

Welcome to Your (Virtual) Life: An analysis of the Massively Multiplayer Online Role Playing Game (MMORPG)

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Abstract

Massively Multiplayer Online Role Playing Games (MMORPGs) are not only a relatively recent concept to the online world, but also to the realm of the social sciences. To some, these games are full of many challenges. To others, these games contain so many challenges that in order to fully conquer the game, one must sacrifice one or many facets of their “normal” life, such as school, work, and family. People who commit such sacrifices are commonly referred to as MMORPG addicts. Methods such as unavoidable “warning messages” have been put in place to try to combat the recent increase in MMORPG addiction (defined in this study as playing a MMORPG for four or more hours per day), which is increasing through such methods as playing with real-life friends. Through data gathered via an online questionnaire with 250 respondents, the effects of such “warning messages” and playing with real-life friends were studied. It was concluded with strong statistical significance that not only do the “warning messages” at the beginning of MMORPGs have no effect in deterring rates of addiction, but rates of addiction were substantially higher in games than contained such messages. Data relating to real-life friend play also showed a modest, though not significant, relationship between increased addiction rates and playing with real-life friends compared to playing without real-life friends.

Introduction

The topic of the Massively Multiplayer Online Role Playing Game (MMORPG) is a relatively new topic in the realm of Sociology, with the concept of the MMORPG being non-existent even twenty years ago. As we cascade into the 21st century, MMORPGs are becoming a growing force as a cause of social problems, with the MMORPG becoming a psychological and social addiction (social in the online world) which causes the addicted individuals to often have a distorted view of reality. This view of reality causes the person to view the MMORPG as the top priority in their life, even over work, family, school, friends, and other real-life occurrences. Two effects in particular will be looked at as to how they influence the addiction rates of people who play MMORPGs. The first effect deals with deterrence methodology through communication between the person and MMORPGs via a “warning” message, which states that you should not forget about real-life obligations in result of the game. The second effect deals with socialization via playing with real-life friends and how this changes playing habits amongst MMORPG players.

Hypothesis and Theory

There are two separate hypotheses. The first deals with the effect of the presence of a “warning message” at the beginning of a MMORPG and how they affect addiction rates to MMORPGs. An example of a “warning message” from the MMORPG *Final Fantasy XI* is listed below:

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 about your family, your friends, your school, or your work.

{Play} {Back}

These “warning messages” are unavoidable and cannot be disabled. They appear every time that a person will enter the game before the person can play the game. In this warning message, the person must also physically click on the {Play} button in order to proceed to the game, it will not happen automatically. If the person chooses to click on the {Back} button, they will be brought back to the previous menu screen, making it impossible to advance to play the game without actually clicking the {Play} button.

Based on the example listed above, the resulting hypothesis dealing with the presence of “warning messages” in MMORPGs affecting addiction rates is as follows:

MMORPGs that feature so-called “warning messages” at the beginning of their games that are unavoidable and consistently present each time the person attempt to play the MMORPG will have lower addiction rates than games that do not feature such “warning messages”.

The reasoning behind this hypothesis is that theoretically these warning messages can do nothing but be a positive impact in decreasing MMORPG addiction rates. In this scenario, the “warning message” in the game would be the independent variable with the dependent variable being the rate of addiction to the MMORPG, as the rate of addiction relies on the presence or lack thereof of a “warning message”.

The second hypothesis relates to real-life friend play and its association to MMORPG addiction rates. The purpose of this hypothesis is to see if common socialization through MMORPGs increases addiction rates, seeing as playing MMORPGs can be a social activity not only in the online world, but also with people you know in real-life. This hypothesis is as follows:

Playing MMORPGs with real life friends will increase MMORPG addiction rates due to the fact that the increase in socialization will increase the presence of MMORPGs in one’s life, which increases the likelihood for a person to develop addictive tendencies towards an MMORPG.

MMORPG addiction through socialization can be compared to other real-life examples such as gambling, which are non-physical addictions perpetuated strongly by the environment. With that said, someone would be more likely to play a MMORPG if they are around the game, in this case through real-life friends who were playing the MMORPG, the same way someone would be more likely to gamble if they were at a casino.

In this scenario, real-life friend play would be the independent variable and addiction rates would be the dependent variable. This is the case because addiction rates are dependent on the presence or lack thereof of real-life friend play.

Review of Literature

There is very little literature on the topic of addiction to MMORPGs. This is particularly the case for two reasons. The first reason is that MMORPG addiction is a relatively new phenomenon, really only coming into light within the last ten years. The second reason being that there is no infrastructure in the mental health field in online addictions

(Young 2004).

The first area of focus deals with methodological issues behind internet and video game addiction, which are very similar to MMORPG addiction. The biggest explanation as to why people get addicted to video games, and in result MMORPGs, is that there is a common trend among the majority of video games that they are the "ultimate challenge". There is no real end to the game, which causes the person playing the game to become addicted to trying to figure out the end of the game, to "master" the game so to speak, when in fact there is no end and the game is impossible to truly "master" (Buse 1996). The games within themselves have "limitless game play" (Nutt & Railton, 2003) in the sense that the game evolve and change over time, much like what would be expected within a real life society.

This is especially true in MMORPGs due to the fact that there is a huge element added into MMORPGs that is not present in other video games. This element is online peer pressure. Your status in the game is based on how close you are to the end of the game. This involves getting the best online items and becoming one of the most well known people in the online community. Both of these tasks require an enormous time commitment to the game. This is surprisingly fitting to contemporary research as it shows that video games are very appealing to achievement motivated people (Gibb, Bailey, Lambirth, Wilson 1983) and that games with essentially limitless achievements, such as MMORPGs, are often sought after because of the difficulty, and in result the sizes and the quantities of the achievements in which the game contains.

However, because boys spend more time playing video games than girls (Beasley 2001, Roberts 2000), this is not just a case of online prestige, but masculinity in the online community and in video games in general is often defined as being the "best" at these games (Buse 1996). It has also been shown that success within the MMORPG world raises self-esteem (Colwell 2003). Basically this turns the issue and fun of a MMORPG for some people into a competition in which many people are battling not against the game, but in a virtual world in order to receive masculine praise from their peers for being the most skilled player, having the best online items and money, and in result being one of the most well known players in the online community. It is essentially the 21st century version of who can lift the heaviest boulder. The concept is illogical in nature, but will be strived towards none the less for no reason other than accreditation and as a sense of identity in the online gaming community

(Dietz 1998).

This leads to the most interesting, and the most logical explanation behind MMORPG and video game addiction. The reason why people keep coming back and playing these MMORPGs is actually a simplistic reason as to why people become addicted to things in general. When someone in a video game, namely a MMORPG obtains a rare online item or defeats a hard enemy in a close battle, they get a rush of adrenaline which is lucid within itself (Buse 1996). The more and more the person plays the MMORPG, the more and more rare the online items need to be for that person to receive the same rush of adrenaline. The battle needs to be more difficult and more time consuming, but also more intense. The concept of the MMORPG plays perfectly into this mold as in order to obtain many of the rare online items, you must partake in the difficult, time consuming battles.

In result, a deep time commitment to these games arises, which often times overflows into other areas of the lives of the people who play MMORPGs. This happens when the people who play the games are constantly thinking about playing the game when they are not playing it (Southwell & Doyle, 2004). Such self-absorption within these games can cause social isolation in which the person playing the game cares more about spending time with their “cyber” friends within the game than friends in real life (Colwell 2003). The game becomes more of a topic of thought and action for the person than issues such as friends, family, work, and school, which could be a predominant reason for the “warning messages” shown at the beginning of some MMORPGs that state not to forget about these facets of your life.

The concept of the “warning message” is interesting within itself. It is used in MMORPGs as a disclaimer to warn people about what priority the game should take within your life. A disclaimer is simply a device employed to ward off and defeat in advance doubts and negative typifications which may result from intended conduct. (Hewitt & Stokes 1975) The function of the disclaimer in MMORPGs under this definition is to prompt people every time they attempt to play the game that even though the game designers want you to play their game, they warn you not to forget about your real-life obligations in result, attempting to dispel many of the negative typifications that playing MMORPGs causes your real-life to suffer in result.

There are some excellent examples from previous literature that illustrate the role of

disclaimer communications (such as the “warning messages” in MMORPGs). One study showed footage of paranormal events to two groups of University students. One group was shown a disclaimer message beforehand, stating the impossibility of the paranormal event shown, in which the other group was not shown a disclaimer. The group that was not shown the disclaimer was significantly more likely to believe the paranormal activity actually occurred. (Sparks 1994) Another example dealing with risk communication involves the use of widespread warning messages that alert people of the possible presence of an earthquake. Respondents who were aware of the presence of the warning messages were much more likely to be aware of the proper actions to take if an earthquake did occur. (Blanchard-Boehm 1998)

The second area of focus is the situational nature of addiction to online gaming. One of the most common settings in which video game and MMORPG addiction occurs is actually the university setting. Online gaming addiction is often times subliminally encouraged by the university setting due to the free, fast, and unlimited internet access it provides (Young 2004). This is also related to the statement that children in which their fathers have high levels of education, such as some college or above, spend more time playing video games than children in which their fathers have lower educational levels (Anada 2005). These statements tell us that often times new students attend college (under the assumption that parents with a higher educational level make more money, therefore they can send their children to college) with previous video game experience in their past, which has often times been moderately promoted by the parents themselves (Sneed & Runco 1992). At college, they are given free and unlimited internet, often times confined to very small and tight knit living arrangements, and given incredibly large blocks of free time as the average freshmen student in college only goes to class twelve to fourteen hours a week (Young 2004). Also, the ability to develop anti-social behavior, such as an addiction to video games, increases in a new and unfamiliar environment (Bensley & Van Eenwyk 2001), which a college environment most likely will be for freshmen students. Also, in such new environments, new friendships are made. If these friends play MMORPGs, it encourages other prospective friends to play and invest larger amounts of time the more they play (Yee 2002). This shows us that students not only have the resources to develop a MMORPG addiction, but they also have the time and history to develop one as well.

There is also the factor of the role and influence of peer behavior and its effect on common peer activity. Although no literature was found dealing directly with the role

and influence of peer behavior on MMORPG playing habits, the role and influence of peer behavior has been studied in other realms. For example, in a study of high school students dealing with dating violence, respondents who classified members of their peer group as participating in dating violence were also more likely to participate in dating violence themselves than respondents who did not classify members of their peer group as participating in dating violence. (Arriaga 2004) Another study relating to peer behavior was done with smoking, in which it was shown that between the ages of twelve and fourteen, adolescents are more likely to attempt smoking within their peer groups than alone (Glendinning 2002). Finally, peer group status and participation was given as a possible explanation as to why students who participate in peer-based extra-curricular activities have lower delinquency rates than students who do not participate in peer-based extra-curricular activities. (Landers 1978, Hastad 1984)

Research Design

The data to test the hypothesis was constructed from an online questionnaire on my personal website that is devoted to the Social Effects of Massively Multiplayer Online Games (SEMMOG <http://www.semmog.org>). The sample contains the results of 250 questionnaires filled out by people who play MMORPGs. These people were found by posting a brief message with a link to my survey on MMORPG forums found on the internet, particularly the Allakhazam (<http://www.allakhazam.com>) and Internet Gaming Network (IGN, <http://www.ign.com>) forums. The message posted on these forums is listed below:

“Hello fellow MMORPG players,

For those of you that don't know me, I am a longtime FFXI player (since NA release) on Sylph with my current character being a level 72 Galka Summoner.

In real life, I am a senior at the University of Minnesota. My major is a Bachelor's of Science in Sociology and Statistics. As part of my senior project, I am studying the Social Effects of Massively Multiplayer Online Games (SEMMOG), with a website dedicated to this topic, www.semmog.org.

I have created a **BRIEF** survey in particular dealing with possible correlations between addictive

tendencies and MMORPGs. What I need is your help. I need people to fill out a survey to supply me with adequate data for my study.

The survey is here: <http://www.semmog.org/survey.html>

The survey takes less than 1 minute to fill out.

I realize filling out surveys isn't exactly the most enthralling or exciting thing in the world to do, but I please ask that you take a minute your time and help me with an integral part of my project which is taking me months to complete.

Thank you.”

The questionnaire contained eight questions. The first three questions attempted to stratify the sample population by age, gender, and yearly income. The fourth question attempted to understand the MMORPG playing habits of the respondent taking the questionnaire by asking how many years they respondent has been playing MMORPGs. The fifth question dealt with the current MMORPG playing habits of the respondent by asking them how many hours they play their MMORPG on average per day. The sixth question dealt with the presence of the “warning message” within the current MMORPG that they have played. The seventh question asked whether or not the respondent has cancelled or delayed another real-life event (work, school, etc.) in order to play their current MMORPG. The eighth and final question was used to address the issue of friend play, asking whether or not the respondent played their current MMORPG with other people that they knew in real life.

The data gathered from the 250 respondents is broken down into five tables. The first table contains the characteristics of the sample population, including the independent variables; age, gender, and income, as well as the responses to the rest of the questions featured on the questionnaire. This data will be presented in percent form, representing all of the responses of the 250 person sample population. The second table will cross examine the presence of a “warning message” in the current MMORPG the respondent plays with the average hours per day the respondents play their current MMORPG. This table will be used to calculate addiction rates, in which people who play their current MMORPG for an average of four or more hours per day will be classified as addicted to

their current MMORPG. The third table will test the effectiveness of the warning message by cross-analyzing the presence of a “warning message” in MMORPGs and whether or not people have cancelled or delayed a real-life event because of their MMORPG. The fourth table will stratify the number of hours played based on whether or not the presence of real-life friend play occurs with the respondents. This will be used to determine whether or not people are more likely to be addicted to their current MMORPGs based on whether or not they play their current MMORPG with real-life friends. The fifth and final table will feature a fusion of previous tables, with the presence of a “warning message” in the respondent’s current MMORPG being stratified by the results of table four. The number of hours played by the respondent will be sorted two times by the “Yes” and “No” responses to the presence of real-life friend play. This table will be used as a grand summary to determine whether or not the presence of a “warning message” in a MMORPG changes addiction rates based on real-life friend play.

Data Analysis

Table 1: Social and Demographic Characteristics of the Sample

Variant	Response	Percentage of Respondents
Age group	15-20	37.6%
	21-25	24%
	26-30	14.8%
	31+	23.6%

Gender	Male	89.2%
	Female	10.8%

Yearly Income	\$0-\$10,000	37.2%
	\$10,001-\$20,000	14%
	\$20,001-\$30,000	15.2%
	\$30,001-\$40,000	7.2%
	\$40,001-\$50,000	6.4%
	\$50,001+	20%

Number of years playing MMORPGs	0-1	18.4%
	2-3	47.6%
	4-5	18.4%
	6-7	8.8%
	8+	6.8%

Hours per day playing current MMORPG	0-1	13.2%
	2-3	38.4%
	4-5	25.6%
	6-7	12%
	8+	10.8%

Is there a presence of “warning message” in your current MMORPG?	Yes	61.6%
	No	38.4%

Have you ever cancelled or delayed a real-life event in order to play your current MMORPG?	Yes	54%
	No	46%

Do you play your current MMORPG with	Yes	64%
people you know in real-life?	No	36%

N = 250

The first table features some very interesting demographic features about people who play MMORPGs. As predicted by the literature review, the majority of the respondents (89.2%) were male. Over one-third of all respondents (38.4%) were over the age of 25, which represents a large majority of the over one-third (33.6%) of the respondents who make more than \$30,000 annually. It is evident that MMORPGs are definitely a new commodity in the not only the realm of the social sciences, but also in the online world, as 66 percent of respondents have only been playing MMORPGs for less than three years. Under the definition of addiction within this study, (playing your current MMORPG for four or more hours per day) 48.4%, or almost half of all respondents, fell into this category. The last three questions will be discussed in the presence of the final four tables.

Table 2: Presence of “Warning Message” in MMORPG Played by Average Number of Hours Played Per Day

Warning Message	Average Hours Played / Day					Total
	0-1	2-3	4-5	6-7	8+	
Yes	10.4%	33.1%	26.6%	16.9%	13.0%	154
No	17.7%	46.9%	24.0%	4.2%	7.2%	96
Number of Cases	33	96	64	30	27	250

Gamma = .004, p < .05

Looking at the data, there is very strong statistically significant evidence that the presence of “warning messages” in MMORPGs has no positive effect on addiction rates to MMORPGs, but actually may have an inverse effect. Over half (87 out of 154 respondents, 56.5%) that play MMORPGs that feature warning messages play their MMORPG at an addictive level (four hours or more a day) with the respondents who play MMORPGs with “warning messages” for six or more hours a day, which would be classified as a significant addiction to their current MMORPG, making up over a quarter of all respondents. This is not even close to the same case for people who play MMORPGs with no warning message, in which the respondents who play their MMORPG for six or more hours a day without the presence of a “warning message” make up barely ten percent of the respondents in the group.

Table 3: Presence of “Warning Message” in MMORPG Played by Canceling or Delaying Real-Life Events in Result of Playing Current MMORPG

Warning Message	Delayed or Cancelled Event		
	Yes	No	Total
Yes	55.2%	44.8%	154
No	52.1%	47.9%	96
Number of Cases	135	115	250

Gamma = .631, $p > .05$

Once again, it appears as if the “warning messages” actually may have more of a negative effect than a positive effect on deterring addiction rates, however, this table is nowhere near the statistical significance of table 2. 55.2% of respondents who have a “warning message” in their game have delayed or cancelled a real-life event because of their MMORPG. This is a slightly larger statistic than MMORPGs without warning messages, in which 52.1% of respondents who do not have a “warning message” in

their game have delayed or cancelled a real-life event because of their MMORPG.

Table 4: Presence of Real-Life Friend Play by Average Number of Hours Played Per Day

Real-Life Friend Play	Average Hours Played / Day					Total
	0-1	2-3	4-5	6-7	8+	
Yes	11.3%	37.5%	28.8%	13.1%	9.3%	160
No	16.7%	40.0%	20.0%	10.0%	13.3%	90
Number of Cases	33	96	64	30	27	250

Gamma = .354, $p > .05$

This data shows that people who play with real-life friends have an increased likelihood of developing addictive tendencies towards the MMORPG they are playing, although it is not statistically significant. 51.2% of the respondents who answered “Yes” to playing their current MMORPG with real life friends play for at least an average of four hours per day. This is reasonably higher than the amount of respondents that do not play their current MMORPG with real-life friends but also play for at least four a day, which is only 43.3% of these respondents.

Table 5: Presence of “Warning Message” in MMORPG Played by Average Number of Hours Played Per Day and Presence of Real-Life Friend Play

Warning Message	Average Hours Played / Day (Plays with Real-Life Friends)					
	0-1	2-3	4-5	6-7	8+	Total
Yes	11.1%	31.1%	28.9%	18.9%	10.0%	90
No	11.4%	45.7%	28.6%	5.7%	8.6%	70
Number of Cases	18	60	46	21	15	160

Gamma = .004, $p < .05$

Warning Message	Average Hours Played / Day (Does Not Play with Real-Life Friends)					
	0-1	2-3	4-5	6-7	8+	Total
Yes	9.4%	35.9%	23.5%	14.0%	17.2%	64
No	34.6%	50.0%	11.6%	0.0%	3.8%	26
Number of Cases	33	96	64	30	27	90

Gamma = .005, $p < .05$

The thing that stands out the most about this final table is the substantial difference between the percentage and quantity of people who do not play a MMORPG with a “warning message”, but have variance in whether or not they play with real-life friends. Of the respondents who play with real-life friends and play a MMORPG which does not contain a “warning message”, 42.9% play their MMORPG for more than four hours a day. In comparison, the respondents who do not play with real-life friends and play a MMORPG which does not contain a “warning message”, only a miniscule 15.4% play for more than four hours a day. However, agreeing with the results from table 2, the MMORPGs containing the “warning messages” actually had much higher rates of

addictive tendencies than the games that did not contain the “warning messages”. There was also a slight difference in real-life friend play, with 57.7% of respondents who play MMORPGs that contain a “warning message” also play with real-life friends. 54.7% of respondents play a MMORPG that contains a “warning message”, but they play without the presence of real-life friends.

Conclusion and Discussion

Reviewing my first hypothesis in which the “warning messages” in MMORPGs would decrease addiction rates, the information found through the analysis of the data shows that my hypothesis was not only incorrect, but that such “warning messages” may actually provoke addictive behavior in MMORPGs, as shown by two of the tables involving the “warning messages” to be very statistically significant. How this would occur remains unexplained. Predictive logic would state that the “warning messages” actually just want to make people play the MMORPGs that have these messages even more, to show that they can. As future research, it would be interesting to compare the effects of other deterrence methodology, in particular disclaimers and warnings, to compare the results of those studies with this study.

The second hypothesis dealing with real-life friend play affecting addiction rates was shown by the data to not be statistically significant, but lenient more towards agreeing with the hypothesis that real-life friend play increases MMORPG addiction rates. The comparison as to how other activities which can take place with or without the presence of real-life friends, such as gambling, would also be an interesting comparison.

The largest flaw in this study, along with many studies dealing with addiction, is due to the fact that addiction is not clearly defined in a situational nature such as MMORPG playing habits. This causes the definition of addiction in the study to be somewhat arbitrary. However, through several years of personal experience playing and being active in the MMORPG community, the definition of addiction is applicable on the grounds of the MMORPG world.

Another flaw is in dealing with the questionnaire data, in particular the question as to whether or not the game contains a “warning message” or not. This is because with so many different MMORPGs that people play, it is difficult to code what exactly is and is

not an “acceptable” warning message due to the fact that not all of the “warning messages” say exactly the same thing. Also because not all “warning messages” are exactly the same, some may be more effective at deterring addiction rates than others. It would be interesting to do an analysis of specifically which MMORPGs with “warning messages” have higher and lower addiction rates to see the effectiveness of each message.

In relation to the quality of the “warning message” and also dealing with the “inverse” effect of “warning messages” in deterring addiction rates as shown in table 2, a possible explanation for this could be attributed to the MMORPGs that contain the “warning messages” are just flat out better games than the MMORPGs that do not contain “warning messages”. This causes people to become more addicted to these games regardless of the presence of a “warning message”.

REFERENCES

- Anand, Sowmya and Jon A. Krosnick. 2005. "Demographic Predictors of Media use among Infants, Toddlers, and Preschoolers." *American Behavioral Scientist* 48:539-61.
- Arriga, Ximena B. and Vangie A. Foshee. 2004. "Adolescent Dating Violence: Do Adolescents Follow in Their Friends', or Their Parents', Footsteps?" *Journal of Interpersonal Violence* 19(2):162-184
- Beasley, Berrin and Tracy C. Standley. 2002. "Shirts vs. Skins: Clothing as an Indicator of Gender Role Stereotyping in Video Games." *Mass Communication & Society* 5(3):279-293.
- Bensley, Lillian and Juliet Van Eenwyk. 2001. "Video Games and Real-Life Aggression: Review of the Literature." *Journal of Adolescent Health* 29(4):244-257.
- Blanchard-Boehm, Denise R. 1998. "Understanding Public Response to Increased Risk from Natural Hazards: Application of the Hazards Risk Communication Framework" *International Journal of Mass Emergencies and Disasters* 16(3): 247-278
- Buse, Peter. 1996. "Nintendo and Telos: Will You Ever Reach the End?" *Cultural Critique* 34:163-84.
- Colwell, John and Makiko Kato. 2003. "Investigation of the Relationship between Social Isolation, Self-Esteem, Aggression and Computer Game Play in Japanese Adolescents." *Asian Journal of Social Psychology* 6(2):149-158.
- Dietz, Tracy L. 1998. "An Examination of Violence and Gender Role Portrayals in Video Games: Implications for Gender Socialization and Aggressive Behavior." *Sex Roles* 38(5-6):425-442.
- Gibb, Gerald D., James R. Bailey, Thomas T. Lambirth and William P. Wilson. 1983. "Personality Differences between High and Low Electronic Video Game Users." *The Journal of Psychology* 114(2):159-165.

- Glendinning, Anthony. 2002. "Self-Esteem and Smoking in Youth-Muddying the Waters?" *Journal of Adolescence* 25(4): 415-425
- Hastad, Douglas N., Jeffery O. Segrave, Robert Pangrazi and Gene Petersen. 1984. "Youth Sport Participation and Deviant Behavior" *Sociology of Sport Journal* 4(1): 366-373
- Hewitt, John P. and Randall Stokes. 1975. "Disclaimers". *American Sociological Review* 40(2): 1-11
- Landers, Daniel M. and Donna M. Landers. 1978. "Socialization via Interscholastic Athletics: Its Effects on Delinquency and Educational Attainment" *Sociology of Education* 51(4): 299-303
- Nutt, Diane and Diane Railton. 2003. "The Sims: Real Life as Genre." *Information, Communication & Society* 6(4):577-592.
- Roberts, Donald F. 2000. "Media and Youth: Access, Exposure, and Privatization." *Journal of Adolescent Health* 27(supplement):8-14.
- Sneed, Carl and Mark A. Runco. 1992. "The Beliefs Adults and Children Hold about Television and Video Games." *The Journal of Psychology* 126(3):273-284.
- Southwell, Brian G. and Kenneth O. Doyle. 2004. "The Good, the Bad, or the Ugly? A Multilevel Perspective on Electronic Game Effects." *American Behavioral Scientist* 48(4):391-401.
- Sparks, Glenn G., Tricia Hansen and Rani Shah. 1994. "Do Televised Depictions of Paranormal Events Influence Viewers' Beliefs?" *The Skeptical Inquirer* 18(4): 386-395
- Yee, Nicholas. 2002. "Ariadne - Understanding MMORPG Addiction"
<http://www.nickyee.com/hub/addiction/home.html>.1-16.
- Young, Kimberly S. 2004. "Internet Addiction: A New Clinical Phenomenon and its Consequences." *American Behavioral Scientist* 48:402-15.

