

Addictive For Whom?

Electronic Games, the Third-Person Effect, and Contributors to Attitudes Toward Addiction

JAMES D. IVORY

Assistant Professor

Department of Communication

111 Shanks Hall (0311)

Virginia Polytechnic Institute and State University

Blacksburg, VA 24060

E-Mail: jivory@email.unc.edu

(This research was presented while Dr. Ivory was a Ph.D. student at the School of Journalism and Mass Communication, University of North Carolina at Chapel Hill.)

Paper presented to the Communication and Technology Division at the 54th annual conference of the International Communication Association (ICA) New Orleans, LA, May, 2004

As research attempts to define the addictive potential of the video game medium, possible third-person effects in survey studies must be considered. This analysis of a sample of 175 university students explores the existence of third person effects in regular players' opinions pertaining to electronic games and addiction, also examining respondents' video game use, time displaced by use of the medium, and reports of negative influences from video games. The analysis yielded interesting and somewhat conflicting results regarding a possible third-person effect: frequent users were more likely to admit some addictive potential for themselves but concurrently appeared to be more defensive regarding the medium's addictive potential for others.

The video game medium was introduced to the public in 1972 with the release of both Atari's *Pong* game and the Magnavox Odyssey home console system. Electronic games were an immediate and sustained success, and over twenty different companies offered home video game systems by 1976 (Provenzo, 1991). In the wake of the medium's rapid growth in popularity, academic study of video games began to appear in the early 1980s.

Electronic games research over the last two decades has primarily focused on their potential for negative effects. In 1982, Zimbardo voiced concern about the addictive characteristics of the medium, as well as the possibility that players may be more inclined to commit acts of violence against other people. Since then, studies employing myriad research methods have been conducted to ascertain whether or not the medium elicits negative effects in its us-

ers, with mixed results (Sherry, 2001). School shootings speculatively linked to video game play, such as in Paducah, Kentucky, in 1997 (Hanson, 1999) and Littleton, Colorado, in 1999 (Nicholson, 2001; "Portrait," 1999), have prompted an increased focus on possible negative effects, especially aggression and violence.

However, a sizable body of research exists examining less dramatic, but arguably equally significant social concerns related to the medium. One commonly studied issue is addiction. In many works, such as the extensive inquiries of Griffiths and colleagues (e. g., Griffiths, 1991; Griffiths & Dancaster, 1995; Griffiths & Hunt, 1998) a potential for video game addiction is often observed among adolescents. However, the true extent of the games' addictive potential is difficult to gauge, especially since many addiction studies (e. g., Fisher, 1994; Griffiths & Dancaster, 1995; Griffiths & Hunt, 1998;

Phillips et al., 1995) rely on self-reporting by participants for the bulk of their insight with regard to this matter.

When this is considered, it is possible that even studies reporting a potential for addiction among video game players may understate this concern because study subjects underestimate the medium's effects on themselves. This suggestion is supported by Davison's (1983) hypothesis describing the third-person effect. The third-person effect, described as a "perceptual hypothesis" in the meta-analysis of Paul, Salwen, and Dupane (2000, p. 523), predicts that media patrons are likely to believe, or at least report, that a media offering has a greater effect on other consumers than on themselves. The third-person effect has been observed in studies concerning such diverse media sources as advertising, news, rap music, pornography, and television dramas (Hoffner et al., 2001), but has not yet been applied to video games. However, its premise suggests that video game users might be underreporting the medium's addictive potential in existing research.

This study used original survey data gathered from a sample of 175 university students to investigate the possible existence of third-person effects in video game players' opinions regarding the medium's addictive potential. By analyzing regular electronic game players' responses to questions addressing their video game use and the medium's addictive allure for both themselves and others, some insight was gained as to whether or not the third-person effect might be applicable to this medium and what factors might contribute to it.

Video Game Addiction Research

Existing research suggests that video game addiction is a legitimate concern. Since Zimbardo's (1982) warning, several studies have provided evidence that video games might be addictive, often citing similarities between use of the medium and addictive social problems such as gambling. In a case study, Keepers (1990) described at length a child who stole, truanted and even forged checks to facilitate his video game play habits. A year later, Griffiths' (1991) comparative observation of arcade games and slot machines led him to assert that the

medium had qualities that might encourage addiction in youths.

Subsequent studies have found more evidence for video game dependency. Fisher's 1994 study of 467 British secondary school students indicated similarities between some participants' video game play habits and pathological gambling behaviors. In 1995, Phillips et al. surveyed 816 children aged 10 to 16 and reported that about 5.7% showed dependent characteristics in their video game play. An experiment by Griffiths and Dancaster in the same year suggested that video game users with Type A personalities might be more prone to addiction. In 1997, Griffiths used several criteria to classify 37.5% of a sample of 147 11-year-old computer game players as "addicts," and a 1998 questionnaire study by Griffiths and Hunt reported that about one-fifth of the sample of 387 12- to 16-year-olds exhibited dependent characteristics. Viewed in sum, these results present a strong case that video games have addictive potential.

Of additional concern is growing evidence that video games, a \$20 billion industry worldwide (Pham, 2003), are amassing popularity not only with children, but with adults as well. The Interactive Digital Software Association (IDSA) claims that 60% of Americans over the age of six play electronic games, and that over a third of them are at least 35 years of age ("Demographic Information," n.d.). Though not much research has been dedicated to adults and video games, with the exception of some studies primarily devoted to aggression issues (e. g. Scott, 1995, Anderson & Dill, 2001), there are implications that addiction may be a concern with this age group as well.

These potential problems are exacerbated as video game technology improves and many popular games incorporate the communications network of the Internet to allow worldwide multiplayer competition. As video games are synthesized with the Internet, which has also been alleged to possess addictive potential (e. g. Brenner, 1997; Young, 1996), the result is a presentation that combines the considerable allure of both media outlets in a single offering. In an extensive preliminary report placed on the Social Science Research Network web site, Castanova (2001) released a sizable account of his observations of the online game *Everquest*. Writing

about players' commitment to *Everquest's* fictional, online land of "Norrath," Castranova estimated that about 93,000 adults, almost a third of the game's adult players, "spend more time in Norrath in a typical week than they do working for pay" (2001, p. 3). Reporting a median use of four hours a day and over 20 hours per week for *Everquest* players based on his observations, Castranova's study provides disturbing evidence that video game addiction is not something players seem to outgrow as they reach adulthood.

Popular press accounts of online video game dependency mirror Castranova's findings, such as a 2001 *Canadian Press* article that makes analogous comparisons between *Everquest* and narcotics and recounts the stories of players who have had careers and relationships threatened by their dedication to the game ("Role Playing," 2001). While scholarly research overwhelmingly indicates that dependency on electronic games may be prevalent among young players, new online video games hold a dangerous allure that does not appear to be limited to children, and may be just as serious an issue among the considerable adult video game following.

Third-Person Effect Research

Taking Davison's third-person effect into consideration, video game dependency may be an even larger concern than has been reported by survey participants in existing studies. The primary component of the third-person effect is that mass media consumers will feel that the medium has more effect on others than on themselves. Although this theory has often been applied to specific persuasive messages and media content, the fact that the theory addresses media effects implies that the overall impact of a medium such as video games can also be investigated using the hypothesis. Since the third-person effect hypothesis asserts that media patrons, video game players in this case, are likely to overstate a medium's effects on others in relation to the medium's effects on themselves, it can be proposed that, conversely, video game players might understate their own dependency. Salwen (1998) claims that the third-person effect can be a result of any of three conditions: overestimation of a media mes-

sage's effect on others, underestimation of the message's effect on oneself, or a combination of these two factors. If third-person effects result from the second of these criteria in the case of video games, it is plausible that research participants underestimate their level of dependency on the medium.

In the application of the third-person effect to video games, a factor of special interest is research suggesting that third-person effects are amplified when the recipient perceives influence by the medium as negative or socially undesirable (Hoffner et al., 2001). With electronic games, this strengthening effect is likely present, especially with adults, for two reasons. First, video games are often viewed as a children's pastime, both in common opinion and in research (e. g., Griffiths & Hunt, 1998). Secondly, recent association of video games with widely publicized incidents of violence, like the shootings at Paducah and Littleton, very likely add a connotation that video games are popular among undesirables or cause their players to develop antisocial behaviors. These two factors might make adult video game players' views of the medium meet this third-person effect criterion because they perceive dedicated electronic game play as a negative influence, a pastime that is socially frowned upon, or both.

Along with the primary assertion that mass media consumers will perceive a medium's effect as more significant for others than for themselves, a second component of the third-person effect has been proposed. This element of Davison's hypothesis, which claims that those possessing opinions congruous with the third-person effect will consequently favor regulation, censorship or other restrictions of a medium because they "anticipate, or think they perceive, some reaction on the part of others" (1983, p. 3), could also be present in the case of video games. However, application of this second element of the hypothesis to the medium is not as probable; it seems unlikely that avid video game players would favor restrictions that would inhibit their own enjoyment of their pastime, regardless of their views of its effects. Even if electronic game players do believe that video games may have negative effects on other users, it seems unlikely that dedicated players would advocate handicapping or limiting of their own video game play in any manner.

Research Questions

Therefore, the applicability of third-person effects to adult video game players may not be universal, but there is reason to believe that components of the hypothesis are relevant to this medium. The contribution of other player characteristics, such as amount of use and impact of play on user's lives, also merit attention as contributors to this effect in that greater attachment to the medium may increase or decrease the effect. To address this, the following research question was examined:

RQ1: How do video game use and reported impact of video game play affect the size of a third-person effect in respondents' attitudes toward video game addiction?

Even when a third-person effect is observed, the reasons for the effect in respondents can be many, including underestimation of the medium's effect on themselves, overestimation of the medium's effect on others, or a combination of both. Therefore, the interaction between characteristics of respondents' video game use and their opinions toward the medium's addictive potential for both others and themselves were examined to answer the following questions:

RQ2: How do video game use and reported impact of video game play affect respondents' attitudes toward the addictive potential of video games for others?

RQ3: How do video game use and reported impact of video game play affect respondents' attitudes toward the addictive potential of video games for themselves?

Hierarchical multiple regression equations were used to address each of these questions, using three blocks of independent variables (use, time displacement, and dependency) on each dependent variable.

Method

Sample

The data used were from a larger study addressing adult video game use, dependency, and addiction in which 175 students from two large classes were administered an anonymous, voluntary survey (Appendix A). The sample was demographically diverse. Participants consisted of 87 males and 87 females (one respondent did not indicate gender). Respondents varied in age between 17 and 49, with a mean age of 20.67. About a third of the participants (34.3%, N=60) were freshmen, and just over another third (36.6%, N=64) were sophomores. Most of the remaining respondents were juniors (12.6%, N=22) or seniors (13.7%, N=24). A small portion of the sample was working on a second degree (1.1%, N=2), enrolled in graduate study (1.1%, N=2), or indicated "Other" for their class standing (.6%, N=1).

From the 21-item questionnaire used in the study (Appendix A), items relevant to this study were selected and analyzed. First, use data were gathered for their utility in defining the sample's regular players, who were of primary interest to this analysis. Use was described by responses to Question 2, which asked respondents how many times a week they played video games, and Question 3, which asked respondents how many hours a week they spent playing video games.

Although Question 1 also dealt with video game use habits, it was not used in the analysis. Since this item dealt with how recently a respondent had played video games rather than a player's normal behavior, it provided a large amount of latitude for anomalies in respondents' habits: Using this item, a regular video game user might be wrongly classified for missing several days of video game play, or an infrequent user's rare video game play two days previous might cause them to be misidentified as a regular player in this study. To avoid these types of errors in the categorization of participants by video game play, this item was omitted from analysis.

Before statistical tests could be used to determine the presence or absence of the third-person effect, the sample had to first be truncated to include

only regular video game players. Respondents who played video games infrequently or not at all had little relevance to a study dealing with video game addiction – a non-player was obviously not very likely to believe he or she was addicted to electronic games, but a corresponding belief that others could become dependent on the medium would not necessarily indicate the third-person effect's presence. Therefore, only regular players' opinions were seen as relevant to the third-person effect evidence sought in this research.

For the purposes of this study, a regular video game player was operationally defined as a respondent who indicated at least one video game play session per week in response to Question 2. All others were classified as infrequent players or non-players and were culled from analysis.

Dependent Variables

To gauge respondents' attitudes regarding addiction, Questions 15 and 16 were used. Question 15 asked respondents to rate their level of disagreement or agreement, using a five-point Likert-type scale, with the statement, "I think that other people may become addicted to video games." This item was used here to measure respondents' opinions regarding the effects of video games on others. Similarly, Question 16 measured participants' beliefs concerning the mediums' effect on themselves by asking them to rate their agreement or disagreement with the statement, "I am addicted to video games." An additional third-person effect measure was constructed by subtracting the response to Question 16 from the response to Question 15 for each participant to measure the difference between these two opinions as a third-person effect score.¹ These items were used as dependent variables in separate hierarchical multiple regression analyses to test the study's three research questions.

Independent Variables

Use. In addition to the aforementioned use

variables indicating the number of video game-playing sessions and total number of hours spent playing video games, Question 4, which asked respondents for the value of video games and related equipment in their home, was added as an independent variable defining video game use. These three items were entered as the first block in each of the multiple regression analyses. The utility of this was twofold: it allowed examination of the very likely relationship between video game use and the dependent variables and also enabled the relationship between the other items in the analysis to be explored after the effect of the use variables had already been accounted for.

Time Displacement. Four additional survey items were used to compose a second block of independent variables for each equation dealing with time displaced by video game play. Question 5, asking respondents to rate the importance of video games among their leisure activities, offered five responses ranging from "Most Important" to "Not at all Important." Similarly, Question 6 measured the extent to which video games had taken time away from other activities, with choices ranging from "Very Often" to "Never." The other two questions in this block, Questions 7 and 10, called for respondents to indicate the effect of video game play on their performance in school and their general productivity using five choices ranging from "Very Negatively" to "Very Positively." As a group, this block allowed measurement of the interaction between time displacement and the dependent variables.

Dependency. The four remaining questions in the study used as independent variables asked respondents to use a five-item Likert-type scale to rate their agreement or disagreement with the statements regarding the existence of various dependent behaviors in their own video game play. These statements were: "I wish I didn't play video games as much as I do" (Question 11), "I would be better off if I spent less time playing video games" (Question 12), "My video game play bothers other people I know" (Question 13), and "I would be healthier if I played fewer video games" (Question 14). These four items formed the third block in each regression equation.

¹ Ideally, the two addiction questions might be more congruous: Question 16 could have been worded "I could become addicted to video games." However, the data were collected before this analysis was devised, preventing tailoring of the survey items to this study.

Results

Frequencies

Use. Of the 175 students sampled, 106 reported playing video games at least once a week and were classified as regular video game players. The number of sessions played per week ranged from one to 30, with a mean of 4.58 times a week ($SD=5.34$). The majority of these players (62.3%, $N=66$) reported three sessions or less per week. Almost a third of the weekly players (29.6%, $N=31$) reported one session per week, with another 14.2% ($N=15$) claiming two sessions a week and 18.9% ($N=20$) playing video games three times a week. The rest of the responses were fairly distributed across the range and tended to trail off in frequency as the number of sessions per week increased.

The 106 weekly players' time commitment to the medium varied widely, with responses ranging from 10 minutes to 30 hours per week. Mean time commitment to the medium for regular players was 3.82 hours per week ($SD=4.31$). Over half (61%, $N=65$) of the weekly players reported playing between one and four hours per week, with the most common responses being two hours (21.7%, $N=23$) and one hour (19.8%, $N=21$).

Dependent variables. Weekly players' responses to Question 15, which gauged their opinions regarding the addictive potential of video games for others, leaned heavily toward agreement. Only 7.5% ($N=8$) of the 106 regular players selected "Disagree" for this item, and none chose "Strongly Disagree." While 15.1% indicated "Unsure/Neutral," over three-quarters of the respondents agreed with the item's statement to some degree. The majority of participants tempered their concurrence, however: 60.4% ($N=64$) chose "Agree," and 17.0% ($N=18$) indicated "Strongly Agree." Weekly players' mean response for this item was 3.87 ($SD=.78$), between "Unsure/Neutral" and "Agree" but closer to "Agree."

Question 16, which measured respondents' opinions pertaining to their own level of addiction to electronic games, generated far less acquiescence from the regular player sample. Nearly half (47.2%, $N=50$) of the respondents elected to "Strongly Dis-

agree" with the statement, and nearly another third (32.1%, $N=34$) chose "Disagree." Remaining responses were divided evenly between neutrality and moderate agreement, with 10.4% ($N=11$) indicating "Unsure/Neutral" and 10.4% ($N=11$) marking "Agree." No regular video game players chose to "Strongly Agree" that they were addicted to video games. The mean response for this item was 1.84 ($SD=.98$), between "Disagree" and "Strongly Disagree" but closer to "Disagree." This produced a mean third-person effect score of 2.37 ($SD=1.33$), indicating a typically large difference between respondents' attitudes toward the addictive potential of the medium for others and for themselves.

Research Question 1

The results of the regression equation examining the three independent variable groups' interaction with the third-person effect measure are shown in Table 1. Although the use variables accounted for 28.2% of the variance in the third-person effect scale, the time displacement items also contributed significantly to the effect measure and explained an additional 7.2% of the variance. Primary among these items was respondents' rating of video games' importance among their activities; the beta weights of other variables in the block were not statistically significant. The third block of variables did not contribute significantly to the third-person effect measure after the other two groups of items were considered. Among individual variables, hours played per week and importance among leisure activities appear to be the strongest predictors of the third-person effect measure: their inverse simple correlations with the dependent variable remain significant in the equation until the ineffectual dependency block is added.

Based on the beta weights and the significance of explained variance for each block in the regression equation, it appears that video game use has a measurable inverse relationship with the third-person effect, and the same is true for the time displacement variables to a lesser extent. In other words, the more users play video games, the more important games are to them; the more time games displace, the smaller the third-person effect typically becomes. On the other hand, respondents' attitudes regarding various aspects of dependency to the me-

Table 1. Hierarchical Regression Analysis of Third-Person Effect: Use, Time Displacement, and Dependency (N=106)

	Model 1		Model 2		Model 3		Simple <i>r</i>	Partial <i>r</i>
	β	<i>t</i> value	β	<i>t</i> value	β	<i>t</i> value		
Use Block								
Times per week	-.119	-1.019	-.026	-.217	-.071	-.572	**-.380	-.060
Hours per week	*-.293	-2.519	*-.239	-2.096	-.169	-1.405	**-.434	-.146
Equipment value	**-.262	-2.878	-.130	-1.307	-.134	-1.308	**-.377	-.137
ΔR^2			** .282					
Total R² (adjusted R²)			** .282	(.260)				
Time Displacement Block								
Importance among ...			*-.265	-2.160	-.218	-1.723	**-.505	-.179
Time away from other...			-.104	-.999	-.139	-1.307	**-.393	-.136
Effect on school			-.049	-.526	-.024	-.255	-.169	-.027
Effect on productivity			.062	.653	.103	1.041	-.054	-.109
ΔR^2			*.072					
Total R² (adjusted R²)			** .354	(.306)				
Dependency Block								
I wish I didn't play...					-.031	-.305	-.052	-.032
...Bothers others					-.107	-1.059	**-.301	-.111
I would be healthier...					-.110	-1.068	*-.196	-.112
I would be better off...					.037	.350	.058	.037
ΔR^2			.026					
Total R² (adjusted R²)			** .380	(.304)				

* $p < .05$ ** $p < .01$ All independent variables are here coded such that greater numbers indicate higher use, value, importance, displacement, negative effect, or agreement with dependency items – some coding was reversed to accomplish this. Partial *r* figures are for entire three-part model.

dium do not add a significant predictive element.

This finding is informative, but interpretation of results is made problematic by the ambiguity of the third-person effect measure: the size of an observed third-person effect can be a manifestation of any combination of respondents' attitudes regarding potential effects on themselves and on others, but it is difficult to distinguish between the two. An interesting, though not statistically significant, inverse simple correlation ($r = -.13$) between respondents' ratings of their own addiction to the medium and their ratings of the medium's addictive potential for others suggests the intriguing possibility: Players who report greater addiction for themselves appear to rally

around the medium and deny its addictive poten-

tial for others. The equations investigating this study's second and third research questions were used in an effort to further explore this possibility.

Research Question 2

The second regression equation used the same dependent variables, but substituted respondents' attitudes toward others' potential for addiction as the dependent variable. Results are shown in Table 2. While 10.1% of the variance in respondent's ratings of addictive potential is still explained by the use variables, the contributions of the other two groups of items are not statistically significant after use variables are taken into account. Additionally,

Table 2. Hierarchical Regression Analysis of Respondent's Ratings of Addictive Potential for Others: Use, Time Displacement, and Dependency (N=106)

	Model 1		Model 2		Model 3		Simple	Partial
	β	<i>t</i> value	β	<i>t</i> value	β	<i>t</i> value	<i>r</i>	<i>r</i>
Use Block								
Times per week	-.139	-1.062	-.146	-1.033	-.161	-1.092	**-.232	-.114
Hours per week	-.138	-1.058	-.127	-.959	-.110	-.776	**-.230	-.082
Equipment value	-.126	-1.240	-.111	-.962	-.105	-.870	*-.208	-.091
ΔR^2			*.101					
Total R² (adjusted R²)			*.101 (.074)					
Time Displacement Block								
Importance among002	.011	.015	-.099	-.187	-.010
Time away from other...			-.047	-.387	-.059	-.472	-.150	.050
Effect on school			-.119	-1.108	-.122	-1.107	-.129	.116
			.147	1.320	.153	1.315	.016	-.137
ΔR^2			.024					
Total R² (adjusted R²)			.125 (.060)					
Dependency Block								
I wish I didn't play...						.933	.029	.098
...Bothers others					.111	.051	-.077	.005
I would be healthier...					.006	-.786	-.074	-.083
I would be better off...					-.095	-.552	.064	-.058
						-.068		
ΔR^2			.016					
Total R² (adjusted R²)			.141 (.035)					

* $p < .05$ ** $p < .01$ All independent variables are here coded such that greater numbers indicate higher use, value, importance, displacement, negative effect, or agreement with dependency items – some coding was reversed to accomplish this. Partial *r* figures are for entire three-part model.

none of the beta weights in any block of the equation are significant, despite statistically significant inverse simple correlations between each use variable and the dependent variable ($p < .05$). The data here suggest that while video game use has a moderate and statistically significant inverse relationship with respondents' attitudes toward addictive potential for others, time displacement and dependency are not here effective predictors of the same.

Research Question 3

The final regression equation in this study again used the same dependent variables, this time substituting respondents' attitudes toward the possibility of their own addiction as the dependent variable. The results, shown in Table 3, exhibit some key differences from the previous two equations. Again, most of the explained variance in

the dependent variable is accounted for by the block of use items—in this case, 22.8%. However, time displacement also serves as a useful predictor of respondent's addition self-reporting, explaining 9.8% of the variance even after the use variables are taken into account. After these two sets of items are added to the model, the dependency block is again not a statistically significant predictor of the dependent variable, despite the fact that two of the variables ("bothers others" and "would be healthier") exhibited statistically significant simple correlations with respondents' self-reports of addiction.

These results, compared with the findings from the other two regression analyses, suggest that the observed decrease in third-person effect measures for more involved video game players is more a result of the increase in heavier players' admittance of addictive potential for themselves than of the corre-

Table 3. Hierarchical Regression Analysis of Respondent's Ratings of Addictive Potential for Themselves: Use, Time Displacement, and Dependency (N=106)

	Model 1		Model 2		Model 3		Simple	Partial
	β	<i>t</i> value	β	<i>t</i> value	β	<i>t</i> value	<i>r</i>	<i>r</i>
Use Block								
Times per week	.055	.453	-.146	-.075	-.026	-.203	** .330	-.21
Hours per week	*.290	2.400	-.127	.225	.144	1.183	** .404	.124
Equipment value	** .256	2.717	-.111	.090	.100	.972	* .349	.102
ΔR^2			** .228					
Total R ² (adjusted R ²)			** .228 (.205)					
Time Displacement Block								
Importance among002	** .357	* .304	2.379	** .535	-.243
Time away from other...			-.047	.104	.142	1.322	** .413	-.138
Effect on school			-.119	-.025	-.060	.637	.126	.067
Effect on productivity			.147	.027	-.022	.225	.084	.024
ΔR^2			* .098					
Total R ² (adjusted R ²)			** .327 (.277)					
Dependency Block								
I wish I didn't play...					.125	1.228	.093	.128
...Bothers others					.148	1.453	** .346	.151
I would be healthier...					.075	.727	* .206	.076
I would be better off...					-.101	-.952	-.027	-.100
ΔR^2			.040					
Total R ² (adjusted R ²)			** .367 (.290)					

* $p < .05$ ** $p < .01$ All independent variables are here coded such that greater numbers indicate higher use, value, importance, displacement, negative effect, or agreement with dependency items – some coding was reversed to accomplish this. Partial *r* figures are for entire three-part model.

sponding decrease in players' opinions that the medium may be addictive for others. All the same, both effects of increased play appear to be present.

Discussion

Video game addiction is a concern that merits serious investigation. Though the majority of existing video game use research focuses on children, new evidence suggests that heavy commitment to electronic game play is not merely child's play. Additionally, the medium's future indicates that online games such as *Everquest*, which have attracted a massive and sometimes dysfunctionally dedicated following, are here to stay. *Anarchy Online*, an online video game released by FunCom in 2001, is

enjoying a growing following in the footsteps of earlier, hugely popular games. Based on the excitement surrounding titles such as these, it appears likely that the alliance between video games and the Internet will be a lasting and fruitful one – and possibly a dangerously alluring combination.

These analyses yield interesting findings regarding contributors to video game players' attitudes toward the medium's potential for addiction. This study suggests that the third-person effect, observed often with a number of other media outlets and messages since it was originally advanced (Hoffner et al., 2001), may also be present in video game players' opinions regarding addiction to the medium. If it is, however, the effect appears to wane with increased video game play. While increasing video game use and financial commitment

predictably correlates with increased likelihood of admitting addiction, it is also tied to a decrease in opinions that video games may be addictive for others. The implication here may be that more involved video game players may be more amenable to noting a degree of addiction to the medium, but at the same time exhibit a tendency to eschew claims of the medium's addictive potential in general.

Considering that players, on average, rated the addictive potential of the medium for others as moderate and for themselves as quite low, these results are not dramatic. However, the findings do suggest that heavier players may be as likely to come to the defense of the medium as a non-addictive pastime as they are to note any addictive tendencies for themselves. If this behavior might be interpreted as something of a protective stance toward video games on the part of players, the third-person effect may not be nearly as applicable as may be the case with other media that do not enjoy such esteem with their patrons. However, it should be noted that this quasi-protective stance does not here seem to be as closely tied to increased video game use as is a greater degree of acquiescence among respondents with regard to their own possible addiction.

Also of interest is the efficacy of this study's independent variables in predicting attitudes toward addiction. Survey items addressing use, financial commitment, and importance of the medium to respondents served as effective predictors of attitudes toward both addictive potential for others (albeit inversely) and respondents themselves, but items addressing dependent behavior more directly were not significant predictors after these variables were taken into account. This may be noteworthy for other studies of video game addiction; simple measures such as use, financial commitment, and perceived importance of video games may be more useful indicators of dependency than questions seeking personal responses regarding the medium's impact on respondents' lives.

With involved video game players, the veracity of the third-person effect is questionable. It may appear to be present, but it is more or less squeezed on both sides as player commitment increases. This is caused in part by a grudging admittance of some addictive potential for themselves, but also by a

growing reluctance to claim addictive potential in general on the part of the medium.

As much-needed study continues to define the potential for addiction of electronic games, researchers might be wise to consider the possibility of third-person effects, which may skew players' views with regard to the dangers of this perpetually evolving, perennially popular source of entertainment. However, one might also do well to heed the suggestion that when it comes to denying addictive effects, committed video game players might be more likely to go to bat for the medium than for themselves.

References

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology, 78*, 772-790.

Brenner, V. (1997). Parameters of Internet use, abuse and addiction: The first 90 days of the Internet usage survey. *Psychological Reports, 80* (3), 879-882.

Castronova, E. (2001). Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier. Working paper retrieved March 5, 2002 from the Social Science Research Network's web site:
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=294828#Paper Download

Davison, W. (1983). The third person effect in communication. *Public Opinion Quarterly, 47*, 1-15

Demographic Information. (n.d.). Retrieved April 21, 2003, from <http://www.idsa.com/pressroom.html>

Fisher, S. (1994). Identifying video game addiction in children and adolescents. *Addictive Behaviors, 19*, 545-553.

Griffiths, M. D. (1991). Amusement machine playing in childhood and adolescence: a comparative analysis of video games and fruit machines. *Journal of Adolescence, 14*, 53-63.

Griffiths, M. D. (1992). Pinball wizard: the case of a pinball machine addict. *Psychological Reports, 71*, 160-162.

Griffiths, M. D. (2000). Categorization of Video-games: Some comments on 'Children and electronic

games' by Funk, et al. *Psychological Reports*, 85, 883-888.

Griffiths, M. D., & Dancaster, I. (1995). The effect of Type A personality on physiological arousal while playing computer games. *Addictive Behaviors*, 20, 543-548.

Griffiths, M. D., & Hunt, N. (1998). Dependence of computer games by adolescents. *Psychological Reports*, 82, 475-476.

Griffiths, M. D., & Minton, C. (1997). Arcade gambling: a research note. *Psychological Reports*, 80, 413-414.

Hanson, G. M. B. (1999). The violent world of video games. *Insight on the News*, 15 (24), 14-17.

Hoffner, C., Plotkin, R. S., Buchanan, M., Anderson, J. D., Kamigaki, S. K., Hubbs, L. A., Kowalczyk, L., Silberg, K. & Pastorek, A. (2001). The third-person effect in perceptions of the influence of television violence. *Journal of Communication*, 51 (2), 283-299.

Keepers, G. A. (1990). Pathological preoccupation with video games. *Journal of the American Academy of Child and Adolescent Psychiatry*, 29 (1), 49-50.

Nicholson, K. (December 5, 2001). Harris wrote of massacre plan: Journal entries on Columbine predated complaint to sheriff. *The Denver Post*, pp. 1A, 21A.

Paul, B., Salwen, M. B., & Dupagne, M. (2000). The third-person effect: a meta-analysis of the per-

ceptual hypothesis. *Mass Communication and Society*, 3 (1), 57-84.

Pham, A. (2003, Jan 18). Record year for games, but many firms lag. *Los Angeles Times*, C-1.

Phillips, C. A., Rolls, S., Rouse, A., & Griffiths, M. D. (1995). Home video game playing in schoolchildren: a study of incidence and patterns of play. *Journal of Adolescence*, 18, 687-691.

Portrait of a deadly bond: One was a leader, the other a follower. (May 10, 1999). *Time*, 153 (18), 26-27.

Provenzo, E. F. (1991). *Video kids: Making sense of Nintendo*. Cambridge, MA: Harvard.

Role playing computer fantasy rekindles debate over video game addictions. (2001, March 8). *Canadian Press*, n. p.

Salwen, M. B. (1998). Perceptions of media influence and support for censorship: The third-person effect in the 1996 presidential election. *Communication Research*, 25 (3), 259-285.

Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. *Human Communication Research*, 27 (3), 409-431.

Young, K. S. (1996). Addictive use of the Internet: A case that breaks the stereotype. *Psychological Reports*, 79 (3), 899-902.

Zimbardo, P. (1982). Understanding psychological man: A state of the science report. *Psychology Today*, 16, 15.

Appendix A

Survey Instrument (slightly smaller scale than actual questionnaire)

This is a survey designed to gather information on University of Wyoming students' video game habits. This survey is completely anonymous. Please do not put your name on the survey, but answer all questions as completely and honestly as possible. Thank you for your help; Your responses are a valuable contribution to this research. For the purposes of this survey, "video games" refers to any electronic game that you play strictly for entertainment alone or with others. This may include home video consoles (Playstation, Nintendo, etc.), computer games of all types (Solitaire, Doom, etc.), online games (Everquest, MUDs), arcade games, or any other type of electronic games you play for amusement.

1. When was the last time you played a video game?

TODAY THIS WEEK THIS MONTH THIS YEAR LESS RECENTLY NEVER

2. About how many times in an average week do you play video games? _____ times
3. About how many hours per week do you think you spend playing video games? _____ hrs.
4. What is the approximate value of the video games and related equipment in your home? \$ _____
(Do not include computers or other equipment purchased primarily for other purposes)
5. Among your leisure activities, where would you place video games?

MOST VERY SOMEWHAT NOT VERY NOT AT ALL
IMPORTANT IMPORTANT IMPORTANT IMPORTANT IMPORTANT

6. How often would you say video games have taken time away from other activities?

VERY OFTEN OFTEN OCCASIONALLY RARELY NEVER

7. How and to what extent has time spent playing video games affected your performance in school?

VERY SOMEWHAT NO EFFECT SOMEWHAT VERY
NEGATIVELY NEGATIVELY ON SCHOOL POSITIVELY POSITIVELY

8. Has playing video games affected other aspects of your life? (Check all that apply)

_____ WORK
_____ OTHER HOBBIES/PROJECTS
_____ SLEEP
_____ HYGIENE
_____ CHORES
_____ SOCIAL LIFE
_____ RELATIONSHIPS
_____ OTHER (PLEASE DESCRIBE) _____

**IF YOU DID NOT CHECK ANY CHOICES ON QUESTION 8, SKIP TO QUESTION 10
IF YOU CHECKED ANY CHOICES ON QUESTION 8, PLEASE ANSWER QUESTION 9:**

9. How has playing video games affected the above aspects of your life?

VERY SOMEWHAT NO EFFECT SOMEWHAT VERY
NEGATIVELY NEGATIVELY AT ALL POSITIVELY POSITIVELY

10. Overall, how much is your general productivity affected by time spent playing video games?

MUCH LESS	LESS	NO EFFECT	MORE	MUCH MORE
PRODUCTIVE	PRODUCTIVE	AT ALL	PRODUCTIVE	PRODUCTIVE

11-16: Complete these items by indicating how true you think the statements are about YOU :

11: I wish I did not play video games as much as I do.

STRONGLY	DISAGREE	UNSURE/	AGREE	STRONGLY
DISAGREE		NEUTRAL		AGREE

12: I would be better off if I spent less time playing video games.

STRONGLY	AGREE	UNSURE/	DISAGREE	STRONGLY
AGREE		NEUTRAL		DISAGREE

13: My video game play bothers other people I know.

STRONGLY	AGREE	UNSURE/	DISAGREE	STRONGLY
AGREE		NEUTRAL		DISAGREE

14: I would be healthier if I played fewer video games.

STRONGLY	AGREE	UNSURE/	DISAGREE	STRONGLY
AGREE		NEUTRAL		DISAGREE

15: I think that other people may become addicted to video games.

STRONGLY	AGREE	UNSURE/	DISAGREE	STRONGLY
AGREE		NEUTRAL		DISAGREE

16: I am addicted to video games.

STRONGLY	AGREE	UNSURE/	DISAGREE	STRONGLY
AGREE		NEUTRAL		DISAGREE

17. What is your age? _____

18. What is your gender? M F

19. What is your class standing?

FRESHMAN SOPHOMORE JUNIOR SENIOR 2nd DEGREE GRAD OTHER

20. Where do you live while attending school?

DORMITORY/ GREEK OFF-CAMPUS OFF CAMPUS WITH FAMILY/ OTHER
UW HOUSING HOUSING ALONE WITH OTHERS PARENTS

21. When do you expect to graduate? (Term and year) _____

Thank you for your time. Your help with this research is greatly appreciated.