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Militaristic Attitudes and the Use of Digital Games

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Abstract

From their beginnings until today, digital games have been a substantial part of what has been labeled the "military–entertainment complex" deeply imbued with militaristic messages and imagery. Within cultivation research, this enhanced exposure to war and militarism is supposed to be associated with the adoption of military norms and thinking. Concepts on narrative persuasion specify this relationship between certain narratives and the adoption of story-inherent beliefs. Based on these theoretical concepts, the present study tries to investigate the relationship between aspects of gaming and militaristic attitudes. We carried out a representative survey of 4,500 gamers with an added control group of 500 nongamers. Militaristic attitudes were measured using a newly developed multidimensional militarism scale. Structural equation modeling did not reveal any relationship between gaming and militaristic attitudes. Moreover, neither the gaming type (multiplayer vs. single) nor the gaming frequency or a preference for shooter games was significantly related to militarism.

Keywords

digital games, militaristic attitudes, cultivation, narrative persuasion, first-person shooters

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Introduction

The negative outcomes of digital games have been a major subject of public and academic debate in recent years. Consequently, many studies on the effects of gaming concentrate on behavioral consequences such as violent behavior (Anderson & Bushman, 2001; Anderson et al., 2010; Gentile, Lynch, Linder, & Walsh, 2004) or excessive game use (Griffiths, 2010; Grüsser, Thalemann, & Griffiths, 2006; Lemmens, Valkenburg, & Peter, 2011). Apart from these direct behavioral consequences, computer games may also influence users' general cognitions and attitudes. Cultivation research deals specifically with the cognitive effects of media use and postulates that users learn from the content depicted in (fictional) media and develop attitudes that are consistent with those images. Research on narrative persuasion integrates concepts such as presence and identification and hypothesizes that they moderate the relationship between exposure and the adoption of norms (e.g., De Graaf, Hoeken, Sanders, & Beentjes, 2011). Such research focuses on the nature of the narrative itself instead of the generalized use of the medium. Therefore, research on the persuasive effects of fictional stories is a popular topic when investigating mass communication effects (Strange & Leung, 1999; Wheeler, Green, & Brock, 1999). Although this concept was initially developed in television research, we argue that both approaches—cultivation and narrative persuasion—can be successfully applied to the context of gaming.

Before analyzing the influence of digital games on users' cognitions and attitudes, it is necessary to determine what kinds of fiction such games typically contain. Content analyses show that many games include violence (i.e., 68% by Smith, Lachlan, & Tamborini, 2003) or military-related topics. Lenoir and Lowood (2003) point out that from their inception, digital games have been part of the "military–entertainment complex" that is often imbued with militaristic or even war-related issues. This is especially true for "first-person shooter" (FPS) games due to their typical gameplay mechanism. FPS games put their players in the individual perspective of one specific protagonist or a small group of soldiers. Instead of abstract, impersonal historical facts, the player experiences war through the eyes of a single person or group. This specific way of telling a story might have implications for the experience of the players. Therefore, this article investigates the relationship between different forms of digital games' use and the development of militaristic attitudes, which is often theorized (Halter, 2006; Thompson, 2008) but rarely empirically analyzed (Huntemann, 2010; Penney, 2010).

Literature Review and Theoretical Conceptualization

Research on Cultivation and Narrative Persuasion

Cultivation research grew out of a public discussion about violence on television that arose in the late 1960s. Gerbner & Gross (1976) implemented a "violence index" to measure the content of violence in television programs aired in the United States.

Later, the approach was methodologically supplemented by audience surveys and thematically expanded to more general issues (Gerbner & Gross, 1976). In this context, cultivation describes, "the independent contributions television viewing makes to viewer conceptions of social reality." In this sense, contribution means "that the development (in some) and maintenance (in others) of some set of outlooks or beliefs can be traced to steady, cumulative exposure to the world of television" (Gerbner, 1998, p. 180). Gerbner, Gross, Morgan, and Signorielli (1986) differentiate between two types of judgments that can indicate cultivation: First-order effects refer to a person's perception of reality (e.g., frequency of crime or the number of police officers in duty) and second-order effects indicate a person's attitudes and beliefs (e.g., toward security policies).

It is important to note that the cultivation thesis presents global, causal relationships that are abbreviated and, thus, neglects more complex interdependencies. A more specific problem is the assumption that the intensive use of television results in greater influence of the medium. This simple comparison of light and heavy television use is often used as an indicator of the cultivation effect; however, it is necessary to question whether these groups are truly homogenous (Hawkins & Pingree, 1980).

Other theoretical concepts consider the mechanisms that underlie the relationship between media use and the adoption of media-inherent perceptions and attitudes. Therefore, a large portion of today's research focuses on the concept of "persuasion through fiction" (Appel, 2008). A number of studies show that recipients learn what fiction teaches them and narratives can influence real-world beliefs and attitudes (Appel & Richter, 2007; Diekman, McDonald, & Gardner, 2000; Green & Brock, 2000; Strange & Leung, 1999). Busselle and Bilandzic (2009) define the experience of narration as a multidimensional construct called "narrative engagement," which includes narrative understanding and presence as well as attentional and emotional components. Within their model of narrative comprehension and engagement, they distinguish between different levels of narrative realism that affect the adoption of attitudes and beliefs. While external realism refers to whether a story relates to the "real world," narrative realism describes the internal coherence and logic of a story. If an individual recognizes inconsistencies in these levels of realism, their engagement with the narrative can be disrupted, and its outcomes, such as enjoyment and persuasion, can be diminished (Busselle & Bilandzic, 2008). Other studies identify processes through which narratives influence recipients' beliefs (Green, 2006; Slater & Rouner, 2002). De Graaf, Hoeken, Sanders, and Beentjes (2011) demonstrate that identification with a story's character mediates the relationship between the perspective from which the story is told and the adoption of attitudes inherent in the story. Apart from this mechanism, concepts of narrative persuasion specifically focus on games' narratives instead of gaming in general; therefore, such concepts elaborate on and expand the general findings of cultivation research.

Concepts of cultivation and narrative persuasion do not contradict each other. According to Slater and Rouner (2002, p. 175), the former includes the incidental persuasive effects of narratives, while the latter depicts intentional persuasion

referring to entertainment education. However, the distinction seems to be a matter of degree, rather than of kind. Apart from this dissimilarity, narrative persuasion can also be seen as expansion of cultivation research by explaining how the adoption of beliefs depends on the story-inherent narratives and ways of storytelling (Busselle & Bilandzic, 2008).

The Persuasive Power of Digital Games

Although cultivation theory and the concept of narrative persuasion were both originally developed and tested for film and television, the basic assumptions can also be applied to digital games. However, there is a lack of research examining the cultivation effects of digital games. Early studies simply transferred the cultivation assumptions of television research to gaming. However, some crucial aspects differentiate these two types of media (van Mierlo & van den Bulck, 2004). First, since computer games are still far from universal in all parts of society, stronger selectivity effects can be expected in comparison to the mainstream television. Although there are some notes about the high proportion of violence in games (Dietz, 1998; Heintz-Knowles, Glaubke, Miller, Parker, & Espejo, 2001), a first analysis of our panel data revealed that while there is a lack of evidence for "mainstream gaming," there is a strong genre orientation among gamers. Therefore, heterogeneous cultivation effects are expected to be the norm rather than the exception. Genres often reflect different narratives, for example, FPS games are often based on war-related topics (Breuer, Festl, & Quandt, 2012). Therefore, in terms of their content, digital games seem to provide specific narratives that enable persuasive effects (Appel, 2008).

Another difference between computer games and television lies in the different degrees of activity required for each medium. In contrast to the passive television user, a gamer plays an active role in the reception process—he is offered the illusion that he is shooting the enemy or driving a car (Sherry, 2001). Cultivation effects are expected to be even stronger due to this immersive quality, as feelings of identification are enhanced (McMahan, 2003). However, this immersive feeling is provided not only by the fictional world created by the game but also by the player's power to actively change the structure and the outcomes of the story. This "interactive narrative" (Lee, Park, & Jin, 2006) motivates the player to stay in the game and ultimately increases the probability that the user will adopt the story's inherent beliefs. Therefore, the coupling of narrative and interactivity embedded in games is one of the most important mechanisms of entertainment education (Wang & Singhal, 2009).

Actual research on the cultivation effects of digital games has led to mixed results: Van Mierlo and van den Bulck (2004) found out that violent video gaming led to higher estimates of violent crime and the number of police officers on duty—the so-called first-order cultivation effects—but was unrelated to second-order cultivation measures such as attitudes or opinions. Another study by Williams (2006) focused on a specific game and revealed the existence of first-order (but not

second-order) cultivation effects. However, only those aspects that corresponded to events and situations in the game world were found to be relevant. Apart from these classical cultivation theses, studies examining the persuasive power of gaming narratives on specific attitudes are rare. Within the sector of serious games—games that do not primarily or exclusively focus on entertainment—several studies confirm the influence of narration on participants' beliefs (e.g., Baranowski, Buday, Thompson, & Baranowski, 2008).

Narration and Digital Games: The Military–Entertainment Complex

As in any cultivation research, it is necessary to look at the media content before hypothesizing about its effects. As Schmierbach (2009, p. 168) postulates, "Experimental research on games requires knowing the traits of games that show frequent and meaningful variation." The present study analyzes the relationship between militaristic attitudes and the use of military-themed digital games. According to the seminal work by Eckhardt and Newcombe (1969, p. 210), militarism is defined as "the belief in military deterrence, or the reliance on military strength to defend one's nation and its values, or aggressive foreign policy." Therefore, militaristic attitudes can refer to both military institutions and means of international conflict resolution, that is, war and peace. The present study focuses on (a) respect for soldiers and their actions, (b) support for strong military institutions, and (c) support for aggressive policies against other nations and terrorist threats.

From their inception, computer and video games have played an important role in the military–entertainment complex (Lenoir & Lowood, 2003). The U.S. Department of Defense has contributed substantial sums of money and advisory effort to the production of FPS games (Dyer-Witheford & de Peuter, 2009; Nichols, 2010; Nieborg, 2010). The U.S. military benefits from its collaboration with the video games industry, because games can serve as a public relations tool to improve its image as well as an instrument for military training and recruitment (King & Leonard, 2010; Lenoir & Lowood, 2003). A prominent example of these collaborations is the successful FPS series, *America's Army*, which Løvlie (2008) considers "a prime example of a persuasive game" (p. 70) that demonstrates how computer and video games can be used for strategic communication.

Before investigating the effects of gaming on the militaristic attitudes of players, we performed a content analysis of all the FPS games that were published after 1990 and refer, at least partially, to a military topic. We chose this particular gaming genre because it is closely associated with the military due to its typical content and gameplay mechanics. Military-themed games make up approximately 40% of all the FPS games listed on the review site, gamespot.com (Anonymized). Among the 166 games with identifiable conflict, 77 (46.4%) refer to a real military conflict, most often World War II (63.6%), the Vietnam War (16.9%), and the War on Terror (6.5%). We also found that 80.5% of the analyzed games deal with real settings to some degree and 92.1% abstain from all fictional elements such as aliens and zombies. In sum, over 90% of the military

FPS games published within the last 20 years strive for audiovisual and narrative realism and, therefore, offer military contents that might affect gamers' attitudes toward the military (Breuer et al., 2012).

Research Questions and Hypothesis

In light of the theoretical assumptions derived from the interrelations between the military and the entertainment industry introduced above, a broad range of digital games were imbued with military content. Apart from the FPS games, other genres such as adventure, strategy games, and simulations make military activities and war a subject of discussion (e.g., Gieselmann, 2002). In contrast to television use and computer games, digital games are even further from being a saturated media form; despite the increasing diffusion rates, such games are exclusive to a certain part of society (Anonymized). Therefore, according to classical cultivation theory, exposure to digital games should be associated with stronger militaristic attitudes. Therefore, we hypothesize a positive relationship between gaming and militarism.

Hypothesis 1: Users of digital games show stronger militaristic attitudes than nonusers.

In addition to comparing gamers with a nonplaying control group, we can also compare different types of players, that is frequent users versus infrequent users, which resemble the classic television studies by Gerbner and Gross (1976). A higher usage rate is assumed to be related to greater appreciation for military content, which implies greater influence of the beliefs inherent in the narrative. Therefore, we will prove the following hypothesis:

Hypothesis 2a: Frequent users of digital games show stronger militaristic attitudes than casual gamers.

In light of the earlier criticism on cultivation research (Shanahan & Morgan, 1999), we not only compare high- versus low-intensity players but also integrate other gaming-related variables into the analysis. Through the above-mentioned content analysis, we confirmed that there is a large amount of realistic military content in the FPS games. It is likely that gamers who prefer this kind of genre are fascinated by the gameplay mechanics; however, we suspect that they also favor the games' content-related aspects. Positive attitudes toward a certain genre can enhance identification processes, and identification with a story is expected to confirm the adoption of inherent beliefs (De Graaf et al., 2011). Therefore, we hypothesize that a user's preference for FPS games is related to their militaristic attitudes.

Hypothesis 2b: Gamers who prefer FPS games exhibit stronger militaristic attitudes.

Finally, we distinguish between two methods of playing digital games: single player and multiplayer. Multiplayer games include any forms of playing together with others, no matter if this happens online or together in front of a computer or a console. We suggest the following hypothesis based on the possible effects of peer opinions (Kelman, 1958) when playing military-themed digital games with like-minded others:

Hypothesis 2c: Socially orientated gamers show stronger militaristic attitudes than users who only play alone.

Taken together, these hypotheses examine whether militaristic narratives contained in new media phenomena such as digital games influence the adoption of narrative-inherent beliefs, specifically militaristic attitudes.

Method

Participants

Sampling and recruiting was conducted using a two-stage approach. First, a representative sample of 50,000 persons aged 14 years and older was asked about their gaming behaviors in an omnibus telephone survey. The sample was composed using the German standard computer-assisted telephone interviewing (CATI) sampling procedure with an average daily response rate of 55%. Approximately 25% of the respondents were identified as at least occasional gamers. From this sample, we recruited a stratified random sample of 4,500 gamers for a second telephone interview, which comprised 3,500 "social gamers" who played multiplayer games at least occasionally and 1,000 respondents who only played single-player games. Multiplayer games are defined as any kind of co-playing, regardless of where it happens—online, in a local network (local area network [LAN]), or co-located in front of a shared monitor. The response rate for this second survey was 79.6%. The data were collected in March and April 2011 by a professional market research institute in Germany. The respondents' ages ranged from 14 to 90 years (mean [M] = 38.8), and 56.6% of the respondents were male. The average time spent on computer games was 48 min/day.

Measures

Gaming-Related Variables. Gaming frequency was measured by one closed question (frequency) and one open question (duration) and transformed into an average score of hours played per day. The gaming type indicator was constructed by combining the different forms of gaming, single, single online, social online, LAN, and was collocated into one dichotomous variable. Genre preference was measured using a 5-point Likert-type scale that ranged from 1 (*don't like it at all*) to 5 (*like it very*

Table 1. Subscales and Items of the New Militarism Short Scale (NMSS).

Subscale	Item
Soldier admiration	Soldiers willing to risk their lives for our country deserve utmost appreciation. (military 1)
	We have to be grateful to our soldiers for protecting our freedom. (military 2)
Army necessity	The army needs to be strong enough to protect our country against enemies. (military 3)
	A weak army endangers the safety of our country. (military 4)
Terrorist threat	A powerful army protects us against extremist threats. (military 5)
	Terrorist threats need to be met by military power. (military 6)

much), with the additional option *don't know the genre*. The genre list was partly adapted from existing studies and covered 11 genres, including FPS.

Personality and Sociodemographics. The present study controlled for gender, age, and education. Education was measured using a 6-point scale that mirrored the German education system. In order to account for the general traits that could be related to militaristic attitudes, we included 1 item that accounted for the user's authority orientation (*I respect authority*). We also included 2 items from the physical aggression subscale created by Buss and Perry (1992), "There are people who pushed me so far that we came to blows" and "Given enough provocation, I may hit another person." These personality traits were assessed using a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

New Militarism Short Scale. In order to measure the militaristic attitudes reliably, we developed a militarism scale based on a literature review of preexisting constructs (Eckhardt & Newcombe, 1969; Ray, 1972). After a pretest with students, it became apparent that militarism is not unidimensional. Due to time constraints during the telephone interviews, we constructed a short scale with 6 items as indicators for three different subscales: soldier admiration, army necessity, and terrorist threat. The items were rated on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Table 1 displays the subscales and their items.

A confirmatory factor analysis using the analytic program, Analysis of Moment Structures (AMOS), and a subsequent invariance test yielded satisfactory results. The subscales exhibited acceptable reliability and convergent validity as indicated by the composited reliability and average extracted variance (Fornell & Larcker, 1981). However, there is substantial room for improving the scale, especially in terms of measuring terrorism-related attitudes. The subscales exhibited strong (or scalar) invariance between gamers and nongamers, which allowed us to compare the means in both the groups (Steenkamp & Baumgartner, 1998).

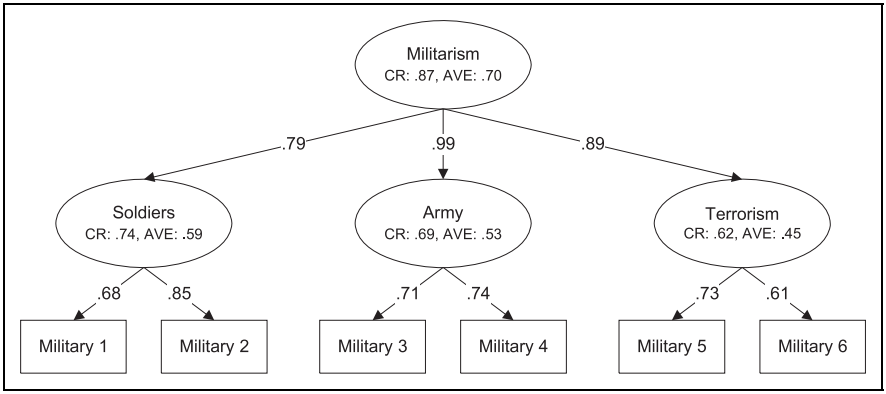

Figure 1. Confirmatory factor analysis of the New Militarism Short scale (NMSS). ML-Estimation, $\chi^2(6) = 133.8$, $p = .00$; RMSEA = .07; SRMR = .02. RMSEA indicates root mean square error of approximation; SRMR = standardized root mean square residual.

Finally, we modeled the militaristic attitudes as a second-order factor because there were strong correlations between the three subscales. This second-order factor, militarism, served as the dependent variable in our analysis. The overall fit for the confirmatory factor analysis depicted in Figure 1 is not perfect, given the large chi-square value, but is acceptable by common standards, $\chi^2(6) = 133.8$, $p = .00$; root mean square error of approximation (RMSEA) = 0.07; standardized root mean square residual (SRMR) = 0.02 (Hu & Bentler, 1999). The second-order factor loadings indicated good convergent validity and reliability of the scale. Therefore, we conclude that the New Militarism Short scale is a psychometrically sound measure for militaristic attitudes.

Results

The data were analyzed using the structural equation modeling, based on the analytic program, AMOS. The missing data were excluded list wise, and we followed the common criteria for statistical significance ($*p < .05$, $**p < .01$).

Following our first hypothesis (Hypothesis 1), we analyzed the relationship between gaming and militaristic attitudes. In order to control for potentially confounding variables, we included standard sociodemographics and the above-mentioned personality factors in the structural equation model. The missing values for the relevant variables were excluded list wise, which yielded a total sample size of $N = 4{,}708$. The second column of Table 2 presents the results of Model 1. The structural equation model shows that no gaming effect explaining militaristic attitudes was revealed. In other words, there is no discernible mean difference between gamers and nongamers in their attitudes toward the military. Therefore, we rejected Hypothesis 1 based on our data. We observed a small correlation between militaristic attitudes and the age of the participants ($\beta = .14$, $p < .01$) but no correlation between militaristic attitudes and

Table 2. Predicting Militaristic Attitudes by Gaming Behavior, Sociodemographics, and Personality.

	Model 1 ($n = 4{,}708$) Gamers vs. nongamers	Model 2 ($n = 4{,}026$) Gamers
Gaming	−.01	–
Gaming frequency	–	−.01
Shooter preference	–	.03
Social gaming	–	.01
Age	.15**	.15**
Gender	.03	.06
Education	−.20**	−.20**
Physical aggression	.15**	.17**
Authority orientation	.30**	.31**
R^2	.17	.17
Model fit	$\chi^2 = 318.7(46)$, $p < .01$	$\chi^2 = 307.7(58)$, $p < .01$
RMSEA, SRMR	RMSEA = .04; SRMR = .02	RMSEA = .03; SRMR = .02

Note. RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual. Standardized path coefficients; ML Estimation.
*$p < .05$. **$p < .01$.

gender differences. In terms of education level, a negative effect was identified wherein people with less education showed stronger militaristic attitudes ($\beta = -.21$, $p < .01$). The strongest relationship was observed between militarism and authority orientation ($\beta = .30$, $p < .01$) and between trait aggression and militarism, albeit smaller ($\beta = 15$, $p < .01$). Altogether, 17% of the variance was explained by the included variables, and the model fits the data acceptably.

In order to test hypotheses 2a–c, we expanded the gaming-related explanatory factors and compared the different types of gamers. Hypothesis 2a was rejected because there was no observable difference in militaristic attitudes between the frequent and casual gamers. Likewise, hypotheses 2b and 2c were not confirmed. Neither the preference for FPS games nor the use of multiplayer games (social influence hypothesis) showed any effect on the users' militaristic attitudes. Seventeen percent of the variance was explained by the same variables used in Model 1, which is presented in the third column of Table 2. The fit for the gamer-only model was also acceptable.

Since younger people are expected to be more susceptible to cultivation effects, we separately estimated the models for the group of adolescents 14–17 years old. The results in this age group remained the same; we did not find any association between gaming and militaristic attitudes.

Discussion

The present study examined whether militaristic attitudes are related to the use of digital games. We constructed two different models: one comparing gamers and

nongamers and one comparing subsamples of players in terms of different gaming-related variables. We included variables—such as gaming frequency—that are commonly employed in cultivation research. Moreover, we integrated another measure of gaming behavior that was derived from the concept of narrative persuasion, that is, a person's preference for FPS games, which are deeply imbued with military content. Finally, we hypothesized that coplaying with others would strengthen the adoption of militaristic attitudes based on the assumptions of social influence. For all of these models, no kind of gaming effect was observed when controlling for basic demographics and personality traits. People with a higher age, lower education, and an authority-orientated, aggressive personality showed stronger militaristic attitudes, regardless of their gaming behavior.

The absence of gaming-related effects, despite the large sample size and statistical power of the analysis, contributes to the public and academic debate about the negative effects of gaming in general as well as the "creeping militarization of society" through games (Leonard, 2004). This study did not find any evidence to support this militarization thesis among German gamers. It appears that this form of media does not influence militarism, although many FPS contain military-related content. Sociodemographics and the respondents' personalities clearly played a more important role in the development of militaristic attitudes.

Some crucial aspects regarding the design of the study must be taken into consideration. First, the results were based on a cross-sectional analysis of the data, so that no conclusions about causality effects are possible. Considering the current knowledge about cultivation effects, we argue that the noncorrelations found in this study are unlikely to be attributed to opposing selection and media effects. Nevertheless, it is necessary to conduct a longitudinal study in order to understand the possible cultivation mechanisms. However, it may be essential to conduct more long-term panel studies in order to observe the changes in militaristic attitudes, especially in those of the adult players. Another possibility is to focus on adolescent gamers who are still developing socially, although this study did not find any cultivation effects in this age group. A possible explanation for this finding may be that militaristic attitudes are developed at an earlier age so that these attitudes are already stable in adolescence. Another explanation may be that we only collected data among German gamers, and the results might vary in cross-cultural comparisons. For instance, earlier research on attitudes toward the military and the war has shown that Germans are less militaristic than American citizens are (Listhaug, 1986). From this perspective, it may be harder to uncover promilitaristic cultivation effects in a society that is generally nonmilitaristic. We expect that recipients will be more open to the cultivation of militaristic attitudes in countries where militarism is more widely accepted. Furthermore, since many military-related games feature protagonists from the United States and the United Kingdom, it is possible that the narrative contents of these games resonates with users from these countries. Consequently, our findings cannot be easily generalized across different cultures, and we look forward to future studies based on other countries.

Overall, opinions toward militarism can be considered affect based and are founded strongly on emotion and moral concepts (Breckler & Wiggins, 1989). These kinds of attitudes are powerful and more resistant to change and influence (Katz, 1960; Maio & Olson, 1995). Future research should focus on other aspects of cultivation through gaming. Previous studies that dealt with cultivation effects in games could identify the first-order cultivation effects, such as a higher estimation of crime prevalence in the course of violent video gaming (van Mierlo & van den Bulck, 2004). If one assumes a causal chain between the use of military-themed video games—first-order (cognitions about war and the military) and second-order effects (militaristic attitudes)—the lack of evidence for a correlation between gaming and militaristic attitudes can be explained in two ways. First, there may be no first-order effects of gaming, which we did not test in this study, or second, there is no direct relationship between first-order cognitions about the military and militaristic attitudes. Either way, we conclude that the development of militaristic attitudes cannot be attributed to the use of military-themed computer games.

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References

Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Science*, *12*, 353–359.

Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A. … Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin*, *136*, 151–173.

Appel, M. (2008). Fictional narratives cultivate just-world beliefs. *Journal of Communication*, *58*, 62–83.

Appel, M., & Richter, T. (2007). Persuasive effects of fictional narratives increase over time. *Media Psychology*, *10*, 113–134.

Baranowski, T., Buday, R., Thompson, D. I., & Baranowski, J. (2008). Playing for real: Video games and stories for health-related behavior change. *American Journal of Preventive Medicine*, *34*, 74–82.

Breckler, S. J., & Wiggins, E. C. (1989). On defining attitude and attitude theory: Once more with feeling. In A. R. Pratkani, S. J. Breckler & A. G. Greenwald (Eds.), *Attitude structure and function* (pp. 407–427). Hillsdale, NY: Erlbaum.

Breuer, J., Festl, R., & Quandt, T. (2012). Digital war: An empirical analysis of narrative elements in military first-person shooters. *Journal of Gaming & Virtual Worlds*, *4*(3), 215–237.

Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, *63*, 452–459.

Busselle, R., & Bilandzic, H. (2008). Fictionality and perceived realism in experiencing stories: A model of narrative comprehension and engagement. *Communication Theory*, *18*, 255–280.

Busselle, R., & Bilandzic, H. (2009). Measuring narrative engagement. *Media Psychology*, *12*, 321–347.

De Graaf, A., Hoeken, H., Sanders, J., & Beentjes, W. J. (2011). Identification as a mechanism of narrative persuasion. *Communication Research*, *39*, 802–823.

Diekman, A. B., McDonald, M., & Gardner, W. L. (2000). Love means never having to be careful: The relationship between reading romance novels and safe sex behaviour. *Psychology of Women Quarterly*, *24*, 179–188.

Dietz, T. L. (1998). An examination of violence and gender role portrayals in video games: Implications for gender socialization and aggressive behavior. *Sex Roles*, *38*, 425–442.

Dyer-Witheford, N., & de Peuter, G. (2009). *Games of Empire: Global capitalism and video games*. Minneapolis, MN: University of Minnesota Press.

Eckhardt, W., & Newcombe, A. G. (1969). Militarism, personality, and other social attitudes. *Journal of Conflict Resolution*, *13*, 210–219.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, *18*, 382–388.

Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance. *Journal of Adolescence*, *27*, 5–22.

Gerbner, G. (1998). Cultivation analysis: An overview. *Mass Communication & Society*, *1*, 175–194.

Gerbner, G., & Gross, L. (1976). Living with television: The violence profil. *Journal of Communication*, *26*, 173–199.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1986). Living with television: The dynamics of the cultivation process. In J. Bryant & D. Zillmann (Eds.), *Perspectives on media effects* (pp. 17–40). Hillsdale, NJ: Lawrence Erlbaum.

Gieselmann, H. (2002). *Der virtuelle Krieg. Zwischen Schein und Wirklichkeit im Computerspiel* [The virtual war. Between fiction and reality within a computer game]. Hannover, Germany: Offizin-Verlag.

Green, M. C. (2006). Narratives and cancer communication. *Journal of Communication*, *56*, 163–183.

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, *79*, 701–721.

Griffiths, M. D. (2010). The role of context in online gaming excess and addiction: Some case study evidence. *International Journal of Mental Health and Addiction*, *8*, 119–125.

Grüsser, S. M., Thalemann, R., & Griffiths, M. D. (2006). Excessive computer game playing: Evidence for addiction and aggression? *CyberPsychology & Behavior*, *10*, 290–292.

Halter, E. (2006). *From sun tzu to xbox. War and video games*. New York, NY: Thunder's Mouth Press.

Hawkins, R., & Pingree, S. (1980). Some processes in the cultivation effect. *Communication Research*, *7*, 193–226.

Heintz-Knowles, K., Glaubke, C. R., Miller, P., Parker, M. A., & Espejo, E. (2001). *Fair play? Violence, gender and race in video games*. Oakland, CA: Children Now.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.

Huntemann, N. B. (2010). Playing with fear: Catharsis and resistance in military-themed video games. In N. B. Huntemann & M. T. Payne (Eds.), *Joystick soldiers: The political play in military video games* (pp. 223–236). New York, NY: Routledge.

Katz, D. (1960). The functional approach to the study of attitudes. *Public Opinion Quarterly*, *24*, 163–204.

Kelman, H. (1958). Compliance, identification, and internalization: Three processes of attitude change. *Journal of Conflict Resolution*, *2*, 51–60.

King, C. R., & Leonard, D. J. (2010). Wargames as a new frontier: Securing American empire in virtual space. In N. B. Huntemann & M. T. Payne (Eds.), *Joystick soldiers: The political play in military video games* (pp. 109–115). New York, NY: Routledge.

Lee, K. M., Park, N., & Jin, S. (2006). Narrative and interactivity in computer games. In P. Vorderer & J. Bryant (Eds.), *Playing video games: Motives, responses, and consequences* (pp. 259–274). Mahwah, NJ: Erlbaum.

Lemmens, J. S., Valkenburg, P. M., & Peter, J.(2011). The effects of pathological gaming on aggressive behavior. *Journal of Youth and Adolescence*, *40*, 38–47.

Lenoir, T., & Lowood, H. (2003). Theaters of war: The military entertainment complex. Stanford University. Retrieved November 16, 2010, from http://www.stanford.edu/class/sts145/Library/LenoirLowood_TheatersOfWar.pdf

Leonard, D. (2004). Unsettling the military entertainment complex: Video games and a pedagogy of peace. *Studies in Media & Information Literacy Education*, *4*, 1–8.

Listhaug, O. (1986). War and defence attitudes: A first look at survey data from 14 countries. *Journal of Peace Research*, *23*, 69–76.

Løvlie, A. S. (2008). The rhetoric of persuasive games. In S. Günzel, M. Liebe & D. Mersch (Eds.), *Conference proceedings of the philosophy of computer games 2008* (pp. 70–91). Potsdam, Germany: University Press.

McMahan, A. (2003). Immersion, engagement, and presence: A method for analyzing 3-D video games. In M. J. P. Wolf & B. Perron (Eds.), *Video game theory* (pp. 67–86). London, England: Routledge.

Maio, G. R., & Olson, J. M. (1995). Relations between values, attitudes, and behavioral intentions: The moderating role of attitude function. *Journal of Experimental Social Psychology*, *31*, 266–285.

Nichols, R. (2010). Target acquired: America's Army and the video game industry. In N. B. Huntemann & M. T. Payne (Eds.), *Joystick soldiers: The politics of play in military video games* (pp. 39–52). New York, NY: Routledge.

Nieborg, D. B. (2010). Training recruits and conditioning youth: The soft power of military games. In N. B. Huntemann & M. T. Payne (Eds.), *Joystick soldiers: The politics of play in military video games* (pp. 53–66). New York, NY: Routledge.

Penney, J. (2010). "No better way to 'experience' world war II": Authenticity and ideology in the call of duty and medal of honor player communities. In N. B. Huntemann & M. T. Payne (Eds.), *Joystick soldiers: The politics of play in military video games* (pp. 191–205). New York, NY: Routledge.

Ray, J. J. (1972). Militarism, authoritarianism, neuroticism, and antisocial behavior. *The Journal of Conflict Resolution*, *16*, 319–340.

Schmierbach, M. (2009). Content analysis of video games: Challenges and potential solutions. *Communication Methods & Measures*, *3*, 147–172.

Smith, S. L., Lachlan, K., & Tamborini, R. (2003). Popular video games: Quantifying the presentation of violence and its context. *Journal of Broadcasting & Electronic Media*, *47*, 58–76.

Shanahan, J., & Morgan, M. (1999). *Television and its viewers*. Cambridge, England: Cambridge University Press.

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

Slater, M. D., & Rouner, M. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory*, *12*, 173–191.

Steenkamp, J. B. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, *25*, 78–90.

Strange, J. J., & Leung, C. C. (1999). How anecdotal accounts in news and in fiction can influence judgments of a social problem's urgency, causes, and cures. *Personality and Social Psychology Bulletin*, *25*, 436–449.

Thompson, M. (2008). *Military computer games and the new American militarism. What computer games teach us about war* (Unpublished doctoral thesis). Nottingham. Retrieved July 20, from http://etheses.nottingham.ac.uk/672/1/Matt_Thomson_PhD_Thesis_Pdf.pdf

van Mierlo, J., & van den Bulck, J. (2004). Benchmarking the cultivation approach to video game effects: A comparison of the correlates of TV viewing and game play. *Journal of Adolescence*, *27*, 97–111.

Wang, H., & Singhal, A. (2009). Entertainment-education through digital games. In U. Ritterfeld, M. Cody & P. Vorderer (Eds.), *Serious games: Mechanisms and effects* (pp. 271–292). New York, NY: Routledge.

Wheeler, S. C., Green, M. C., & Brock, T. C. (1999). Fictional narratives change beliefs: Replications of Prentice, Gerrig & Bailis (1997) with mixed corroboration. *Psychonomic Bulletin and Review*, *6*, 136–141.

Williams, D. (2006). Virtual cultivation: Online worlds, offline perceptions. *Journal of Communication*, *56*, 69–87.

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