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## Military-Themed Video Games and the Cultivation of Related Beliefs and Attitudes in Young Adult Males

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MILITARY-THEMED VIDEO GAMES AND THE CULTIVATION OF RELATED  
BELIEFS AND ATTITUDES IN YOUNG ADULT MALES

A Dissertation Presented

by

GREGORY R. BLACKBURN

Submitted to the Graduate School of the University of Massachusetts Amherst in partial  
fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

SEPTEMBER 2020

DEPARTMENT OF COMMUNICATION

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## **DEDICATION**

This manuscript is dedicated to the *Essex* and her crew, stove by a whale on the twentieth of November in the year 1820, thousands of miles from home.

## ABSTRACT

### MILITARY-THEMED VIDEO GAMES AND THE CULTIVATION OF RELATED BELIEFS AND ATTITUDES IN YOUNG ADULT MALES

SEPTEMBER 2020

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Military themed games have been broadly critiqued as ideological vehicles that support western military institutions and militaristic attitudes. At the heart of these critiques is a concern for the potential influence these games may have on their audience, yet little empirical evidence exists to either support or refute that concern. Using cultivation theory as a general framework, this study investigates whether associations between playing military themed video games and military-related thoughts, beliefs, and attitudes can be found in an online, national survey of 410 young adult men. Consistent with cultivation theory's predictions, significant associations between the use of military themed video games and second-order cultivation effects were found, including militaristic attitudes, Islamophobia, and the perceived likelihood of a terrorist attack. Moreover, military themed games were a stronger predictor of such effects than general measures of gameplay, which predicted a participant's propensity to enlist in the military. However, this study failed to find evidence of first-order effects, nor did it find that trait

transportability or the perceived realism of military games were meaningful moderators of second-order effects, as predicted by cognitive models of cultivation theory. These results highlight the potential problematic relationship between military games and their players, but cast some concerns as to the fitness of cultivation theory as the ideal framework to fully explore this relationship.

Keywords: cultivation theory, video games, militarism

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# CHAPTER 1

## INTRODUCTION

On Friday, November 6, 2015, video game publisher Activision released Call of Duty: Black Ops III, the twelfth entry in their popular military themed first-person shooter series. Within three days, the game had generated over half a billion dollars in worldwide sales, more than double the amount of money brought in by the highest grossing summer movie premier (Pierson, 2015). In that first weekend alone, players logged over 75 million hours online with the game (Pierson, 2015). While recent sales are down from the series' 2011 peak, each entry in the annually released series remains the top selling game of the year (Tassi, 2014), and with over 175 million units shipped, the series is one of the top selling of all time (Makuch, 2015).

The success of Call of Duty is indicative of the persistent popularity of military themed video games. Military themed video game series, including Call of Duty, Battlefield, Medal of Honor, the Tom Clancy franchise, and America's Army, focus on war in historical, contemporary, and futuristic settings. Military themes appear in many different kind of games, though they are particularly present in the first-person shooter genre. One analysis of the last two decades of first-person shooter games found that of the 475 games where the player's background is given, 63% featured a protagonist with a military background- a trend that was particularly pronounced in the years following the 9/11 terrorist attacks (Hitchens, 2011).

This continued prominence of military themes in video games is not surprising. Military themes were popular in games long before the introduction of computers (Deterding, 2010; Halter, 2006; Stahl, 2009), and the creation of the first video game

systems is intimately linked to the military, with many of these first efforts supported directly or indirectly by military funding (Huntemann & Payne, 2010). Through the ensuing decades, the development of video games remained closely tied to advances in military simulations. The 1980s saw the army re-purpose Atari's tank simulation game *Battlezone* into a trainer for Bradley tank drivers (Huntemann & Payne, 2010). In the 1990s, the military integrated a modified version of Id Software's shooter *Doom* into their training regimen, and in the 2000s, the army began producing its own hybrid training simulator/game, *America's Army* (Nichols, 2010). Modern war games continue this trend of integrating military personnel with game development, as soldiers have served as consultants to *Call of Duty* and other military series (Gagnon, 2010).

This long, intertwined history has attracted a number of critics who accuse these games of being “militainment,” serving as functional propaganda for the military-industrial-entertainment complex (Der Derian, 2001; Stahl, 2007). In one of the earliest formal critiques of the intersection of video games and military ideology, Toles (1985) identified the problems that still define this area of inquiry. She noted that even in the early days of coin-operated arcade games, militaristic themes were commonly found, including the primacy of violence as a game mechanic, the celebration of advanced military technology, and the stark morality of a heroic player obediently following orders to destroy an “evil” army. She questioned the structural ties between the military and the video games industry, as the army had already begun to train soldiers in tactics, skills, and decision-making using simulators based on arcade technology. Making note of military recruiters at arcades, and of one such Navy officer's speculation that youthful gameplay will convert to skill with modern military technology, she expressed concern

regarding how the convergence between these two realms will impact players. In this article, Toles is among the first to ask the most salient question: will playing these games in fact breed obedience and an acquiescence to state violence?

Decades later, the modern military game bears little resemblance to its arcade ancestors. Yet concern that games continue to serve as military propaganda is still prominent. Video games today can be sophisticated narrative texts, capable of teaching their players equally sophisticated lessons about social reality (Leonard, 2004). Military themed video games in particular may be capable of teaching problematic lessons on the subjects of race, hegemony, warfare, and colonialism (King & Leonard, 2010; Leonard, 2004), rarely by explicitly articulating their positions, more often building their ideology into the worlds and systems contained within (Cassar, 2013). These games often offer an overly simple view of global political realities, with the United States featured as an uncomplicated, morally justified protagonist against evil, anti-western forces (Allen, 2011; Allen, 2012; Breuer, Festl, & Quandt, 2011; Cassar, 2013; Hitchens, Patrickson, & Young, 2014; Leonard, 2004; Neiborg, 2010). These narratives are further made problematic by the frequency with which this dynamic is enacted via a white male protagonist (Breuer et al., 2011; Smicker, 2010; Zabecki, 2015) facing off against grossly stereotyped non-white opponents, particularly within the setting of the Middle East (Allen, 2012; Cassar, 2013; Gagnon, 2010; Hoglund, 2008; King & Leonard, 2010; Šisler, 2008; Zabecki, 2015). These games glorify war while largely ignoring the ethical, moral, or ideological consequences (Stahl, 2009), and privilege military responses as the inevitable, logical, and justified mode of foreign relations by limiting the player to only violent means of participation (Cassar, 2013; Gagnon, 2010; Mirrless, 2009; Stahl, 2009).

In some cases, games of this kind have been used in recruiting young adults into a career in the military (Leonard, 2004), a tactic employed explicitly in the distribution of the state-produced America's Army (Neiborg, 2010), and more subtly in the production of ostensibly independent commercial products and in the cross-promotional ties between the military and game industry public relations efforts (Amrich, 2010; Mirrlees, 2009; Thier, 2012). This is a particular concern due to the interactive nature of video games and the active role of the player (King & Leonard, 2010). While other war-themed media may present an ideological perspective, gaming in particular allows a more active participation in enacting that ideology. This is especially troubling when games recreate or mimic contemporary wars, as they blur the line between spectator and participant, as it allows their audience to safely play the role of soldier without engaging in the reality of warfare (Stahl, 2009). Moreover, the degree to which these games accurately reproduce selective aesthetic elements of warfare (Gagnon, 2010; Neiborg, 2010; Payne, 2012; Smicker, 2010; Stahl, 2009; Susca, 2012) and then market this selective reproduction as "realism" (Mirrlees, 2009; Neiborg, 2010; Payne, 2012) serves to further distort the reality of war for its target spectators (Gagnon, 2010; Leonard, 2004; Mirrlees, 2009; Stahl, 2009).

In spite of the criticism that these games have attracted, very little empirical work has been done investigating the effect they may have on their audiences. Quantitative studies that have been conducted to date have offered only little in terms of evidence that these games can increase militaristic attitudes or anti-Middle Eastern sentiment (Festl, Scharnow, & Quandt, 2013; Lemmens, 2011; Malliet & Ribbens, 2013). However, it is difficult to interpret the lack of evidence to date, as the extant research has largely been focused on European game players, an audience that may not reflect the predominantly

American themes present in these games. Additionally, some of this research has been conducted with convenience samples recruited from video game fan sites, further complicating any extrapolation from the results (Lemmens, 2011; Malliet & Ribbens, 2013).

Various branches of the US military have sponsored reports testing the training potential of the Army-produced game *America's Army*, finding the game effectively reinforced military tactics and methodologies (Belanich, Sibley, & Orvis, 2004; Carley et al., 2005; Moon, Schneider, & Carley, 2006; Moon et al., 2005; Orvis et al., 2008). The Army makes no definitive claim as to the effectiveness of the game's primary purpose as a recruiting tool (Farrell, Klimack, & Jacquet, 2003; Huntemann, 2010; Zyda, 2005), though anecdotal evidence of the game's popularity among Army recruits (Jean, 2006, February, *National Defense Magazine*) and the continued production of multiple iterations of *America's Army* over the past decade suggests a confidence on the military's part in its recruiting potential.

While not investigating these games from an effects perspective, a number of qualitative studies, including surveys, focus groups interviews, and analyses of online communities, have looked at how audiences use and react to military themed video games, shedding some light on their reception (Huntemann, 2010; Malliet, Thysen, & Poels, 2011; Payne, 2012; Penney, 2010; Susca, 2012). Together, these studies show that players tend to be broadly supportive of the U.S. military, using play as a means of identifying with or paying tribute to the soldier's experience. Players also express an affinity for the perceived realism of these games, and seem to accept these games' portrayal of the Middle East as a site of perpetual warfare. However, these studies also

demonstrate that a range of interpretation does exist, and some players do express awareness of the ideological content of these games and will at times acknowledge the problematic portrayals of non-Western countries and the overly simplified presentation of war.

Given this relatively sparse and inconsistent body of evidence, further empirical research is needed to assess the effect that this game genre has on its audience. Cultivation theory, which examines how media contribute to viewers' ideas and beliefs about their world (Gerbner, 1969), could provide a useful theoretical lens toward this end. Originally developed to explain the role of television in socialization, the theory assumes that across the whole of television programming, one can find consistent patterns of content that reflect a distorted view of social reality. Through years of extensive, relatively non-selective exposure, television viewers learn the lessons of this distorted reality, with the heaviest viewers exhibiting the greatest effect. Hundreds of studies have been conducted using cultivation theory, consistently demonstrating a small but significant effect on the relationship between television consumption and various attitudes and beliefs (Morgan, Shanahan, & Signorielli, 2012; Shanahan & Morgan, 1999).

While the theory was originally developed to measure the impact of television as an entire system, it has been used to assess the impact of viewing specific genres of television (Potter & Chang, 1990). Provided that a particular genre of television exhibits a consistent pattern of messages that is not typical of television as a whole, viewers who disproportionately expose themselves to that genre may exhibit particular effects (Bilandzic & Busselle, 2012). Extending this logic, it is possible that extended exposure

to any narrative system of media could result in cultivation effects. In recent years, this argument has been applied as an explanatory framework for the effects of long-term video game use (Behm-Morawitz & Ta, 2014; Breuer, Kowert, Festl, & Quandt, 2015; Fox & Potocki, 2016; Van Mierlo & Van Den Bulck, 2004; Williams, 2006).

There are reasons to believe that video game play might be particularly conducive to cultivation-style effects. Video games can be highly transportive experiences, allowing players to get lost in the narrative and setting of the games (Brookes, Moyer-Gusé, & Mahood, 2011; Mahood, Hanus, & Cruz, 2012). This narrative transportation (Green & Brock, 2000) can increase the effects of playing video games (Brookes et al., 2011; Mahood et al. 2012), and may increase attitudinal cultivation effects (Bilandzic & Busselle, 2008; Shrum & Lee, 2012). Military themed video games, which are often marketed on claims of realism (Neiborg, 2010; Payne, 2012; Smicker, 2010; Stahl, 2009), may be particularly subject to this effect, as the perceived realism of media impacts its effect on judgements of social reality and could potentially increase narrative transportation (Busselle & Bilandzic, 2012; Busselle & Greenberg, 2000; Cho, Shen, & Wilson, 2014).

Research into video game cultivation is only just beginning, and results to date have been inconclusive. The majority of studies that have utilized a straightforward measure of total time spent playing any video game, regardless of content, as a predictor of effects have found no significant results (Anderson & Dill, 2000; Breuer et al., 2015; Festl, Scharnow, & Quandt, 2013; Van Mierlo & Van Den Bulck, 2004), with a few notable exceptions (Behm-Morawitz & Ta, 2014; Fox & Potocki, 2016). Attempts to investigate more selective game exposure patterns have been more evenly mixed, with a

number finding associations between genre-specific game play and various outcome measures (Beullens, Roe, & Van den Bulck, 2011; Dill, Brown, & Collins, 2008; Eyal et al., 2006; Stermer & Burkley, 2015; Van Mierlo & Van Den Bulck, 2004), and others showing genre preference having no impact on either the presence or absence of correlations (Anderson & Dill, 2000; Behm-Morawitz & Ta, 2014; Breuer et al., 2015; Festl, Scharnow, & Quandt, 2013). A set of studies that focuses on the effects of extended exposure to one particular game offer the most compelling evidence of long-term exposure effects, while effectively pushing the limits of what can be considered under the rubric of cultivation (Chong, Teng, Siew, & Skoric, 2012; Tanes & Cemalcilar, 2010; Williams, 2006). Taken as a whole, the body of literature suggests cultivation may still be a potentially useful lens to investigate the long-term effects of video game play, though one with several theoretical and methodological hurdles to overcome.

The goal of this dissertation is two-fold. The first is to address the dearth of empirical testing of the relationship between military-themed games and their players, and the second will be to contribute to the growing literature that is adopting cultivation research to the context of video games. In Chapter 2 of this dissertation, I trace the history of cultivation theory, focusing on the key theoretical advancements including the development of genre-specific cultivation theories. I conclude this chapter with a thorough look at the nascent attempts to adapt cultivation theory to video games to assess the fitness of the theory to this medium and the success of current applications of the theory in this way. In Chapter 3, I review the broad literature that has examined and critiqued the military games genre, focusing on the key themes and content that have been identified within the material. In Chapter 4, I look at the relatively smaller body of

literature that has attempted to assess the impact that playing these games has had on their audience. In Chapter 5, I conduct a national survey of young males to assess their level of exposure to this style of game, and to determine the degree to which that exposure correlates with their thoughts and attitudes regarding the U.S. military, while testing the role of moderating variables theorized to impact cultivation effects in the context of video game play. Chapter 6 concludes the dissertation with an overview of the results of the study and its implications.

## CHAPTER 2

### THEORETICAL PERSPECTIVE

While video games may be considered “new media,” they are no longer new. The earliest video games were developed over fifty years ago (Halter, 2006). The video game industry is four decades removed from its first major hit, Pong (Malliet & de Meyer, 2005), and for close to fifteen years the industry’s annual gross revenue has exceeded that of Hollywood films (Markoff, 2002). Today, 59% percent of Americans play games, and consumers spend over \$21.5 billion each year on the games industry (ESA, 2014). With video games as an established medium in the lives of so many people, scholars have naturally begun to assess what the long-term effects of repeated exposure to games could be. While the majority of this research has focused on the effects of video games as a source of media violence (Lee, Peng, & Park, 2009), others have begun to investigate the impact of games on perceptions of social reality. Already an established theory of long-term media effects, cultivation theory is beginning to be used as an explanatory framework for the effects of video games (Behm-Morawitz & Ta, 2014; Breuer et al., 2015; Van Mierlo & Van Den Bulck, 2004; Williams, 2006). This is an understandable development, as the theory provides a straightforward and flexible framework for exploring media effects. However, cultivation was developed explicitly to assess the effect of television, and as such, it should not be taken for granted that one can simply transplant this theory to a new medium. This chapter will overview the development and central tenets of cultivation theory, paying particular attention to the cognitive mechanisms that are theorized to drive the effects, and evaluate the prospects of adapting cultivation to the medium of video games.

## Cultivation Theory Overview

Cultivation is a theory of how media contribute to viewers' ideas and beliefs about their world and their environment. George Gerbner first developed cultivation theory in the 1960s to explain the lasting lessons that audiences may be learning from extensive exposure to television (Gerbner, 1969). The theory places television as the central storyteller of the modern age, and a source of a consistent system of messages about society. Less a theory of how media changes or affects individuals in the short term, cultivation was offered as a way of understanding how television, as the primary symbolic provider of meaning in American culture, both shapes and reinforces a specific vision of social reality, and how viewers who are born into this environment cultivate the lessons of television. The theory is operationalized through testing the cultivation hypothesis, that heavy viewers of television will believe that the world is more like the distorted view of reality that is represented on television than light viewers of television will. Those who choose to spend the most time with television, by virtue of years of repeated exposure to that system of messages, will exhibit the greatest effect. By measuring this difference between viewers, we can demonstrate the gravitational pull that television exhibits on our society.

The theory rests on two key assumptions. The first is that across all television programming, one can find a “relatively coherent system of images and messages” (Morgan, Shanahan, & Signorielli, 2008, p. 35). While obvious differences exist between programs, genres, and networks, persistent systematic patterns are observable across television as a whole. These patterns can be determined through formal empirical studies of content, which Gerbner dubbed message system analysis (Gerbner & Gross, 1976).

For example, the earliest instances of message system analysis focused on the pervasive violence across all different genres of television, fiction and non-fiction alike (Morgan, Shanahan, & Signorielli, 2008). In the absence of a formal message system analysis, many cultivation studies will rely on past research, including both quantitative content analyses and qualitative critical examinations, from which they draw their assumptions (Morgan, Shanahan, & Signorielli, 2012). These methods have been extended into countless topics, finding television-wide patterns for racial representation (Mastro & Tukachinsky, 2012), gender roles (Scharrer, 2012), political ideas (Hardy, 2012), among others.

The second key assumption is that viewers consume television in a “relatively nonselective, almost ritualistic way” (Morgan, Shanahan, & Signorielli, 2008, p. 36). The ubiquity of television ownership, and its place in the home as a daily, repeated source of entertainment, means that for much of the population it is the preeminent source of images, stories, and ideas. While the theory does not discount that audiences have the ability to be selective, it does hold that as time spent watching increases, selectivity necessarily becomes more difficult to maintain. For example, viewers who only watch one hour a week may only expose themselves to a particular genre or style of program. However, a viewer in a typical American household, where the television is on for over seven hours each day, would have a difficult time restricting themselves to any one kind of television programming, and would likely expose themselves to a wide range of televised images (Morgan, Shanahan, & Signorielli, 2008). Early on, critics took issue with this perspective, saying it did not pay sufficient attention to the role of audience agency in the reception process (e.g., Newcomb, 1978). However, the theory does not

preclude the possibility that audiences could at times attend to, perceive, or interpret television messages in different ways, but rather suggests that the fact that “audiences' interactions with media texts can produce enormous diversity and complexity does not negate that there can be important commonalities and consistencies across large bodies of media output” (Morgan, Shanahan, & Signorielli, 2009, p. 37).

It is this combination of consistent messages and ritualistic viewing that enables the cultivation effect. A lifetime of relatively unselective exposure to a persistent set of repeated images and stories can distort how audiences perceive reality, and an expansive body of research has consistently supported this assertion. The vast majority of the hundreds of studies conducted using cultivation theory provide evidence of a relationship between television consumption and various attitudes and beliefs (Morgan, Shanahan, & Signorielli, 2012). A meta-analysis of decades of research shows an average effect size of  $r = .09$ , a small but significant effect (Shanahan & Morgan, 1999). While this difference between heavy and light viewers may be small, this is not necessarily surprising, as television's effect on culture is so pervasive that all are affected by it- even non-viewers exist within a culture determined by TV. However, theorists maintain that “even small differences between light and heavy viewers may indicate far-reaching consequences... a small correlation between television exposure and outlooks [can] be indicative of a phenomenon that build[s] toward a very significant impact” (Morgan, Shanahan, & Signorielli, 2015, p. 681).

This is not to say that cultivation effects are uniform or universal. Early critics noted that under certain conditions or among certain demographic groups, an expected cultivation effect would not appear (Doob & Macdonald, 1979; Hughes, 1980).

Proponents of the theory offered two key refinements as an explanation (Gerbner, Gross, Morgan, & Signorielli, 1980). The first, mainstreaming, contends that cultivation operates by pulling the attitudes of otherwise diverse populations into a unified middle position. In these cases, demographic factors act to moderate the cultivation effect. For example, one repeatedly observed phenomenon is that differences between light viewing liberals and conservatives disappear among heavy viewers, regardless of ideological orientation. The result is that television is responsible for “the absorption of diverse conceptions and attitudes into a stable, common mainstream” (Morgan, Shanahan, & Signorielli, 2008, p. 37). The second, resonance, occurs when the metanarrative of television corresponds with a person’s lived experience, resulting in an amplification of the cultivation effect, such as the cases where viewers in high-crime neighborhoods exhibit a greater than normal relationship between television viewing and fear of crime (Gerbner et al., 1980). Thus, it is important to take note of individual differences in audience when attempting to find cultivation effects.

### **Cognitive Mechanism**

One prominent early critique of cultivation theory was its lack of focus on an explanatory mechanism for how viewers learned from television (Hawkins & Pingree, 1980). While such mechanisms were never the purview of the original cultivation research team (Morgan & Shanahan, 2010), this issue has been addressed by Shrum, who has married cultivation theory with a psychological perspective on memory and attitude formation (Shrum & Lee, 2012). According to Shrum, the cognitive processes that underlie cultivation effects are dependent upon the type of effect being measured. Early on, cultivation researchers had identified two classes of effect (Gerbner, Gross, Morgan,

& Signorielli, 1986). *First-order effects* are those that measure the perceptions of the frequency, prevalence, or probability of any given phenomenon, such as the number of Americans employed as police officers, or the likelihood of being robbed. These are based on demonstrable, concrete measures that can be assessed in both the real world and in television portrayals. *Second-order effects* measure viewers' attitudes, beliefs, or values. A notable example of a second-order effect is the Mean World Syndrome, the tendency for heavy viewers to be more likely to exhibit "an exaggerated sense of victimization, apprehension, insecurity, anxiety, and mistrust" (Morgan, Shanahan, & Signorielli, 2012, p. 7). There is no one directly measurable aspect of television that can be ascribed as the source of this, but it is theorized that the consistent characterization of violence and conflict on television is responsible for these attitudes and beliefs.

Different psychological processes produce the two different types of effects (Shrum & Lee, 2012). First order judgements are memory based, and are constructed through recall at the moment they are requested. When a person is asked to make a memory-based judgement, that person will attempt to access the relevant information available in their memory, and create a judgment based on those criteria. First-order judgments are thus created apart from the media viewing that influences them. Second-order judgements are constructed in an online process, and are made at the time information is encountered. When a person is asked to make a second-order judgment, he/she merely needs to recall already-established attitudes or beliefs about that subject. Unlike first-order judgements, second-order judgements are actually created during media use.

As first- and second-order judgements occur through different processes and at different times, they are likewise impacted by different moderating variables (Shrum & Lee, 2012). First-order judgements are based on heuristic processing, where a person uses cognitive shortcuts to form their judgement based on the most easily and quickly accessible information available. Television viewing influences this process by providing a source of readily accessible information. Regardless of their accuracy, the ‘facts’ of the television world become the basis of first-order judgements if those ‘facts’ are the most easily accessible. The effects of television viewing can be reduced or overridden when judgements are made critically instead of heuristically, where more information than just the most accessible is used to form a judgement. This has been demonstrated in several ways, by motivating participants to estimate accurately (Shrum, 2001), asking respondents to consider the source of their judgements (Shrum, Wyer, & O’Guinn, 1998), or allowing time for more critical consideration of estimates (Shrum, 2007).

Second-order judgements do not rely on heuristic processes; rather, it is theorized second-order effects function similar to persuasion, where greater cognitive involvement with the message actually increases the effectiveness (Shrum & Lee, 2012). For example, individual differences in the ability to process information and in individuals’ need for cognition have both been shown to positively moderate second-order cultivation effects in survey research (Shrum, Burroughs, & Rindfleisch, 2005). While many factors could contribute to the level of cognitive involvement in the cultivation process, two are particularly relevant to the medium of video games and to military-themed video games in particular, and will be discussed here- narrative transportation and perceived realism.

## Narrative transportation

Narrative transportation is the mental process by which the consumer of a narrative becomes absorbed into the world of the story (Green & Brock, 2000). When transported into a narrative, a person allows his/her attention, emotions, and thoughts to become focused on the characters, settings, and events in the narrative, to an extent that can result in a feeling of removal from the real world in favor of the narrative world. Transportation is theorized to contribute to persuasion through narrative texts by reducing negative cognitive responses (such as counterarguing), by enhancing the emotional valence and saliency of the narrative, and by allowing imagined, narrative experiences to emulate the learning function of direct experience (Green & Brock, 2000). This has been demonstrated in an experimental setting where only film viewers who exhibited narrative transportation demonstrated shifts in attitudes toward materialism (Shrum, Lee, Burroughs, & Rindfleisch, 2011). Bilandzic and Busselle (2008) proposed transportation as a cognitive mechanism behind cultivation processes, arguing that its description of “the *intense* and *uncritical* processing of a narrative” [emphasis in original] is congruent with cultivation’s conception of the storytelling nature of television and the regular viewing of its audience (p. 511). The high level of attention and the low levels of counterarguing brought on by transportation are thought to be particularly conducive in the formation of second-order, attitudinal cultivation effects (Shrum & Lee, 2012). The short-term nature of transportation may at first glance appear to be theoretically incompatible with the long-term effects described by cultivation theory. While transportation is a temporary state brought on during exposure to a narrative, a person’s average capacity for transportation can be measured as a trait, *transportability*, which can

be used in tandem with measures of average media exposure in cultivation studies (Bilandzic & Busselle, 2008; Dal Cin et al., 2004).

Transportation was originally theorized to explain the phenomenon of readers losing themselves in the worlds of text-based narratives, though the effect is theorized to be possible with any form of narrative media. Players have been observed experiencing transportation in response to video game narratives (Brookes et al.2011; Mahood et al., 2012). More often, video game researchers have investigated the related concepts of presence and identification. Presence, “a psychological state in which virtual objects are experienced as actual objects in either sensory or nonsensory ways” (p. 27), has been documented extensively in gaming contexts (see Lee, 2004, for a review). Identification, the degree to which a player loses their own sense of identity in favor of their in-game avatar, can increase media effects, such as the effect of violent video game play on aggression (e.g., Williams, 2011). These concepts all work together to increase the potential effect of media, as transportation can mediate the increases in presence, enjoyment, and identification that was due to the addition of a narrative to gameplay (Brookes et al., 2011), and high levels of transportation can moderate the strength of emotional reactions to in-game content (Mahood et al.2012).

### **Perceived Realism**

The perceived realism of media moderates audience effects in a number of contexts, particularly for aggression-related outcomes and, relevant to the study at hand, for judgements of social reality (see Busselle & Greenberg, 2000 for a review). In recent years, it has been identified as a key component of narrative persuasion (Busselle & Bilandzic, 2012; Cho et al., 2014). This is consistent with cultivation theory, which is

premised on the idea that viewers accept the image of television reality as reflective of actual reality (Gerbner & Gross, 1976).

One difficulty in assessing the impact of perceived realism is that it has remained poorly defined in the literature, with researchers employing a variety of perspectives and dimensional schema (Busselle & Greenberg, 2000; Hall, 2003; Pouliot & Cowen, 2007). Busselle and Bilandzic (2012) sidestep this conceptual haziness by proposing that audiences operate from a position of presumed reality, and that it is the presence of any incongruent cues signaling *unrealism* that trigger any sort of judgement of reality. As audience expectations of realism shift depending upon the media they are using, the context of the reality judgement could vary greatly, reflecting the broad conceptualizations of perceived reality in the literature. This perspective also has the advantage of being congruent with theories of narrative persuasion. Busselle and Bilandzic (2012) postulate that the need to make reality judgements could be disruptive to transportability and enjoyment, on which narrative persuasion is dependent (Green & Brock, 2000). Thus, media that is perceived to be realistic could serve to increase narrative persuasion by virtue of its lack of disruptive cues.

For years, researchers have been concerned that the increasing realism of video games provided by improved graphical fidelity could lead to increased effects (Ivory & Kalyanaraman, 2007; Krcmar, Farrar, & McGloin, 2011). Military themed video games in particular often strive for and are marketed for their supposed high levels of realism (Neiborg, 2010; Payne, 2012; Smicker, 2010; Stahl, 2009). Thus, games of this genre may be perceived as realistic, providing fewer opportunities for reality judgements and increasing the potential for narrative transportation.

## **Genre-Specific Cultivation**

Cultivation theory, as originally proposed, stressed the exposure to television overall as a single, coherent source of messages (Gerbner & Gross, 1976). Some have challenged this central proposition, and have extended cultivation research to assess the impact of viewing specific genres of television (Potter & Chang, 1990). Bilandzic and Busselle argue that by defining cultivation not as solely a result of overall television viewing, but the result of “the *combination of both effects and voluntary, habitual exposure*” [emphasis in original], one can apply the concepts of cultivation to genre-specific effects (2012, p. 280). If a particular genre of television exhibits a consistent, distinct pattern of messages that is not typical of television as a whole, and viewers employ some amount of the selectivity afforded to them by the diversifying media landscape (as per Potter & Chang, 1990), then habitual exposure to certain genres could be used to measure genre-specific cultivation. Indeed, a number of studies have pursued this logic, finding a range of effects- for example, television news viewing has been associated with both first-order effects, such as the perceived incidence of juvenile crime (Goidel, Freeman, & Procopio, 2006), and second-order effects, such as racial stereotypes (Dixon, 2008).

## **Cultivation Theory and Video Games**

Morgan, Shanahan, and Signorielli (2015) haven taken note of recent efforts to extend the cultivation paradigm to account for long term exposure to video game play, arguing that “the extent that media such as video games are now narrative devices, even given their ‘open’ narratives, cultivation is a reasonable possibility to bring to bear” (p. 686). To a degree, this can be viewed as an extension of the logic of genre-specific

cultivation, and that effects could derive from voluntary, habitual exposure to video games. However, important differences exist between the media of television and video games. A theory developed to account for one medium should not be applied to another wholesale without first considering how differences between the media should be accounted for both theoretically and methodologically. In order to assess the viability of such a practice, I will look at video games in terms of cultivation's two central premises; that media content must contain a consistent system of messages, and that consumption of those messages is routine and relatively non-selective.

Cultivation theory rests on the assumption that television produces a uniform system of messages. Much in the way that "the quality of genre-specific cultivation research depends on our ability to conceptualize and articulate the content of a genre" (Bilandzic and Busselle, 2012, p. 262), for cultivation theory to apply to video games, games must likewise possess systematic messages throughout the medium. The earliest attempts to detect a cultivation effect in television audiences were performed in tandem with the Cultural Indicators project (Gerbner, 1969), a rigorous program of content analysis that sampled the original broadcast networks, later expanding to include new broadcast and cable networks as they arrived (Morgan, Shanahan, & Signorielli, 2015). No such corresponding project exists to document video games, and message system analysis of video games may prove a more difficult methodological hurdle. At one extreme, some argue such a systematic coding of video games is inherently impossible. For ludic scholars who argue that meaning in games is derived through interactions with the systems (e.g., Bogost, 2007; Johnson, 2012), the images that would be available for

systematic content analysis would not sufficiently capture the meaning or lessons of the medium.

Even for those who do not believe that the ludic aspects of video games subsume the narrative aspects, the interactive nature of video games proves problematic for traditional content analysis (Schmierbach, 2009). Unlike television, there is no definitive text to sample, as the content of games is authored at least in some part by the player's choice. For example, in analyses of television violence, the PAT (Perpetrator-Act-Target) system is frequently used to account for each individual, discrete aggressive act present in a visual text (Wilson et al., 1997). While this measure allows for standardized comparisons across television or film, it cannot allow for a meaningful comparison between games, as players can vary wildly in the number of aggressive acts they chose to engage in during a given play session (Lachlan & Maloney, 2008).

Interactivity does not determine the totality of game content, so while measures as definitive as those yielded by traditional content analysis may not be possible, there are still ways to make informed empirical surveys of video game content. One strategy has been to focus on elements of the game that fall outside of the control of the player, such as character design, which is often programmed into the game itself and less subject to variation between players. Studies that have focused on counting game characters have been able to show white characters to be overrepresented at the expense of other ethnicities (Dill et al, 2005; Williams, Martins, Consalvo, & Ivory, 2009), and show women to be underrepresented and overly sexualized (Dietz, 1998; Dill et al., 2005; Heintz-Knowles & Henderson, 2001; Williams, Martins, Consalvo, & Ivory, 2009). Others have used static imagery derived from games, including advertisements (Scharrer,

2004), game covers (Burgess et al., 2007; Burgess et al., 2011; Near, 2013), and magazine stories (Miller & Summers, 2007; Burgess et al., 2011), as a stand in for game content, finding similar results. Some studies, particularly those focusing on the presence and context of violence, will record short samples of game play and analyze the video in the manner of traditional content analysis. These studies tend to frame their results in terms of the presence or absence of violence (or another particular contextual feature) rather than attempt to offer claims on the definitive frequency of such features (e.g., Hartmann, Krakowiak, & Tsay-Vogel, 2014; Smith, Lachlan, & Tamborini, 2003). Finally, many critics of games rely on a more qualitative, critical approach, either through a vast collection of anecdotes (e.g., Sarkeesian, 2013), or through a critical examination of particular exemplars (e.g., Latorre, 2015). So, while traditional content analysis as employed in the Cultural Indicators research may not be a feasible option, it is still possible to identify significant recurring features across gaming.

Here, genre again becomes a useful tool for identifying systematic patterns of messages. Genre provides a useful heuristic, allowing us to group a collection of broadly similar texts united by their shared features. In traditionally non-interactive media, such as in film, genre can be defined through the articulation of three aspects; iconography, structure, and theme (Buscombe, 1970). The active and participatory nature of video games adds interactivity as a fourth aspect to be considered (Wolf, 2001). Colloquially, video game genre has often been defined primarily by game mechanics (e.g., first-person shooter, racing, real-time strategy). However, the primacy of interactivity in video game genre definitions does not exclude the value theme, iconography, or structure, as the increasing narrative complexity and sophistication in modern games yields more

opportunities to integrate these aspects into genre analysis (Wolf, 2001). When a collection of games repeatedly and consistently employs a collection of generic hallmarks, including stereotypical characters, locations, plots, morals, or stylistic conventions (Bilandzic & Busselle, 2012), audiences and critics both will recognize such a collection as an independent genre, as in the case of military-themed video games (Huntemann, 2010; Huntemann & Payne, 2010; Penney, 2010;; Stahl, 2009). While this is by no means a scientific classification, as the boundaries of genre are always fluid and hazily defined (Wolf, 2001), it becomes justifiable to assume that players in that genre are exposed to some degree of a unified message system.

The second principal assumption of cultivation theory is that audiences regularly and ritualistically expose themselves to television content. It is worth noting that cultivation theorists do not propose any particular threshold of hours spent with television for effects to emerge, and in fact have long held that absolute measures of exposure matter far less than relative measures when attempting to find cultivation effects (Gerbner et al., 2002). However, this is still predicated on the idea that cultivation effects are the cumulative result of decades of extensive, nearly ubiquitous television viewing. In comparison, games are seemingly less ritualistically and more selectively consumed than television. In terms of regular exposure, overall hours spent playing games pales in comparison to time spent with television. Nielsen survey data shows that among the U.S. population, adults spend on average four hours and 40 minutes with television each day, and only 12 minutes per day with console games. When examining only the users of each medium, they found that while television watchers spend close to five hours a day with television, game players averaged only 50 minutes per day playing video games on

consoles. Teenagers, on average, spent a slightly higher percentage of their time with video game consoles than adults, with 36 minutes of daily console game play compared to only 2 hours and 21 minutes with television (Nielsen, 2015). Common Sense Media offer data echoing these findings. Using a more expansive definition of video games, including console and mobile, they found teens played games on average for one hour and 21 minutes each day, more than an hour less than their television watching average of two hours and 38 minutes (Common Sense Media, 2015). While television has nearly universal market penetration, the ESA reports that only 59% of Americans play games (ESA, 2014), and Pew reports that 33% of Americans play games on a given day (Pew, 2012).

While average overall game use may be lower than television viewing, its share of the average person's media diet is increasing. Nielsen data shows that between 2013 and 2015, average time spent with game consoles has increased 3 minutes per day, while time spent with television has declined slightly by 15 minutes per day. This trend is more pronounced with teens and young adults, who play games at much greater levels than the overall population. For teenagers age 12 to 17, daily game console time increased 4 minutes, while television viewing (live and timeshifted) declined by 36 minutes. For adults ages 18-24, gaming increased 5 minutes, while TV viewing declined 56 minutes (Nielsen, 2015). Game use may displace other media, as a survey of game players found that nearly half reported watching less television and fewer movies in favor of increased time playing games (ESA, 2014). Additionally, there is evidence that among a certain part of the population, game use can become extremely time intensive. Game players may spend dozens if not hundreds of hours with a single title, with studies of Massive

Multiplayer Online games showing the majority of players exceed a weekly average of 20 hours (Griffiths, Davies, & Chappell, 2003), with heavy players reporting playing in excess of 60 to 80 per week (Williams, 2006).

Regarding the cognitive mechanisms that drive the cultivation effect, the time that players spend with games, particularly heavy gamers, can be argued to fall within the realm of “voluntary, habitual exposure” as outlined by Bilandzic and Busselle (2012), and could still be a source of both memory-based and online judgments (Shrum & Lee, 2012). However, the available data on game play suggest relatively more selective patterns of exposure that may not be congruent with the original formulation of cultivation theory. Even in today’s diverse television environment, the assumption that a heavy television viewer will necessarily be exposed to many different types of programming remains sound (Morgan et al, 2015). However, the shorter amount of time spent with games affords more possibility for selective exposure. Additionally, economic factors could encourage selective exposure in gaming, as games are a relatively expensive medium compared to television. Broadcast television remains free, and the average cable subscriber receives 189.1 channels at a cost of \$99.10 per month, making sampling a broad range of content relatively economical (Leichtman Research Group, 2015; Nielson, 2014). This compares to video games, where a single new release may cost \$60. Accordingly, tie-ratios (the ratio of individual games sold per game console sold) for various modern video game consoles are estimated to fall between only 5 and 13 games per system (Vgchartz, 2015), indicating the typical player may be restricted to only a handful of video games. In total, it is more difficult to argue that video game players are consuming their medium as non-selectively as television viewers.

This selectivity may provide a methodological advantage. One problem in modern cultivation theory that has been identified by Morgan, Shanahan and Signorielli (2015) is that today's fractured media environment makes measuring exposure to traditional television-like entertainment difficult- the use of smartphones, internet streaming services, and media multitasking all make estimates of 'time spent watching TV' both methodologically and theoretically complex. The interactive nature of games, however, provides a natural boundary between playing and not, and could make estimating exposure times accurately easier for survey participants. Of course, the existence of mobile gaming, social play, or the rise of game-viewing through services like Twitch may complicate this. But at the current time, estimates of video game exposure could provide equal or greater accuracy than estimates of television viewing.

### **Cultivation Games Studies**

When considering if cultivation theory can be applied to video games, the medium has the potential to provide systematically observable patterns of messages. Their interactive nature may complicate the process of message system analysis, but methods have been developed that can provide empirically based assessments of the content of games. However, the relatively less regular and non-selective consumption patterns mean that, for some gamers, instead of exposure to a wide system of messages, they may be more beholden to a narrowly rendered image of reality, potentially as limited as a single game, as suggested by data on MMO players (e.g., Williams, 2006). Accordingly, video game play may be far more sensitive to the effects of genre-specific, or even game-specific, cultivation.

While relatively few studies to date have been conducted that have attempted to apply cultivation theory to video games, a pattern in those studies has emerged where researchers have attempted one of three methods of approach: traditional medium-wide cultivation methodology, cultivation methodology adapted to genre-specific exposure, or experimental designs that measure the effect of playing a single game. It is worth looking at each approach individually to see how past researchers have attempted to deal with the necessary theoretical and methodological adaptations.

### **Traditional approach.**

One of the most straightforward approaches to looking at cultivation and games simply replicates established cultivation measures, using estimates of average daily game play in place of television viewing. In the earliest of these, as part of a larger study investigating the relationship between video game play and aggression, Anderson and Dill (2000) included two outcome variables commonly used in television cultivation studies- perceived prevalence of crime and feelings of personal safety. The authors measured self-reported overall game play in a correlational study of 227 undergraduate participants, finding game play had no impact on perceived prevalence of crime, and that an observed relationship between overall game play and increased feelings of personal safety disappeared when gender was introduced as a control. In another early study, Van Mierlo and Van den Bulck (2004) compared the cultivation effects of television to those of video game play on a number of first- and second- order beliefs. In the survey of 322 Flemish adolescents, participants provided self-reports for television watching and video game play. The study also measured a number of dependent variables taken from previous cultivation research, including perception of violence, fear of crime, and law

and order beliefs. Consistent with past cultivation research, the authors found several associations for television viewing, but none for overall gameplay.

The lack of significant findings in these early studies is perhaps unsurprising, as they are illustrative of the challenge in adopting traditional cultivation methods to a new medium. In attempting to directly transpose the model for television-based cultivation onto video games, the authors neglect to perform the message system analysis phase of cultivation research. Instead of deriving original measures from a close reading of video game content, these authors selected dependent variables from research on television. Those television measures were derived from decades of rigorous analysis of television content, which has demonstrated contextual patterns that would be expected to affect fear, anomie, and perceived safety (Wilson et al., 1997). As Van Mierlo and Van den Bulck (2004) acknowledge, these measures simply may not properly correspond to the messages put forward in video games. Absent a convincing argument that the same contextual factors are dominant across the whole of video games, it is difficult to interpret the absence of significant findings in these studies.

To account for this issue, overall game play should be used in cultivation research only when a sufficiently identifiable medium-wide pattern of images can be determined, and the dependent measures are constructed to correspond to such a pattern. Later cultivation studies have adhered more consistently to this method. Behm-Morawitz and Ta (2014) surveyed 329 white undergraduates, examining relationships between overall game play and egalitarian attitudes towards Blacks and Asians. As a dependent variable, they measured the difference between participants' attitudes toward Whites and non-White ethnic groups on factors selected to correspond with social stereotypes, including

intelligence, criminality, and work ethic. The authors derived their cultivation measures from a thorough review of the content analysis literature, which provided evidence of both a consistent underrepresentation of non-White ethnic groups across video games as a whole, as well as consistent misrepresentation of these groups in ways that corresponded directly with the proposed measures. Analysis indicated a small but significant effect, where overall video game play was correlated with less favorable opinions about Blacks, though not about Asians. This effect held when controlling for gender, and was also not impacted by participant preference for any particular genre of game.

Festl, Scharnow, and Quandt, (2013) investigated militaristic attitudes as a portion of a large-scale survey of German media-users ages 14 and up, consisting of 4,026 participants who identified as playing games, and 682 non-gaming participants. The survey measured self-reported game play and militaristic attitudes, defined in this context as a six-item index measuring soldier admiration, the necessity of the army, and the military's ability to deter terrorism. Using structural equation modeling, the study found no relationship between militaristic attitudes and gaming, either when comparing players to non-players, or when comparing the frequency of self-reported daily play among the gaming sub-sample. This analysis was repeated with the youngest portion of their sample, ages 14 to 17, without finding any associations. As part of this same project, Breuer et al, (2015) conducted the only longitudinal cultivation-based video game study to date using 824 participants who returned to complete repeat measures two years later. The repeated measures included an abbreviated three-question instrument gauging sexist attitudes. Their cross-lagged structural equation modeling indicated that, for both men and women, both gaming frequency and sexist attitudes remained relatively stable over the two-year

period. Sexist attitudes were not associated with video game use at the outset of the study, and no evidence was found that game play frequency influenced sexism over time, nor did sexism at time 1 indicate a selection influence or greater game play at time 2. It should be noted that this study may be hampered by a misfit between content and measures. Consistent with cultivation theory, the authors rely on a body of literature establishing that women are underrepresented or oversexualized across video games. Yet, the authors utilize an oblique measure of sexist attitudes- three items that focused on male leadership in the home, male leadership in group settings, and a women's responsibility for housework. While these measures may be congruent with a general sense of sexism, the degree to which these measures speak specifically to game content is not satisfactorily established, and the authors note that other, more targeted gender-related measures may yield different results.

Most recently, Fox and Potocki (2016) investigated the relationship between long-term video game use and first- and second-order beliefs about rape. The authors used Mechanical Turk to recruit an online sample of 351 adults ages 18 to 66. Participants completed a lifetime video game consumption scale, comprised of self-reported estimates of childhood, adolescent, and current video game use. The study also included measures for attitudes toward interpersonal aggression and hostile sexism. Citing analysis of video games that demonstrates a consistent pattern of objectification and sexualization of women, the authors used estimates of the frequency of false rape accusations as first order measure, and used the acceptance of rape myths as a second-order measure. Using structural equation modeling, the authors found that video game use was indirectly related to both higher perceptions of false rape accusations and rape myth acceptance

through increases in hostile sexism and acceptance of interpersonal aggression, though demographic controls do not appear to have been used in this analysis.

### **Genre specific cultivation studies.**

While the studies discussed so far have emulated traditional cultivation research by looking at gaming in very broad terms, some studies followed the lead of genre-specific cultivation research, looking at more narrow patterns of game use. Reflecting the concern regarding violence in games in particular, some studies included an additional measure of violent video game play, or investigated violent video game play in place of overall exposure. Essentially, this method treats violent video games as a subset of gaming, akin to a genre. Anderson and Dill (2000) used a measure of exposure to violent video game play based on self-reports of perceived violence in participants' favorite games. Their results for violent video game play mirrored their results for game play overall, with no relationship appearing for perceived prevalence of crime, and a relationship between violent video game play and increased feelings of personal safety that disappeared under controls for gender. Van Mierlo and Van den Bulck (2004) also measured the frequency of playing various violent or non-violent genres of games in their cultivation study of crime, policing, and violence beliefs. Using reported preference for genres of games assumed by the researchers to be violent, they created a measure for exposure to violent games, an analysis of which found correlations with only two first-order beliefs- estimates for violent crime and for the number of police in the workforce.

Eyal and colleagues (2006) performed a survey of 446 undergraduates to measure correlations between violent television and video games exposure and aggressive political opinions. These were measured as a constellation of 16 opinions that range from support

of the death penalty, to opposition to gun control, to support for military use of force. The authors employed a detailed measure of exposure to violent media, asking for self-reported frequency of use of the 23 top violent television programs and the 42 top violent video games. Controlling for a host of demographic and personal variables, the authors found violent television consumption to be an excellent predictor for these opinions, while violent video game play only predicted one of the sixteen attitudes, support of police use of force.

As part of an experiment using sexualized video game images as a prime for rape myth and sexual harassment acceptance beliefs, Dill, Brown, and Collins (2008) also measured long-term exposure to violent video games. The authors did not frame this as a cultivation study, but their attempt to correlate long-term exposure with attitudinal measures is consistent with cultivation methodology. In their sample, long-term exposure to violent video game play was associated with increased acceptance of rape myths and of sexual harassment in simple correlations. The authors note that the observed relationship did not hold up in more complex statistical models, which they do not present in detail. It is possible that, as with Anderson and Dill (2000), the introduction of gender as a control caused the association to disappear, as the authors note that males in their sample both report greater exposure to violent video games and have greater support of both rape myths and sexual harassment.

Above, I critique the earliest video game cultivation studies for paying insufficient attention to the content of video games. These studies, which primarily depend upon the prevalence of violence in games as the rationale for their genre breakdown, make this problem more acute. This decision disregards a key aspect of

cultivation theory, as the presence of violence in and of itself may not sufficiently construct a systematic distorted image of social reality. More so than just prevalence, it is the contextual patterns of violence that form the social lessons regarding power, fear, and violence (Morgan, 1983). In attempting to isolate ‘violent gaming’ as a category of gaming, this approach pays nominal attention to the content of games, as it supposes a meaningful distinction between games that contain violence and those that do not. However, measuring a genre or subset of exposure is only justified if the texts can produce grand, ideological lessons through some coherent combination of characters, setting, iconography, plot, style, or other defining features (Bilandzic & Busselle, 2012). A subset based only on the presence of violence does not sufficiently rise to this level. This is particularly evident in Dill, Brown, and Collins (2008) in their study of rape myth acceptance. The authors rely on a literature that illustrates the distorted and sexualized images of women across video games as a whole, yet elect to measure violent video game exposure specifically, not overall exposure. While the authors assert the presence of a rising trend of glorified violence against women in violent video games, they rely only on anecdotal reports from a single game series, Grand Theft Auto. They do not offer sufficient reasoning for why violent gaming as a subset would produce ideological lessons regarding female sexualization different than those found in gaming as a whole.

A similar model is offered by Stermer and Burkley (2015), who used survey data to link sexist video game play with second-order sexist beliefs using a cultivation theory framework. Citing a wealth of content studies that have shown video games to reinforce the “damsel in distress” trope, they hypothesized game play would correlate specifically with “benevolent sexism”- a grouping of beliefs that include viewing women as weaker,

purser, and in need of protection. By contrast, they hypothesized that no such relationship should exist between viewing and hostile sexism, or feelings of antipathy toward women, as they did not believe that the literature on gaming content indicated a medium-wide systematic representation of that specific sexist construction. A survey of 175 undergraduates measured self-reported use of video games, combined with self-reported perceptions of the amount of sexist content in their favorite games, to measure exposure to sexist video game content. As hypothesized, the authors found a significant relationship between exposure to such content and benevolent sexism for the men in the study, but no relationship to hostile sexism. The analysis remains slightly problematic from a cultivation perspective, as overall game exposure was foregone in favor of a measure combining overall exposure with perceived degree of sexism in games played. As with Dill, Brown, and Collins (2008), their literature review points to a system-wide distribution of sexist messages. While the decision to narrow in on sexist content exposure is congruent with their outcome measures, it may have been an unnecessary addition, particularly as ‘sexist video games’ are not a coherent genre or grouping in their own right.

A handful of other genres has been investigated in light of cultivation. As part of a longitudinal study of driving behaviors, Beullens, Roe, and Van den Bulck (2011) looked at the associations between use of driving games and attitudes toward risky driving behaviors. A sample of 1,104 randomly sampled Belgian adolescents were surveyed to measure self-reported frequency of playing driving games, and their level of positive feelings about speeding, joyriding, and drunk driving. The researchers hypothesized that game play would be associated with positive attitudes toward speeding and joyriding,

both prevalent in driving video games, but that given the lack of alcohol use in these games, no association would be present for attitudes toward drunk driving. Structural equation modeling of the data confirmed both hypotheses. While a second phase of the study also found that these attitudes predicted risky driving behaviors at a time two years later, the design did not take advantage of the opportunity to use repeated measures, making it impossible to conclusively offer claims of causality.

Three studies that investigated overall gameplay found no difference in their results when introducing genre-specific preference. In one, Behm-Morawitz and Ta (2014) found that the correlation between overall video game play and less favorable opinions about Blacks was not impacted by participants' self-reported favorite genre, selected from a list of ten categories. In the remaining two, the lack of observed relationships did not change with genre preference. Festl, Scharnow, and Quandt's (2013) study of militaristic attitudes extended into genre-specific cultivation, finding no association between militaristic attitudes and preference for first-person shooter games, a genre identified by the researchers as heavily influenced by militaristic themes. The longitudinal analysis of sexist attitudes conducted by Breuer et al. (2015) was repeated using preference for genres they argue are prone to gender misrepresentation, including shooters, RPGs, and adventure games, finding no associations.

These studies also highlight the theoretical and methodological issue of how to define genre exposure precisely. The difficulty of this issue is evidenced by the complete lack of agreement in categorizing game genres, as none of the six studies that offer a list of genre categories present the same suite of options. This may stem in part from the need to consider the role of interactivity in addition to the more traditional aspects of

iconography, structure, and theme when adapting the concept of genre to video games (Buscombe, 1970; Wolf, 2001). The complex ways in which these factors can interact within a text and across gaming as a whole has left genre definitions imprecise and fluid (Wolf, 2001). The categorization schema used by the extant studies is generally more dependent upon interactive and mechanics based divisions in games (e.g., first-person shooter, strategy, role-playing) than content based divisions. As genre-specific cultivation is dependent upon patterns of meaning that accumulate within a genre (Bilandzic & Busselle, 2012), genres based on mechanics are only useful to the degree that content patterns coincide with these genre definitions. The disparity as to what each mechanics-based genre signifies to different research teams hints that the connections between mechanics and content are not strong enough. For instance, Van Mierlo and Van Den Bulck (2004) and Dill, Brown, and Collins (2008) both use genre preference as a stand-in for exposure to violent content. However, the former chose to consider “adventure” as one of their violent genres, which the latter counted as a non-violent genre. In another example, Dill, Brown, and Collins (2008) exclude role-playing games from their list of violent genres that could impact gender-based attitudes, a genre considered by Williams (2006) to be violent and by Breuer et al. (2015) to be particularly problematic in gender representation. This issue can be addressed simply by providing evidence that the genre being investigated, whether mechanic- or content-based, exhibits the contextual patterns ascribed to them, as Festl, Scharkow, and Quandt (2013) link first-person shooters to militarization or Beullens, Roe, and Van den Bulck (2011) connect racing games to demonstrations of poor driving habits.

### **Experimental cultivation research.**

In a separate line of study, several researchers have adapted the principles of cultivation theory to an experimental setting. In the earliest of these, Anderson and Dill (2000) used perceived prevalence of crime and feelings of personal safety in an experiment that compared players of a violent game to players of a non-violent game. No significant difference was found on these measures between the two groups. However, while this study did use dependent variables typical of cultivation research, the methodology of this study relied on a single exposure to the games, and is arguably not representative of actual cultivation processes.

Williams (2006) attempted to assess the effect of a longer exposure, conducting longitudinal research measuring a change in attitudes among players of a single game, the massive multiplayer online RPG, Asheron's Call 2. Williams recruited 213 non-MMO players, 75 of which were randomly assigned to play Asheron's Call 2, the rest assigned to a control group that did not play the game. During the one-month exposure period, participants reported playing an average of 14 hours per week. In pre- and post-test measures, the authors asked participants to estimate the likelihood of a number of physically violent crimes happening to the average person. The measures included robbery- a crime possible in the game- and rape, assault, and murder- crimes not possible in this particular game. The test revealed that members of the treatment group gave significantly and substantially higher estimates of the likelihood of a robbery, but not the remaining measures. Within-group analysis indicated that reported hours played correlated with this measure, providing evidence of a first-order cultivation style effect for gameplay.

In an attempt to find second-order effects, Tanes and Cemalcilar (2010) conducted an experiment to measure if players of SimCity showed changes in attitudes congruent with the game's content. Specifically, they looked for influence on whether players would favor the game's American style of zoned city development over the participants' native Turkish city style, whether players would express more concern regarding civic issues facing their own city, and whether the games focus on civil problems would increase feelings of insecurity and anomie. The study successfully recruited 90 Turkish adolescents for the experimental condition and 158 for the control. Those in the experimental condition were given copies of the game SimCity and instructions to play the game in their leisure time over a period of six weeks, during which participants averaged 15.4 hours played per week. Post-test measures taken at the end of the six weeks indicated the control group expressed a preference for American style zoning, greater concern for city issues, and greater feelings of anomie, but no difference in feelings of security. The authors attribute the lack in change of feelings of security to a ceiling effect, as participants began the study expressing relatively high scores on their measures of security.

In a similar study, Chong, Teng, Siew, and Skoric (2012) conducted an experiment to test for both first- and second-order cultivation effects from a video game. Using a sample of 135 Singapore undergraduates who were screened for low media violence viewing habits, the study compared an experimental group that played the violent crime-themed game Grand Theft Auto IV in six 2-hour sessions in a three-week period to a control group that was not assigned to play any game. Following the exposure period, both groups completed post-test only measures of first-order effects, including estimates

of the frequency of certain crimes and of certain causes of death, and second-order effects, such as belief in law and order, and the fear of crime. The authors found evidence for a first-order cultivation effect in two of their seven measures, as game players were significantly more likely to give higher estimates of the percentage of deaths caused by traffic accidents, and by drug overdoses, though other expected measures, such as the perceived proportion of serious crime or the perceived chance of being a victim of crime, saw no such effect. Of their five second-order effects, there was only one significant cultivation effect observed, operating in the opposite direction as expected, as game players were less inclined to believe that car theft was easy or likely to occur.

### **Overall trends.**

It remains far too early in the process of investigating cultivation and video games to begin making definitive conclusions about the viability of adapting the theory to this context. Hundreds of studies have been conducted using cultivation theory to judge the effects of television and to find the small but significantly measurable effect (Shanahan & Morgan, 1999). By this author's count, only twelve studies to date can be considered as falling within the sphere of cultivation and video games, and not all of these even explicitly use the theory. Still, taking account of the work to date can illustrate some trends and point the way forward for future research.

One significant challenge is interpreting why studies using overall video game play as a predictor variable have found few (Eyal et al., 2006; Van Mierlo & Van den Bulck, 2004) or no (Anderson & Dill, 2000; Breuer et al., 2015; Festl, Scharkow, & Quandt, 2013) significant correlations. This may be a failure to properly identify and articulate the metanarratives present in games, as studies that employ cultivation

measures from more firmly established contextual patterns found more results (Behm-Morawitz & Ta, 2014; Fox & Potocki, 2016). Alternately, it could be that selectivity in game play simply renders a broad measurement of overall game use invalid, as gamers who spend similar amounts of time playing games may still expose themselves to widely divergent messages (Breuer et al., 2015; Van Mierlo & Van den Bulck, 2004).

To date, first-order effects seem to be more easily identified than second-order effects. In several cases, only first-order effects were found (Chong et al., 2012; Van Mierlo & Van den Bulck, 2004; Williams, 2006), and a number of studies failed to find proposed second-order effects (Anderson & Dill, 2000; Breuer et al., 2015; Chong et al., 2012; Eyal et al., 2006; Festl et al., 2013; Tanes & Cemalcilar, 2010). Breuer et al. (2015) argue from their results that game play may simply not be capable of producing second-order effects, as the effects of other social factors, such as personal experience or peer influence, would overwhelm the contribution game play makes toward attitude formation. This argument is undercut by the presence of second-order effects in other studies (Behm-Morawitz & Ta, 2014; Dill et al., 2008; Fox & Potocki, 2016; Stermer & Burkley, 2015; Tanes & Cemalcilar, 2010), which indicates they may be possible, if potentially difficult to identify. This would be consistent with the findings of early cultivation research in television, where first-order effects initially appeared to be more robust than second-order effects (Hawkins & Pingree, 1990) until later research verified the presence of second-order effects (Shrum & Lee, 2012).

As with much cultivation research, a number of these studies utilize a cross-sectional design, which precludes any claims about causality. Longitudinal and experimental designs do allow for such claims, and the degree to which cultivation

effects can be found in these conditions can render arguments for spurious correlations unlikely. The studies of that design conducted to date do not allow for much extrapolation. The only longitudinal study (Breuer et al., 2015), yielded no evidence of an effect, and the experimental studies offered mixed results (Chong et al., 2012; Tanes & Cemalcilar, 2010; Williams, 2006). In those studies, the decision to focus on a single game played over such a relatively short time period arguably pushes the boundaries of what could be considered cultivation. While the exposure times in these studies were not insignificant, they operate on an entirely different order of magnitude than cultivation, which is concerned more with lifetime patterns of exposure.

Finally, greater attention must be paid to intervening variables. Traditional cultivation theory accounts for the role of moderating variables in the concepts of mainstreaming and resonance, and a number of variables have been demonstrated to moderate the cognitive processes that drive first- and second-order effects. While most studies control for a number of variables that could influence the dependent variable attitudes, few attempted to identify moderating variables. Two accounted for moderating variables by rerunning analyses on different sub-groups, divided by either sex (Stermer & Burkley, 2015) or age (Festl et al., 2013) and one implicitly acknowledged the moderating role certain variables could play by restricting samples by race (Behm-Morawitz & Ta, 2014). Including moderating variables, such as these demographic measures or more sophisticated individual differences, will be necessary in understanding the subtle patterns of effects that distinguishes cultivation research from a simple powerful effects model.

In the following chapters, I will investigate the potential for military themed video games to serve as the catalyst for genre-based cultivation effects. First, I will review the literature that has explored the content of these games to look for evidence that they display systematic messages as a genre. Second, I will look at the past history of video game research to see what effects military themed video games have had on their players.

## CHAPTER 3

### A CRITIQUE OF MODERN MILITARY GAMES

The 21<sup>st</sup> century saw the economic, social, and political ties between the military and video games industry grow stronger, while a corresponding critical interest in investigating the military themed games produced by these ties began to develop. In one of the first critiques of modern military themed games, Leonard (2004) makes a striking argument for a serious examination of video games, which “more so than schools, religion, or other forms of popular culture-are teaching Americans about race, gender, sexuality, class, and national identity” (p. 2). He argues that there is a pedagogical value in investigating military themed video games in particular, as they are “sophisticated vehicles inhabiting and disseminating ideologies of hegemony” (p. 2). War games become a site rife with implicit ideological messaging, seen as particularly insidious in how it blurs the lines between the militaristic and the personal spheres under the guise of “kid’s stuff” (King & Leonard, 2010). To provide a fuller sense of context for these critiques, and for the state of military game development in general, a brief review of the history of military video games is included here. This history can be divided into four major periods. The first period consists of the ancestors of military-themed video games, including board games and other toy representations of war. The second period is the development of early video games in the context of military institutions following the Second World War. The third consists of the evolution of the military's adoption of video games for training purposes throughout the 1980s and 1990s. The final phase looks at the role of games in the post-9/11 world.

Modern video games evolved from the millennia of games that preceded them, and modern war games share these roots as well. Today's high tech simulations of war inherit the logic of ancient games such as chess, go, and t'au- models of opposing forces, situated against each other in simple systems that result in complex outcomes (Halter, 2006). These primitive abstract representations of war gave way to more complicated games, typified by the 18<sup>th</sup> and 19<sup>th</sup> century German game, Kriegsspiel (Deterding, 2010). This game, in its many forms, expanded on chess by adding many of the crucial aspects of warfare, including supply lines, variations in terrain, and weapon logistics. The 20<sup>th</sup> century saw further expansion of this genre of games, with Parker Brother's Risk being the most notable mainstream success. Beyond board games, representations of war in play have existed in the form of military toys, or toy soldiers (Deterding, 2010; Stahl, 2009). These toys have even been seen as foundationally important in instilling militaristic pride in youth (Halter, 2006).

The creation of video games is intimately tied to the military/academic nexus that fueled early computing advances, beginning with the development of the first computer, designed by the US during World War II to assist with ballistics targeting and the development of the hydrogen bomb (Dillon, 2011). Video gaming emerged from this context in the decades following the war. While it is difficult to pinpoint the moment 'video games' became its own distinct medium, a handful of games are commonly considered the progenitors, including Tennis for Two, Spacewar!, and the Brown Box system (later to become the Magnavox Odyssey, the first home gaming console) (Halter, 2006). While none is directly the product of military fiat, each game was rooted in the culture of military development (Huntemann & Payne, 2010). William Higinbotham, a

former Manhattan Project scientist, designed Tennis for Two as an attraction designed to generate positive PR for the Brookhaven National Laboratories and their atomic research (Halter, 2006). Spacewar! was coded by MIT students in a lab funded by DARPA, the Defense Department's research wing (Huntemann & Payne, 2010). Ralph Baer developed the prototype of the Magnavox Odyssey as a side project while managing the design division at a military electronics firm- the largesse of government contracts providing such leeway to make game development possible (Baer, 2001). These games, among others, demonstrate the extent to which gaming was born with military DNA.

Throughout the 1980s and 1990s, video games were largely viewed as children's entertainment. The military, however, saw the potential that video games offered in terms of simulation and training. Their direct involvement with the industry began when the U.S. Army contracted Atari to modify their popular tank simulation game Battlezone, creating training software for drivers of the Bradley tank (Bogost, 2010). Two years later, the Air Force and Navy adopted Microsoft's Flight Simulator for training purposes (Nichols, 2010). By the 1990s, video games were used as training tools for all levels of the military, from a simulator developed for the U.S. Joint Chiefs of Staff as a means to practice coordinating the military branches, to a modified version of the popular first-person shooter Doom created to teach repetitive decision making to Marine ground-troops (Stahl, 2009). The success of this last product, Marine Doom, ushered in a new era of virtual training- in the late 1990s and early 2000s, the U.S. military commissioned the use of over 20 separate military themed games in training scenarios (Nichols, 2010).

The games industry changed in two fundamental ways at the beginning of the 21<sup>st</sup> century. First, global sales of video games began to exceed Hollywood's global box office

earnings. While this was ultimately an arbitrary measure of the industry's growth, it functioned in the press as a symbolic milestone, marking the maturity of the new medium (Halter, 2006). Second, the events of 9/11, which had a dramatic impact on the entire cultural landscape, changed the world of game development as well, imbuing games with narratives that echoed the culture of the War on Terror (Annadale, 2010). In this decade, the military actively supported the development of a multitude of commercial titles, and private companies welcomed the support of the military, a mutually beneficial relationship including the Defense Department's use of *Rainbow Six: Rogue Spear* as a training agent, their subsequent assistance in the development of later *SOCOM* and *Rainbow Six* titles, and the U.S. Army's support of franchises like *Full Spectrum Warrior* (Leonard, 2004). Through these titles, and others like them, the games industry serves as a powerful source of hegemonic messages supporting the militarization of society (Leonard, 2004; Mirrlees, 2009; Power, 2007; Robinson, 2012). Of this era, one particular title deserves special attention. Released in 2002, *America's Army* was a video game that had been developed and published completely under the auspices of the U.S. Army (Lugo, 2006). Featuring cutting edge graphics and game play, the title was distributed for free and downloaded millions of times. Unique in its medium, the game functions as both advertisement and educational strategy, labeled a “strategic communication tool” by its creators, “propaganda” by its critics (Nieborg, 2010). The thoroughness with which this game completes the circuit between the military and civilian worlds, and its exemplary position as an agent of soft power make *America's Army* the centerpiece of almost any analysis looking at the intersection between video

games and war (Annadale, 2010; Halter; 2006; Huntemann & Payne, 2010; Lugo, 2006; Power, 2007; Nieborg, 2010; Stahl, 2009).

### **War Games as Ideological Vehicles**

Noting the historical ties between the video game industry and military institutions, many criticisms of the genre are rooted in an analysis of how these games broadly support an American militarist ideology. In these critiques, the virtual realities of war video games are considered extensions of the actual reality we inhabit, with the capacity to recreate and reinforce many of the problematic aspects of race, hegemony, and colonialism (King & Leonard, 2010). One prominent criticism of these games is that they foster a simplistic good-against-evil view of foreign relations in a post-9/11 context (Leonard, 2004). The US was often positioned in these narratives as policing or retaliating against enemies whose ideologies were defined as simply anti-Western or anti-freedom, and as Cassar (2013) writes, “[b]y creating clear and identifiable (external) threats to the Western way of life, they reinforce the myth of the superiority of Western civilization and political system while maintaining a high level of consent toward particular policies enacted by Western governments such as the ‘War on Terror.’” (p. 334). The games released in this era engaged in war as a consequence-free spectacle, and “tended to avoid legal, ethical, moral, or ideological considerations” (Stahl, 2009, p. 98). Games at this time instead celebrated the aesthetics of war and the excitement of combat. For example, Gagnon (2010) accuses the Call of Duty: Modern Warfare series specifically of “resonat[ing] with and reinforce[ing] a tabloid imaginary of post-9/11 geopolitics” (p. 3). What is particularly troubling to many critics is that these games rarely make explicit attempts to articulate this philosophy, but rather operate with many

of these assumptions built into their game worlds and their narratives, masking their ideology by naturalizing it (Casser, 2013). The result, as Leonard (2004) argues, is that that these games “consolidate an ethos of militarization under the guise of the ‘common sense’ notion that American safety and security is of paramount importance” (p. 6).

If these games do encourage a worldview in which the United States is potentially beset by enemies on all sides and at all times, the feared consequence is that support for military action becomes a reflexive and taken-for-granted response. By constructing worlds populated by dangerous, unreasonable enemies of the state, “[g]ames like Call of Duty attempt to leverage players’ patriotic feelings by placing the former in situations where military interventions become the most obvious course to undertake”(Cassar, 2013, p. 334). These games may encourage players to think of war as the primary means of foreign policy interaction, and thereby “elicit consent for the idea that state violence and wars are inevitable” (Gagnon, 2010, p. 3). This perceived inevitability of war (and necessity of developing and employing modern war techniques) is hardcoded into the form of these games- prospects for peace and diplomacy are often outright dismissed in the narrative (Stahl, 2009), and the gameplay which only allows for interaction through violence reinforces this narrative (Mirrless, 2009).

Beyond simply creating an atmosphere of support for the military and militarized foreign policy, these games are also critiqued for their direct attempts to recruit young adults into a career in the military (Leonard, 2004). Most notable is the U.S. Army produced America’s Army, a game dubbed by the Army as a “strategic communication” tool that is explicitly and admittedly designed as a recruitment booster and an exercise in brand management (Neiborg, 2010). Distributed online, the game and its attendant

marketing materials allows the U.S. Army to communicate directly with adolescent potential recruits, giving the Army full control over its messaging and branding (Susca, 2012). Active attempts to recruit game players can be found in the commercial sector of gaming as well. The development of the Sony produced SOCOM: Navy SEALs games was aided by the U.S. Navy, who went as far as including Navy recruiting materials in and alongside the game (Mirrlees, 2009), and Call of Duty publisher Activision maintains an active partnership with the U.S. military, including staging shared publicity events, receiving access to hardware for developers to reference (Amrich, 2010), and even bringing in former colonel Oliver North to advise the development of Call of Duty: Black Ops II (Thier, 2012).

### **Formal Features**

Above I have outlined the general criticisms of the themes and ideological orientation of military video games. However, a proper analysis of this topic should take into account the formal features that are unique to games as a medium. This is particularly important when analyzing games with such a potentially loaded ideological component. As Ian Bogost put forward in his theory of procedural rhetoric (2007), the computational logics, mechanics, and interactive elements of games intersect with the ideological content to create a unique experience for the player, and that experience is capable of influencing the beliefs and attitudes of the player. Games are not simply made of content to be read, but as systems of interacting elements. As an example, Neiborg (2010) provides particular observations of how the discourse and mechanics of America's Army are woven together to form a cohesive model of Army ideals. For instance, the game designers chose to display the United States Soldier's Creed during loading

screens. While understanding the ideological content of the Creed is important, it is equally important to consider how its context as a loading screen impacts the player's reading- the resulting multiple exposures, the fact that this Creed is offered where most games provide gameplay tips or instructions, or how it serves as a prelude to combat missions. Alternately, the observation that the dialogue for the game's medic missions borrows heavily from the Army's code of ethics is significant, but more so when noted that this dialogue takes place within tutorial missions, where the game is offering explicit instruction for player behavior. Regarding the genre of military games as a whole, critics have repeatedly emphasized several aspects of the games that bear specific discussion. This includes the representation of enemies, the link between the player experience and the representation of the player avatar, and the problematic relationship the genre has with the qualities of realism and fidelity.

### **The Enemy**

A necessary component of a war game is an antagonist with which to fight. As Allen (2011) observes, game designers have two modes of construction they can employ when developing an enemy. They can construct a specific enemy, identified as hailing from particular historical, cultural, and localized realities, such as past conflicts in the Middle East, South America, or World War II era Europe. Alternately, designers can choose to create a more abstract opponent, situated in purely fictionalized locales. Of course, this is not a simple dichotomy. Enemies that are ostensibly pulled from reality are heavily distorted and stereotyped. Likewise, a range of abstract enemies is possible. At one end are science-fiction themed war game series like Halo, which, in spite of the inclusion of Marines, rifles, and other identifiable trappings of the modern military

(Voorhees, 2014), feature enemies so literally alien as to almost completely divorce themselves from the family of war games, both in content and reception (Huntemann, 2010). More relevant to the discussion are games like America's Army, whose enemies, while hailing from fictional and nonspecific geographies, are still human and still resonate with identifiable social and political realities.

The years following 9/11 saw a dramatic uptick in the popularity of military-themed shooter games (Breuer et al., 2011), and games of that era frequently featured as antagonists political enemies of the United States, many of whom were modelled in the manner of fourth-wave Islamic terrorism (Hitchens, Patrickson, & Young, 2014). Critics have paid particular attention to the depictions of Middle Eastern and Afghani enemies within these games, which have been featured in many high-profile examples of this genre, including Call of Duty 4: Modern Warfare, Battlefield 3, Medal of Honor, and the Kuma War series, among others. These games were often designed with high levels of visual and physical fidelity, and were likewise explicitly marketed as being "realistic." As such, their representations of the Middle East, Afghanistan, and the residents of these regions are encouraged to be read as "realistic" reflections of the social reality of the area and its peoples (Hoglund, 2008). King and Leonard (2010) argue that the particular result is that games in the post-9/11 era "construct and imagine places like Iraq and Afghanistan as barren wastelands devoid of civilians and infrastructure in need of saving and U.S. intervention" (p. 91). In this context, the misrepresentations of Arab villains in these games are not merely culturally insensitive, hurtful stereotypes, but have been accused of enforcing the larger context of colonialism and existing within an East-vs-West Orientalist framework (Cassar, 2013; Hoglund, 2008; Leonard, 2004).

Šisler (2008) performed a qualitative content analysis of 90 American and European produced games and their paratextual materials (e.g., manuals, websites) that were set in the Middle East and had prominent Muslim or Arab characters. In his observations, he notes that in action games, enemies in genericized Middle Eastern settings are presented as a homogenized group of terrorists or insurgents. They are often signaled via stereotypical markers, including headscarves or their dark skin. Beyond aesthetic representation, formal elements, such as the behavioral scripting, were used to project an air of illegitimacy upon these enemies, as they were programmed to act not as professional soldiers, but as cackling, screaming caricatures of terrorists. While Šisler admits this is not a universal portrayal, he notes that exceptions are rare, citing only the Civilization series and a number of games produced in the nascent Middle East games development culture. Cassar (2013) offers a succinct summary judgement of these games, writing that “in military shooters like Call of Duty, the Middle East (and most Third World Countries) is mostly depicted as primitive and a hub for terrorists and organized crime... what they end up delivering is a distorted image of a region and its people and culture.” (pp. 334-335).

Hoglund (2008) extends the largely thematic analysis offered by Šisler by focusing on elements unique to the medium of games, particularly the intersection of formal elements of game design, imagined settings, and constructed populations in military shooter games. He notes that fully understanding how military games function as an embodiment of a neo-Orientalist ideology requires moving past merely thematic analysis, for “[w]hile the narrative of the games encourages an understanding of the Middle East as a site for everlasting military carnage, it is the game experience as such

which cements it” (n.p.). He pays particular attention to the rendering of the Middle East as a setting in games, as it has been the locus of American military and economic foreign policy since the end of the cold war, and argues that the setting models an endlessly replayable military conflict between American democracy and Islamic fundamentalist terrorism. This Orientalist ideology seeps into the game design for the playable spaces, typically labyrinthine urban environments, depopulated of women and children and teeming with terrorist men. Ultimately, Høglund argues that these games are essentially coercive in making the player participate in the violence against these people. He observes that “for the most part the only interaction possible between the soldier of the gamer and the computer generated people of the Middle East is that of military violence. The gamer has the option of either shooting the approaching enemy or ceasing to play” (n.p.).

In spite of the extended critical focus on representations of Middle Eastern enemies, there is evidence to suggest that only a small portion of military themed games actually feature enemies from this area. Breuer et al. (2011) were able to identify the nationality of the antagonists in 132 war-themed FPS games released between 1990 and 2011. They found that, due to the over-representation of certain historical settings in these games, the most frequent enemy nationalities represented in these games were Germans (28.8%), Russians (15.9%), and Vietnamese (10.6%), with Iraqi enemies as the most common Middle Eastern antagonist at only 6%. Looking at only War-on-Terror themed games, Russians (26.7%) and North Koreans (20%) were the most popular, with Iraqi enemies only in 16.7% of games, just ahead of Americans at 10%. Their findings indicate

that these games do not monolithically present the Middle East as the sole, or even primary, enemy of the United States.

Yet this distinction in specific enemy nationalities may only be a superficial one. It is worth noting that in the Breuer et al. (2011) study, 57 of the 189 games released in this period were identified by the authors as having enemies without a concrete identifiable nationality, and are not included in their analysis. The authors do not indicate to what degree this sizable portion of games features enemies that conform to a non-specific Middle Eastern locale. For instance, *Call of Duty 4: Modern Warfare*, one of the hallmarks of this genre, features a mix of fictionalized Russian nationals as one faction of enemies and soldiers from an unnamed fictional Middle Eastern nation as the other. Zabecki (2015) notes that video games tend not to specify exact locales, but offer a generic vision of the developing world. His content analysis of the *Call of Duty* and *Battlefield* series, two of the most high-profile examples of military games set in the developing world, largely complements Breuer and colleagues' (2011), showing that these series offer enemies drawn from a wide range of nationalities, led by Russia. However, Zabecki extends his observations to note that the developing world is genericized, filled with non-specific locations such as military bases and factories, and set almost exclusively as either a hostile place, or a passive battleground for the developed world. Gagnon (2010) observes that the exaggerated and simplified vision of enemies on offer in these games tends to blend even specifically-located geopolitical enemies into an amalgamated foreign enemy. His analysis of Russian and Middle-Eastern antagonists in the popular *Call of Duty: Modern Warfare* series highlights how these games situate their narratives in established settings, but reducing the political and ideological realities down

to their simplest, paranoid forms. The Russian government is portrayed as single-mindedly returning to a Cold-War, “Evil Empire” superpower intending to re-launch a nuclear arms race, while simultaneously sponsoring Middle-Eastern terrorists in an alliance determined only by an anti-Western sentiment. Other commercial games, such as ARMA 2 and Call of Duty: Modern Warfare 2 specifically aimed to blur the boundaries between reality and fiction with storylines featuring Russian extremist groups that draw the US into global conflict (Allen, 2012). This narrative structure provides a simplistic moral dichotomy. “Evil” actions are taken by inherently evil foreign antagonists; American retaliation is both inevitable and morally sanctioned.

Ultimately, the distinction between specifically constructed and genericized opponents may be superseded by a broader thematic othering of the enemy, as Allen (2011) argues that in either case, war games operate as part of a traditional of communal play that envisions a common national enemy. On one end, he argues that the Conflict: Desert Storm series, games about the first war in Iraq, played a role in constructing the image of the Iraqi male soldier as a specific focal point for national aggression during the ramp up to the second war there in the early 2000s. On the other end, games like America’s Army, that use enemies from fictional countries and generic ideologies, are part of a vast cultural construction of a potential “unreal” enemy, an idea that can be used to prefigure actual enemies. As Allen explains, “The unreal enemy is an enemy with minimal cultural, linguistic, or ethnic indicators and therefore one which is simultaneously anonymous yet potentially anyone” (p. 52). Enemies in America’s Army are stripped of racial markers- first by masks in the earliest versions of the game, later by using the same palette of facial options as the U.S. Army. Likewise, the enemy is set in a

number of nonspecific geographic locales, and in-game lettering and graphical wording (like on sides of busses) is done with a fictional language. This was done to emphasize an anonymous “terrorist” enemy as opposed to a localized, racial enemy. Later releases began to set games in a made-up Eastern European location- creating an “anonymous but proximal enemy” (p. 51). In opposition to the messy racial, ethnic, and religious enemies of the asymmetric counterinsurgencies of Iraq and Afghanistan, the fictional enemies of the most recent America’s Army iteration are a genericized, conventional state army, the unambiguous enemies of a “just” war (Allen, 2012). Ironically, in their attempt to create a generic potential enemy of the US, the developers accidentally created a scenario that prefigured the very similar Russian invasion of Georgia. Allen argues that with this design philosophy, “[t]he Army itself encourages an indistinction between the ‘real’ and the ‘virtual,’” (p. 53). Games such as these are designed not to indoctrinate against a particular enemy, but to prepare civilians to accept the existence of every and any enemy.

Hitchens, Patrickson and Young (2014) have expressed some skepticism toward this particular critique of military games, arguing that “the generalized attribution of military propaganda amounts to little, if in fact the enemy within the game does not conform to the proposed myth” (p. 8). They offer the only broadly drawn, systematic content analysis of enemies within first person shooters (FPSs) to assess the degree to which the games industry's selection of enemies coincides with the typology of enemies proposed by so many critics. They looked at over 160 FPS games set within an identifiably contemporary setting that had been released between 1993 (the genre's inception) and 2009. For each game, they noted the presence or absence of each of a number of categories of enemies (Aliens, Criminals, Political Enemies, Rogue

Government, Science, Supernatural, and Terrorists). Using this data, they note the decline in fantastic enemies like aliens and supernatural beings in favor of more realistic enemies. The authors found that according to their categorization, the “Terrorist” enemy type was present in 32.1% of FPS games released between 1998 and 2001. This number grew to 42.4% for the years between 2002 and 2005, then fell to 27% in the period between 2006 and 2009. The authors argue that the spike in this style of enemy following the attacks of 9/11, and the subsequent decline in more recent years, serves as evidence that the games industry follows public commercial demand, and that this change is indicative of “a rise and fall in demand for military-themed video games” (p. 24). This is arguably an overstatement of the data, and a possible artifact of an overly-fine parsing of video game enemies. The authors seem to conflate the specific use of terrorist enemies, particularly fourth-wave terrorism style enemies in the vein of Al Qaeda, with the general critique of the use of militarized subjects as enemies. While the observed decline in this one category of terrorist-enemy may be indicative of a response to the particulars of geopolitical realities, collapsing their categories of “terrorist” and “political enemy” (which includes states like Iran and Iraq) shows that the political typologies most associated with the critique of militainment comprise 40% of all pre-9/11 FPS enemies, and 56% of all post-9/11 FPS enemies. Moreover, their claims of a decline in interest of this genre do not seem compatible with observed market realities; while, as the authors note, series like *Kuma\War* have disappeared, *Call of Duty* has become by some metrics the most successful entertainment product in history (Makuch, 2015). While the authors' contention that FPS enemies derive from a “range of political, cultural, and literary

sources” (p. 3) is not baseless, military enemies can be found in both the most popular and the overall majority of games in this genre.

### **The Protagonist**

Much has been made over the active role of the player in military themed video games (King & Leonard, 2010). War has been a popular topic in media for as long as storytelling has existed, but in books, film, and television, the media consumer is relegated to the role of spectator. By definition, the war themed video game requires the player to become an active participant in virtual war, whether from the distant perspective of a commander in a real-time strategy game, or in the up-close-and-personal action of a soldier on the ground, as in many of the most popular first person shooters. Stahl (2009) argues that the video games of the past decade are a key part of the citizen’s changing relationship to war, and that in parcel with reality TV, sports coverage, and children’s toys, war themed video games blur the line between spectator and participant, inviting citizens to “re-create the television war in playable real time,” and to “try on a soldier identity” (p. 92). Stahl argues that this is part of a larger project aiming to change the public’s sense of identity, and that by participating in virtual recreations of war, a citizen can see themselves through the lens of the “virtual citizen soldier.” Arguably, America’s Army exists as the epitome of this- as software that invites players to virtually live, train, and work the ostensibly authentic virtual life of an American soldier, “America’s Army is a self-conscious attempt to produce a militarized gaming subject... targeting a demographic of teenage boys within the United States to consider enlistment” (Allen, 2011, p. 46).

More than just allowing the player an opportunity to embody a soldier, these games offer an incredibly narrow range of options for whom the player can embody while doing so. The restricted narratives from which these games derive their source materials has resulted in a corresponding restriction in avatar representations. For instance, The SOCOM: Navy SEALs series is a typical example of many military games, featuring small-scale special operations teams entering political hotspots to act as a global police and to support U.S. foreign policy goals (Smicker, 2010). In games such as these, players are forced to play as- and thus are only given the option to identify with- the American side (Neiborg, 2010). This arrangement has been noted time and again, in Zabecki's (2015) analysis of the high-profile Call of Duty and Battlefield series, whose choice in protagonists is mostly limited to American and British soldiers, Leonard's (2004) observation of the lack of non-white playable characters in the early entries of the Call of Duty franchise, and King and Leonard's (2010) analysis of Conflict: Desert Storm, a purportedly realistic recreation of the first Iraq war, which only allows the player to select from American or British forces as their character, and not from one of the many Middle Eastern nations who participated as part of that conflict's coalition.

These criticisms are supported by the only large-scale systematic analysis of video game player avatars in this genre. Breuer, Festl, and Quandt's (2011) analysis of military themed FPS games, covering 189 games over a span of two decades, found extremely restricted options for representation on the side of the protagonist. 82.3% of the games analyzed contained an American protagonist, with British protagonists as the next most common at 17.1%. In comparison, all other tracked nationalities (Russia, Germany, France, Canada, Australia, China, Vietnam, and Other) appeared as a protagonist in fewer

than 6% of all games each (note: these percentages add to more than 100% due to games with multiple protagonists). Further restricting representation, in the 66 games where the race of the protagonist was determinable, the main character was nearly universally (95.5%) white.

### **Selective Realism**

An aspect of military games that is repeatedly noted in the literature is this genre's problematic relationship to realism. The realistic representations of certain aspects of warfare are crucial to the production, marketing, and experience of the game. As an example, Payne (2012) examines how the "paratexts" - including advertisements, developer interviews, and reviews- that surround military games serve to frame the player's expectation of realism. Using the release of Call of Duty 4: Modern Warfare as a case study, he illustrates how the marketing of military games seeks to emphasize select elements of the game's aesthetic realism, in their reproduction of military hardware, the integration of military tactics and jargon into the game design, and in the visual and audio fidelity offered by advancing technology. America's Army heavily promotes the U.S. Army's Real Heroes campaign in the paratexts surrounding the game, closely tying the experience of playing the game to the selective and sanitized presentation of the experiences of real soldiers (Susca, 2012). The use of real, branded weaponry in military games is prevalent to the point of fetishization (Neiborg, 2010; Smicker, 2010), with the ability to access and modify representations of actual military hardware used as a reward for successful gameplay (Gagnon, 2010). Stahl (2009) provides an instructive example in Call of Duty 4: Modern Warfare, which features one mission in which the player controls an AC-130 gunship. The game's depiction so closely mirrored the actual footage from

real AC-130 combat missions that viewers on YouTube were often unable to distinguish between the real and the virtual video clips.

Game producers often attempt to bolster their products' claims to authenticity by showcasing the working relationship between designers and the military. Call of Duty's marketing materials featured testimonials from military advisors praising the technical authenticity of the game (Payne, 2012), the development of the SOCOM: Navy SEALs series was aided by the U.S. Navy, allowing the game producers to use the cache of the military to market their game as distinctly "realistic" (Mirrlees, 2009), and the U.S. Army itself produces its signature America's Army with the goal of demonstrating what a soldiering life is really like (Nieborg, 2010).

To understand how these paeans toward realism impact how audiences may consider the reality of war, Smicker's (2010) categorization of reality-based "historic" war games can be instructive. His first category of games is the reenactment- games that attempt to simulate real wars with specific attention to location, tactics, and equipment, if not real consequences of war and violence. Smicker argues that typically these games simply recreate the dominant ideological understandings of any history of war. The popularity of games set in World War II, with its relative moral clarity, exemplify this style. The next category, revisionist games, are similar to reenactment games except that the outcome of events can be altered by gameplay. These typically allow for historic U.S. defeats to be "corrected," bringing historical reality into line with the larger American exceptionalism mythos. In either of these two cases, games produced in this mold often reflect on contemporary geopolitics, as "war-themed video games are often valorizations of past conflicts (e.g., Battlefield, Contra, Rush N' Attack, Medal of Honor, Call of Duty,

and Conflict: Desert Storm) that also concurrently parallel contemporary military endeavors.” (Allen, 2011, p. 39). Smicker’s final category, proleptic histories, are fictional extrapolations from the current geopolitical climate that provide “an opportunity to play a realistic version of the future before it arrives” (p. 107). Just as the generic enemies of these games prefigure an enemy yet-to-come (Allen, 2011), these games, like the *Tom Clancy* and *Modern Warfare* series, resonate with the thinking of war as inevitable. By virtue of their near-future construction, they also excessively fetishize the development of military hardware.

Mirrlees (2009) argues that this style of realism benefits the ideological purposes of the U.S. military, describing it as a realism that is “selective, idealized and biased to the elite geopolitics of the U.S. national security state” (p. 172). By offering graphical and aural fidelity to weapons, tactics, and equipment, the patina of realism is extended to the story, setting, and theme of the game, privileging a mode of thinking in which the US is constantly besieged by terrorist threats, in which military response is the only valid response, and in which military action, through the use of advanced technology, is always successful. Leonard (2004) further argues that the showcasing of advanced military technology in games reinforces an appreciation for these technologies, and an endorsement of government spending on research and development of new technology.

The realism and authenticity of these games is of course limited to certain aspects. Where this realism breaks down is most obviously seen in the distance between games and reality in terms of the human cost of war. While not totally sanitized, war games tend to show a very limited range of the consequences of violence, as collateral damage is largely absent, and these games “encourage our myopia by depicting a sanitized vision of

war and by downplaying the negative consequences of state violence” (Gagnon, 2010, p. 3). Fantastical and bloodless games like Operation: Desert Storm or America’s Army present war as fun and safe (Leonard, 2004). This lack of graphic consequences can be seen as a fracture in the genre’s realism, with the potential for undermining the seriousness of the text and its potential for influence (Schulzke, 2013). However, King and Leonard (2010) argue that the many of the formal features of war games- the lack of blood, the unrealistic depictions of harm, the ease of healing- still contribute to the propaganda function of these games. Instead of creating a dehumanizing distance through desensitization, they argue that repeated play of these games presents a sanitized familiarity with war. The lack of any consequence or carnage offers military force as an option that raises no ethical, moral, or legal complications. They argue this provides a simplistic mental framework that Americans can employ when thinking about foreign policy. By focusing on the spectacle of combat, these games ultimately “fail to acknowledge soldiers’ lived experiences” (Payne, 2012. p. 309).

### **Counter Arguments**

While the majority of the literature on military themed games is critical in nature, there are some objections to this characterization of the genre. Schulzke (2013) expressed concern that ideology has trumped evidence in much of the critical literature to date. He accuses critics of overemphasizing structural factors in game production, relying on the assumption that systemic ties between the military and game production are necessarily harmful while not paying enough attention to the ideological content of the games or providing evidence of negative effects in their audience. Schulzke also notes that the potential positive effects of military games, including educating the population regarding

military life, or training soldiers in proper rules of engagement, has gone relatively unexplored. Hitchens, Patrickson and Young (2014) have argued that critical concern regarding the militaristic function of video games has suffered from a selection bias. They argue that critics have overemphasized a subselection of games that exemplify negative militaristic themes, and that empirical evidence of industry-wide trends is needed. There is a definite lack of systematic analyses of video games overall- the difficulties in producing systematic content analyses caused by the interactive nature of the form has made thorough analyses rare (Schmierbach, 2009). Deeper analyses of the specific genre of military themed games are even less common, with only Hitchens, Patrickson and Young (2014) and Breuer et al. (2011) offering content analyses of significant breadth. The critical literature has instead focused on a handful of titles, with the U.S. government produced America's Army, the sales-leading Call of Duty, and the "docu-game" Kuma\War series receiving the lion's share of attention.

Another argument against the critical view of military themed video games is situated in the ludo-narrative split in games studies. Those who privilege the ludic aspects of games argue that the primary vehicle for meaning in games is their rules of play and interaction (e.g., Bogost's procedural rhetoric), and that aesthetics and narrative serve as set dressing. Johnson (2012) articulates the extreme of this ontological position, stating:

A game's theme does not determine its meaning. Instead, meaning emerges from a game's mechanics- the set of decisions and consequences unique to each one. What does a game ask of the player? What does it punish, and what does it reward? What strategies and styles does the game encourage? Answering these questions reveals what a game is actually about. (33).

Regarding military-themed video games, Johnson says of the Battlefield series, games traditionally focused on its multiplayer elements, that the games "are about

teamwork, not World War II or modern combat” (p. 34). However, an emphasis on ludic elements does not necessarily need to disregard the narrative and thematic content, as shown by Höglund’s (2014) analysis of Battlefield 3. Noting that the majority of the critique of military games has focused on their narrative elements, he focuses on specifically on Battlefield’s non-narrative multiplayer mode as a substantial and often repeatedly played portion of the gaming experience. Rather than seeing the ludic multiplayer elements as completely divorced from narrative, Höglund argues the multiplayer arenas function as “magic nodes” that connect the gamespace to the larger social world. He illustrates how one the construction of one multiplayer arena, where the US and Russia battle in a representation of Tehran’s real-world Grand Bazaar, is deeply informed by the ideologies of the Cold War and the War on Terror. In this space, the game privileges combat against the opponents and the destruction of the environment as the essential actions. Höglund argues that “the focus here is not on resolving a narrative but on dominating space through the dispensation of repetitive military violence” (n.p.). The lack of narrative removes a sense of closure from the gameplay, transforming the map into a site of perpetual, never-ending war. Rather than separate the game from its ideological narrative, the multiplayer’s ludic elements serve to reinforce the ideological content of the game’s single player narrative.

Finally, some have argued that individual differences and play styles can subsume the narrative and ideological intent of a game. While Cassar (2013) offers severe criticism of how military themed games reinforce troubling themes of imperial capitalism, he still argues that a range of interpretation is possible, and that meaning is not fixed by production. He argues that games are a site where players come to enact and

process their own ideologies and anxieties. Indeed, projects like Joseph DeLappe's *Dead-in-Iraq* - a performance art piece in which the artist periodically logs into America's Army to broadcast the names and details of the service men and women who have died in the Iraq war- do demonstrate that players can subvert the design of the game (Chan, 2010). However, instances like these are likely uncommon. *Dead-in-Iraq's* impact is derived from its unexpected and counterintuitive nature- the surprised and often vitriolic responses that fellow players exhibited toward this protest indicate that this type of behavior violates the expected norm of play within these games. Moreover, game design can funnel players toward expected behaviors while raising barriers to rebellious play. Mirrless' (2009) attempt at oppositional play in SOCOM II highlights this issue. As he attempts to subvert the mission objectives of the game, he is forced by the game mechanics to remain within the combat zone, berated by virtual teammates for not following protocol, and chastised in an emasculating manor for not succeeding in his mission. When not obeying the strictures of the game designers, the player will "have options, but no choices. 'Quit' or 'replay'?" (p. 176). Hoglund best encapsulates this argument, saying that both players and scholars "often celebrate the supposed open-endedness and freedom provided by modern digital games. This freedom does exist also in the military shooter and allows the gamer to solve missions in different ways. However, underneath this apparent freedom the political rationale for the missions the gamer is involved in remains constant." (2008, n.p.).

## CHAPTER 4

### MILITARY-THEMED VIDEO GAME EFFECTS

A great deal of critical attention has been paid to the structural links between the military and the video games industry, though this shared history is neither necessary nor sufficient evidence that military games contribute negatively, or at all, to player thoughts, attitudes, or beliefs (Schulzke, 2013). The broad range of criticism discussed in the previous chapter demonstrates that these games do possess an ideology and a number of problematic content patterns which could possibly impact players. Whether players are in fact affected by this material can only be determined by examining the audience itself. To date, only a handful of studies have attempted to empirically measure the effects of war-themed video games.

Three studies have been conducted to directly measure war-game exposure and war-related outcomes. Lemmens (2011) conducted a survey of 140 Dutch young adult males looking at gaming habits and both support for American war efforts and anti-Arab attitudes. Participants were asked to report their most frequently played game from the previous six months. This data was used to divide the sample into players of war games, players of violent non-war games, and players of non-violent games. Respondents who reported playing less than one hour per week comprised the fourth group, non-gamers. Pro-war attitudes, including support for US led invasions of Iraq and Afghanistan, and anti-Arab attitudes, including a belief that Arabs are religiously motivated terrorists, were measured, in addition to the perceived realism of video games and wishful identification with game protagonists. Comparing average scores for the four groups revealed that players of war games were more pro-war and more anti-Arab than all other groups. A

subsequent analysis using only the players of war games found that greater perceived realism correlated with greater pro-war and anti-Arab attitudes, while wishful identification correlated only with pro-war attitudes.

In the second, Malliet and Ribbens (2013) performed an online survey of 354 American and European men who had played America's Army, recruited from popular video game websites, including fansites for America's Army specifically. The survey measured how often participants played over the game's lifetime, the perceived realism of the game, and items measuring the attractiveness of an army career, belief in the army's preparation to handle threats, the perception of Islam as a violent religion, and the estimated percentage of Muslims who were hostile to the West. Regression analysis showed that exposure to America's Army was not associated with any of the measured dependent variables, though the perceived realism of America's Army did correlate with all dependent measures. Perceived realism was tested as a moderator between game exposure and the dependent variables, but did not function as a significant moderator.

In the last, Festl, Scharnow, and Quandt (2013) have conducted the largest scale investigation into the relationship between video game play and militaristic attitudes. The researchers conducted a survey among a subsample drawn from a nationally representative sample of 50,000 German residents aged 14 to 90. After stratified selection and attrition, their final sample consisted of 4,026 participants who identified as playing games, and 682 non-gaming participants. Video game exposure was measured using self-reported frequency of play for both overall gaming and a number of specific genres. Militaristic attitudes were measured using an original six-item scale that focused on soldier admiration, belief in the necessity of armies, and the effectiveness of military

power against terrorists. Using structural equation modeling, the study found no relationship between militaristic attitudes and gaming, either when comparing players to non-players, or when comparing the frequency of play among the gaming sub-sample. The study also did not find an association between militaristic attitudes and preference for FPS games, a genre identified by the researchers as heavily influenced by militaristic themes, nor did they find that a preference for social play or solo play associated with militaristic attitudes. This analysis was repeated with the youngest portion of their sample, ages 14 to 17, without finding any associations.

A number of factors work against attempts to draw conclusions from these few studies. All three studies are cross-sectional, and cannot be used to make claims regarding causality. Where Lemmens (2011) did find significant relationships between gameplay and the dependent variables, this design seems particularly vulnerable to a reversed causal explanation, as the schema used to classify game players was not a measure of absolute exposure, and may be more indicative of related concepts like genre preference. In that case, pro-war attitudes could be driving a preference for games that feature war.

Concerns about the samples employed in these studies also limit interpretability. Both Lemmens (2011) and Malliet and Ribbens (2013) recruited through popular websites including ones dedicated to war themed gaming. These samples could be particularly vulnerable to a self-selection bias and cannot be considered representative. Additionally, the cultural context of the studies no doubt influences the outcome. Cultivation effects are shown to vary greatly in different national contexts (Van den Bulck, 2012). This may be particularly relevant with this genre of game, as military games tends to focus on American or British militaries (Neiborg, 2010; Zabecki, 2015),

while all three studies utilized predominantly European samples. While Festl, Scharkow, and Quandt (2013) found no associations between gaming and militaristic attitudes, the authors note that the cultural context is unique, as contemporary Germans tend to exhibit low levels of militaristic attitudes overall. Additionally, the content of military games may be particularly incongruent for a German gaming audience, as historical war games quite often feature Germany as the antagonist (Breuer et al., 2011). Read within the German context, one could expect this combination of factors to disinhibit militaristic attitudes. Malliet and Ribbens (2013) controlled for this cultural context, noting that the American participants differed significantly from the European respondents on most of the dependent measures. However, if the US-centric messages in war games impact American gamers in a different way than European gamers, the variable should be entered into the analysis as a moderating variable. This step was not included in that analysis, and this potential difference cannot be accounted for.

The inconsistencies in the findings of these three studies could also be attributable to methodological differences. For example, Malliet and Ribbens (2013) indicate in their methods section that the purpose of the survey was explained during recruitment, and that the survey first measured game exposure before measuring the dependent variables. When participants are primed to consider the role media may play in their judgement, by intimating a relation between the two or even just by measuring media use first, those participants may actively discount media exemplars in their formation of first-order estimates (Shrum et al., 1998). In this study, both factors could likely cause participants to discount America's Army as a source for estimates, which could impact the first-order measure of this study. This is particularly a concern for a study utilizing a self-selected

sample of gamers, a group that has exhibited particular hostility and skepticism toward empirical studies of game effects (Nauroth et al., 2014). If made aware of the purpose of the study, participants risk biasing the result by attempting to mask potential negative effects.

Another methodological complication is the variety of measurement instruments employed. While all three studies employ a similar design, correlating exposure with either pro-military or anti-Arab sentiments, they do so in different ways. The exposure measures include overall video game exposure (Festl et al., 2013), genre-based measures (Festl et al., 2013; Lemmens, 2011), and exposure to a single game (Malliet & Ribbens, 2013). Attitudinal measures used both single-question items (Malliet & Ribbens, 2013) and both established and invented multi-item scales (Festl et al., 2013; Lemmens, 2011; Malliet & Ribbens, 2013). Pro-military measures ranged from the attractiveness of a prospective career (Malliet & Ribbens, 2013) to the willingness to use nuclear weapons against terrorists (Lemmens, 2011). This wide variation in measurement makes assessing the validity of these measures and the validity of their respective findings difficult.

### **US Military and Military-Themed Games**

Lacking a significant body of empirical research on the potential effects of military themed games, the largest source of anecdotal data regarding their effects comes from the U.S. government itself. The military has long believed that military video games and simulations are effective instructional tools. In the 1980s, the integration of virtual training into the U.S. Army's Command & General Staff College was found to be an effective means of instruction, as verified by a 1992 U.S. General Accounting Office report (Lesser & Sterrett, 2010). The following decades saw the U.S. military

commission over 20 separate military themed games for use in training scenarios (Nichols, 2010). In the early 2000s, largescale simulations and war games exercises were supplemented by the use of commercial games, which were found to be even more effective in training prospective officers in strategy and decision making (Lesser & Sterrett, 2010).

America's Army has had its training potential tested in a number of government sponsored research projects. In a report sponsored in part by both DARPA and the Office of Naval Research, Moon, Schneider, and Carley (2006) assessed America's Army's potential as a training simulation. The authors recorded data from active America's Army servers for two 2-week periods set one year apart. From this data, they analyzed the play styles and communication practices of over 1,800 players who had participated during both periods. Over the span of one year, the authors found that player performance increased, with higher win ratios and increased kill counts. Communication styles also improved, as players increased the amount and efficiency of their in-game communication, with social network analysis indicating that experienced players also assumed more centralized, leadership-style roles in their communication practices. These results indicate the positive potential for the game as a military training simulation. However, the authors note that players also became more aggressive in their play, and more likely to be killed during a game, a drawback they attribute to the perceived lack of consequences for death in simulated warfare.

This same research team completed a series of DARPA sponsored research reports, designed to analyze player performance in America's Army and highlight ways in which successful game tactics mirrored successful real-world military tactics (Carley et

al., 2005; Moon et al., 2005). These studies indicated that the game was successful in teaching military tactics, as the most successful players made use of tactics resembling those of actual soldiers, including a familiarity with a wide range of weapons, the importance of firing from cover, and the frequent use of communication to facilitate strategic movement.

The United States Army Research Institute for the Behavioral and Social Sciences conducted multiple research projects regarding the efficacy of America's Army as an instructional tool. In one, Belanich, Sibley, and Orvis (2004) used players of America's Army as a case study to understand the effect of different instructional and motivation features in instructional games. A sample of 21 Army recruits who had yet to enter basic training was asked to play the introductory sections of the game, followed by a test measuring their retention of information presented in these tutorials. The results showed participants learned more when information was procedural in nature, relevant to gameplay, and presented in an audio-visual (rather than textual) fashion. Participants indicated that the elements of realism, appropriate challenge, and the degree of control afforded by the game would motivate continued game play. In a second study by Orvis et al. (2008), 413 first-year U.S. Military Academy cadets were asked to play America's Army intermittently throughout a four-day period, followed by the administration of a questionnaire. The authors measured cadets' prior experience with video games, as well their reported satisfaction with the software and its perceived effectiveness as a training tool. The results indicated that prior gaming experience, particularly with first-person shooter games, predicted satisfaction with the training and a greater motivation to play. These results, while limited in scope, demonstrate that military games do have the

potential to impart knowledge of the military to their players, and that characteristics specific to games as a medium encouraged that learning. Additionally, the professed appeal of the interactivity and realism of these games indicates that this mode of advertising may be more attractive than traditionally linear media to some individuals, particularly those already familiar with gaming.

Beyond its training potential, far more critical concern has been directed toward this style of game's potential for influencing audience attitudes or intentions to enroll in the armed services (Annadale, 2010; Halter, 2006; Huntemann & Payne, 2010; Lugo, 2006; Nieborg, 2010; Power, 2007; Stahl, 2009). While there are limited instances where the military has used America's Army to supplement skills training, such as marksmanship and navigation, the game's primary purpose has remained as a recruiting tool (Farrell, Klimack, & Jacquet, 2003; Zyda, 2005). Nichols (2010) makes the case that America's Army is the most successful application of advergaming in history by providing training and increasing brand awareness and affection for the U.S. Army. America's Army had over 9.5 million registered users as of 2010 (Huntemann, 2010). Colonel Casey Wardynski, the originator of the America's Army project, has stated in interviews that the game was designed to influence younger adolescents, ages 13 and up, in an attempt to positively influence their attitudes toward a career in the armed forces (Huntemann, 2010). According to Army sources, the game has proven popular with young adults who have elected to serve in the armed forces, as the Colonel has indicated in interviews that 20% of students at West Point had played the game before arriving at the university, and between 20 and 40% of Army recruits have tried it as well (Jean, 2006). Elsewhere, the Colonel offers the rough estimate that of the sample of over

100,000 visitors to the Virtual Army Experience, 25 to 30% have played the game, and those who have played are 30% more likely to indicate a potential interest in a military career (Huntemann, 2010).

Of course, this anecdotal evidence cannot be used to definitively state exactly how effective the game has been in recruiting new soldiers. The Army maintains that it has very little concrete data on the relationship between gameplay and recruitment success; concerns regarding player privacy were considered during development, and in an effort at transparency the Army makes no efforts to track or identify who is playing their game after the initial registration needed to download the software. When asked about measuring the game's success as a recruiting tool, Col. Wardynski responded "There are people who would like to ask me, well how many people came into the Army because of the game? We have no idea" (Huntemann, 2010, p. 185). While recruitment efforts did improve during the period of the game's release, following slumping recruitment in the late 1990s, the development of America's Army was part of a larger attempt to re-brand and to update recruitment methods (Nichols, 2010). It would be difficult to separate out the effect of the game's release from the effect of the larger rebranding strategy as a whole, not to mention the effect of cultural changes in the post-9/11 political landscape. While one would not expect the Army to continue to produce multiple versions of a product were they not confident that it was an effective marketing tool, the project's relatively efficient budget (when compared to the high cost of more traditional recruitment efforts) means that the project could continue with only minor success. Nichols (2010) estimates that only 400 recruits brought in by America's Army would compensate for the six-million-dollar cost of the game's initial development.

It is worth noting that there is a commonly repeated claim of America's Army's effectiveness, that 30% of all Americans age 16 to 24 have been influenced in some way by the game. This claim has appeared in many forms, ranging from saying this percentage "say that some of what they know about the Army comes from the game" (Grossman, 2005, p. 43), to claiming that number of young adults "had a more positive impression of the Army because of the game and, even more amazingly, the game had more impact on recruits than all other forms of Army advertising combined" (Edery & Mollick, 2009, p. 141). This figure is often incorrectly attributed to a study conducted by two MIT researchers, due to the *Washington Examiner's* Singer (2009) mistakenly crediting authors Edery and Mollick as the originators of this work. No such study exists, as Edery and Mollick themselves claim the study was conducted by Leo Burnett, the advertising agency responsible for the Army's early 2000s rebranding attempt. It is unclear if this provenance is correct, as the secondary sources cited by these two do not mention the agency by name, with one only making an oblique reference to "a marketing survey for the Pentagon" (Quirk, 2006, p. 58). The supposed study in question and the attendant 30% figure may in fact originate from a January 2005 article in the publication *Government Executive*, which reprinted the results of a survey which they attribute to a "Fiscal 2004 Army Survey of Young Adults, Ages 16-14 [*sic – believed to be typo of 24*], and their Parents," which has shown that 29% of that age group had "heard of or seen" America's Army, a figure which topped the list of all other product-specific Army recruitment efforts (Zeller, 2005, p. 49). A thorough attempt to locate this study, or any study released by the Army, the Department of Defense, or by advertising agency Leo Burnett, has been unsuccessful. Additionally, a contemporary article in the *Washington*

*Post* reported specifically that the Army had “no statistics about how many people have joined the Army because of the game, or after playing the game” (White, 2005, p. 13). Moreover, another assertion popularized by Singer (2009), that that game is more outeffective than any other form of advertising for recruitment, seems to be a misinterpretation of the Army’s reported claim that online advertising through their goarmy.com portal provides a higher percentage of recruits than traditional methods, a fact reported during a February 2000 congressional testimony that occurred years before the game’s release (Hodes & Ruby-Sachs, 2002).

It is reasonable to assume that, barring any other evidence, what began as a modest claim about America’s Army’s market penetration has been exaggerated over time to the quite substantial claim that nearly a third of all young adults have not only played by been positively influenced by the game. That claim is especially difficult to believe when one considers how only 5.4 million players had registered the game at the time that claim was first popularized (White, 2005), with American young adults only comprising a fraction of that total user-base. This figure, when considered against the size of the population of American young adults, does not seem large enough to merit the claims made regarding the breadth of the game’s influence.

### **Audience Studies**

Consistent with more general critiques of the media effects perspective (e.g., Newcomb, 1978), critics of military-themed games are at times accused of “granting too much power to military-inflected culture to penetrate and colonize users’ minds, and not nearly enough to consumers’ practices” (Payne, 2010, p. 207). Accordingly, research into how audiences use and react to military themed video games is critical in understanding

how these texts are received. Few studies have approached the topic from an audience-centric perspective, but the few that have shed some light onto the reception of these games.

Penney (2010) argues against viewing video game players as a monolithic block. Employing a uses and gratification perspective, he conducted a study with 49 adult fans of the World War II themed shooter games and 46 fans of science-fiction themed games, recruited from website forums dedicated to these types of games. The almost all-male group (with one woman in each sample) completed an open-ended survey that provided insight into the participants' motivations for playing these games. Penney found that players of World War II games were attracted to what they perceived as historical accuracy, "with many comparing the experience of playing the game to fighting a real war" (p. 196). World War II game players were much more likely to identify the themes and settings to be part of the appeal of the game than science-fiction gamers, who focused on formal aspects such as graphics and gameplay.

Penney argues that some players do accept what could be considered the dominant reading of these games, as supportive of a conservative, militaristic ideology. Those who were fans of military themed games were more likely to be conservative and to express support for the then-contemporary war in Iraq. Notably, the players of war games profess that these games seem accurate to life, and that by playing them they gain an understanding of what it is like to experience war. Moreover, many of the players in the sample maintain that their empathy for soldiers and their sacrifice was increased through game play. Nearly 40 percent of the sample responded positively when asked if they felt the games had increased their level of respect for the U.S. military, a figure that

the author postulates is actually constrained by a ceiling effect, as the majority of the sample had indicated that their respect for the military was already at its highest possible level before playing, providing no room for an increase. This compares to only 10% of the sci-fi gaming sample answering the same question positively when asked about their respective genre of choice.

Other players demonstrate a degree of resistance in their readings of the text. Several members of the sample argue that historic games stand as a contrast to modern foreign policy and contemporary wars, as the moral clarity on offer in these “historic” texts contrasts with their ambivalence or rejection of the wars in Iraq. In addition, several players noted that *Call of Duty 3* specifically highlights the role of countries other than the US in the fighting of World War II- a feature that has been shown to be lacking in many games of the genre (Breuer et al., 2011; King & Leonard, 2010; Zabecki, 2015).

Malliet, Thyssen, and Poels (2011) conducted interviews with seven Belgian players of *America’s Army*. Predicting that those with higher interest in political matters would be more critical and more reflective of the game’s persuasive rhetoric, the study divided the participants into two groups, one high-political-interest group of political science students, and one low-political-interest group of science students. Players tended to focus on the ludic aspects of the game, including its realism and tactical gameplay, rather than on the political content of the game. The authors found that participants focused on gameplay relevant cutscenes, while ignoring less relevant ones, like the *Real Heroes* profile videos that document actual U.S. soldiers. Players also professed to largely ignore mission briefing text and the repeatedly shown *Soldier’s Creed*, though interview data indicated that the players had become familiar with the game’s messaging

on Army values and morals. The participants in the study were largely supportive of the US and its military, but did express some critical reactions. Players took issue with the game's portrayal of the Middle Eastern setting, including the stereotyped images and the persistent presentation of the Middle East as the enemy. Additionally, the high-political-interest group expressed more foreknowledge of the game's recruitment intent, and were more dismissive of the game's possible influence.

Huntemann (2010) argues that military themed video games are best understood as tools for emotional management that allow their audience to process the perpetual psychic distress brought on by living through the War on Terror. While war films have generally performed poorly at the box office in the post-9/11 era, war games have been enormously popular, indicating their participatory nature uniquely suits them to this purpose. Drawing on a series of focus groups and participant observation studies with 26 young adult fans of military-themed video games, Huntemann argues that, counter to critics like Stahl (2006), players do not necessarily succumb to the pro-war ideology embedded in these games. Respondents in her study expressed skepticism of official justifications for war, and acknowledged that games provide an overly simplified picture of warfare. Huntemann argues that gamers prefer the simple, sanitized logic of the games and actively embrace this potential for temporary escapism. Her interview data supports the notion that gameplay can be perceived as very realistic, as players of the *Kuma\War* series professed to learn more about contemporary wars from the games than from news media. Huntemann notes that participants prized realism in these games, which she argues allows for emotional management by providing a "realistic" enemy to invoke fear.

Huntemann acknowledges that “military themed video games provide emotion management tools for real-world fears about terrorism, but in no way delude players into a false sense of long-term security” (p. 233). She places the sources of that anxiety rightfully in the fraught post-9/11 era, but does not fully address how the temporary balm experienced through gameplay may also reinforce the anxieties expressed by her participants. She hints at the potential cyclical nature of this process, noting that players “[purchase] sequels with new, frightful scenarios of terrorist attacks and exciting, yet comforting, counter-terrorist measures” (p. 233). Indeed, while her players expressed doubt as to the ultimate effectiveness of military solutions and were dismissive of the idea of joining the military, they also displayed a fatalistic acceptance of the possibility of future terrorist attacks, and a persistent prejudice toward the Middle East as a place of perpetual war.

Susca (2012) analyzed close to 10,000 comments made by players of America’s Army on its official web forum between the game’s launch in 2002 through December 2011. In general, talk on the forums was typically supportive of the military in tone. Participants used the option to customize their signatures to feature typical patriotic and military imagery, including bald eagles, American flags, and military weapons. In discussion of the Army’s Real Heroes initiative, in which stories of real U.S. soldiers are promoted, forum members posted to thank the soldiers for their service. Much of the conversation focused on violence and military action, blurring the line between action in the game and in real warfare. For example, members made requests that the opposing forces in the game be modified to resemble Osama Bin Laden; following his killing in 2011, users took to the game boards to celebrate the assassination. Kill rates and weapon

effectiveness are discussed casually, without reflection on the gravity of their real life counterparts. When discussing the game, many conversations explicitly compared the game to their perceived reality of combat. The phrase “in real life” was used often to compare how the rules and mechanics of the game were perceived to uphold or violate perceived reality, such as when comparing the survivability of a gunshot wound in the game against how battlefield medicine would work “in real life.”

Susca did find fissures where some dissent was made visible. In America’s Army, players are rewarded for following the proper rules of engagement, and penalized for violating these rules. On the forums, it is clear that players contested this rule system. Players debated whether the tactical advantage of rules violations outweighed the penalties assessed by the game, and weighed how these violations impacted the realism, serious tone, and value system of the game. Elsewhere, in a debate over the game’s use of fictionalized enemies, several participants reacted vociferously against one user’s jingoistic suggestions that the game allow for combat against Russians, Chinese, and Muslim enemies. America’s Army’s status as a game or recruiting tool is contested regularly on the forums. Participants on the forums discussed their experiences with the military, including their intention to enlist or not. Participants discussed advertising strategies for the game, and openly acknowledged both the game’s potential effect in recruiting, and its role in their particular thoughts regarding military service. However, moments where forum members expressed criticism of American foreign policy or militarism generally were rare, and were often policed and deflected by other members of the forum community or by representatives of the games.

In Payne's (2012) analysis of the paratexts surrounding Call of Duty 4, he examines reviewers' reactions to the game as a proxy measure for game players' experiences. Payne notes that reviewers were generally pleased with the game, praising it for its technical proficiency and for the intensity of gameplay. The perceived realism of the game was noted in the press, with one reviewer going as far as comparing the in-game control of weapons to their actual performance on a real-life gun range. Some reviewers noted the tension between the fun of game play and the unpleasant social reality of war. However, these reviewers typically assuage this conflict by framing these games as tribute to military servicemen, or at least an opportunity to empathize with American soldiers in warzones. Rather than being seen as a chance to interrogate the policies of war, reviewers largely praised the decision to sidestep this complication in favor of enjoying gameplay as a means of sharing the perspective of a modern soldier.

Looking at these studies together, a few themes emerge. The first is that, for some percentage of the player base, there is a correspondence between the messages contained within the games of this genre and the values, knowledge, and attitudes expressed by the players. Players tend to be broadly supportive of the U.S. military (Malliet et al., 2011; Penney, 2010; Susca, 2012), and actively seek out both historical (Penney, 2010) and contemporary (Susca, 2012) representations of the military and warfare. These games are used by their audience as a means of identifying with the soldier's experience (Penney, 2010), and play is often framed as a means of tribute or respect for soldiers' experiences and sacrifice (Payne, 2012). More worryingly, portions of the audience expressed xenophobic sentiments and pushed back against critical voices within the community

(Susca, 2012), or adopted a fatalistic acceptance of the need for war, particularly in the Middle East (Huntemann, 2010; Penney, 2010).

A second theme is that this position is not universally adopted by the player base for these games. Some players acknowledged the problematic portrayals of the Middle East and other foreign nations (Malliet et al., 2011; Susca, 2012) and the overly simplified depictions and justifications for war (Huntemann, 2010; Payne, 2012, Penney, 2010). Others seem to embrace the simplified narratives in an active response against the ambiguous and complicated political realities that define modern war (Huntemann, 2010; Penney, 2010). The audience of these games seems to be quite aware of both their own ideological position and America's Army's explicit recruiting message, responding to this with a range from acceptance (Susca, 2012) to rejection (Huntemann, 2010; Malliet et al., 2011).

A third theme that emerges is that players focus explicitly on the ludic aspects of this genre. At times, this happens at the expense of the overt political ideology present, as players ignore narrative elements in favor of gameplay (Malliet et al., 2011), or as game mechanics become abstracted from their narrative groundings in player discussion (Susca, 2012). At other times, formal ludic elements like graphics and sound design are acknowledged for their ability to heighten the narrative and tonal elements of the games (Payne, 2012). In particular, audiences react specifically to the perceived realism of these games. Audiences seem to perceive these games as realistic along a number of dimensions, including in their representations of military hardware (Malliet et al., 2011; Payne, 2012), in their accuracy in depicting historical and contemporary conflicts (Huntemann, 2010; Penney, 2010), and in their representations of the lived experience of

soldiers in combat (Payne, 2012; Penney, 2010). The degree to which the mechanics reflect or violate these other aspects of the perceived realism of these games is a contentious point of debate among members of this audience (Susca, 2012).

## CHAPTER 5

### NATIONAL SURVEY

Military themed games have been broadly critiqued as ideological vehicles that support western military institutions and militaristic attitudes (Cassar, 2013; Gagnon, 2010; King & Leonard, 2010; Leonard, 2004, Mirrless, 2009; Stahl, 2009). A number of critiques have identified specific formal patterns that occur throughout the genre, including the overrepresentation of White American men (Breuer et al., 2011; Hitchens, 2011; King & Leonard, 2010; Mirrlees, 2009; Neiborg, 2010; Zabecki, 2015), a tendency to downplay the cost of war (Gagnon, 2010; King & Leonard, 2010; Leonard, 2004), and an elevated perception of the threat of terrorism and a specific definition of terrorists (Allen, 2011; Gagnon, 2010; Hitchens, Patrickson, & Young, 2014; Mirrlees, 2009; Smicker, 2010; Zabecki, 2015). At the heart of these critiques is a concern for the potential influence these games may have on their audience, yet little empirical evidence exists to either support or refute that concern. Using cultivation theory as a general framework, this study aims to address this gap in the literature by investigating whether the expected association between playing military themed video games and the outcomes predicted by these critiques can be found in a national survey of young adult men.

Cultivation theory was developed specifically to consider the role of television in society, and to date only a small number of studies have attempted to use the theory in the context of video game play. As of yet, it is difficult to draw conclusions regarding the fitness of cultivation theory for the medium, as these existing studies exhibit a number of issues. Studies have failed to adequately link content patterns to expected outcomes (Anderson & Dill, 2000; Breuer et al., 2015; Dill et al., 2008; Eyal et al., 2006; Van

Mierlo & Van Den Bulck, 2004), disregarded relevant cultural contexts (Festl et al., 2013; Van Mierlo & Van Den Bulck, 2004), struggled with consistent definitions of genre (Anderson & Dill, 2000; Dill et al., 2008; Stermer & Burkley, 2015), or employed time-frames far shorter than typically employed in cultivation research (Chong et al., 2012; Tanes & Cemalcilar, 2010; Williams, 2006). Additionally, there has been a lack of consistency in topics, methods, and measures employed in this body of research, obscuring the degree to which variations in the detection of cultivation effects is dependent upon those theoretical and methodological considerations. In short, the application of cultivation theory to video games has been scattered and demonstrates a lack of theoretical rigor. Therefore, a second goal of the study is to contribute to the literature on games and cultivation theory through a rigorous application of the theory, with particular attention paid to the cognitive mechanisms that drive cultivation effects (Shrum & Lee, 2012).

### **Hypotheses**

The outcomes of cultivation can manifest as first- or second-order effects (Gerbner, Gross, Morgan, & Signorielli, 1986). First-order effects are those that measure the perceptions of frequency, prevalence, or probability. When first-order effects have been employed in video game cultivation research, these studies have focused primarily on estimates regarding the frequency of violence, crime, and law enforcement related issues (Chong et al., 2012; Van Mierlo & Van Den Bulck, 2004; Williams, 2006). First-order effects have been largely overlooked in investigations of the potential effects of military games, with only Malliet and Ribbens (2013) testing the perceived percentage of Muslims hostile to the United States. With no established set of criteria or measures

available in the literature, this study will employ a set of original potential first-order effects. The literature on crime and law enforcement related cultivation effects serves as a model for these questions, where previous researchers have asked for estimates on the number and types of people commit or police crime (e.g. Oliver & Armstrong, 1998). In this study, a similar rationale will be employed, with each question drawn from the distinct features of military themed video games identified by previous textual and content analyses.

The number of active duty military in America has declined in recent decades, and people today are far less likely to personally know a veteran than in years past (Carvalho et al., 2010). Military themed games, however, are extremely popular (Makuch, 2015; Tassi, 2014), providing players the opportunity to repeatedly interact with virtual soldiering exemplars. Frequency of exposure to these games may create an illusion of a large population of current and formerly enlisted soldiers. Accordingly, I predict:

H1a: Reported use of military themed video games will correlate with estimates of the percentage of the population that has served in the military at some point in their lives.

The lack of diverse representation in gender and ethnicity of soldiers in military games has been demonstrated through both critical examinations and through content analyses, noting an overemphasis on the role of White men (Breuer et al., 2011; Hitchens, 2011; Mirrlees, 2009). If players have internalized this message, they may be more likely

to overestimate the presence of both Whites and males in the military at the expense of non-White and female soldiers. Therefore, I make the following two predictions:

H1b: Reported use of military themed video games will negatively correlate with estimates of the percentage of American soldiers who are women.

H1c: Reported use of military themed video games will negatively correlate with estimates of the percentage of American soldiers who are Black/African American.

The interactive nature of video games makes it impossible to offer a definitive quantification of the amount of violence contained in such games (Lachlan & Maloney, 2008; Schmierbach, 2009). Still critics have noted the design of war games encourages a constant recursive loop of continuous killing (Höglund, 2014; Zabecki, 2015), with options for participating in ways outside of combat either highly restricted or nonexistent (Hoglund, 2008; Mirrless, 2009). Anecdotally, I can report that a play-through of Call of Duty: Advanced Warfare's single-player campaign yielded a count of 1,155 kills, according to the in-game statistics tracker. When paired with the messaging that these games offer a realistic portrayal of the soldiering life (Nieborg, 2010), an assumption could be made that constant exposure to this level of virtual combat could lead a player to overestimate the number of soldiers who actually serve in front-line combat positions.

H1d: Reported use of military themed video games will correlate with estimates of the percentage of American soldiers who served in combat roles during the Iraq War (2003-2011).

A factor that potentially complicates this assumption is the tendency for these games to downplay the negative consequences of war (Gagnon, 2010). The lack of blood, the ease of healing, and the sanitized consequences of injury (King & Leonard, 2010) work to make warfare seem fun and safe (Leonard, 2004). While these factors impact the qualitative characteristics of the violence rather than its quantity, it is possible that this presentation could lead players to underestimate the number of soldiers killed during war. To assess this, I ask the following research question:

RQ1: Will reported use of military themed video games correlate positively or negatively with estimates of the total number of American military deaths that occurred during the Iraq war (2003-2011)?

Cultivation theory also allows for the potential for second-order effects, which impact attitudes, beliefs, or values (Gerbner et al., 1986). Second order effects have been investigated more frequently than first-order effects in video game research, in studies that have examined game play's links to violence and aggression (Anderson & Dill, 2000; Chong et al., 2012; Eyal et al., 2006; Van Mierlo & Van den Bulck, 2004), attitudes about gender (Breuer et al., 2015; Dill et al., 2008; Fox & Potocki, 2016; Stermer & Burkley, 2015), and other social attitudes (Behm-Morawitz & Ta, 2014; Beullens, Roe, & Van den

Bulck, 2011; Tanes & Cemalcilar, 2010). This study will expand on this literature through an exploration of the second-order effects of military games specifically,

The primary critiques of military themed video games are that they promote a worldview that is uncritically supportive of the military (Stahl, 2009), valorize the use of military solutions over diplomatic ones (Smicker, 2010), and encourage support of military spending on advanced technology and weapons (Leonard, 2004). These critics express concern that these messages could engender militaristic attitudes in the gaming audience. Lemmens (2011) found that war game players were more pro-war than players of other kinds of games, but both Festl, Scharkow, and Quandt (2013) and Malliet and Ribbens (2013) found no association between military game play and militaristic attitudes in European samples. While these studies are inconclusive, the qualitative critiques of these games lead me to predict that:

H2a: Reported use of military themed video games will correlate with militaristic attitudes.

Representatives from the military (Farrell, Klimack, & Jacquet, 2003; Huntemann, 2010b; Zyda, 2005) and critics alike (Allen, 2001; Annadale, 2010; Halter, 2006; Huntemann & Payne, 2010; Lugo, 2006; Nieborg, 2010; Power, 2007; Stahl, 2009) have voiced their belief that military themed video games could be used to encourage young people to consider enlisting in the military. The only study to date to measure attitudes regarding the attractiveness of a military career showed no associations with military game play in a predominantly European sample (Malliet & Ribbens, 2013). Still,

anecdotal evidence provided by the military indicates that these games are popular with those who have selected or are interested in a career in the military (Huntemann, 2010; Jean, 2006). Given the critical assessment of the genre and the promotional intent of some segment of the genre, I predict:

H2b: Reported use of military themed video games will correlate with a reported propensity to enlist in the military.

The antagonists of military themed games are often simplified, genericized caricatures of terrorists and political enemies (Gagnon, 2010; Hitchens et al.2014; Zabecki, 2015), creating an image of the world that is populated only by enemies of America (Allen, 2011), featuring repeated narratives in which America is either threatened or attacked (Mirrlees, 2009; Smicker, 2010). Similar to the “Mean World Syndrome,” where television viewing is associated with an increased perceived risk of victimization (Gerbner et al., 1980), and similar findings replicated in genre-specific studies of crime-related programs (e.g., Custers & Van den Bulck, 2011), repeated exposure to the images and narrative of terrorism found in these games may increase the perceived risk of terrorist attack. Accordingly, I predict:

H2c: Reported use of military themed video games will correlate with a fear of terrorism.

H2d: Reported use of military themed video games will correlate with the perceived likelihood of a terrorist attack.

Critiques of the most prominent military themed games have noted that this genre frequently portrays the Middle East and the Muslim world in stereotypical, simplistic, and disparaging ways (Cassar, 2013; Høglund, 2008; King & Leonard, 2010, Leonard, 2004; Šisler, 2008). Even when they are not explicitly named as Islamic, enemies in these games are often depicted in a stereotypical manner that is widely recognizable as reminiscent of modern, 4<sup>th</sup>-wave Islamic terrorism (Gagnon, 2010; Hitchens et al., 2014; Zabecki, 2015). The persistent exposure to this construction of hostile Islamic enemies could foster Islamophobic attitudes in players. To date, only Malliet and Ribbens (2013) have employed a measure regarding this critique, investigating a potential first-order effect on estimates of the number of Muslims who are hostile to the West, ultimately finding no significant relationship between time spent playing two popular military games and the proposed effect. In spite of this study's finding, the strength of the critical literature leads me to expect that:

H2e: Reported use of military themed video games will correlate with Islamophobic attitudes.

Cultivation theory, while originally conceived to measure the impact of overall television viewing, has developed to allow for genre-specific effects, provided the presence of both persistent, ritualistic viewing and message patterns unique to the genre (Bilandzic & Busselle, 2012). An overview of the literature of video game cultivation studies indicates that this genre-specific approach may be more appropriate when

applying the theory to this newer medium. Attempts at using a measure of overall game play have found few examples of potential cultivation effects (Anderson & Dill, 2000; Breuer et al., 2015; Festl et al., 2013; Van Mierlo & Van Den Bulck, 2004), while studies that have focused on genre-based or other more specific measures of exposure have found a greater number of positive correlations (Beullens et al., 2011; Dill et al., 2008; Eyal et al., 2006; Stermer & Burkley, 2015; Van Mierlo & Van Den Bulck, 2004). Studies measuring the impact of extended play of a single game, where the dependent variables have been correlated directly to the content of a prescribed game, have shown the most robust evidence of a cultivation-style effect (Chong et al., 2012; Tanes & Cemalcilar, 2010; Williams, 2006). This suggests a pattern in which more specific measures of gameplay have more frequently been associated with observed associations. According to this pattern of results, I predict:

H3: Military themed game play will be a stronger predictor of the hypothesized correlations than overall game exposure.

Cultivation effects are neither universal nor uniform across all audiences, as differences among individuals can shape the pattern of cultivation effects (Gerbner, et al, 1980). Greater attention must be paid to the psychological differences that can moderate the cognitive processes behind cultivation (Shrum & Lee, 2012). Differing levels of transportation in audiences are theorized to impact second-order cultivation, as greater levels of attention and focus to narrative increase the likelihood of the formation of online judgements (Bilandzic & Busselle, 2008; Shrum et al., 2011; Shrum & Lee, 2012). Past

research has demonstrated the possibility of transportation through game narrative (Brookes et al., 2011; Mahood et al., 2012), and thus it is likely that a game player's ability to be transported could moderate gaming-based cultivation effects. For this study, I propose that:

H4: Transportability will moderate the cultivation of second-order measures with increased transportability leading to a greater cultivation effect.

The perceived realism of media can moderate judgements of social reality (see Busselle & Greenberg, 2000 for a review), and is a key component of narrative persuasion (Busselle & Bilandzic, 2012; Cho et al., 2014). When perceived realism is high, audiences may be less likely to engage in counterarguing strategies, increasing the likelihood of cultivation effects (Busselle & Bilandzic, 2012). Perceived realism is particularly relevant for military themed video games, when considering the long-standing concern that the increasing realism of video games could lead to increased effects (Ivory & Kalyanaraman, 2007; Krcmar et al., 2011) and the tendency for this genre to be marketed for its level of realism (Neiborg, 2010; Payne, 2012; Smicker, 2010; Stahl, 2009). Thus, I propose that:

H5: Perceived realism will moderate the cultivation of second-order measures with increased perceived realism leading to a greater cultivation effect.

## **Method**

### **Sample**

A national sample of young adult males was obtained using Qualtrics' panel survey recruitment service. The service draws from several panel participant providers that have recruited participants through advertising, social media, and other outreach methods. Participants are compensated for their time either monetarily or with credit toward the redemption of select products.

Potential participants who responded to the recruitment materials were provided a link to an online survey. Participants were first provided an informed consent form, which described the study as pertaining to "people's knowledge about and attitudes toward the military and related topics." No mention of media consumption was made at this time, to avoid offering any priming cues to the participants. Upon providing informed consent, participants completed four screening questions asking their age, gender (Male, female, and an option to self-describe outside this binary), whether they resided within the United States, and their race (measured as a categorical variable, with participants identifying as White, Black or African American, Asian, Hispanic or Latino, Middle Eastern, American Indian or Alaska Native, Pacific Islander, Multiracial, or Other).

Recruitment was limited to young adult males between the ages of 18 and 24, currently residing in the United States. This age was specified for this study for two reasons. First, attitudes regarding the military are particularly salient at this age, as the average age of recruits for the Army is 21, and for the Army Reserve is 20 (Nichols, 2010). Second, video game use peaks in adolescence and young adulthood. Nielsen reports that average 12 to 17 year old spends 4 hours and 13 minutes with video games

each week, and the average 18 to 24 year old spends 4 hours and 15 minutes (Nielsen, 2015). Recruiting participants of this age means they will be experiencing their heaviest exposure to video games, and thus potential associations are most likely to be prevalent in this age group. Given the highly gendered nature of video game content (Behm-Morawitz, 2017; Scharrer, 2004) and of the military itself (Arkin & Dobrofsky, 1978; Ashe, 2013; Hockey, 2003; Hopton, 2003), as well as the potential moderating role that gender can play in cultivation studies (Morgan, Shanahan, & Signorielli, 2012; Scharrer, 2012), the decision was made to restrict the sample to only male participants. Race was measured to ensure a diverse set of respondents. A quota was set at a 60% maximum for White participants. White participation ultimately fell short of this quota, and no screening was used for race.

Qualtrics did not provide the number of potential participants screened out at this stage, and this number is not available for reporting. A total of 473 participants passed the screening portion of the survey. 63 responses were removed for data quality issues, as these participants had failed attention checks or provided false or impossible data (e.g. 25 hours per day spent playing video games). This left a final valid N of 410 participants.

To determine that this sample size met the necessary threshold to detect the predicted effects, a power analysis was conducted using *G\*Power*. Previous meta-analysis has indicated that cultivation effects are typically small, with an average effect size of  $r = .09$  (Shanahan & Morgan, 1999). To detect small effects with the proposed design, an expected  $\alpha$  of .05, and the recommended .80 power level, the analysis indicated a total sample size of 395 was needed, indicating the collected sample was of sufficient size.

## Measures

Previous cultivation research has shown that demographic factors can impact cultivation effects. As such, a number of demographic factors were recorded for use as statistical controls.

*Age.* Participation was restricted to adults, ages 18 to 24 years.

*Race.* Race was measured as a categorical variable, with participants identifying as White, Black/African American, Hispanic or Latino, Asian, Pacific Islander, American Indian or Alaska Native, Multiracial, or Other.

*Religion.* Religion was measured as a categorical variable, with participants identifying as Christian, Atheist/Agnostic, Jewish, Muslim, Hindu, Buddhist, “Nothing in particular”, or Other.

*Political orientation.* Political orientation was measured on a 5-point scale, anchored by “very conservative” (1) and “very liberal” (5).

*Education.* Participants were asked to identify their highest level of education achieved on a scale, with options including “did not complete high school” (1), “high school degree” (2), “some college” (3), “associates (2-year) degree” (4), “bachelor’s (4-year) degree” (5), “some post-graduate education” (6) and “post-graduate degree” (7).

*Military Familiarity.* Participants were asked if they are enlisted in the military or as a member of an ROTC program, or had been in the past. As a separate item, participants were also asked if they have a close friend or family member who has served in the military.

### **Independent variables.**

*Video Game Exposure.* To identify overall video game playing habits that could influence cultivation patterns, participants were first asked if they had regularly played video games in the past year.

Measuring total video game exposure requires a flexible instrument. While the average player spends less than sixty minutes each day with games (Nielsen, 2015), the heaviest gamers can spend several hours daily (Williams, 2006). To attempt to cover this range, participants were asked to estimate the number of minutes spent playing video games on a typical weekday, Saturday, and Sunday. Responses were used to create a weighted average of time spent playing games. Survey estimates of media use have been demonstrated to consistently overestimate use when compared to more direct measures such as media diaries or video observation, but still maintain moderate correlations to these measures (Anderson, Field, Collins, Lorch, & Nathan, 1985; Greenberg et al., 2005; Van der Voort & Vooijs, 1990). As cultivation theory is concerned less with absolute levels of viewing than with the differences between long-term light and heavy media use (Gerbner et al., 2002), this measure of estimation should provide an adequately valid means of differentiating media use.

To date, researchers have not consistently employed any one method of measuring genre-based video game exposure (see Dill et al., 2008; Eyal et al., 2006; Stermer & Burkley, 2015; Van Mierlo & Van Den Bulck, 2004). For this study, measures of genre exposure were taken from the more established tradition of genre-based television cultivation studies (e.g. Egbert & Belcher, 2012), adapting these techniques to reflect video games. A list of the top-selling 42 games of 2016 was compiled using publicly

available industry data (Pereira, 2017; Steam, 2017). Screenshots and product descriptions were consulted to determine which of these games belonged within the military themed genre, with 10 games fitting this genre (For a full list, see Table 1). Participants were provided with a list of the 42 games. For each, they were asked to indicate if they had never played the game (1), hardly ever played (2), sometimes played (3), or regularly played (4). Scores for the 10 military themed games were summed to create a final military game frequency score. A second score was created by summing the responses of the remaining 32 games to create a measure of non-military game play.

### **Dependent variables**

The following dependent variables were employed in this study.

*First-order effects.* First-order effects are, by definition, estimates of frequency, prevalence, or probability, and can be assessed by directly asking participants to provide such estimates. This study asked participants to estimate what percent of the U.S. population has served in the military at some point in their lives, percent of currently serving American soldiers are women, what percent of currently serving American soldiers are Black/African American, percentage of active duty American soldiers served in combat roles during the Iraq War (2003-2011), and the total number of American military deaths that occurred during the Iraq War (2003-2011). For each item, participants were provided a seven-point multiple choice question and asked to estimate which figure they believed was the closest to true. The four items measuring percentage used the same scale, ranging from 5 to 35% in increments of 5%. The item measuring American military deaths used a scale ranging from 1,000-7,000 in increments of 1,000.

*Second-order effects.*

*Militaristic Attitudes.* Militaristic attitudes are defined as support for the military and the use of military action in foreign policy situations (Eckhardt & Newcombe, 1969; McCleary & Williams, 2009). General militaristic attitudes are rooted in deeply held values, such as the desire to maintain and exercise control, authoritarianism, nationalism, masculinity, and superiority (Nelson & Milburn, 1999). Attitudes regarding specific wars share these influences, but are also subject to influence by more transient, specific conditions (Cohrs et al., 2005).

No one standard measurement of militarism exists, though a review of the literature finds that most measures employed have been thematically and conceptually similar, and have exhibited convergent validity (McCleary & Williams, 2009). For this study, participants completed the Militaristic Attitudes Scale (Nelson & Milburn, 1999), an instrument which appears frequently and consistently in modern studies of militarism (Cohrs & Moschner, 2002; Cohrs et al., 2005; Mayton, Peters, & Owens, 1999; Sundberg, 2014). The scale consists of a series of statements indicating either support for the military and the use of military force in foreign policy or support for peaceful means of cooperation with other nations, such as “We should favor the use of our nation's military strength over negotiation with our enemies,” “the U. S. should maintain military superiority in order to achieve peace and national security,” and “military forces should be used only for self-defense, if at all.” Participants responded by indicating their level of agreement on a scale ranging from “strongly disagree” (1) to “strongly agree” (7). Items supporting peaceful resolution are reverse coded. Two alterations will be made to the original scale for this study. First, the original five-point responses will be expanded to a seven-point scale to allow for a greater range of participant response. Second, as survey

length was a consideration in this study, the scale was truncated to 8 items, split evenly between items supporting militarism and reverse-coded items supporting peace. The scale was acceptably reliable with Cronbach's  $\alpha = .71$ . The final version of the scale appears in Table 2.

*Propensity to enlist.* Propensity to enlist is the measure of an individual's intention to enlist in military service. Propensity has been regularly measured by the Department of Defense as a key measure of their youth polling and enlistment efforts (Carvalho et al., 2010), and has been shown to be one of the most effective predictors of later enlistment (Ford et al., 2014). Propensity is measured using a single closed-ended item, asking "how likely it is that you will be serving in the Military in the next few years?" Participants who indicated that they were not already a current member of the U.S. military responded on a five-point scale ranging from "very unlikely" (1) to "very likely" (5).

*Attitudes toward terrorism.* Research into the fear of victimization recommends specificity, as attitudes can vary between different threats and targets of concern (Ferraro, 1995). Following this guidance, this study used items created by Nellis and Savage (2012), who adopted measures from the literature on fear of crime to suit investigations into the fear of terrorism. To measure their personal worry regarding a terror attack, participants were asked "How worried are you, personally, that you will be the victim of a terrorist attack," "How worried are you that a family member will be the victim of a terrorist attack," and "How worried are you that there will be another major terrorist attack on the United States?" Participants responded to each prompt on a 7-point scale from 1 (not worried) to 7 (very worried). The items provided a reliable scale (Cronbach's  $\alpha = .85$ ). To measure the perceived likelihood of a terrorist attack occurring in the United

States, participants were asked “How likely do you believe it is that there will be a major terrorist attack on the United States in the next 6 months,” “How likely do you believe it is that there will be a major terrorist attack on the United States in the next two years,” and “How likely do you believe it is that there will be a major terrorist attack on the United States in the next ten years?” Participants responded to each prompt on a 7-point scale from 1 (not likely) to 7 (very likely), creating an acceptably reliable scale (Cronbach’s  $\alpha = .85$ ).

*Islamophobia.* Islamophobia is defined as an unfounded hatred, fear, or distrust of the Islamic religion and Muslim populations (Lee et al., 2009). While anti-Islamic attitudes have existed in the West for a long time, the specific ways in which these attitudes have manifested have differed across historical and cultural contexts, resulting in a broad number of ways in which to measure Islamophobia. To best capture the broad sentiment that these different methods have attempted to quantify, a list of 16 statements, 8 positive and 8 negative, regarding Islamic and Arabic peoples were drawn from previous studies measuring bias toward these groups (Echebarria-Echabe & Guede, 2007; Lee et al, 2009; Park et al., 2007). Examples of positive items included “Islam is at least as tolerant and respectful of other faiths as most major religions are,” and “Islam promotes kindness and love toward all people,” while negative items included “Compared with other people, Muslims are uncivilized and backward,” and “Islam, by its nature, is contrary to the American way of life.” Participants were asked to respond by indicating their level of agreement on a scale ranging from “strongly disagree” (1) to “strongly agree” (7). The scale was reliable (Cronbach’s  $\alpha = .94$ ). The full version of the scale can be found in Table 3.

### **Moderating variables.**

*Transportability.* Narrative transportation is the mental process by which a person allows their attention, emotions, and thoughts to become focused on the characters, settings, and events in a narrative (Green & Brock, 2000). Transportation is theorized to contribute to second-order cultivation effects by intensifying the experience of narrative and reducing negative cognitive responses to media (Bilandzic & Busselle, 2008; Green & Brock, 2000; Shrum & Lee, 2012; Shrum et al., 2011). Game players can be transported by video game narratives, and such transportation can moderate responses to games (Brookes et al., 2011; Mahood et al., 2012). Thus, if cultivation effects are possible in games, transportation could play a moderating role.

Trait transportability functions as a valid measure of a repeated tendency to be transported by media and has been shown to predict transportation during film viewing (Bilandzic & Busselle, 2008; Dal Cin, Zanna, & Fong, 2004). It is thus an appropriate measure to assess the long-term implications of repeated transportive experiences with games. Trait transportability will be measured using a scale developed by Dal Cin, Zanna, and Fong (2004), comprised of statements indicating a proclivity for transportation. Participants are asked to indicate their level of agreement with each statement on a 7-point scale. Consistent with prior research (Bilandzic & Busselle, 2008), the scale was adapted to reflect the medium of study by altering the syntax to reflect gaming. For example, “I can easily put stories out of my mind after I’ve finished reading them” was changed to “I can easily put games out of my mind after I’ve finished playing them.” Other items include “When playing video games, I find that I can easily take the perspective of the character(s) in the game,” and “When playing video games, I find it

difficult to tune out activity around me.” The scale was also shortened due to survey length considerations, with only eight statements from the original scale included. The scale was found to be reliable (Cronbach’s  $\alpha = .85$ ). The final form of the instrument can be found in Table 4.

*Perceived realism of military games.* Military themed video games are often marketed on the basis of their realism (Payne, 2012), particularly in their capacity to accurately recreate military hardware and weaponry (Gagnon, 2010; Neiborg, 2010; Smicker, 2010; Stahl, 2009). These games and their marketing materials will often feature testimonials from military personnel praising the realism on offer (Mirrlees, 2009; Neiborg, 2010; Payne, 2012).

I adapted a measure of perceived realism by Busselle (2001), originally designed to measure the perceived similarity between television reality and actual reality. Busselle’s index includes 14 statements measuring the perceived realism of a number of a number of genre-specific (e.g., “The doctors and nurses on medical shows handle medical emergencies just like real doctors and nurses.”) aspects of television. Eight of these items were able to be adapted to reflect the genre of military themed video games, such as “Military themed video games portray the same combat situations that you see in real war zones,” and “Military themed video games show what foreign countries are really like.” Participants indicated their level of agreement with each statement on a 7-point scale. The scale was reliable (Cronbach’s  $\alpha = .82$ ). The full list can be found in Table 5.

**Descriptive Statistics.**  
**Demographic Variables.**

Participants' reported age ranged from 18 to 24 year ( $M = 21.26$ ,  $SD = 1.95$ ). The mean value on the 5-point political orientation item was  $M = 2.96$  ( $SD = 1.05$ ). On the 6-point education level item, the mean was  $M = 3.45$  ( $SD = 1.32$ ). 5.6% of participants identified as part of the military or an ROTC program, while 41% indicated they have a close friend or family member who has served in the military. The majority of participants' reported race was White at 54.1%, followed by Black/African American at 15.1%, Hispanic or Latino at 12.2%, Asian at 8.8%, Multiracial at 6.6%, Other at 2.0%, Pacific Islander at 1%, and American Indian or Alaska Native at .2%. Given the criticism that military games feature a reductionist image of the White American fighting the Other (Breuer et al., 2011; Cassar, 2013; Hoglund, 2008; King & Leonard, 2010; Leonard, 2004; Šisler, 2008), race was dummy coded to White (1 - 54.1%) and Not White (0 - 45.9%).

The majority of participants identified their religious belief as Christian at 56.8%, followed by Atheist/Agnostic at 17.1%, "Nothing in particular" at 16.8%, Jewish at 3.2%, Muslim at 2.2%, Hindu at 2%, Buddhist at 1.2%, and Other at .7%. Given that critiques of military-themed games have focused on their representations of Muslim populations (Cassar, 2013; Hoglund, 2008; King & Leonard, 2010, Leonard, 2004; Šisler, 2008), particularly in regards to conflicts with the predominantly Christian West (Gagnon, 2010; Hitchens, Patrickson, & Young, 2014; Zabecki, 2015) religion was transformed into two dummy coded variables; Muslim (1 - 2.2%) and Not Muslim (0 - 97.8%), and Christian (1 - 56.8%) and Not Christian (0 - 43.2%).

### **Independent variables.**

*Video Game Exposure.* 91.5% of participants indicated they had regularly played video games in the past year. Responses to the items asking participants to estimate the number of minutes spent playing video games on a typical weekday, Saturday, and Sunday were combined into a weighted average and converted to hours, with a resulting mean of  $M = 3.74$  ( $SD = 3.36$ ). Summing the scores for the 10 military themed game exposure items created a final military game frequency score ranging from 10 to 40, with a mean of  $M = 15.15$  ( $SD = 5.32$ ). Summing the scores for the remaining 32 best selling games created a final non-military game frequency score ranging from 32 to 128, with a mean of  $M = 46.9$  ( $SD = 15.89$ ).

### **Dependent variables.**

*First-order effects.* Participants provided estimates between 5% and 35% for four of the potential first-order effects. The mean estimate of the percent of the U.S. population that has served in the military at some point in their lives was 19.4% ( $SD = 8.6$ ). The mean estimate of the percent of currently serving American soldiers that are women was 14.9% ( $SD = 7.95$ ). The mean estimate of what percent of currently serving American soldiers are Black/African American was 18.1% ( $SD = 8.45$ ). The mean estimate of the percentage of active duty American soldiers that served in combat roles during the Iraq War (2003-2011) was 20.5% ( $SD = 8.6$ ). Estimates for the total number of American military deaths that occurred during the Iraq War (2003-2011) were made in increments of 1,000, ranging from 1,000 to 7,000, with a mean estimate of 4.3 thousand ( $SD = 1.64$ ).

*Second-order effects.* Militaristic attitudes, summed from eight responses with a potential range of 8 to 56, had a mean value for all participants of 21.15 ( $SD = 7.48$ ). Propensity to enlist was measured with a single 5-point item, resulting in a mean value of 2.00 ( $SD = 1.27$ ). Fear of terrorism was measured using three 7-point items, resulting in a potential score between 3 and 21, with a mean value of 11.00 ( $SD = 4.70$ ). Likewise, the perceived likelihood of terrorism was measured in three 7-point items with the same potential range, with a mean value of 13.60 ( $SD = 4.63$ ). Islamophobia was measured with 16 7-point items, which were summed to create a final score ranging between 16 and 112, and had a mean value of 58.89 ( $SD = 20.85$ ).

#### **Moderating variables.**

Trait transportability was measured with eight 7-point items, with a final possible score between 8 and 56. The scale was reliable (Cronbach's  $\alpha = .85$ ), with a mean value of 21.29 ( $SD = 20.85$ ). Perceived realism was likewise measured with eight items on a 7-point scale, with a summed total score ranging from 8 to 56. The scale was reliable (Cronbach's  $\alpha = .82$ ) with a mean value of 22.60 ( $SD = 8.16$ ).

#### **Preliminary Analysis**

In order to illustrate the shape of the data, bivariate correlations on all major variables were run, followed by a partial correlation employing age, education, race, religion, political orientation, status as a member of the military or ROTC, and knowing someone in the military or ROTC as controls. Of the 86 statistically significant correlations contained within the bivariate correlation matrix, 81 remained significant when statistical controls were employed, with one relationship existing in the controlled

partial correlation matrix that did not appear within the bivariate model. For parsimony's sake, Pearson correlations and significance values found in the bivariate analysis will be reported, with figures from the partial correlations reported when they vary meaningfully. Full results can be found in Table 6 and Table 7, respectively.

As expected, the weighted measure of overall gaming was moderately correlated with the more specific military game measure ( $r(406) = .3, p < .001$ ) and the non-military game measure ( $r(406) = .29, p < .001$ ). Somewhat unexpected was the degree to which the two specific military- and non-military game exposure measures correlated ( $r(410) = .8, p < .001$ ). It is worth noting that the weighted overall exposure measure was designed to broadly establish gaming exposure, while the specific-game measurement focused on games released within a year of this study. The pattern of correlation suggests that people who played a recently-released game were more likely to play other recently released games, meaning that higher scores on the military-related game exposure measure could be more indicative of a preference for recent games than the genre itself. Accordingly, both the military and non-military games will be included in the main analysis, in order to more meaningfully tease out genre preference.

The proposed moderating variables, transportability and perceived realism of military games, both display a consistent small but significant correlation with the exposure measures. Perceived realism correlated positively with overall game exposure ( $r(406) = .18, p < .001$ ), military game exposure ( $r(410) = .28, p < .001$ ), and non-military game exposure ( $r(410) = .22, p < .001$ ). Likewise, transportability correlated positively with overall game exposure ( $r(406) = .24, p < .001$ ), military game exposure ( $r(410) = .17,$

$p < .001$ ), and non-military game exposure ( $r(410) = .21, p < .001$ ). Perceived realism and transportability also correlated significantly ( $r(410) = .22, p < .001$ ).

The moderating variables likewise correlated with some outcome variables in small but significant amounts. The perceived realism of military games positively correlated with estimates of the percentage of the U.S. population that has served in the military ( $r(410) = .17, p < .01$ ), propensity to enlist ( $r(390) = .28, p < .001$ ), militaristic attitudes ( $r(409) = .28, p < .001$ ), fear of terrorism ( $r(410) = .15, p < .01$ ), and Islamophobia ( $r(409) = .19, p < .001$ ). Transportability significantly correlated with estimates of the percentage of soldiers who are black ( $r(410) = .1, p < .05$ ), propensity to enlist ( $r(390) = .12, p < .05$ ), fear of terrorism ( $r(410) = .19, p < .001$ ), and the perceived likelihood of terrorism ( $r(410) = .14, p < .01$ ).

The responses to the first-order cultivation effect questions display a trend of consistently small but significant correlations, ranging from  $r(410) = .11$  to  $r(410) = .29$ . Estimates of the percentage of Black soldiers provide the only exception, showing a much stronger correlation with estimates of women soldiers ( $r(410) = .5, p < .001$ ), and not correlating significantly with estimates of casualties in war. This general pattern indicates that respondents to some degree would consistently over- or underestimate in their responses. However, the relatively small size of the correlation indicates that a significant amount of the variance in their responses is not explained by this tendency.

To a slightly lesser degree, the responses to the second-order cultivation effect questions correlate with each other at a small but significant amount, ranging from  $r(390) = .11$  to  $r(389) = .23$ . The notable exception is the lack of a relationship between Islamophobia and propensity to enlist. Additionally, the relationship between militaristic

attitudes and propensity to enlist ( $r(389)=.14, p<.01$ ) and between militaristic attitudes and the perceived likelihood of terror ( $r(409)=.13, p<.05$ ) disappear in the demographics-controlled partial correlation. Much stronger correlations were evident in the relationship between the perceived likelihood of terrorism and personal fear of terrorism ( $r(410)=.47, p<.001$ ), and between militaristic attitudes and Islamophobia ( $r(408)=.46, p<.001$ ). Taken as a whole, these results suggest that the attitudes evident in the second-order effect questions cluster together somewhat, but with a significant amount of variance left to be explained by other factors.

These consistent patterns contrast to the relationships between first- and second-order effects measures, where very few significant correlations exist. Estimates of the percentage that have served in the military positively correlate with the propensity to enlist ( $r(390)=.16, p<.01$ ), militaristic attitudes ( $r(409)=.1, p<.05$ ), and fear of terrorism ( $r(410)=.14, p<.01$ ), though the relationship with militaristic attitudes disappears under statistical controls. Estimates of Black service members negatively correlate with militaristic attitudes ( $r(409)=-.15, p<.01$ ) and Islamophobia ( $r(409)=-.17, p<.001$ ), an unsurprising finding given the latent racial component of these three items. With these exceptions, first- and second-order responses appear to operate separately from each other. This pattern of results is supportive of Shrum's cognitive model for cultivation, which theorizes that first- and second-order effects are instigated through entirely separate models (Shrum & Lee, 2012).

While the hypotheses of this study are tested via regression below, the first-order correlations are presented here to illustrate their basic relationships. Reported status as one who plays video games did not significantly correlate with any outcome variable. Of

the first-order effects, estimates of the percentage of active military members who are women, the percentage of active military members who are Black, the percentage of active soldiers who serve in combat roles, and of the number of casualties incurred during the Iraq war were not significantly correlated with any predictor variable. Estimates of the percentage of the U.S. population that has served in the military positively correlated with exposure to military games ( $r(410)=.12, p<.05$ ), exposure to non-military games ( $r(410)=.11, p<.05$ ), and to overall game exposure ( $r(406)=.1, p<.05$ ), though this last relationship was not significant in the controlled partial-correlations model.

Second order effects displayed a greater number of correlations with the predictor variables. Military game use correlated with all second order effect measures, including militaristic attitudes ( $r(409)=.25, p<.001$ ), propensity to enlist ( $r(390)=.28, p<.001$ ), fear of terrorism ( $r(410)=.16, p<.01$ ), perceived likelihood of terrorism ( $r(410)=.15, p<.01$ ), and Islamophobia ( $r(409)=.15, p<.01$ ). Exposure to non-military games was not significantly correlated with Islamophobia, but was with militaristic attitudes ( $r(409)=.17, p<.05$ ), propensity to enlist ( $r(390)=.27, p<.001$ ), fear of terrorism ( $r(410)=.15, p<.01$ ), perceived likelihood of terrorism ( $r(410)=.12, p<.05$ ). Overall game exposure correlated with propensity to enlist ( $r(386)=.17, p<.01$ ), fear of terrorism ( $r(406)=.13, p<.01$ ), and Islamophobia ( $r(405)=.12, p<.05$ ), though the correlation with Islamophobia loses its significance under demographic controls. The general pattern of correlations is consistent with the expected pattern of results, with both military and non-military gaming indicating potential associations, though the relative strength of these measure must be interpreted in a more comprehensive model.

## Main Analysis

Linear regression was employed to test the hypotheses in this study. The regression included terms for demographic variables (age, education, political orientation, race, religion, membership in the military, related to military members), game exposure measures (Status as a frequent game player, overall video game exposure, exposure to military games specifically, and exposure to non-military games), and both transportability and perceived realism of military games, to test for potential main-effects of these proposed moderating variables. Given the high number of variables in the model sharing a small but significant correlation, the variance inflation factor (VIF) was calculated in all regressions. In all terms, the VIF was calculated to be less than 3, indicating an acceptably low level of collinearity in the terms. To test for the role of moderating variables in second-order effects, a second regression model was created. This model includes the same terms as above, with the addition of multiplicative interaction terms between transportability and military game exposure, and perceived reality and military game exposure. When interactions rose to the level of significance, slope analysis was conducted to illustrate the direction of effects.

The first set of hypotheses and research questions looked at the associations between military themed video game play and first order estimates regarding the military. H1a predicted that this type of game play would positively correlate with estimates of the percentage of the population that has served in the military at some point in their lives. Perceived realism was the only significant item in the regression ( $\beta = 0.13$ ,  $t(390) = -2.4$ ,  $p < .05$ ). None of the video game use variables were significantly associated with participant estimates thus H1a is rejected. Full results are reproduced in Table 8.

H1b predicted the use of military themed video games will negatively correlate with estimates of the percentage of American soldiers who are women. Race was the only significant variable, with White respondents offering significantly lower estimations ( $\beta = -0.151, t(392) = -3.04, p < .05$ ). The media-related variables were not significant, and H1b is rejected. Full results are reproduced in Table 9.

H1c predicted a negative correlation between estimates of the percentage of American soldiers who are Black/African American and game use. Trait transportability was the only significant variable in the regression ( $\beta = 0.11, t(392) = 2.03, p < .05$ ). No video game exposure measures were significant, and the hypothesis is rejected. Full results are reproduced in Table 10.

H1d predicted that the reported use of military themed video games will correlate with estimates of the percentage of American soldiers who served in combat roles during the Iraq War (2003-2011). No variable tested within the regression were significant, and H1d is likewise rejected. Full results are reproduced in Table 11.

RQ1 asked whether positive or negative correlations between estimates of the total number of American military deaths that occurred during the Iraq war and military themed video game use. No terms in the regression were found to be significant, offering no support for an association in either direction. Full results are reproduced in Table 12.

The second set of hypotheses investigated second order cultivation effects, looking for associations between the use of military-themed video games and a number of related attitudes and beliefs. First, H2a predicted that reported use of military themed video games will correlate with militaristic attitudes. Among the demographic and personal variables, political orientation was the only statistically significant term, with

conservative respondents expressing a higher level of militaristic attitudes ( $\beta = -0.38, t(395) = -8.35, p < .001$ ). The perceived realism of military games and trait transportability were also significantly associated with militaristic attitudes, with perceived realism being positively correlated ( $\beta = 0.2, t(391) = 4.16, p < .001$ ) and transportability being negatively correlated ( $\beta = -0.1, t(391) = -2.1, p < .05$ ). Of the media use variables, reported estimates of military game use was the only statistically significant item ( $\beta = 0.32, t(391) = 4.41, p < .001$ ), with use of this genre being positively associated with militaristic attitudes, supporting H2a. Full results are reproduced in Table 13.

H2b predicted an association between a reported propensity to enlist in the military and play of military themed video games. No demographic variables were found to be significant. The perceived realism of military themed games was positively associated with propensity to enlist ( $\beta = 0.18, t(371) = 3.49, p < .01$ ). Of the media use variables, people who played games expressed less likelihood to enlist in the military than those who do not ( $\beta = -0.13, t(371) = -2.59, p < .05$ ), though the average number of hours spent playing games positively correlated with propensity to enlist ( $\beta = 0.11, t(371) = 2, p < .05$ ). Military-themed game play was not significantly associated with propensity to enlist, leading to a rejection of H2b. Full results are reproduced in Table 14.

H2c postulated the reported use of military themed video games will correlate with a fear of terrorism, while likewise H2d predicted it will correlate with the perceived likelihood of a terrorist attack. For H2c, political orientation was significantly associated with the fear or terrorism ( $\beta = -0.15, t(392) = -2.86, p < .01$ ), with liberal beliefs being associated with less fear, and was associated with identifying as Christian ( $\beta =$

0.11,  $t(392) = 2.22, p < .05$ ), with Christian respondents expressing greater fear. Transportability was significantly associated with fear of terrorism ( $\beta = 0.15, t(392) = 2.92, p < .01$ ). With no statistically significant overall- or -military-themed game use variables rising to significance, H2c is rejected. Full results are reproduced in Table 15. For H2d, Whiteness was the only significant demographic variable ( $\beta = 0.17, t(392) = 3.32, p < .01$ ), with White respondents expressing a greater perceived likelihood of terrorism. Transportability was also significantly positively associated with the perceived likelihood of terrorism ( $\beta = 0.13, t(392) = 2.45, p < .05$ ). Military-themed game use was found to be the only game exposure measure significantly associated with the perceived likelihood of a terrorist attack ( $\beta = 0.17, t(392) = 2.01, p < .05$ ), offering support for H2d. Full results are reproduced in Table 16.

The final second-order effect hypothesis, H2e, predicted that the use of military themed video games will correlate with Islamophobic attitudes. The significant demographic factors in this regression were education ( $\beta = -0.13, t(391) = -2.76, p < .01$ ), political orientation ( $\beta = -0.39, t(391) = -8.31, p < .001$ ), and identifying as Muslim ( $\beta = -0.14, t(393) = -3.11, p < .01$ ), with greater education, more liberal beliefs, and identifying as Muslim all associated with lower amounts of Islamophobia. The perceived realism of military games was positively associated with Islamophobia ( $\beta = 0.1, t(391) = 2.09, p < .05$ ). Of the game exposure variables, only military game use ( $\beta = 0.18, t(391) = 2.45, p < .05$ ) was significant, with a positive association with Islamophobia, offering support for H2e. Full results are reproduced in Table 17.

Comparing traditional cultivation measures against more genre-specific measures of media exposure, H3 predicted that genre specific game play will be a more significant

predictor of the hypothesized correlations than overall game exposure. For the five tests of first-order associations, neither measure of game exposure was significantly correlated with the outcome variables. In the five second-order tests, overall game play was found to be statistically significant in only one regression (propensity to enlist), while the genre-specific measure (tested while controlling for overall exposure) was found to be significant in three (militaristic attitudes, perceived likelihood of terror, and Islamophobia). Taken together, these results demonstrate a pattern where genre-specific measures of game exposure were stronger predictors of the hypothesized relationships, offering support for H3.

In the final hypotheses, respondent transportability (H4) and the perceived realism of military games (H5) were both predicted to moderate the cultivation of second-order measures. In both cases, increases in the independent variable were expected to lead to stronger associations between military game use and the dependent variables. In the second set of regressions, the interaction term created to assess the moderating impact of transportability on military game exposure was only significant for the perceived likelihood of terrorism ( $\beta = 0.56, t(388) = 2.02, p < .05$ ). Full results of the regression are reproduced in Table 21. Slope analysis indicates the moderation works in the expected direction, with greater transportability leading to an increased association between military game exposure and the perceived likelihood of terrorism (see Figure 1). Transportability showed no moderating effect on the remaining variables. With the expected moderation appearing in only one of five models, these results indicate only marginal support for H4. The interaction term measuring the moderating effect of

perceived realism on military game exposure was not significant in any model, leading to a rejection of H5. Results of these regressions are reproduced in Tables 18-22.

In summary, this study found significant associations between the use of military themed video games and some second-order cultivation effects, as shown by the acceptance of H2a, H2d, and H2e. While H2b was rejected, as military-specific gaming did not predict propensity to enlist, overall game exposure was significantly associated with this outcome. This pattern of results support H3, indicating military games are a stronger predictor of such effects than general measures of gameplay. However, this study failed to find evidence of first-order effects, with the rejection of H1a-e. Additionally, evidence of the moderating effects that support the potential cognitive mechanism of cultivation theory was found only in the case of transportability and the perceived likelihood of terrorism, providing only marginal support for H4 and grounds to reject H5.

## CHAPTER 6

### DISCUSSION

The goal of this study was to examine the relationship between time spent playing military themed video games and military-related thoughts, beliefs, and attitudes. It was conducted in part to provide empirical data regarding the oft-proposed notion that games in this genre may be impacting how players think and feel about war, militarism, and the United States military in particular (Der Derian, 2001; King & Leonard, 2010; Stahl, 2007). Cultivation theory was selected as a potential lens for understanding the relationship between games, players, and the military. Cultivation effects have been extensively documented for overall television use (Morgan et al. 2012; Shanahan & Morgan, 1999) and for television genre viewing (Bilandzic & Busselle, 2012; Potter & Chang, 1990), yet previous attempts to evaluate the theory in a video game context have been inconclusive, due in part to difficulties in adapting the theory to the medium (Anderson & Dill, 2000; Chong et al., 2012; Dill et al., 2008; Eyal et al., 2006; Tanes & Cemalcilar, 2010; Van Mierlo & Van Den Bulck, 2004; Williams, 2006). Military themed games provided an opportunity to address this issue, as this genre is articulated clearly enough to identify distinct content patterns with the potential for first- or second-order cultivation effects. Additionally, the design of this study tested the role of moderating variables predicted by cognitive models of cultivation (Shrum & Lee, 2012) in an attempt to provide further evidence of potential cultivation effects.

The current study found no evidence for any of the proposed first-order effects of military themed video game play, including estimates of the overall military population, the race and gender of US soldiers, and the service and casualty rates of the Iraq War.

This finding stands in contrast to the pattern of results in the literature, where first-order effects have been more readily found (Chong et al., 2012; Fox & Potocki, 2016; Van Mierlo & Van den Bulck, 2004; Williams, 2006). The reason for this discrepancy is difficult to discern, as the present study differed from those previous studies in methodology, exposure time-frame, game content, and other ways. The cognitive model for cultivation theorizes that first-order judgements are constructed via a heuristic process at the time they are requested (Shrum & Lee, 2012), and that television impacts these judgements by providing repeated, if often inaccurate, examples of social phenomena, which for heavy viewers become the most easily accessible for recall. One possibility is that participants in this study did not meet some necessary threshold of exposure to military games in particular for their content to significantly influence these first-order judgements. In spite of the high rates of reported game play, the mean score for genre-specific military game play fell on the lower end of the potential range. It is also a possibility that some qualitative characteristic of video games in general, or of their representations of soldiers and warfare specifically, causes them not to be used as the same kind of source for judgements. Where previous studies found first-order effects in areas of violence and crime (Chong et al., 2012; Fox & Potocki, 2016; Van Mierlo & Van den Bulck, 2004; Williams, 2006), themes that appear more broadly across games, it could be that the specificity of military-related content is simply too narrow and limited to trigger the tested first-order judgements. While the presence of second-order effects (discussed below) somewhat undermines this explanation, the two processes are theorized to operate through different mechanisms (Shrum & Lee, 2012), and differing thresholds for activation of these processes is a possibility. Further study of this topic

may be able to identify which factors, either in the content of games or in their consumption by players, may encourage or discourage potential first-order cultivation effects.

This study also examined second order cultivation effects, looking for associations between the use of military-themed video games and several pertinent attitudes and beliefs. Results were more robust in this area of the study, with reported military game play significantly associated with three of the five second-order effects tested in this design. Militaristic attitudes, Islamophobia, and the perceived likelihood of a terrorist attack were all significantly predicted by military themed game play, while the fear of terrorism was not. The propensity to enlist in the military, while not predicted by military game play specifically, was predicted by levels of overall game play. This study joins a growing body of literature finding associations between game play and second-order effects (Behm-Morawitz & Ta, 2014; Dill et al., 2008; Fox & Potocki, 2016; Stermer & Burkley, 2015; Tanes & Cemalcilar, 2010). These associations were present even when controlling for a number of key demographic characteristics that had been postulated to overwhelm the potential impact of video game play on attitudes (Breuer et al., 2015). Indeed, game play appeared to be a more consistent and meaningful predictor of attitudes than these demographic factors, which made a significant difference in their responses in only a few specific cases, with political orientation being the only demographic factor that rose to significance in more than one model.

Regarding the specific pattern of results in this study, it is worth stressing the finding that militaristic attitudes were associated with military themed game play, and that propensity to enlist in the military was correlated with overall levels of game play.

Arguably, the most prominent strain of criticism of military themed games is for their role as functional propaganda for military institutions (Allen, 2001; Annadale, 2010; Halter; 2006; Huntemann & Payne, 2010; Lugo, 2006; Nieborg, 2010; Power, 2007; Stahl, 2009). While this study can make no claims regarding causal effects, the establishment of a relationship between game playing and support for the military is an important first step in linking the criticisms of the content of these games to an empirically based understanding of their impact on the audience. This pattern of results is also notable in that it was not present in previous studies that had sought to link militaristic attitudes with game play (Festl, Scharkow, & Quandt, 2013; Malliet & Ribbens, 2013). This disparity may be due to prior studies being conducted with European samples, while the present study utilized an American audience. Cultivation theory does not predict that all audiences will be uniformly impacted by the same message system, but rather it is the message system's relationship to the cultural mainstream which must be considered. With a message system that focuses on America's role in warfare (Neiborg, 2010; Zabecki, 2015), and with American and European audiences holding differing cultural norms around militarism (Festl, Scharkow, & Quandt, 2013), the presence of an effect in the former audience and absence in the latter would fit within the framework of cultivation theory.

Regarding propensity to enlist, it is of note that in first-order correlations, military game play was correlated with propensity to enlist. This association falls away in the regression model, where the role of overall game play is shown to be a stronger predictor. In light of this pattern, it is worth stressing that while this study focused on military games, where militaristic themes are at their most explicit and potentially most

influential, these same patterns of content can and do exist in games outside the military genre, per-say. Militaristic themes have historically been abstracted into non-explicitly military-themed games of all kinds (Halter, 2006) and have been documented in games of many other genres (Voorhees, 2014). While the genre-specific model of cultivation emphasized the role of particularly prevalent content patterns in a heavily consumed genre, it does not discount the potential that content patterns that are sufficiently present outside of a particular genre would impact the wider audience. While the present study's focus precludes any definitive claims regarding this, it is possible that themes valorizing service and sacrifice and present enough in games as a whole to impact a player's intent to enlist. Future studies looking to expand on this topic should widen their purview to consider the role of military-themed content patterns in the medium as a whole.

Interestingly, independent of any game exposure measures, the perceived realism of military games was also associated both with militaristic attitudes and with the propensity to enlist. While the relationship between these variables was not a focus of the study, this finding could lend weight to the criticism offered by those like Stahl (2009), as it shows that those who are more likely to support the actions of the military, or are more likely to wish to join the military themselves, seem to believe the representations offered in these games are an accurate reflection of reality.

The other dominant strain of criticism present in the literature takes issue with the genre's portrayal of the Islamic world, and the West's relationship to it (Cassar, 2013; Gagnon, 2010; Hitchens et al., 2014; Høglund, 2008; King & Leonard, 2010, Leonard, 2004; Šisler, 2008; Zabecki, 2015). In this study, Islamophobia was significantly associated with exposure to military-themed games, adding weight to the concerns that

these games have the potential to influence player attitudes toward these groups. The only previous study to attempt to link game play with anti-Islamic thoughts or beliefs did not find evidence of such a relationship (Malliet & Ribbens, 2013). That study only attempted to measure a first-order effect, asking for estimates of the number of Muslims who are hostile to the West, whereas the present study investigated the topic as a second-order construction. Given the pattern of results in the current study, where second-order effects were relatively robust and first-order effects were non-existent, it is possible that games can influence players' attitudes toward Muslims while not serving as a readily accessible reference while estimating the prevalence of anti-American Muslim individuals.

This finding is interesting in light of the concerns raised by Hitchens, Patrickson, and Young (2014), who noted that criticism of the presentation of Islam in military games has been too focused on a small number of game series (Call of Duty, Kuma\War, America's Army). In the present study, eight of the ten military games used to construct the measure for military game use came from series outside the roster of commonly critiqued games. This finding suggests that the problem of anti-Muslim content may not be localized to those high-profile series. Alternately, in light of the evidence that Middle Eastern locals were not the most common setting within military shooter games (Breuer et al.; 2011), it is possible that even genericized locations and enemies in these games could serve to reinforce the dominant anti-Muslim themes present in other parts of the genre (Gagnon, 2010; Zabecki, 2015).

The results for the two terrorism related measures were inconsistent. As predicted, a significant relationship between military themed game play and the perceived likelihood of a terrorist attack was found. This finding again may serve to bolster the

criticism that military game function to reinforce an ideology wherein the acceptance of militarized state violence. Central to this criticism is that games prepare audiences to accept military action as the most natural response to terrorism, as in these games terrorism is an inevitable outcome that can only be countered with force (Casser, 2013; Gagnon, 2010; Leonard, 2004; Stahl, 2009). While this study can make no causal claims, this finding suggests that the players of these games are more likely to accept that core assumption, that terrorism is more likely to occur. However, no such relationship with video game play was found with the fear of being a victim of a terrorist attack. This pattern of results differs slightly from what would be expected of a “Mean World Syndrome”-type effect (Gerbner et al., 1980), where the perceived likelihood of crime and an attendant fear of victimization could both be found. This is likely due to the vastly different natures of violent crime and terrorism, as the nature of peoples’ fear of victimization is highly specific to the nature of the threat presented (Ferraro, 1995). While games present an image of a world full of political enemies of the United States who aim to attack via terrorist activities (Allen, 2011; Gagnon, 2010; Hitchens et al.2014; Mirrlees, 2009; Smicker, 2010; Zabecki, 2015), the reality of terrorist attacks in the United States is one of relative scarcity and geographic specificity, where even the largest scale attacks have directly impacted only a small fraction of the population. In short, it is easy to imagine that the barrier to influencing a person’s belief that an attack may occur *somewhere* is significantly lower than for their belief that an attack would occur *to them*.

In addition to examining these specific cultivation patterns, this study looked to interrogate aspects of cultivation theory in the context of video games. One goal was to compare a more traditional formulation of cultivation theory, which focused on levels of

overall exposure, to a genre-specific formulation to see which would reveal stronger associations. While neither overall gameplay nor genre-specific military game play were associated with first-order effects, the pattern of results suggests that genre-specific play was a more reliable predictor of second-order effects than overall gameplay. A participant's status as having regularly played or not played video games within the last year, and their overall hours spent gaming were significant predictors of only propensity toward enlistment, while military-specific gaming predicted Islamophobia, militarism, and the perceived likelihood of terrorism.

This result is consistent with the growing body of video games cultivation studies, where overall video game has had limited success as a predictor for effects (Anderson & Dill, 2000; Breuer et al., 2015; Eyal et al., 2006; Festl, Scharkow, & Quandt, 2013; Van Mierlo & Van den Bulck, 2004) and more specific measures of exposure have yielded more significant results (Beullens et al., 2011; Chong et al., 2012; Dill et al., 2008; Eyal et al., 2006; Stermer & Burkley, 2015; Tanes & Cemalcilar, 2010; Van Mierlo & Van Den Bulck, 2004; Williams, 2006). Genre-specific cultivation was theorized as a way to account for the presence of genre-specific content patterns, coupled with increased selectivity in audience viewing (Bilandzic & Busselle, 2012; Potter & Chang, 1990). In games, genre-specific content patterns can be accounted for (as established in the literature review of this study), and there is evidence that game playing is more selective than television viewing (Common Sense Media, 2015; Griffiths, Davies, & Chappell, 2003; Nielsen, 2015; Williams, 2006). This evidence, when taken together, suggests that a genre-specific approach to cultivation in games may be more appropriate to the medium than the theory as originally conceived.

As a further test of cultivation theory, moderating variables predicted by the cognitive model put forth by Shrum and Lee (2012) were also tested. Transportability and perceived realism in particular were selected, as critics have expressed concern regarding the transportive, participatory nature of military themed games, which allow players to enact the games' ideology rather than just observe (King & Leonard, 2010; Stahl, 2009; Cassar, 2013; Gagnon, 2010; Mirrless, 2009; Stahl, 2009). As these games heavily feature a purported sense of realism that's dependent on faithful reproductions of military aesthetics, weapons, and tactics (Gagnon, 2010; Neiborg, 2010; Payne, 2012; Smicker, 2010; Stahl, 2009; Susca, 2012), concern also exists that this ostensible realism could potentially increase their transportive potential, further moderating any cultivation effects (Busselle & Bilandzic, 2012; Busselle & Greenberg, 2000; Cho et al., 2014).

Transportability and perceived realism were both expected to positively moderate the cultivation of second-order measures, however this relationship only appeared for transportability when predicting the perceived likelihood of terrorism. In the nine other tested cases, no such relationship was found.

The failure to establish a consistent pattern of the predicted moderation effect severely impacts the interpretability of the discovered second-order relationships. While cultivation primarily argues that media influence the audience, a major limitation of the cross-sectional nature of this study is the inability to establish causality, as this design can only assess correlations and not causal relationships. Such a design cannot rule out that any associations between media consumption and the cultivation measure could be attributed to a reversed causal explanation, that those high in the particular cultivation measure seek to consume more media that conforms to their views. Likewise, this design

cannot rule out that the relationship is spurious and caused by an unknown third variable. The cognitive model offered by Shrum partially mitigates this limitation, as it allows the prediction of specific moderating conditions that are more likely to occur in the causal framework than in the reverse or spurious frameworks (Shrum & Lee, 2012). For instance, the model's prediction that high levels of transportability would increase gameplay's effects on militaristic attitudes is more parsimonious than an interpretation where the interaction of pre-existing militaristic attitudes and game play leads to increases in trait transportability. The failure to find evidence of such a moderating effect in this study, while not supporting evidence of a reversed or spurious correlation, does indicate that the model failed to fully predict the data. This is particularly at issue when proposing genre-based cultivation, which depends in part on the selectivity of the audience, as the proposed dependent variable may in fact reflect subject characteristics which drive genre-preference and thus increase time spent with the genre (Bilandzic & Busselle, 2012).

### **Limitations**

Beyond this larger theoretical limitation, this study design has a number of more specific limitations. One potential limitation of the study is the sample criteria. The sample was randomly drawn from a national sampling pool of recruited participants. However, as this original recruited pool was not selected purely randomly, it may potentially contain unknown biases. A randomly-drawn nationally representative sample would provide a more reliably generalizable result.

Additionally, this study focused only on male players. The decision to include only one gender eliminates one potentially significant moderating variable, providing

additional clarity, but men are not the only players of military themed games, nor are they the only participants in the military. Future research should be extended to investigate the reception of these games by female players.

This study limited its scope of moderating variables to the effects of transportability and perceived reality on the studied relationships. While these traits are particularly relevant to the focus of this study, there are any number of additional individual differences that could mediate or moderate effects. Additionally, the moderating variables selected in this study showed a small but significant correlation with both the outcome and exposure variables. While the VIF factors were suitably low enough to avoid impacting the testing used in this study, the observed collinearity and the failure of the proposed model to fully explain the findings suggest that there is significant room for improvement in modeling the complex relationships between these variables. Researchers in future studies should continue to explore a variety of these potential moderating variables, with a goal of creating more robust models that can account for many variables working in tandem.

The exposure measures employed in this study are potentially limiting. Self-reports of media use correlate moderately with more direct measurements, but are not as accurate as these more labor-intensive methods and consistently provide overestimations of media use (Anderson, et al, 1985; Greenberg et al., 2005; Van der Voort & Vooijs, 1990). Additionally, the field's lack of a consistent method for measuring media use inhibits comparing results directly to other studies in the literature, as the variety of measurement may impact findings. These problems extend to measuring genre-specific exposure, where the issues of multicollinearity that would present if using absolute values

of both overall video game playing and genre-exposure must be balanced against the potential that other forms of measurement may capture some aspects of related concepts, such as genre-preference. An additional issue with the exposure measures was discovered in the analysis phase of this study, when it was found that a significant correlation existed between the military-game specific exposure measure and a measure comprised of exposure to non-military games. As these measures were derived by asking participants to identify games from the past year that they had played, it is possible that these measures were tapping into some latent characteristic related to the willingness or ability to play recently released games. A post-hoc design decision was made to include both measures to mitigate some of this potential error in the operationalization of military-game exposure. These challenges in operationalizing game exposure highlight the need for future research to grapple with the difficulties in measuring genre exposure when dealing with games as a medium.

One notable limitation of the nascent body of video game cultivation studies is the inconsistencies in outcome variables across the literature. It is difficult to assess how much this inconsistency in variable selection is impacting the greatly varying results across studies. This study uses a number of original items when measuring first-order cultivation effects, and second-order measures that, while established as valid measurement, have not appeared in the literature to date. While this is done to allow for a greater correspondence between the outcome variables and the content present in military games, these items have not been established in the literature, thus providing limited opportunities for comparison.

Both the measures for transportability and perceived realism have been adapted for this study to apply to video games. While the concepts should theoretically apply to any medium, no empirical testing of this specific context is available, and could potentially limit the validity of these measures.

### **Final Thoughts**

Taken holistically, the results of this study support the notion that a relationship exists between the players of military themed games and attitudes that are militaristic, or generally supportive of the military. These results are consistent with audience interviews and studies of fan communities which have shown that, while a range of interpretations exist, players do tend to be generally in favor of the military (Huntemann, 2010; Malliet et al., 2011; Payne, 2012; Penney, 2010; Susca, 2012). While previous studies that have most directly investigated this genre from a large scale, quantitative perspective have not found evidence of such a relationship in their European samples, this study found such relationships in its American audience (Festl et al., 2013; Lemmens, 2011; Malliet & Ribbens, 2013). When considered in concert with previous research showing America's Army to be effective in some training and instructional capacities (Belanich et al., 2004; Carley et al., 2005; Moon et al. 2006; Moon et al., 2005; Orvis et al., 2008) and studies that have demonstrated the causal links between video game play and other learned attitudes (Chong et al., 2012; Tanes & Cemalcilar, 2010; Williams, 2006), this study lends further support to concerns regarding the ideology on display in military games, and their potential effect on their players (Cassar, 2013; King & Leonard, 2010; Stahl, 2009).

It is less clear whether cultivation theory would be the most successful lens to examine this relationship. As with much of the extant literature on cultivation in a gaming

context, the current study yielded inconsistent results. While meaningful second-order associations were found, the lack of detectable first-order effects and general lack of the predicted moderating effects weakens the case for cultivation as the best explanatory framework. Although games may provide an opportunity for habitual exposure to consistent message systems, video game play may differ from television watching in fundamental ways (such as selectivity, interactivity, or volume) to a degree that cultivation no longer best explains the relationship between the medium and its consumer. Ultimately, continued research into the fitness of cultivation theory in a gameplay context is needed. Future researchers should seek to employ consistent measures of exposure, and utilize a consistent set of first- and second-order outcome variables to allow for greater interpretability across multiple studies. Researchers should also move beyond blanket applications of theory (e.g. measuring raw exposure and broad outcomes), utilizing message system analysis to properly align exposure and outcome measures, and taking opportunities to test the specific cognitive mechanics of cultivation theory. While it would be difficult to amass a body of research as comprehensive as the work done on cultivation and television, a larger effort than has been performed to date is needed to properly assess the fitness for this theory and video games.

Military themes dominate video game content (Hitchens, 2011), and will likely continue to do so for the foreseeable future. The historical ties between the military and video game industries continue to endure (Amrich, 2010; Gagnon, 2010; Huntemann & Payne, 2010; Mirrlees, 2009; Nichols, 2010; Thier, 2012). Call of Duty remains one of the highest selling video game series of all time, with Activision indicating that annual releases will continue for some time (Makuch, 2015; Pierson, 2015). The continued

production and popularity of the genre remains problematic and there continues to exist a pressing need to understand the role this genre of games plays in society. The outcomes examined in this study- the desire to join the military, the willingness to support aggressive military action, the increased belief in the inevitability of future terrorist attack- all speak to issues of critical importance, at the personal and national scale. It is no stretch to say that the decisions informed by these attitudes can be life altering. Video games are unlikely to ever be the key determinant in these decisions. Yet, if the distorted and romanticized images of war they present bear any impact at all, it is critical that this effect be understood.

## APPENDIX: TABLES AND FIGURES

Table 1: Games included in the survey.

Game Name	Military-Themed
ARMA 3	Yes
Battleborn	No
Battlefield 1	Yes
BioShock: The Collection	No
Call of Duty: Black Ops III	Yes
Call of Duty: Infinite Warfare	Yes
CS:GO	Yes
Dark Souls III	No
DOOM	No
DOTA 2	No
EA Sports UFC 2	No
Fallout 4	No
Far Cry: Primal	No
FIFA (Series)	No
Final Fantasy XV	No
Gears of War 4	No
Grand Theft Auto V	No
Hearts of Iron IV	Yes
Lego Star Wars: The Force Awakens	No
Madden NFL (Series)	No
Mafia III	No
Mirror's Edge Catalyst	No
MLB The Show (Series)	No
Monster Hunter Generations	No
Naruto Shippuden: Ultimate Ninja Storm 4	No
NBA 2K (Series)	No
NHL (Series)	No
No Man's Sky	No
Overwatch	No
Pokemon Sun/Moon	No
Rainbow Six Siege	Yes
Ratchet & Clank	No
Rocket League	No
Star Wars Battlefront	No
The Division	Yes

The Legend of Zelda: Twilight Princess HD	No
The Witcher 3	No
Titanfall 2	Yes
Total War: Warhammer	No
Uncharted 4: A Thief's End	No
War Thunder	Yes
XCOM 2	No

Table 2: Modified militaristic attitudes scale.

Item	Reverse Coded
1. We should favor the use of our nation's military strength over negotiation with our enemies.	No
2. The U. S. should maintain military superiority in order to achieve peace and national security.	No
3. Our country should be engaged constantly in research to develop superior weapons for our national defense.	No
4. When countries have disputes, they should avoid threatening each other.	Yes
5. Under no circumstances should our country use nuclear bombs against anybody.	Yes
6. Military forces should be used only for self-defense, if at all.	Yes
7. Military threat is usually the best way to deal with a potentially aggressive nation.	No
8. The U. S. should rely on international organizations and arms control agreements to achieve peace and national security.	Yes

Table 3: Modified Islamophobia scale.

Item	Reverse Coded
1. Islam is at least as tolerant and respectful of other faiths as most major religions are.	Yes
2. Compared with other people, Muslims are uncivilized and backward.	No
3. Islam, by its nature, is contrary to the American way of life.	No
4. Islam promotes kindness and love toward all people.	Yes
5. Islam has had a very positive effect on the lives of many people.	Yes
6. Muslims are at least as intelligent and well educated as others are.	Yes
7. Muslims show great respect for human rights and freedom.	Yes
8. Muslims cherish every human life.	Yes
9. When conflicts arise, Muslims are cowards and do not fight honorably.	No
10. Muslims want to take over the world.	No
11. The religion of Islam supports acts of violence.	No
12. Islam supports terrorist acts.	No
13. I believe that Muslims support the killings of all non-Muslims.	No
14. Islam is a religion of hate.	No
15. Islam respects women.	Yes
16. Islam respects human rights.	Yes

Table 4: Modified transportability scale.

Item	Reverse Coded
1. I find I can easily lose myself in the game.	No
2. I find it difficult to tune out activity around me.	Yes
3. I can easily put games out of my mind after I've finished playing them.	Yes
4. I am often impatient to find out how the game ends.	No
5. I find that I can easily take the perspective of the character(s) in the game.	No
6. I am often emotionally affected by what I've played.	No
7. My mind often wanders.	Yes
8. I often find that playing games has an impact on the way I see things.	No

Table 5: Modified perceived realism scale.

Item	Reverse Coded
1. The combat you see in military themed video games is very similar to combat in real life.	No
2. Military themed video games portray the same combat situations that you see in real war zones.	No
3. Military themed video games show people what foreign countries are like.	No
4. The soldiers in military themed video games handle combat situations just like real soldiers.	No
5. If I were to go to a military base, I would not expect it to be like the military bases I see in military themed video games.	Yes
6. You cannot learn much about the real world by playing military themed video games.	Yes
7. Characters in military themed video games are very similar to people in the real world.	No

Table 6: Bivariate correlation matrix.

	GamerYN	AvgGameWeighted	MilGames	NonGames	MVGReal	Transpor	MGxMVGReal	MGxTrans
GamerYN	-	.300**	.188**	.180**	0.03	.267**	.136**	.245**
AvgGameWeighted	.300**	-	.301**	.290**	.179**	.241**	.293**	.329**
MilGames	.188**	.301**	-	.799**	.277**	.173**	.805**	.836**
NonGames	.180**	.290**	.799**	-	.217**	.207**	.662**	.714**
MVGReal	0.03	.179**	.277**	.217**	-	.219**	.758**	.317**
Transpor	.267**	.241**	.173**	.207**	.219**	-	.239**	.651**
MGxMVGReal	.136**	.293**	.805**	.662**	.758**	.239**	-	.734**
MGxTrans	.245**	.329**	.836**	.714**	.317**	.651**	.734**	-
H1A	-0.05	.098*	.119*	.108*	.167**	0.05	.167**	.114*
H1B	0.02	0.03	-0.03	0.01	0.04	0.08	0.04	0.04
H1C	0.04	0.00	-0.01	0.03	-0.03	.102*	-0.01	0.06
H1D	0.05	0.03	-0.01	0.00	0.03	0.00	0.03	0.01
H1E	0.01	-0.02	-0.06	-0.04	0.06	-0.01	0.02	-0.03
Propensity	-0.06	.173**	.281**	.273**	.282**	.124*	.353**	.286**
MilAtt	-0.06	0.02	.252**	.126*	.276**	-0.06	.318**	.157**
TerrWorr	0.03	.129**	.158**	.151**	.150**	.191**	.193**	.229**
TerrLike	0.06	0.08	.148**	.115*	0.04	.137**	.113*	.196**
IslamPho	-0.02	.120*	.146**	0.05	.190**	0.02	.187**	.129**

	H1A	H1B	H1C	H1D	H1E	Propensity	MilAtt	TerrWorr	TerrLike	IslamPho
GamerYN	-0.05	0.02	0.04	0.05	0.01	-0.06	-0.06	0.03	0.06	-0.02
AvgGameWeighted	.098*	0.03	0.00	0.03	-0.02	.173**	0.02	.129**	0.08	.120*
MilGames	.119*	-0.03	-0.01	-0.01	-0.06	.281**	.252**	.158**	.148**	.146**
NonGames	.108*	0.01	0.03	0.00	-0.04	.273**	.126*	.151**	.115*	0.05
MVGReal	.167**	0.04	-0.03	0.03	0.06	.282**	.276**	.150**	0.04	.190**
Transpor	0.05	0.08	.102*	0.00	-0.01	.124*	-0.06	.191**	.137**	0.02
MGxMVGReal	.167**	0.04	-0.01	0.03	0.02	.353**	.318**	.193**	.113*	.187**
MGxTrans	.114*	0.04	0.06	0.01	-0.03	.286**	.157**	.229**	.196**	.129**
H1A	-	.188**	.130**	.208**	.142**	.162**	.104*	.144**	0.05	0.07
H1B	.188**	-	.502**	.270**	.112*	0.07	-0.05	0.08	-0.04	-0.08
H1C	.130**	.502**	-	.286**	0.08	0.03	.148**	-0.04	-0.07	-.176**
H1D	.208**	.270**	.286**	-	.253**	-0.02	-0.06	0.09	0.09	-0.07
H1E	.142**	.112*	0.08	.253**	-	-0.03	-0.05	0.03	-0.01	-0.06
Propensity	.162**	0.07	0.03	-0.02	-0.03	-	.140**	.232**	.114*	0.09
MilAtt	.104*	-0.05	.148**	-0.06	-0.05	.140**	-	.200**	.127**	.460**
TerrWorr	.144**	0.08	-0.04	0.09	0.03	.232**	.200**	-	.466**	.208**
TerrLike	0.05	-0.04	-0.07	0.09	-0.01	.114*	.127**	.466**	-	.154**
IslamPho	0.07	-0.08	.176**	-0.07	-0.06	0.09	.460**	.208**	.154**	-

\* $p < .05$ , \*\* $p < .01$

Table 7: Partial correlations matrix.

	GamerYN	AvgGameWeighted	MilGames	NonGames	MVGReal	Transpor	MGxMVGReal	MGxTrans
GamerYN	-	0.30**	0.19**	0.18**	0.05	0.27**	0.15**	0.25**
AvgGameWeighted	.30**	-	0.29**	0.29**	0.16**	0.25**	0.28**	0.32**
MilGames	.19**	0.29**	-	0.80**	0.24**	0.17**	0.8**	0.83**
NonGames	.18**	0.29**	0.80**	-	0.2**	0.21**	0.66**	0.71**
MVGReal	0.05	0.16**	0.24**	0.20**	-	0.22**	0.74**	0.29**
Transpor	.27**	0.25**	0.17**	0.21**	0.22**	-	0.24**	0.66**
MGxMVGReal	.15**	0.28**	0.80**	0.66**	0.74**	0.24**	-	0.72**
MGxTrans	0.25**	0.32**	0.83**	0.71**	0.29**	0.66**	0.72**	-
H1A	-0.04	0.10	0.12*	0.13*	0.16**	0.06	0.17**	0.12*
H1B	0.02	0.04	-0.05	-0.03	0.04	0.08	0.02	0.02
H1C	0.03	0.01	-0.02	0.00	-0.03	0.1*	-0.03	0.05
H1D	0.05	0.01	-0.03	-0.02	0.03	0.00	0.02	0.00
H1E	0.01	-0.01	-0.05	-0.04	0.07	-0.01	0.03	-0.03
Propensity	-0.04	0.17**	0.26**	0.26**	0.25**	0.12*	0.33**	0.27**
MilAtt	-0.03	-0.01	0.26**	0.15**	0.23**	-0.06	0.3**	0.16**
TerrWorr	0.05	0.13**	0.15**	0.16**	0.1*	0.19**	0.16**	0.22**
TerrLike	0.07	0.08	0.18**	0.15**	0.04	0.15**	0.14**	0.23**
IslamPho	-0.01	0.10	0.18**	0.08	0.14**	0.04	0.16**	0.13**

	H1A	H1B	H1C	H1D	H1E	Propensity	MilAtt	TerrWorr	TerrLike	IslamPho
GamerYN	-0.04	0.02	0.03	0.05	0.01	-0.04	-0.03	0.05	0.07	-0.01
AvgGameWeighted	0.10	0.04	0.01	0.01	-0.01	0.17**	-0.01	0.13**	0.08	0.10
MilGames	0.12*	-0.05	-0.02	-0.03	-0.05	0.26**	0.26**	0.15**	0.18**	0.15**
NonGames	0.13*	-0.03	0.00	-0.02	-0.04	0.26**	0.15**	0.16**	0.15**	0.08
MVGReal	0.16**	0.04	-0.03	0.03	0.07	0.25**	0.23**	0.1*	0.04	0.14**
Transpor	0.06	0.08	0.1*	0.00	-0.01	0.12*	-0.06	0.19**	0.15**	0.04
MGxMVGReal	0.17**	0.02	-0.03	0.02	0.03	0.33**	0.3**	0.16**	0.14**	0.16**
MGxTrans	0.12*	0.02	0.05	0.00	-0.03	0.27**	0.16**	0.22**	0.23**	0.13**
H1A	-	0.22**	0.15**	0.22**	0.15**	0.17**	0.07	0.12*	0.05	0.02
H1B	0.22**	-	0.49**	0.27**	0.1*	0.06	-0.03	0.08	-0.01	-0.05
H1C	0.15**	0.49**	-	0.29**	0.08	0.03	-0.12*	-0.03	-0.04	-0.13**
H1D	0.22**	0.27**	0.29**	-	0.26**	-0.02	-0.06	0.1*	0.09	-0.07
H1E	0.15**	0.1*	0.08	0.26**	-	-0.02	-0.03	0.04	0.00	-0.06
Propensity	0.17**	0.06	0.03	-0.02	-0.02	-	0.09	0.21**	0.12*	0.05
MilAtt	0.07	-0.03	-0.12*	-0.06	-0.03	0.09	-	0.14**	0.09	0.34**
TerrWorr	0.12*	0.08	-0.03	0.1*	0.04	0.21**	0.14**	-	0.48**	0.15**
TerrLike	0.05	-0.01	-0.04	0.09	0.00	0.12*	0.09	0.48**	-	0.11*
IslamPho	0.02	-0.05	0.13**	-0.07	-0.06	0.05	0.34**	0.15**	0.11*	-

\* $p < .05$ , \*\* $p < .01$

Table 8: Regression analysis for estimates of the percentage of the population that has served in the military at some point in their lives.

	B	SE B	$\beta$	t	p
(Constant)	2.99	1.08		2.78	0.01
Age	0.00	0.05	0.00	0.01	0.99
Education	0.02	0.07	0.01	0.24	0.81
Political	-0.09	0.09	-0.06	-1.09	0.28
White	0.27	0.18	0.08	1.56	0.12
Christian	0.29	0.18	0.08	1.59	0.11
Muslim	0.11	0.60	0.01	0.18	0.85
In military	-0.67	0.48	-0.08	-1.39	0.17
in ROTC	-0.17	0.46	-0.02	-0.37	0.71
Knows military	-0.05	0.18	-0.01	-0.27	0.78
Plays Games	-0.57	0.33	-0.09	-1.76	0.08
Overall game play	0.04	0.03	0.07	1.32	0.19
Military game play	0.01	0.03	0.04	0.42	0.68
Nonmilitary game play	0.01	0.01	0.07	0.82	0.41
Perceived realism	0.03	0.01	0.13	2.40	0.02
Transportability	0.00	0.02	0.02	0.30	0.76

Table 9: Regression analysis for estimates of the percentage of American soldiers who are women.

	B	SE B	$\beta$	t	p
(Constant)	1.33	1.00		1.33	0.19
Age	0.06	0.04	0.08	1.50	0.13
Education	0.12	0.06	0.10	1.88	0.06
Political	-0.01	0.08	0.00	-0.07	0.94
White	-0.49	0.16	-0.16	-3.04	0.00
Christian	-0.22	0.17	-0.07	-1.32	0.19
Muslim	-0.29	0.56	-0.03	-0.51	0.61
In military	0.41	0.45	0.06	0.91	0.36
in ROTC	-0.06	0.43	-0.01	-0.13	0.89
Knows military	-0.03	0.16	-0.01	-0.19	0.85
Plays Games	0.03	0.30	0.01	0.11	0.91
Overall game play	0.02	0.03	0.04	0.65	0.52
Military game play	-0.03	0.03	-0.10	-1.22	0.22
Nonmilitary game play	0.00	0.01	0.02	0.23	0.82
Perceived realism	0.01	0.01	0.04	0.74	0.46
Transportability	0.02	0.01	0.07	1.31	0.19

Table 10: Regression analysis for estimates of what percent of currently serving American soldiers are Black/African American.

	B	SE B	$\beta$	t	p
(Constant)	1.91	1.07		1.78	0.08
Age	0.05	0.05	0.05	1.00	0.32
Education	0.11	0.07	0.09	1.61	0.11
Political	0.07	0.08	0.04	0.78	0.43
White	-0.30	0.17	-0.09	-1.74	0.08
Christian	-0.16	0.18	-0.05	-0.87	0.38
Muslim	0.81	0.60	0.07	1.35	0.18
In military	-0.07	0.48	-0.01	-0.14	0.89
in ROTC	0.13	0.46	0.02	0.29	0.77
Knows military	0.06	0.18	0.02	0.33	0.74
Plays Games	0.06	0.33	0.01	0.19	0.85
Overall game play	0.00	0.03	-0.01	-0.10	0.92
Military game play	-0.01	0.03	-0.04	-0.51	0.61
Nonmilitary game play	0.00	0.01	0.02	0.20	0.84
Perceived realism	-0.01	0.01	-0.05	-0.91	0.36
Transportability	0.03	0.02	0.11	2.03	0.04

Table 11: Regression analysis for estimates of what percentage of active duty American soldiers served in combat roles during the Iraq War.

	B	SE B	$\beta$	t	p
(Constant)	3.25	1.11		2.93	0.00
Age	0.04	0.05	0.05	0.92	0.36
Education	-0.08	0.07	-0.06	-1.16	0.25
Political	0.03	0.09	0.02	0.39	0.69
White	-0.11	0.18	-0.03	-0.60	0.55
Christian	-0.12	0.19	-0.04	-0.66	0.51
Muslim	0.26	0.62	0.02	0.42	0.68
In military	0.19	0.50	0.02	0.37	0.71
in ROTC	0.19	0.48	0.03	0.41	0.68
Knows military	0.06	0.18	0.02	0.32	0.75
Plays Games	0.35	0.34	0.06	1.03	0.30
Overall game play	0.01	0.03	0.01	0.17	0.86
Military game play	-0.02	0.03	-0.05	-0.54	0.59
Nonmilitary game play	0.00	0.01	0.00	-0.03	0.97
Perceived realism	0.01	0.01	0.04	0.72	0.47
Transportability	0.00	0.02	-0.02	-0.28	0.78

Table 12: Regression analysis for estimates of the total number of American military deaths that occurred during the Iraq.

	B	SE B	$\beta$	t	p
(Constant)	2.27	1.05		2.16	0.03
Age	0.08	0.04	0.10	1.85	0.07
Education	0.00	0.07	0.00	0.01	0.99
Political	0.06	0.08	0.04	0.72	0.47
White	0.05	0.17	0.02	0.32	0.75
Christian	-0.04	0.18	-0.01	-0.23	0.82
Muslim	-0.91	0.59	-0.08	-1.55	0.12
In military	0.04	0.47	0.01	0.08	0.93
in ROTC	0.04	0.45	0.01	0.09	0.93
Knows military	0.02	0.17	0.00	0.09	0.92
Plays Games	0.14	0.32	0.02	0.42	0.67
Overall game play	0.00	0.03	-0.01	-0.09	0.93
Military game play	-0.03	0.03	-0.08	-0.98	0.33
Nonmilitary game play	0.00	0.01	0.01	0.14	0.89
Perceived realism	0.02	0.01	0.10	1.78	0.08
Transportability	-0.01	0.02	-0.02	-0.36	0.72

Table 13: Regression analysis for militaristic attitudes.

	B	SE B	$\beta$	t	p
(Constant)	38.35	4.09		9.37	0.00
Age	-0.30	0.17	-0.08	-1.74	0.08
Education	0.17	0.26	0.03	0.64	0.52
Political	-2.70	0.32	-0.38	-8.35	0.00
White	0.52	0.67	0.03	0.77	0.44
Christian	-0.15	0.69	-0.01	-0.21	0.83
Muslim	-1.87	2.29	-0.04	-0.82	0.42
In military	0.84	1.84	0.02	0.46	0.65
in ROTC	-0.33	1.75	-0.01	-0.19	0.85
Knows military	0.14	0.68	0.01	0.21	0.84
Plays Games	-0.98	1.24	-0.04	-0.79	0.43
Overall game play	-0.14	0.11	-0.06	-1.28	0.20
Military game play	0.46	0.10	0.32	4.41	0.00
Nonmilitary game play	-0.05	0.03	-0.11	-1.55	0.12
Perceived realism	0.18	0.04	0.19	4.16	0.00
Transportability	-0.12	0.06	-0.10	-2.10	0.04

Table 14: Regression analysis for propensity to enlist.

	B	SE B	$\beta$	t	p
(Constant)	2.13	0.76		2.80	0.01
Age	-0.06	0.03	-0.10	-1.93	0.05
Education	0.05	0.05	0.05	0.98	0.33
Political	-0.08	0.06	-0.07	-1.39	0.16
White	-0.23	0.12	-0.09	-1.83	0.07
Christian	0.05	0.13	0.02	0.41	0.69
Muslim	-0.41	0.42	-0.05	-0.97	0.33
in ROTC	0.45	0.27	0.08	1.69	0.09
Knows military	0.15	0.13	0.06	1.22	0.22
Plays Games	-0.60	0.23	-0.13	-2.59	0.01
Overall game play	0.04	0.02	0.11	2.00	0.05
Military game play	0.02	0.02	0.09	1.15	0.25
Nonmilitary game play	0.01	0.01	0.14	1.71	0.09
Perceived realism	0.03	0.01	0.18	3.49	0.00
Transportability	0.01	0.01	0.05	0.89	0.37

Table 15: Regression analysis for the fear of terrorism.

	B	SE B	$\beta$	t	p
(Constant)	8.04	2.89		2.78	0.01
Age	-0.02	0.12	-0.01	-0.17	0.86
Education	0.10	0.18	0.03	0.57	0.57
Political	-0.65	0.23	-0.15	-2.86	0.00
White	-0.03	0.47	0.00	-0.07	0.95
Christian	1.08	0.49	0.11	2.21	0.03
Muslim	0.15	1.62	0.00	0.10	0.92
In military	1.30	1.30	0.06	1.00	0.32
in ROTC	-0.83	1.24	-0.04	-0.67	0.50
Knows military	-0.23	0.48	-0.02	-0.47	0.64
Plays Games	-0.59	0.88	-0.04	-0.68	0.50
Overall game play	0.09	0.08	0.06	1.19	0.24
Military game play	0.04	0.07	0.04	0.49	0.62
Nonmilitary game play	0.02	0.02	0.07	0.89	0.37
Perceived realism	0.02	0.03	0.04	0.73	0.47
Transportability	0.12	0.04	0.15	2.92	0.00

Table 16: Regression analysis for the perceived likelihood of a terrorist attack.

	B	SE B	$\beta$	t	p
(Constant)	12.00	2.88		4.17	0.00
Age	-0.07	0.12	-0.03	-0.60	0.55
Education	-0.11	0.18	-0.03	-0.62	0.54
Political	-0.40	0.23	-0.09	-1.75	0.08
White	1.55	0.47	0.17	3.32	0.00
Christian	-0.62	0.48	-0.07	-1.28	0.20
Muslim	-1.98	1.61	-0.06	-1.23	0.22
In military	0.51	1.30	0.02	0.40	0.69
in ROTC	0.17	1.23	0.01	0.14	0.89
Knows military	0.54	0.47	0.06	1.13	0.26
Plays Games	0.04	0.87	0.00	0.04	0.97
Overall game play	0.01	0.07	0.00	0.07	0.94
Military game play	0.15	0.07	0.17	2.01	0.05
Nonmilitary game play	0.00	0.02	-0.01	-0.10	0.92
Perceived realism	-0.01	0.03	-0.02	-0.45	0.65
Transportability	0.10	0.04	0.13	2.45	0.01

Table 17: Regression analysis for Islamophobia.

	B	SE B	$\beta$	t	p
(Constant)	74.43	11.66		6.39	0.00
Age	0.20	0.49	0.02	0.42	0.68
Education	-2.04	0.74	-0.13	-2.76	0.01
Political	-7.65	0.92	-0.39	-8.30	0.00
White	2.48	1.90	0.06	1.31	0.19
Christian	-0.26	1.96	-0.01	-0.13	0.90
Muslim	-20.24	6.51	-0.14	-3.11	0.00
In military	3.00	5.25	0.03	0.57	0.57
in ROTC	3.88	4.99	0.04	0.78	0.44
Knows military	-0.47	1.92	-0.01	-0.25	0.81
Plays Games	-3.45	3.53	-0.05	-0.98	0.33
Overall game play	0.38	0.30	0.06	1.26	0.21
Military game play	0.72	0.29	0.18	2.45	0.01
Nonmilitary game play	-0.14	0.10	-0.11	-1.42	0.16
Perceived realism	0.25	0.12	0.10	2.02	0.04
Transportability	0.03	0.17	0.01	0.18	0.86

Table 18: Regression analysis for militaristic attitudes including potential moderators.

	B	SE B	$\beta$	t	p
(Constant)	35.49	5.84		6.08	0.00
Age	-0.29	0.17	-0.07	-1.64	0.10
Education	0.16	0.26	0.03	0.60	0.55
Political	-2.73	0.33	-0.38	-8.35	0.00
White	0.47	0.67	0.03	0.71	0.48
Christian	-0.19	0.69	-0.01	-0.27	0.78
Muslim	-1.99	2.31	-0.04	-0.86	0.39
In military	0.92	1.85	0.03	0.50	0.62
in ROTC	-0.39	1.76	-0.01	-0.22	0.82
Knows military	0.12	0.68	0.01	0.17	0.86
Plays Games	-1.12	1.26	-0.04	-0.89	0.38
Overall game play	-0.14	0.11	-0.06	-1.34	0.18
Military game play	0.64	0.29	0.46	2.23	0.03
Nonmilitary game play	-0.05	0.04	-0.11	-1.44	0.15
Perceived realism	0.20	0.12	0.22	1.63	0.10
Transportability	-0.03	0.18	-0.02	-0.15	0.88
Mil. Game x Per. Real.	0.00	0.01	-0.05	-0.21	0.83
Mil. Game x Trans.	-0.01	0.01	-0.14	-0.58	0.56

Table 19: Regression analysis for propensity to enlist including potential moderators.

	B	SE B	$\beta$	t	p
(Constant)	3.02	1.08		2.79	0.01
Age	-0.07	0.03	-0.10	-2.04	0.04
Education	0.05	0.05	0.05	1.03	0.31
Political	-0.07	0.06	-0.06	-1.23	0.22
White	-0.21	0.12	-0.08	-1.73	0.09
Christian	0.07	0.13	0.03	0.51	0.61
Muslim	-0.38	0.43	-0.04	-0.88	0.38
in ROTC	0.46	0.27	0.08	1.72	0.09
Knows military	0.16	0.13	0.06	1.26	0.21
Plays Games	-0.55	0.23	-0.12	-2.36	0.02
Overall game play	0.04	0.02	0.11	2.09	0.04
Military game play	-0.04	0.05	-0.15	-0.67	0.50
Nonmilitary game play	0.01	0.01	0.12	1.52	0.13
Perceived realism	0.02	0.02	0.11	0.76	0.45
Transportability	-0.02	0.03	-0.08	-0.54	0.59
Mil. Game x Per. Real.	0.00	0.00	0.12	0.49	0.62
Mil. Game x Trans.	0.00	0.00	0.24	0.89	0.38

Table 20: Regression analysis for fear of terrorism including potential moderators.

	B	SE B	$\beta$	t	p
(Constant)	10.80	4.12		2.62	0.01
Age	-0.04	0.12	-0.01	-0.29	0.77
Education	0.12	0.18	0.03	0.63	0.53
Political	-0.62	0.23	-0.14	-2.70	0.01
White	0.01	0.47	0.00	0.03	0.98
Christian	1.12	0.49	0.12	2.29	0.02
Muslim	0.30	1.63	0.01	0.19	0.85
In military	1.22	1.31	0.06	0.93	0.35
in ROTC	-0.77	1.24	-0.04	-0.62	0.54
Knows military	-0.20	0.48	-0.02	-0.42	0.68
Plays Games	-0.44	0.89	-0.03	-0.49	0.62
Overall game play	0.10	0.08	0.07	1.28	0.20
Military game play	-0.15	0.20	-0.17	-0.72	0.47
Nonmilitary game play	0.02	0.02	0.07	0.78	0.44
Perceived realism	0.01	0.09	0.02	0.12	0.91
Transportability	0.01	0.13	0.02	0.12	0.91
Mil. Game x Per. Real.	0.00	0.01	0.04	0.16	0.88
Mil. Game x Trans.	0.01	0.01	0.25	0.91	0.36

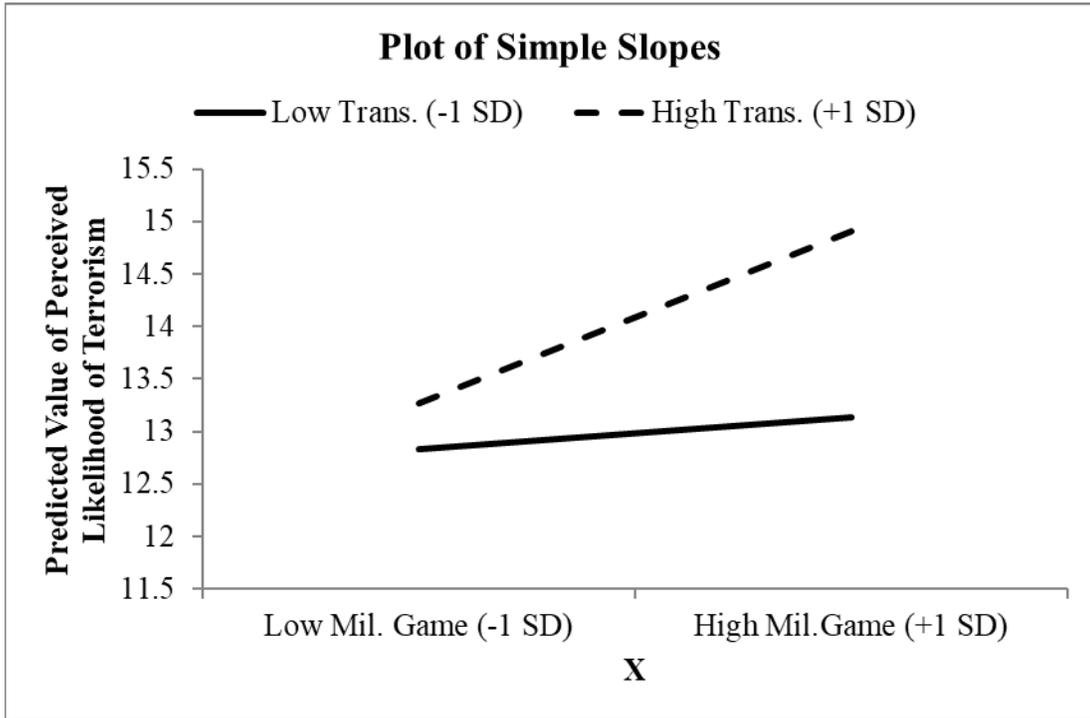
Table 21: Regression analysis for the perceived likelihood of a terrorist attack including potential moderators.

	B	SE B	$\beta$	t	p
(Constant)	15.47	4.09		3.79	0.00
Age	-0.10	0.12	-0.04	-0.81	0.42
Education	-0.09	0.18	-0.02	-0.47	0.64
Political	-0.35	0.23	-0.08	-1.52	0.13
White	1.65	0.47	0.18	3.51	0.00
Christian	-0.57	0.48	-0.06	-1.18	0.24
Muslim	-1.58	1.61	-0.05	-0.98	0.33
In military	0.35	1.30	0.02	0.27	0.79
in ROTC	0.27	1.23	0.01	0.22	0.83
Knows military	0.61	0.47	0.06	1.28	0.20
Plays Games	0.35	0.88	0.02	0.40	0.69
Overall game play	0.02	0.07	0.01	0.23	0.82
Military game play	-0.09	0.20	-0.11	-0.46	0.64
Nonmilitary game play	0.00	0.02	-0.01	-0.12	0.90
Perceived realism	0.06	0.09	0.11	0.72	0.47
Transportability	-0.13	0.12	-0.17	-1.08	0.28
Mil. Game x Per. Real.	0.00	0.01	-0.22	-0.91	0.36
Mil. Game x Trans.	0.02	0.01	0.56	2.02	0.04

Table 22: Regression analysis for Islamophobia with potential moderators.

	B	SE B	$\beta$	t	p
(Constant)	65.54	16.59		3.95	0.00
Age	0.21	0.50	0.02	0.43	0.67
Education	-2.01	0.74	-0.13	-2.71	0.01
Political	-7.69	0.93	-0.39	-8.28	0.00
White	2.54	1.90	0.06	1.33	0.18
Christian	-0.40	1.97	-0.01	-0.20	0.84
Muslim	-19.54	6.55	-0.14	-2.98	0.00
In military	2.86	5.26	0.03	0.54	0.59
in ROTC	3.77	5.00	0.04	0.75	0.45
Knows military	-0.35	1.93	-0.01	-0.18	0.85
Plays Games	-3.27	3.59	-0.04	-0.91	0.36
Overall game play	0.37	0.30	0.06	1.23	0.22
Military game play	1.25	0.82	0.32	1.52	0.13
Nonmilitary game play	-0.12	0.10	-0.09	-1.17	0.24
Perceived realism	0.80	0.35	0.31	2.26	0.02
Transportability	-0.20	0.50	-0.06	-0.39	0.69
Mil. Game x Per. Real.	-0.04	0.02	-0.37	-1.66	0.10
Mil. Game x Trans.	0.02	0.03	0.12	0.48	0.63

Figure 1: Slope analysis of perceived likelihood of terrorism.



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