focus group. Please direct questions to the following telephone / email address:

Chris Wilkinson (researcher)
christopher_wilkinson@student.uml.edu
(603) 438 5760

John Wooding (Principal Investigator)
john_wooding@uml.edu

PRINCIPAL INVESTIGATOR SIGNATURE(S)

1 Printed Name	Signature	Date
----------------	-----------	------

2 Printed Name	Signature	Date
----------------	-----------	------

PERSON OBTAINING CONSENT

Printed Name Christopher Wilkinson	Date 03/01/11
------------------------------------	---------------

Signature

PARTICIPANT SIGNATURE

I understand the potential risks and/or discomforts that have been described in this document and by the researcher. By signing below I am indicating that I have read this document had the opportunity to discuss any concerns and ask questions about the research and understand the risks and consequences from participating in this study.

Research Participant:
Printed Name _____ Date _____

Signature



IRB INFORMED CONSENT or AGREEMENT TO PARTICIPATE FORM

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3. Potential Risks and Discomfort:

There are no potential risks or discomforts typically associated participating in this interview. However, if you have had emotional or other problems as a result of these gaming activities, it may cause you some discomfort to discuss this in an interview setting.

4. Incentives/Compensation (if any):

You will not receive any direct benefits from participating in this research.

5. Anticipated Benefits to the Subject or to Non-subjects:

There are no direct benefits associated with participating in this research.

6. Right to Refusal or Withdrawal of Participation:

Participation in this study is completely voluntary, and your participation or non-participation will not affect other relationships. You may terminate your participation in this thesis research at any time without penalty or costs of any nature, or character.

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Every precaution will be made to keep your identity and participation in this interview private. During the interview we will be gathering no personal identifying information, nor will we be asking any information that could compromise your identity in work or school. The recordings of this interview will only be accessible by the researcher and will be destroyed at the end of this semester June, 2011. There is however always a slight risk of disclosure from participating in any research study, we will ensure that every possible safeguard will be implemented to protect your information and identity.

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If at any point you do not understand a question, or any portion of what you are being asked to do, the researchers will take the time to explain this to you. Questions related to this research project are welcome at any time, and can involve anything from our methods to questions about terms or phrases used during the interview process. Please direct questions to the following telephone / email address:

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PERSON OBTAINING CONSENT
Printed Name Christopher Wilkinson

Date 03/01/11

Signature

PARTICIPANT SIGNATURE

I understand the potential risks and/or discomforts that have been described in this document and by the researcher. By signing below, I am indicating that I have read this document, had the opportunity to discuss any concerns and ask questions about the research and understand the risks and consequences from participating in this study.

Research Participant:

Printed Name	Date
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Signature

WORKS CITED

Blizzard Entertainment (2011) System Requirements
http://eu.blizzard.com/support/article.xml?locale=en_GB&articleId=19406

Boellstorff, T. (2008) "Coming of Age in Second Life",
Princeton Press

Clark and Scott (2009) "Game Addiction: The Experience and the Effects",
McFarland and Company, Inc., Publishers

Castronova, E. (2007) *Exodus to the Virtual World*,
Palgrave MacMillan

Castronova, E. (2005) *Synthetic Worlds*,
University of Chicago Press

Castronova, E. (2002) *On Virtual Economies*, CESifo Working Paper no. 752, CESifo,
Munich http://papers.ssrn.com/sol3/papers.cfm?abstract_id=338500

Castronova, E. (2006) A cost-benefit analysis of real-money trade in the products of
synthetic economies, *Info*, 8(6), 51-68

Corneliussen, H. and Rettberg, J. (2008) "Digital Culture, Play, and Identity",
The MIT Press

Dibbell, J. (2005) "Play Money: Or, How I Quit My Day Job and Make Millions Trading
Virtual Loot",
Basic Books

Dibbell, J. (2003) Black Snow Interactive and the world's first virtual sweat shop, *Wired*,
January <http://www.juliandibbell.com/texts/blacksnow.html>

Dibbell, J. (2005) Will the real virtual sweatshop please stand up?, *TerraNova*, 8 Feb
http://terranova.blogs.com/terra_nova/2005/02/will_the_real_v.html

Dibbell, J. (2007) The life of a Chinese gold farmer, *New York Times*, 17 Jun
<http://www.nogold.org/2007/06/19/the-life-of-the-chinese-gold-farmer/>

Game Developer Salary Report 2004-2007
<http://gamedeveloperresearch.com/2007-salary-survey.htm>

Game Indusry.com, (2011) Black Book Online Q1 Q2
<http://www.gamesindustry.com/blackbookonline>

Huhh, J.-S. (2008) Culture and business of PC bangs in Korea, *Games and Culture*, 3(1), 26-37

Jin, G. (2006) Chinese gold farmers in the game world, *Consumers, Commodities & Consumption*, 7(2)/May
<https://netfiles.uiuc.edu/dtcook/www/CCCnewsletter/7-2/jin.htm>

Jin, G. (2006b) Disembodiment, hypermobility, and labor, comment, *TerraNova*, 12 Mar
http://terranova.blogs.com/terra_nova/2006/03/disembodiment_h.html#comment-14945456

Jin, G. (2006c) Chinese gold farmers preview, *YouTube*, 8 Mar
<http://www.youtube.com/watch?v=ho5Yxe6UVv4>

Jin, G. (2006d) Chinese gold farmers preview two, *YouTube*, 16 Nov
<http://www.youtube.com/watch?v=JRrhpoMd88Y>

Jin, G. (2006e) Chinese gold farmers preview three, *YouTube*, 16 Nov
<http://www.youtube.com/watch?v=KH1LGdjZUKQ>

Jin, G. (2006f) *Gold Farmers*
<http://www.chinesegoldfarmers.com/Index.html>

Jin, D.Y. & Chee, F. (2008) Age of new media empires: a critical interpretation of the Korean online game industry, *Games and Culture*, 3(1), 38-58

Kelly, R. (2004) "Massively Multiplayer Online Role-Playing Games"
McFarland and Company, Inc., Publishers

Lewis, S. (2006) *MMO Player-to-Player Sales*, FlyingScytheMonkey
http://www.flyingscythemonkey.com/photogallery/GDC_Player2Player1.doc

Maxson, K. (2006) The early history of real money trades, comment, *TerraNova*, 13 Jan
http://terranova.blogs.com/terra_nova/2006/01/the_early_hist.html

Myers, J. (2007) "Virtual Worlds: Rewiring your Emotional Future",
Myers Publishing, LLC

Pearce, C. and Artesmesia (2009) "Communities of Play: Emergent Cultures in Multiplayer Games and Virtual Worlds"
The MIT Press

PricewaterhouseCooper, (2009) Global Entertainment and Media Outlook: 2009-2013 forecast
http://www.broadcastequipmentguide.com/pricewaterhousecoopers_08_12_09.php

Reuters, E (2008) Second Life Economy
<http://secondlife.reuters.com/stories/2008/07/08/second-life-sees-record-usage-but-bleeds-paid-accounts/>

Russell, M. (2004) Gaming the online games, *Newsweek International*, 18 Oct, 144(16), E32 2c.

Steinkuehler, C. (2006) "The mangle of play, *Games and Culture*", 1(3), 199-213

Siwek, S, "Video Games in the 21st Century: Economic Contribution of the US Entertainment"
Entertainment Software Association 2010

Taylor, T. (2006) "Play Between Worlds: Exploring Online Game Culture",
The MIT Press

Vasco (2008) Legendary Security for your Epic Stuff, PDF.
http://www.vasco.com/Images/e-gaming_aug08.pdf

Yee, N. (2007) MMORPG Project "Daedalus"
<http://www.nickyee.com/daedalus/>