DESIGN CULTURE(S) | CUMULUS ROMA 2020
JUNE 16.17.18.19, SAPIENZA UNIVERSITY OF ROME

Toys and Play, Weapons and Warfare: Militarizing the Xbox Controller

Rachel Berger

California College of the Arts
rberger@cca.edu

Abstract | In this paper I examine the cultural implications of the United States military's use of commercial video game controllers as contemporary battle equipment. My research draws on analysis of the academic literature on militarism and video games, controller studies, and media theory, as well as industry sources and mainstream media reporting. The paper is organized into three sections: a history of the relationship between the military and the video game industry, a discussion of the military's use of Xbox controllers, and an exploration of the causes and consequences of the increasingly blurry line between toys and weapons.

KEYWORDS | VIDEO GAMES, TOYS, PLAY, WEAPONS, MILITARY

Figure 1. Sailor using an Xbox 360 controller to operate a new Virginia-class submarine's photonic masts. Photo: Steven Hoskins/U.S. Navy (AP)

1. Introduction

In 2017, the U.S. Navy made headlines for using Microsoft Xbox video game controllers to operate its newest submarines. Officials touted the ergonomic and cost savings advantages of the $30 off-the-shelf controllers compared to the clunky $38,000 helicopter-style sticks they used previously. They also cited a training advantage—crew members grew up playing Xbox and were able to teach themselves to use the controllers within minutes (Vergakis).

In this paper I examine the cultural implications of the United States military's use of commercial video game controllers as contemporary battle equipment. My research draws on analysis of the academic literature on militarism and video games, controller studies, and media theory, as well as industry sources and mainstream media reporting. The paper is organized into three sections: a history of the relationship between the military and the video game industry, a discussion of the military's use of Xbox controllers, and an exploration of the causes and consequences of the increasingly blurry line between toys and weapons.

2. The Military-Entertainment Complex

Some of the oldest games are war games. Go was invented more than 2,500 years ago. Chess is 1,500 years old. In the 1960s, with the advent of video games, the military took the

lead in financing and developing the new technology, becoming the subject of games and sponsor of gaming technology. *Spacewar!* (1962), considered the first video game, was a war game developed by graduate students at MIT and funded by the Pentagon. In *Joystick Nation,* video game historian J.C. Herz notes:

> "When you trace back the patents, it's virtually impossible to find an arcade or console component that evolved in the absence of a Defense Department grant." (Herz, 1997, p.205)

In the ensuing decades, game developers and the military joined in an informal cross-industry partnership known as the military-entertainment complex. They shared technological resources, recruits, and costs, and sought to standardize the visual style and play elements between war-themed video games and the military's virtual training experiences. The military began applying video game technology and aesthetics to its own simulation trainings in the 1980s. A military think tank paid Atari to adapt its popular arcade game *Battlezone* (1980) for use as a gunnery trainer. In the 1990s, when the Defense Department's game development capabilities fell behind the private sector's, DoD began directly modifying off-the-shelf software for training purposes. The United States Marine Corps modified the popular first-person shooter *Doom II* (1994) to become the trainer known as *Marine Doom* (1997).

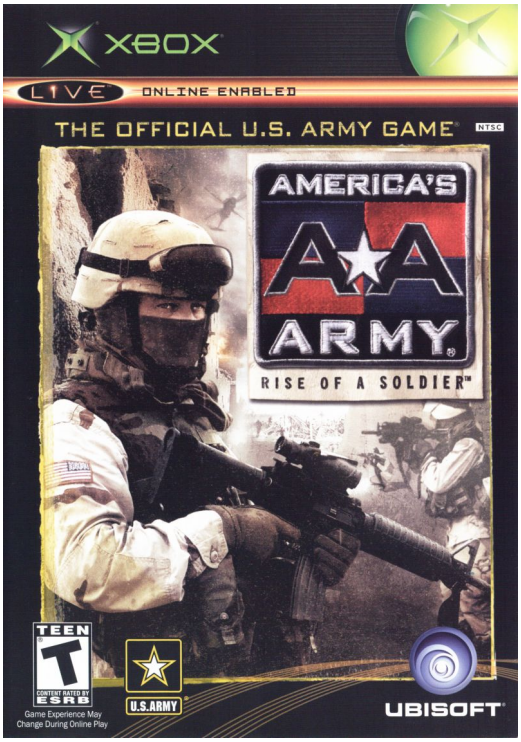

Figure 2. Packaging for America's Army: Rise of a Soldier for Xbox. Graphics include an image of a soldier in full battle gear, the U.S. Army logo, and the Teen rating symbol. Photo: qwertyuiop, mobygames.com.

A high-water mark of this relationship was the release of *America's Army* (2002), a shooter game developed and financed by the U.S. Army and distributed by free download. *America's Army* was the brainchild of Colonel Casey Wardynski, who saw it as an opportunity to reconnect the army with popular culture and "youth decision space" (Wardynski quoted in Huntemann, 2010a, p.178). Wardynski recognized the power of video games to engage and educate young people: "It's vivid, it's active, you're learning, you're experience, you're communicating" (Wardynski quoted in Huntemann, 2010a, pp.184–185). The game was a success, with more than five hundred thousand downloads in its first month. Console versions for Xbox and Sony Playstation followed in 2005. In 2007, the army opened the Virtual Army Experience, a giant, fully immersive version of the *America's Army* game that toured air shows, amusement parks, NASCAR races, and music festivals.

During the 2008 recession, recruitment rose, and the military stopped updating *America's Army.* Though the game has faded, the military-entertainment complex continues. War-themed first person shooters dominate the market, and scholars have noted their structural similarity to the Global War on Terror—a perpetual war with unclear enemies, a constant state of alert, and endless replay (Huntemann, 2010b; Chien, 2010). The military has embraced new technologies like virtual and augmented reality for training, combat, and weapons prototyping. In 2019, the army launched a competitive e-sports team. The military's use of Microsoft Xbox controllers, which began in the mid-2000s, is a crucial and under-examined feature of the military-entertainment complex. The paper's next section focuses on it.

3. The Military and the Xbox Controller

3.1 Overview

The United States military and its contractors have been integrating Xbox controllers into battle equipment for more than a decade.

Figure 3. Soldiers with remote SUGVs (Small Unmanned Ground Vehicles) and an Xbox 360 controller in 2007. Photo: technabob.com.

In 2007, technology bloggers noted the presence of Xbox 360 controllers in a photograph showcasing the army's newest remote SUGVs (Small Unmanned Ground Vehicles). Part of the Army's Future Combat Systems Initiative, the vehicles would allow ground troops to explore intense areas with minimal risk to life (Hickey). In 2008, WIRED magazine published a round-up of military use of video game equipment including a British army recruiting advertisement featuring troops using an Xbox 360 controller to pilot drones (Hambling). In 2014, WIRED reported that Boeing was building a laser cannon controlled by an Xbox 360 controller (Golson). The laser produced a beam of heat sufficient to disrupt rockets, artillery and mortar strikes, and drones. Evan Narcisse, covering the story for gaming website Kotaku, noted the irony that, "one could imagine conflicts where a 360 controller-steered laser will be shooting down drones piloted by the same input device."

In 2017, the U.S. Navy began using Xbox 360 controllers to operate the photonic masts in its newest submarines. Each of these nuclear-powered vessels costs up to $2.7 billion dollars to manufacture and includes a number of cutting edge features (Knobeloch, 2018). Typical missile launch tubes have been replaced with two large-diameter payload tubes capable of launching six Tomahawk cruise missiles each. Sonar arrays are backed with water instead of air, resulting in a simplified, more cost-efficient mechanism. The Navy commissioned a custom joystick for the submarines, but soon abandoned it in favor of the Xbox controller (Vergakis).

For the military, the Xbox controller's design offers significant benefits. Microsoft invested tens of millions of dollars into the ergonomics of the Xbox controllers, far more than the military would ever spend. Unlike the military's clumsy, purpose-built joysticks, the

commercial controllers are small, highly portable, and have limitless applications. The controllers represent an enormous savings of money: $30 versus $38,000 for the original joystick. As discussed in the previous section, military use of video game technology is nothing new. The use of off-the-shelf hardware in battle equipment is simply a logical if dramatic extension of an established impulse.

Proponents of the military's use of Xbox controllers favor terms like "instinctive," "intuitive," and "automatic" to describe soldiers' adoption of the hardware (Schultz, 2014; Saletan, 2008; Singer, 2010). Indeed, in lab tests, sailors who would have required hours of training to use the submarine joystick taught themselves to use the controller in minutes (Vergakis). They were able to achieve this not because the controller's 16-button, dual analogue console gamepad is easy to master, but because, having spent hundreds of hours playing with the controller as children, they had *already* mastered it. The sailors found the controller to be intuitive because of its familiarity, not its simplicity.

Maintaining that familiarity, even at the expense of functionality, appears to be an aspect of the military's strategy in its use of Xbox controllers. The Xbox One, a more advanced version of the controller, was released in 2013, yet the military continues to use Xbox 360 controllers, which have been on the market since 2005. This departs from the military's usual focus on cutting edge technology, favoring instead the more familiar, ubiquitous, even nostalgic option.

The military's preference for the legacy controller reflects the general "counterrevolutionary" nature of console controller design, whereby Xbox's base of hard core gamers threaten to revolt at the slightest update to its controller design (Parisi, 2015). Microsoft was so averse to jeopardizing its relationship with existing users that the Xbox One controller looks almost identical to the original, despite a $100 million investment in its redesign (Hsu, 2013). In fall 2020, Microsoft released the Xbox Series X console. Again, the controller design barely changed, "ensuring the muscle memory players have built up over the years remains intact" (Tuttle). This market-driven conservatism runs counter to persistent narratives projecting "revolutionary" technological change in the video game industry—and the military.

3.2 Survey of Scholarship

Critical study of the military-entertainment complex tends to focus on software. Despite its name, *Joystick Soldiers* (2010), an important scholarly collection exploring the relationship between modern warfare and video games, barely addresses controllers' role in blurring the line between war and play. The book's discussion of war games' transition from analogue (board games) to digital (video games) focuses on changes in game play, cognition, and immersion, rather than material artifacts. Essays that consider the effects of screens on our understanding of war ignore the haptic in favor of the ocular. Scott Lukas's piece on the relationship between virtual guns in games and real guns in the world hardly discusses the

controller. This seems like a missed opportunity, given that the controller is the material object that enables the virtual fantasy.

This matches a general trend in the field of game studies, which tends to focus on software, not hardware. Standard controllers for standard consoles are particularly absent from critical discourse. Viewed as "a constant of hardware" (Kirkpatrick, 2009), controllers are "seemingly immune from the fetishization of the new that has continually surrounded other types of game hardware" (Parisi, 2015). As the point of connection between player and game, the controller is indispensable *to* the act of play, yet forgotten *in* the act of play (Blomberg, 2018). The qualities that make controllers successful as design—stability, longevity, invisibility—largely remove them from consideration as objects of scholarly attention.

Since game studies offers a limited literature on controllers, other scholarly approaches must be considered. Perspectives from the study of media, digital culture, embodied interaction, and performance provide supplemental frameworks for consideration. These disciplines re-center the body in the gaming experience.

Josh Smicker characterizes video games as "ensembles of technological and embodied performances" (2010, p.108). David Parisi understands gaming to be a process of bodily education and emphasizes the significance of haptic learning in game play:

> "Learning does not happen only through the eyes and ears, but also in the fingers, hands, legs, and feet, and in the skin, muscles and joints." (Parisi, 2009, p.112)

Irene Chien observes that players repeat battles "until attack movements become embedded in muscle memory" (2010, p.242). Simon Penny goes further, describing war games as software that trains the body to produce automatic reflexes instead of conscious interpretation and decision-making (2004). These scholars assert the importance of the body in video game play, and by inference, the importance of the controller, which functions as an extension of a player's body (Crick, 2011).

4. Blurred Lines

4.1 Defining Terms

TOY: an object for a child to play with

WEAPON: an object designed or used for inflicting bodily harm or physical damage

TOY WEAPON: an object for a child to play with by pretending to inflict harm or damage

An Xbox video game console is a toy. Children star in its advertisements. Bright, primary colors feature on its iconic buttons. Upgrades and game launches are timed around the holidays to encourage gifting. But it's a particular kind of toy. Because of its close association

with popular shooter games like *Halo,* Xbox is also known as "Shooter Box." Xbox serves as a bridge between military and commercial games. It was the first console to offer commercial versions of *America's Army* and *Full Spectrum Warrior.* It's the home of many other popular military-themed titles like Tom Clancy's *Rainbow Six* series.

In 1928, Walter Benjamin defined toys as:

> "Primitive technology combined with cruder materials imitat[ing] sophisticated technology combined with expensive materials." (Benjamin, p.118)

Toy weapons fit Benjamin's definition. They are cheaper, smaller versions of the real thing. They are intended to charge the imagination, not inflict harm. Does Xbox fit his definition? Not easily. Benjamin focuses on the form toys take—their imitative nature, their crudeness relative to the real. Xbox games are imitative by nature of their virtuality, but Xbox technology is not primitive, its materials are not crude. Benjamin helps us differentiate a toy gun from a gun, and Nintendo's Duck Hunt game, played with a light gun controller, from real duck hunting. But hard care gamers negatively review Nintendo for its ease of use and lighter subject matter—for being too toy-like (Payne, 2010). From what are we to differentiate Xbox? Its technology is more sophisticated, its materials are more refined, than many of the worlds it imitates.

Much attention is paid to the perceived dangers of toy weapons and violent video games. Though politicians and parents worry that these playthings encourage violent behavior among children, there is no scientific consensus on that. Children understand the difference between simulation and reality. They can differentiate pretend actions from real ones, toys from the objects they represent (Woolley and Ghossainy, 2013). They know that real guns are more powerful than toy guns: they can kill. Conversely, toy guns have virtual powers that real guns lack: They never run out of ammunition. They have perfect aim. People they "kill" can come back to life.

4.2 Causes of Blurring: Military Use of Video Games

Soldiers use video games at every stage of their journey through the military, from recruitment to training to treatment. These ludic acts, despite centering on engagement with virtual worlds, have real-world impacts. Rather than attempting to draw a line between real and virtual, it is more accurate to view the two as engaged in dialogue (Lukas, 2010), to acknowledge that gamers play "between worlds" (Taylor, 2006). In this way, the virtual bleeds into the real, and the real bleeds back.

America's Army is an example of the military's use of games as a recruiting tool. The game was explicitly marketed to children and younger recruits, designed with mild violence and no swearing to ensure a Teen rating. Michael Zyda a USC professor who helped develop *America's Army* recalled:

> "Mothers would meet me and complain that 'my son is playing *America's Army* five to six hours a day, seven days a week. What is going to become of him?' I would usually answer that these children would be twice as likely to consider a career in the US Army." (Zyda, 2005, p.27)

America's Army was hugely successful, netting more than 10 million registered users and a significant bump in recruits. The game—a virtual army—motivated people to join the real army.

The modern military is increasingly reliant on video games as simulation training tools (Nichols, 2010). Jeffrey Leser and James Sterrett, former leaders of the Simulation Division at the U.S. Army Command & General Staff College, explained:

> "Games create venues that allow students to learn from mistakes, building experience without the cost of combat." (Leser & Sterrett, 2010, p.146)

Michael Macedonia, another simulation training leader, takes it a step further: "'A lot of what we're doing in [Army simulation] training is creating memories' that can be recalled and triggered in combat." (qtd. In Halter, 2006, p.198) Leser, Sterrett, and Macedonia deploy the language of the actual—"building experience," "creating memories,"—to describe virtual experiences.

Figure 4. Dr. Michael J. Roy, who oversees the "Virtual Iraq" exposure therapy at Walter Reed Army Medical Center, conducts a demonstration of a life-like simulator that represents a new form of post-traumatic stress disorder treatment with Army Sgt. Lenearo Ashford, Technical

Services Branch, Uniformed Services University, on Sept. 16, 2008, in Washington, D.C. Photo: U.S. Army.

The military uses video games to treat soldiers when they are suffering from mental trauma. The USC Institute for Creative Technologies, the same group that produces many of the military's training simulators, created the virtual reality simulator *Virtual Iraq* (2005). The simulator provides exposure therapy for veterans, placing them in a recreation of the world where they had a traumatic experience. According to Professor Skip Rizzo, who runs the project, "it helps the patient repeatedly confront and process very difficult emotional memories" (qtd. in Murgia, 2015).

4.3 Causes of Blurring: Technological Change

Advances in technology have further blurred the boundary between games and war. Changing approaches to television news coverage and video game content have altered the way civilians experience and understand war. Console-based video game technology has become less toy-like. The military is investing in new technologies that increasingly mediate and virtualize war.

Television coverage of the first Gulf War represented a turning point in the mediation of war. General Normal Schwarzkopf famously referred to it as the "first Nintendo war" (qtd. in Jenkins, 2003). 24/7 coverage brought the unremitting, yet highly mediated, violence happening in distant places directly into American homes. In this way, "our consumption or understanding or vision of battle [was] reduced to a series of images on screen" (King & Leonard, 2010, p.96). War-themed video games proliferated after the Gulf War, militarizing domestic spaces and normalizing global war. The online wargame *Kuma\War* (2004), deliberately blurred the boundaries between fantasy and reality, mixing actual and fictional news clips with digital recreations, and offering just-in-time "ripped from the headlines" missions that allowed players to participate in real military battles right after or as they occurred (Smicker, 2010). War, long understood by the American people to be a bodily horror, had become software.

In the decades since the first Gulf War, video game hardware and software have evolved along different paths: hardware has become more abstract and generic, while software has become more realistic and specific. Early consoles offered a range of specialized input devices besides the classic controller: light guns, steering wheels, and flight-sticks, even fishing rods and maracas. Xbox and PlayStation, today's leading consoles, have converged on a similar all-in-one controller, with a complex combination of thumbsticks, d-pads, buttons, bumpers, and triggers. Its form is no longer a metaphor for anything but itself. As such, it does not conform to Benjamin's definition of toy. Slipping the bounds of the virtual, it claims an unnamed space between worlds.

As controllers have become more abstract, the experiences they facilitate have become increasingly realistic. Today's war-themed games are extremely vivid, with obsessively detailed sets, high fidelity weapons, and hyper-realistic audio and atmospheric effects (Lukas, 2010; Smicker, 2010). Game producers, in partnership with the Department of Defense, aim to "transport players into spaces where the difference between virtual warfare and real-life military destruction is indistinguishable" (King & Leonard, 2010).

The military has been investing in new technology that increasingly mediates and virtualizes a soldier's experience of war. For example, military contractor L3Harris is developing the ENVG-B (Enhanced Night Vision Goggle – Binocular), a heads-up display that augments reality with digital elements to enhance soldiers' lethality in the battlefield. Cutting-edge thermal and night vision capabilities let them "see through dust and smoke" (South, 2019). A weapon-mounted camera allows them to see what their gun sees and shoot around corners or over barriers, completing the transformation of the soldier's view into a simulation of a first person shooter game interface.

4.4 Consequences of Blurring

War-themed video games, despite their apparent realism, provide a sanitized version of war. Colonel Casey Wardynski, the mastermind behind *America's Army,* claims, "We own realism" (Wardynski quoted in Huntemann, 2010a, p.184). *America's Army* may provide a virtual replica of aspects of Army life, but it lacks anything resembling a realistic version of death. In *America's Army,* a player's virtual death is noiseless, shown only by a small red circle, and followed by an immediate return to life (Nichols, 2010). Game producers, particularly those seeking a broader content rating, minimize the blood, carnage, and civilian death present in real combat (Nichols, 2010). As a result, war games are "cleaned up, void of horrific consequences, civilian casualties, and psychic devastation" (Huntemann, 2010b). Death may be a horror of war, but it is also a core mechanism of video games—to improve their play, gamers must die innumerable deaths. In *Virtuous War* (2001), security scholar James Der Derian asks whether virtual warfare's erasure of carnage and bloodshed makes warring easier and thus peace more difficult.

Real war is not only bloodier than video games, it is more boring. War-themed shooter games tend to be structured around the experience of a soldier in the army's Special Forces, an elite group that accounts for a mere 5% of the total armed forces. Most soldiers are more likely to be engaged in tedious paperwork than thrilling small-scale combat missions. The logics of most mainstream wargames cannot accommodate the tedium, anxiety, and trauma of combat, so they deemphasize them by over-representing other aspects of war (Smicker, 2010). Stories that present a more nuanced picture of war are not completely absent from the gaming discourse. They show up in critical machinima movies like *Red vs. Blue: The Blood Gulch Chronicles,* indie games like Molleindustria's *Unmanned,* and Hideo Kojima's iconoclastic *Metal Gear* game series.

In the Global War on Terror, America's most popular war-themed games serve as vehicles for ideology, expressing what foreign relations expert Walter Russell Mead calls "sweet power" (Mead, 2004). For example, World War II-themed shooter games like *Call of Duty* make a case for aggressive action in the Middle East by emphasizing "the greatness the United States can achieve through the use of military force" (Penney, 2010, p.201). Games sited in the Middle East, like *Conflict: Desert Storm,* alter real geographies to serve ideological ends. King and Leonard (2010) describe games that:

> "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)

Other games offer crude, culturally ignorant representations of "the other," or force all players to assume the perspective of an American soldier (Leopard, 2010; Nieborg, 2010). In *America's Digital Army: Games at Work and War* (2017)*,* Robertson Allen notes that the *Conflict* series, celebrating the first Gulf War, was deliberately released during the period immediately surrounding the 2003 Iraq invasion.

4.5 Boundary Dissolved

WEAPONIZED TOY: an object designed for a child to play with, but used to inflict real bodily harm or physical damage

The military-entertainment complex, from *Spacewar!* to *America's Army* to *Virtual Iraq,* is a sordid economy, feeding games with war and war with games. Compared to the frightful promise of new technologies like the ENVG-B, the military's use of Xbox 360 controllers might seem innocuous. After all, Xbox is no advanced weapons system. It's a mainstay of dens and dorm rooms, representing camaraderie and competition. On the contrary, the Xbox controller's seeming innocence is the key to its danger—its use by the military represents the final dissolution of the fragile boundary separating toy from weapon and game from war.

The military's reasons for using the controllers are eminently practical. Soldiers are already highly skilled users. The cost savings are tremendous. The technology's ergonomics, design, and functionality are better than anything the military could create (Vergakis, 2017). The Xbox controller is all these things. It is also a designed object that operates in a complex web of associations that precede and inflect its use by the soldiers who fight America's wars. In *Discursive Design* (2018) Bruce and Stephanie Tharp explain the significance of designed objects:

> "Designed objects are never semantically sterile or ideologically inert; they are always inscribed—intentionally or unintentionally—with meanings and values of the cultures that produced them and the cultures in which they eventually exist or are consumed." (p.10)

The Xbox controller was designed to be a toy, an object for a child to play with. Video game systems like Xbox are an integral part of millions of American homes, routines, and

relationships. A central source of entertainment, friendship, competition, and learning, video games are "woven into the fabric of contemporary existence" (Huntemann, 2010b, p.242). The Xbox controller is "intuitive" to soldiers because it is a beloved childhood toy. Soldiers "automatically" know how to use it because they have spent hundreds of hours cradling it in their hands, and associate it with embodied memories of play (Parisi, 2015).

The Xbox controller was also designed to disappear. As in Mark Wigley's description of the computer mouse, "its relentless smoothness in shape and frictionless movement...fuse the gap between human and machine" (2010, p.50). The controller's constancy renders it nearly invisible—the skilled gamer must forget the controller's presence to immerse in play (Parisi, 2015; Blomberg, 2018). It also disappears by deflecting attention. Unlike a mimetic controller, it doesn't look like a weapon. Unlike a motion-tracked controller, its use doesn't require violent or aggressive movements (Parisi, 2009).

5. Conclusion

Ultimately, the military's reasons for repurposing the controllers are a smoke screen. Soldiers can be trained. The cost savings are a tiny fraction of the overall cost of a nuclear submarine. The Xbox is unnecessarily sophisticated for the military's purposes.

By virtue of its status as a designed object, the Xbox controller is inscribed with far more consequential meanings and values than the military acknowledges. In a chilling echo of the simulator that turns out to be real in Orson Scott Card's science fiction novel *Ender's Game,* the military is cynically tapping a beloved object from the childhood of the gamer generation, and repurposing it for the American war machine.

References

Allen, R. (2017). *America's Digital Army: Games at Work and War.* Lincoln, NE: University of Nebraska Press.

Benjamin, W. (1928). Toys and Play. *Selected Writings Volume 2 1927–1934.* Cambridge: Harvard University Press.

Blomberg, J. (2018, September). The Semiotics of the Game Controller. *Game Studies, 18*(2). Retrieved February 15, 2020, from http://gamestudies.org/1802/articles/blomberg.

Chien, I. (2010). Playing Against the Grain: Machinima and Military Gaming. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 239-251). New York: Routledge.

Crick, T. (2011). The game body: toward a phenomenology of contemporary video gaming. *Games and Culture, 6*(3), 259-269.

Der Derian, J. (2001). *Virtuous War: Mapping the Military Industrial-Media-Entertainment Network.* Boulder, CO: Westview Press.

Golson, J. (2014, September 5). Army's New Laser Cannon Blasts Drones Out of the Sky, Even in Fog. *WIRED*. Retrieved February 15, 2020, from https://www.wired.com/2014/09/armys-new-laser-cannon-blasts-drones-out-of-the-sky-even-in-fog/.

Halter, E. (2006). *From Sun Tzu to Xbox: War and Video Games*. New York: Thunder's Mouth Press.

Hambling, D. (2008, July 19). Game Controllers Driving Drones, Nukes. *WIRED*. Retrieved February 15, 2020, from https://www.wired.com/2008/07/wargames/.

Herz, J. C. (1997). *Joystick Nation*. Boston: Little, Brown and Company.

Hickey, M. (2007, June 6). Xbox Skillz Good in Warzones. *Tech Crunch.* Retrieved February 15, 2020, from https://techcrunch.com/2007/06/06/xbox-skillz-good-in-warzones/.

Hsu, D. (2013, November 18). The Xbox One controller: Projectors, smells (!), and other stuff that didn't make it in. *VentureBeat.* Retrieved February 15, 2020, from https://venturebeat.com/2013/11/18/the-xbox-one-controller-projectors-smells-and-other-stuff-that-didnt-make-it-in-part-1-exclusive/.

Huntemann, N. (2010a). Interview with Colonel Casey Wardynski. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 178-188). New York: Routledge.

Huntemann, N. (2010b). Playing with Fear: Catharsis and Resistance in Military-Themed Video Games. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 223-236). New York: Routledge.

Jenkins, H. (2003, November 7). War Games. *MIT Technology Review.* Retrieved February 15, 2020, from https://www.technologyreview.com/s/402278/war-games/.

King, C. R. & Leonard, D. J. (2010). Wargames as a New Frontier: Securing American Empire in Virtual Space. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 91-105). New York: Routledge.

Kirkpatrick, G. (2009) Controller, hand, screen: Aesthetic form in the computer game. *Games and Culture*, *4*(2), 127–143.

Knobeloch, P. (2018, June 29). A Look at the USS Indiana, the Navy's Newest Submarine. *Indiana Public Media*. Retrieved February 15, 2020, from https://indianapublicmedia.org/theinbox/uss-indiana-navys-newest-submarine.php.

Leopard, D. (2010). Mobilizing Affect: The Politics of Performative Realism in Military New Media. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 131-145). New York: Routledge.

Leser, J. & Sterrett, J. (2010). A Battle in Every Classroom: Gaming and the U.S. Army Command & General Staff College. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 146-159). New York: Routledge.

Lukas, S. (2010). Behind the Barrel: Reading the Video Game Gun. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 75-90). New York: Routledge.

Mead, W. R. (2004). *Power, Terror, Peace and War—America's Grand Strategy in a World at Risk.* New York: Alfred A. Knopf.

Murgia, M. (2015, December 12). How virtual reality is going to change our lives. *The Telegraph*. Retrieved February 15, 2020, from https://www.telegraph.co.uk/technology/news/12047279/How-virtual-reality-is-going-to-change-our-lives.html

Narcisse, E. (2014, September 8). U.S. Military Using Xbox 360 Controller For New Laser Gun. *Kotaku.* Retrieved February 15, 2020, from https://kotaku.com/u-s-military-using-xbox-360-controller-for-new-laser-g-1631939483.

Nichols, R. (2010). Target Acquired: *America's Army* and the Video Games Industry. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 39-52). New York: Routledge.

Nieborg, D. (2010) Training Recruits and Conditioning Youth: The Soft Power of Military Games. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 53-66). New York: Routledge.

Parisi, D. (2015). A Counterrevolution in the Hands: The Console Controller as an Ergonomic Branding Mechanism. *Journal of Games Criticism*, *2*(1). Retrieved February 15, 2020, from http://gamescriticism.org/issue-2-1.

Parisi, D. (2009). Game Interfaces as Bodily Techniques. In R. Ferdig (Ed.) *Handbook of Research on Effective Electronic Gaming in Education* (pp. 111-126).

Payne, T. P. (2010). "F*ck You, Noob Tube!" Learning the Art of Ludic LAN War. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 206-222). New York: Routledge.

Penney, J. (2010). "No Better Way to 'Experience' World War II." In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 191-205). New York: Routledge.

Penny, S. (2004). Representation, enaction, and the ethics of simulation. In N. Wardrip-Fruin and P. Harrigan (Eds.), *First Person: New media as story, performance, and game* (pp.73-84). Cambridge, MA: The MIT Press.

Saletan, W. (2008, July 29). *Day to Day*. [Radio broadcast]. Washington DC: National Public Radio.

Schulz, C. (2014, September 9). A Military Contractor Just Went Ahead And Used an Xbox Controller For Their New Giant Laser Cannon. *Smithsonian Magazine*. Retrieved February 15, 2020, from https://www.smithsonianmag.com/smart-news/military-contractor-just-went-ahead-and-used-xbox-controller-their-new-giant-laser-cannon-180952647/.

Singer, P. (2010, March 2). *Morning Edition.* [Radio broadcast]. Washington DC: National Public Radio.

Smicker, J. (2010). Future Combat, Combating Futures: Temporalities of War Video Games and the Performance of Proleptic Histories. In N. Huntemann and M. T. Payne (Eds.), *Joystick Soldiers: The Politics of Play in Military Video Games* (pp. 106-121). New York: Routledge.

South, T. (2019, November 26). Deadlier machine guns, rifles, pistols and more: How the Army is revolutionizing squad firepower. *Army Times.* Retrieved February 15, 2020, from

https://www.armytimes.com/news/your-army/2019/11/26/deadlier-machine-guns-rifles-pistols-and-more-how-the-army-is-revolutionizing-squad-firepower/.

Taylor, T. L. (2006). *Play Between Worlds: Exploring Online Game Culture*. Cambridge, MA: The MIT Press.

Tharp B. & Tharp S. (2018) *Discursive Design*. Cambridge, MA: The MIT Press.

Tuttle, W. (2020, March 16). Xbox Series X: Making Gaming's Best Controller Even Better. *Xbox Wire.* Retrieved November 16, 2020, from https://news.xbox.com/en-us/2020/03/16/xbox-series-x-controller/.

Vergakis, B. (2017, September 15). The U.S. Navy's most advanced submarines will soon be using Xbox controllers. *The Virginian-Pilot.* Retrieved February 15, 2020, from https://www.pilotonline.com/military/article_5c24eefc-8e70-5c4a-9d82-00d29e052b76.html.

Wigley, Mark. (2010, November) The Architecture of the Mouse. *Architectural Design 80*(6), 50-57.

Woolley, J. D., & Ghossainy, M. (2013). Revisiting the Fantasy-Reality Distinction: Children as Naïve Skeptics. *Child Development 2013 Sep; 84*(5), 1496-1510.

Zyda, M. (2005, September). From Visual Simulation to Virtual Reality Games. *IEEE Computer,* 25-32.

About the Author:

Rachel Berger is associate professor and chair of Graphic Design at California College of the Arts. Berger's writing has been published by MIT Press and Bloomsbury. She holds an MFA in Graphic Design and a BA in American Studies, both from Yale University.