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Virtual Wastelands:
Reframing Nuclear Representation in Video Games

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Introduction

When discussing the representation of nuclear warfare in entertainment - especially digital - media, it's meaningful to note that nuclear war is an event that has not yet happened. Derrida (1984) describes this phenomenon in terms of a textual situation that discusses its own demise with no tangible precedent to work from, with even the bombings of Hiroshima and Nagasaki as having ended a conventional war rather than setting off a nuclear war (p. 23). In this, the use of explicit nuclear semiotics as spectacle in visual media categorically functions as a mode of speculative fiction that is both impossible and immediately possible.

These specific nuclear semiotics -- the bomb, the mushroom cloud, the nuclear holocaust -- are especially employed in great frequency in contemporary video games, and they do so at the cost of any significant return in regard to social awareness. With the nuance of applied narratives and ludological study, and the internationalization of audience, video games are strong vehicles for social and cultural messages. Schulzke (2013) describes video games as "functional thought experiments [which] are constructed using a mixture of narrative and gameplay elements" (p. 252) and represent models by which ethical and philosophical problems and solutions can be examined by players. In regard to historical or historically based events within narratives, video games have arrived at a position of great cultural weight and interactive framework construction for issues of global justice.

Players take an active role in the realization of mediated messages. Consequently - good or bad - players' perception of events are likely affected by these experiences and may be translated in real life spaces. In the case of the potential for nuclear war, message mediation in video games becomes complicated. Through gratuitous displays of nuclear aesthetics as tools and talking points -- in some cases, the aftermath of nuclear war becoming the playground, as it

were -- players are at risk of developing a desensitized impression of urgency at this fictionalized depiction of nuclear war and aftermath as translated to the real world.

Opportunities for creating unique experiences are seized by independent and corporate developers alike, and the resources necessary to create a video game are widely available. What this means for the market is a more broadly accessible form of media that often rely on the precariousness of global issues (especially pertaining to warfare) to drive a story or establish an environment. Still, awareness remains lower than with other forms of media. Hutchinson (2007) notes that “[a]lthough they are ignored or, worse yet, dismissed by many adults, video game environments are valued place contexts for millions of young people” (p. 35) and while no person anywhere knows a life without the context of war itself, the demographics for video games specifically are made up by a vast majority of players who have always lived in a world with nuclear weapons. Yet, the context for the scale and destruction caused by full nuclear war remains represented in the media it was born in -- fictionalized in safe environments.

Hess (2007) discusses this transference of information in regards to video games depicting historical wars and the formation of perspective by the player, however “[t]he danger of this teaching lies in its subtle form: gamers come for entertainment, and walk away with selective memories of past conflicts” (p.354). The concern with nuclear warfare is the constructed anticipation of the consequences that may happen, rather than selective memories of events that have already happened. Selective attention can be paid to nuclear arms, because as serious a global issue as it is, it’s also peripheral -- obfuscated by more pressing global and localized issues alike.

Background

Schulzke (2017) discusses the reformation of ideological discussion as a constant, rather

than a paradigm to be exclusively compared to propaganda, and in terms of this area of pop culture, “Game developers are therefore empowered by their agenda-setting role while also opening themselves to attempts at subversion enacted through their games” (p. 611). There’s still an inherent lack of recognition in the position of video games as having political or social importance beyond broad definitions, though they’ve become a quickly emerging participant in interdisciplinary discussions. Interestingly, while there’s an abundance of literature on traditional warfare and military representation in video games, and nuclear semiotics in other media, the intersection has not been explored. From this pool of research, the best avenue for tackling nuclear representation in video games specifically is a focus on the relationship between developer position and audience reception of messages.

Globalization has amplified the diversity and scope of audiences of digital media significantly with international interconnectedness and ease of access making the video game industry itself a network of transnational cooperation and conversation. This is especially constructive in the passage of ideological messages - or subversion of dominant perception - as now any particular ideology need not remain in the space it functions best in. “Space is no longer the determining factor for social, information, and commercial relationships and distance becomes relative” (Sanchez-Tabernero, 2005, p. 464), so messages are being both conveyed and received independently from their place of origin, although players and critics are still working from their own cultural and social positions.

The combination of the ideological positions of developers and the active participation of the players create spaces in which these specialized situations can be tested, especially by audiences that may be lacking in context or interest. “Video games offer both a means to explore existing social institutions and opportunities to challenge the sustainability of social and cultural

conventions in ways that are distinct from other forms of mediated popular culture” (Hayden, 2017, p. 180) and because of this, they can be developed to promote awareness. Schulzke (2017) explored this idea in the context of military video games and how they “comment on some of the most important processes in international politics,” providing otherwise inaccessible information and interactions, and “creating new possibilities for peace activism” (p. 610). Even in a simulated environment, experiences and active study of ideology (anti-nuclear activism) develops appreciation and empathy in the audience, when nuclear semiotics are used aside from pure spectacle.

Intent

The promise of mutually-assured-destruction through deterrence, being the strategic method of coercing an opponent into behaving in a desirable way (Taddeo, 2017, p. 341), has always been thought of as the prevailing reason behind the nuclear stalemate -- however, there’s substantial cause to believe that “luck and personal judgement” had more to do with the avoidance of nuclear war (Doyle, 2013, p. 17). This personal judgement in world leaders is often (ideally) influenced by exogenous elements like public opinion and activism, and the maintenance of an acceptable level of nuclear tension is the lynchpin in preventing incitement to nuclear war. Nuclear tension maintains peace between nuclear nations and facilitates the scrutiny on further nuclear armament and development. If nuclear tension had never risen to a certain point, nuclear monitoring would never have become as nuanced as it has, and if tension rises too high, nuclear nations edge closer to the possibility of nuclear war. When discussing an evolution to more directed activism in video games specifically, the goal remains to represent realistically, raise awareness, and to ultimately use nuclear semiotics to mitigate the desensitization that develops when exposed to the same stimulus repeatedly.

To assert that complete nuclear disarmament is achievable by inciting anti-nuclear activism through the experience of video games -- or any anti-nuclear activism -- is, at this point, unrealistic. The small steps, however, in shifting the cultural paradigm of how societies in nuclear nations regard the existence of nuclear weapons, or at least to become aware of them, can have lasting effects down the line. At the very least, it builds confidence addressing an issue that is both unfathomable in its genuine scope and irreversible. Historically, hesitancy to engage in anti-nuclear activism had to do primarily with individuals' lack of efficacy, apathy towards the likelihood of war, ignorance of survivability, or fear (Gilbert, 1988, p. 755-756). Popular culture can open up new ways of thinking and perceiving different approaches and allows people to explore issues of politics and international relations (Robinson, 2014, p. 455) and through video games these messages and opportunities can be expressed to an audience that takes a more active role in their fruition.

In order to tackle the ways in which video games can achieve this in the framework of a more thoughtful and effective approach to representation of nuclear warfare, there needs to be some basic distinction between different elements of game design itself. Video games are crafted, functioning environments with different player perspective, gameplay features, and goals in mind. When speaking on game design fundamentals, these can vary depending on what genre of video game is being theorized. A first-person shooter is going to operate with different rules than a role-playing game or an online multiplayer game -- there are certain conditions that can't be applied to the medium as a whole (Thirslund, 2018).

There are characteristics of games that can be flexible in their design and realization. Particularly, when those characteristics function to strengthen the connection between narrative and gameplay as a mode of delivering the intended experience as idealized by the developer(s)

and performed by the players. Salen and Zimmerman (2004) describe the successful implementation of this as “*meaningful play*, where the game system supports the choices players take by making them *discernible* to the player and *integrating* them into the larger system of the game” (p. 541). Conditional player access to certain weapons and how consequences are represented are two key design characteristics that will be examined.

Textual Analysis

Two of the most heavily nuclear-themed video game series with contemporary cultural (and market) relevance and popularity are *Fallout* and *Metal Gear Solid*. *Fallout* is a series with six main titles from 1997 to its most recent iteration in 2018, developed by various studios and published by both Interplay Entertainment - since 1997 - and Bethesda Softworks - since 2004 and onward. *Metal Gear Solid* is a series with eight main titles from 1998 to its most recent iteration in 2018, developed by various studios, consistently published by Konami, and heavily credits Hideo Kojima as creator and persistent creative lead. While both feature strong use of nuclear semiotics both in the narrative and gameplay, and with varying degrees of ideological angle, they do so with different intention and direction, and the lead creative figures of both series come from different cultural and political positions.

The choice of these two series was also intentional in regard to the geographical positions of their developers and publishers -- *Fallout* was primarily developed and published in/from America, and *Metal Gear Solid* was exclusively developed and published in/from Japan - - as being on oppositional but interdependent sides of the nuclear experience. Both have also had popularity in each other's markets and within their own countries over a period of a few decades each. While the official sales reporting is spotty, combined sales in Japan for the *Fallout* series

fall into the area of at least 0.69m units and for *Metal Gear Solid* in the U.S., at least 12m units¹ -- considering that game sales in Japan are typically less than in the U.S. overall, *Fallout* can be considered as having a measurable amount of success in Japan. For this reason, this analysis looks at specific games out of the series for the purpose of nuclear representation and timeliness, as well as brief overviews of narrative, gameplay, and background that have maintained some measure of consistency.

While there's a great amount of nuclear representation in both series, they display them in different ways. Ironically, both series have coined oppositional phrases independent of one another that gained popularity within fan spaces. *Fallout* games introduce the players with the quote "War never changes," and it's attributed to a basic principle that the motivations behind and the nature of war remain the same despite changing technologies and methods, specifically nuclear weapons. *Metal Gear Solid 4: Guns of the Patriots* (2008) introduces the game with the quote, "War has changed," and the protagonist goes on to explain that war has become less about place or ideology, but about control, specifically control that utilizes deterrence theory as a tool of fear.

Fallout takes its setting from a theoretical future in which the U.S. timeline diverges from historical reality immediately after the atomic bombings of Hiroshima and Nagasaki. At the dawn of the nuclear age, the U.S. consolidates its power into 13 unique commonwealths and experiences accelerated technological advancement (although aesthetically arrested in the 1950s,) as well as a cultural shift with an intense focus on nuclear power as a pop culture icon and symbol of social worship after the world runs out of fossil fuel in 2052.

In *Fallout's* year 2053, Tel Aviv is destroyed by an atomic weapon, and motivated by the

¹ <http://www.vgchartz.com>

fear of full-scale nuclear war, the U.S. builds over a hundred nuclear shelters, technologically capable of withstanding a direct assault and sustaining life for generations. Following this timeline, at the end of 2077, all-out nuclear war occurs with no clear instigator, devastating much of the world and irrevocably changing the environment by poisoning much of the land and water, and eradicating most of the human and animal population. Others are mutated, most notably ghouls -- humans who have been changed rather than killed by radiation exposure, some going feral, but others able to live full lives free from most bodily functions and further damage from radiation.

People do survive from the very edges of the blasts and struggle to mete out worthwhile existences from the ruins of the world and 'vault dwellers' rise to the surface to do the same, oftentimes many generations after the war. In the canon games of the series, the avatar that the player assumes is an individual from a vault, all at once confronted with a world that's irreversibly damaged, other people of the wasteland who haven't known the comforts of a vault and may address the player with suspicion, and the various threats, monsters, and military/political factions that roam wild. It's at various times after this point that most of the *Fallout* games take place -- with *Fallout 4* (2015) being the exception.

Fallout 4 begins by giving players a brief pre-war suburban exploration and then dropping the first of many nuclear missiles as the player is ushered into one of the aforementioned vaults. As the player descends, a mushroom cloud blooms in the distance and the aftershock rushes up with a wave of black smoke. The vault doors close overhead as the beginnings of a firestorm sweeps across the sky. The player resumes their place in the post-apocalyptic world as the narrative develops, and while that instance of nuclear war is the physically closest and most aesthetically nuanced display of both the weapon strike itself (with

the symbolic mushroom cloud) and the immediate aftershock.

The player's return to the same location -- a familiar landscape destroyed and irradiated -- is one example of an effective way to associate the active audience with the direct consequences of an action. With issues of warfare, oftentimes players aren't confronted with an adequate representation of the destruction they're systematically required to inflict to progress the game, even when the narrative condemns it. With nuclear warfare, it's less a matter of the player being alienated from their own actions rather than being alienated from or entertained by the consequences of nuclear weapon deployment.

Bethesda chose to remove a side-quest from *Fallout 3* in the Japanese release (Ashcraft, 2008) that involved the direct detonation of an atomic bomb. This quest incorporated a small settlement that the player encounters very soon after starting the game named Megaton, which is inhabited by survivors, some of whom worship the dormant atomic bomb that sits in a crater in the center of the settlement. For the player, this is a significant location for story development, resources, and establishing emotional investment in the world. Inside Megaton, the player will encounter two characters: a sheriff who wants the player to disarm the bomb and Mister Burke, who offers you compensation in exchange for detonating the bomb and destroying Megaton. If the player disarms the bomb, that's all that happens. If the player decides to detonate the bomb, however, they do so from the comfort of a lavish tower in the middle of the wasteland, as a mushroom cloud blooms in the distance over the obliterated settlement.

An interesting piece of this quest is the way the narrative and the presumed morality of its outcomes are reflected in the gameplay. As players are always motivated by rewards both intrinsically and extrinsically, the decision to either detonate the bomb or not concludes with a set of specific rewards. The player receives more currency if they detonate the bomb, but they

lose five times the amount of karma (the game's quantifiable measure of good versus bad actions) than they gain should they disarm it. Both choices put a bounty on the player's head – functionally speaking, this causes non-player characters to hunt the player.

Overall, the rewards are comparable aside from currency and the reflection of game-specified morality. And this, Sicart (2009) argues, is subject to critique as well, that “by alienating the player from reflecting about the ethics of their actions, and outsourcing moral evaluation to a closed, pre-designed system, the game effectively limits players' ethical agency” (p. 193). This is a valuable argument, though the pre-designed system to which he refers is a substantial element of the conversation between developer and player and can act as a system to appraise the moral gravity in player choices. In this case, the appraisal of this choice is nothing more than a leveling of the playing field and allows the players to act upon their own interest completely divorced from consequence -- aside from the player's own moral inclination -- and offers no significant conversation afterwards.

Along with the removal of the *Fallout 3* quest, certain weapon names were modified as well. In the contemporary games (those developed and published in the 2000s) -- *Fallout 3* (2008), *Fallout: New Vegas* (2010), *Fallout 4* (2015), and *Fallout 76* (2018) -- nuclear-based weapons are readily available and valuable (though not necessary) for gameplay progression. There are several versions of weapons that players can use which launch “mini nukes” and result in small nuclear blasts, the most traditionally of which is named the “Fat Man” -- the same codename of the bomb that was dropped on Nagasaki in 1945. In *Fallout: New Vegas* there existed a weapon modification kit that upgraded the Fat Man called the “Fat Man Little Boy kit” -- Little Boy, being the codename of the bomb dropped on Hiroshima a few days before the bombing of Nagasaki. Unsurprisingly, Bethesda changed the name of the Fat Man to “Nuka

Launcher” - a moniker that matches the commodified nuclear “Nuka” branding that occurs in *Fallout*’s universe - for Japanese release (Thorsen, 2008).

Hunter (2018) notes the difference in nuance among atomic weapon use between *Fallout 3* and *Fallout 4* -- players were hardly encouraged to use the Fat Man catapult, as it was heavy and the proximity of use had the habit of killing the player, especially in the cramped tunnels and scattered ruins of a post-apocalyptic Washington DC, but that changed significantly with the weapon’s *Fallout 4* iteration:

Fallout 4 eroded the satire of the “Fat Man” launcher, allowing the player to customize it and providing more favorable terrain where it could be used without the constant risk of a miniature case of mutually assured destruction. [...] In a small but significant way,

Fallout 4 let the player use nuclear weapons with few practical or moral repercussions. *Fallout 76* -- Bethesda’s 2018 multiplayer release -- has taken this focus on the accessibility of atomic weapons and turned it into the game’s primary and most aggressive selling point. Players and their friends are encouraged to find and connect “pre-war nuclear codes” that permits the launch of dormant nuclear missiles upon certain locations while also being able to target other players. The deployment of this feature lacks any conflict between reward and consequence -- as often characterized in older *Fallout* titles. These places that are annihilated by player-launched nuclear missiles turn into treasure troves of rare items and unique enemies, to disappear within a few hours and leave the environment virtually unscathed.

By and large, *Fallout* as a series relies on an aesthetic estimation of the aftermath of nuclear war -- both socially and environmentally. Scattered among the setting are smaller vignettes of introspection and caricatures of American exceptionalism, but also moments for the player to act out their own moral agency and make decisions that may alter the trajectory of their

own story. When immersing the player in a world ravaged by nuclear war -- a real possibility, even if the conditions under which people survive this war are pure science-fiction, this autonomy often leads to unrealistic optimism. When the mirror image of the playground exists as a potential result of climbing international tensions in the real world with no real framework or plan for the aftermath, even the wasteland is a false promise.

While *Fallout's* nuclear representation comes mostly in the form of spectacle and setting, *Metal Gear Solid's* nuclear representation is the monster, the political motivation, and the specter that haunts the metanarrative throughout a series of over twenty titles since 1987. The more contemporary titles -- those with the *Metal Gear Solid* label -- synthesize the nuclear issues into a driving narrative force and a tangible, walking, screeching metal monster.

The titular "metal gears" are constructed mobile nuclear-capable machines, giving both the concept of nuclear war and literal missiles physical forms that resemble monsters and typically fall into the role as the final bosses of the games. They also serve a narrative role, reinforcing the sovereignty and political power of leaders and their nations with the acquisition and proliferation of these nuclear weapons. However strong the anti-nuclear messages are, the gameplay fails to divert the player's attention from the subtle satire of their functional effectiveness as a weapon and as a symbol of strength.

Most of these *Metal Gear Solid* titles feature the same protagonist: Solid Snake, a stoic but dedicated special operative who begins the *Metal Gear Solid* title series with a mission in which the player as Solid Snake unravels a domestic terrorist plot and destroys Metal Gear REX, the first of many nuclear-capable, human-controlled machines. After the events of *Metal Gear Solid 1*, Solid Snake and a Dr. Hal "Otacon" Emmerich establish a shadow organization named "Philanthropy." They, and a few other occasional characters, have one mission driving them over

the next few games: to combat the metal gears developed after the Shadow Moses Incident, and “to let the world be” by carrying out this mission with subtlety and without the manipulation of society at large. This fictional narrative of subversive activism occurs within a real discussion of anti-nuclear movements and their proximity to the act of violent protest. Futrell and Brents (2003) consider the use of violence in protest as a significant detriment, since “social movement organizations rely heavily on perceived legitimacy, and violent actions tend to alienate sympathizers” (p. 747). *Metal Gear* tries to represent this erosion of allies and relations between powers in the wake of mercenary protest and guerilla tactics, as Philanthropy and its allies scatter and the authorities whom they challenge become more unpredictable and ruthless.

The authority in *Metal Gear* is often, regardless of player sympathy towards the protagonist, wholly reduced to their (person or organization) acquisition and deployment of these mechanized missile launchers. National and military autonomy is a running theme throughout *Metal Gear*, and sovereignty is primarily substantiated by either the capture - or construction - or destruction of the metal gears, growing more technically advanced and structurally nuanced with each game. “Violence and extreme action often leads to an escalation of conflict that works against the aims and goals of both social movement groups and the targets of protest” (Futrell and Brents, 2003, p. 748) and as subversive as the tactics begin, the targeting and destruction of metal gears is what leads the series’ narrative to its chronological conclusion: war as an industry. The writers and developers of the *Metal Gear* series have specifically demonstrated through their work an ideological narrative that exposes the weight of power held and embodied by nuclear nations and the consequences of directly interfering with this system.

Where it differs from *Fallout* is nuclear warfare is less the reality of the setting but rather the tool used to maintain authority, deterrence theory utilized to its fullest extent in order to

sustain supremacy and legitimize control. This is echoed in the opening statement of *Metal Gear Solid 4*: “War has changed.” What Solid Snake goes on to explain is a breakdown of deterrence as driving theory to avoid war, but rather the leverage to wage it as one sees fit. The universe of *Metal Gear Solid* is one that’s inherently anachronistic and bleak; most of the technology displayed and deployed in its universe is more advanced than in reality (though the chronology of the series matches our own), and most of that advanced technology exclusively serves the sustainability of war. Combined with the series’ narrative that remains critical of nuclear weapons, western exceptionalism, and the stability of deterrence theory, *Metal Gear Solid* represents a fictionalized - and non-apocalyptic - result of the conflicts between nuclear nations.

Chronologically, the first game in the series is *Metal Gear Solid 3: Snake Eater* (2004), takes place during the Cold War in 1964, and it’s arguably the most realistically driven by real-world nuclear politics. This game’s narrative premise involves the nuclear relationship between Russia and Cuba, word spreading to the U.S. that the former is deploying nuclear weapons to the latter. In a long scene of exposition prior to starting the game, U.S. President Kennedy demands that the nukes be dismantled, and Russia accepts on the condition that a Russian scientist - Nikolai Sokolov - be returned to them -- unknowingly to the U.S., to resume work on a machine called the Shagohod. The Shagohod is a non-bipedal yet mobile weapon carrying one nuclear missile and remained the primary antagonist throughout the course of the game, with many individuals coming to stand in between it and the protagonist, to preserve a tenuous sub-narrative that’s hidden until the end of the game. This “Virtuous Mission” has elements of the commentary that lead game designer Hideo Kojima often portrayed in *Metal Gear* about American exceptionalism, especially when it involves nuclear supremacy. The series of political misestimations and the ease with which the U.S. government is willing to use nuclear weapons

as bargaining tools eventually drives this era's protagonist Naked Snake (as Big Boss) to remove himself from the U.S. and form his own military company off the coast of Costa Rica on a dormant offshore plant named "Mother Base." This new military company - Militaires Sans Frontieres (MSF) - operates independently, much to the scrutiny of the rest of the world, and offers military aid to anyone who's in need of it, regardless of nation and/or ideology.

In *Peace Walker*, this happens amidst a meta-narrative about nuclear deterrence. One of the main antagonists in *Peace Walker* is a CIA agent called "Hot Coldman" who constructs the titular metal gear "Peace Walker" to create the "perfect deterrent" and expose the inherent failings of deterrence theory as it exists. At the core of his narrative is a belief that as long as real people have their hand on the button to launch a nuke - even and especially in retaliation - they will fail to do so, because of the inherent weakness of their mercy, that there is (in Coldman's words): "no one willing to enter history as the *Great Destroyer*." Peace Walker itself is a "mobile, unmanned nuclear platform" that can "automatically move into position and launch a retaliatory nuclear strike" and is virtually undetectable by radar and satellite, making a pre-emptive strike highly unlikely. By controlling this platform from the position of U.S. supremacy, the promise of automatic retaliation makes them (the U.S.) impervious to a nuclear strike, by reframing mutually assured destruction from a significant likelihood to an inevitability. His chief argument is one that postulates a show of nuclear strength as the only precursor to a perfect form of deterrence.

That sentiment comes up again later in *Peace Walker* as well as *Metal Gear Solid V*, the idea of the nuclear-capable metal gear as a form of protection through the threat of its existence. Upon destruction of both Peace Walker and Hot Coldman, Big Boss allies with the scientist who made Peace Walker and he agrees to help Mother Base construct their own metal gear. Metal

Gear ZEKE holds no nuclear weapons until a point near the end, when it's hijacked and modified and despite their earlier convictions, Big Boss and the MSF can't deny the defensive power in having a nuclear weapon. In a conversation between Big Boss and his second - Kazuhira Miller – they discuss their role in future global conflict. At one point, Miller warns that they're going to become a target and they made need their own deterrent. This is a significant nod towards the rationalization of nuclear armament as a legitimizing force. As a way to further legitimize themselves as an independent nuclear nation, Big Boss agrees to an inspection by the International Atomic Energy Agency on the condition that they send Metal Gear ZEKE down to the ocean floor. ZEKE is eventually lost to them through events out of their control.

In *Metal Gear Solid V: The Phantom Pain*, they reconcile their lack of deterrent leverage by engineering stationary nuclear bombs for a multiplayer aspect of the game in which players are able to stockpile and defend their own customizable Mother Bases. These nuclear weapons are unique in that they restrict the players who can invade one's base to those only also in possession of nuclear weapons, or those with a very high 'heroism rating' -- a metric by which the game measures good deeds. These nuclear weapons can either be used on other players, stolen from other players, or dismantled. As far as responsible representation goes, it falls short by alienating the player from the consequences of their actions -- there's no visual representation of the bomb being used or dismantled except for numbers. There is, however, a locked scene with a clear anti-nuclear message - only unlockable in the event that every single nuclear weapon is dismantled, a feat that takes an extraordinary amount of coordination by all players on that platform, and the risk of interference by mods. To this day, the cutscene hasn't been legitimately unlocked on any platform outside of system glitches and targeted efforts through hacking and modification. The cutscene itself was dataminced shortly after the game released, the contents

within it exposed to the public it was intended to reward through authentic disarmament efforts by the players.

This didn't keep players from trying, however, after the secret ending was leaked, many players banded together to form their own "Philanthropy," as it was mentioned in *Metal Gear Solid 1*, with the purpose of hunting down, stealing, and dismantling every nuke they come across. This campaign also came with a time limit: this game wouldn't be played forever, and a few years after its release, the efforts (and the sensation of a threat to be confronted) have died down. Still, the cutscene itself culminates many key concepts behind *Metal Gear Solid* as a series, envisioning a utopia that's not without its share of upkeep. The speaker in the cutscene remarks on how the world might be free of nukes, but for how long is up to the people, for the information that built them remains and human ambition might outlast their own activism. A statement on a white pillar reads: *As of this day, the nuclear flame set alight on the plains of Alamogordo in July of 1945 has been extinguished.*

It's realistically hopeful in a way that *Fallout* isn't. Rather than approach nuclear warfare as survivable, *Metal Gear Solid* presents it as something preventable. Chronologically, this game is only the third in a long series, but it was the last to be released. This secret ending could feasibly be considered a statement by the creators of their own aspirations for a world free of nuclear weapons, as close as they are to the reality of their deployment. Seasoned players know that the reality of *Metal Gear Solid's* narrative condemns the world to global warfare driven by the control over nuclear deterrence, but the strategic placement of this last anti-nuclear statement means it's the final sentiment that will stick in players' minds.

There's a degree of subversion in these messages to be conveyed, meant to be understood organically by the player through the experience and narrative, rather than targeted learning.

“Even barely adequate games make the meanings of words and concepts clear through experiences the player has and activities the player carries out, not through lectures, talking heads, or generalities” (Gee, 2004, p. 22). It’s already accepted that in development of a game, those messages be interwoven with the experience of the player, and already being held to that standard, this solution model can be implemented easily and comprehensively, without sacrificing entertainment value.

Solution: Part I

The solution model being presented here is a game design framework of both gameplay and narrative recommendations that attempt to address the dilemma of spectacle versus consequence. It’s not meant to delineate an ideal video game that drives anti-nuclear activism, but rather draw upon effective and non-effective nuclear elements that already exist to engineer avenues of more thoughtful representation of nuclear warfare in game design.

The main crux of this framework is the audience. Creators and players of a game work in collaboration to bring that game to life. Rouse (2016) describes the active nature of the audience as integral to explaining how to write about game design: “[games] require more player participation than any other medium [...] making interesting choices along the way, filling in far more of the details than film or TV or novels” (p. 89). It’s this shadow between giving the player freedom to do this and still guide them to the intended message where this recommendation framework may be useful.

The first two recommendations are based on this principle and try not to sacrifice entertainment for message:

1. Nuclear weapons that are accessible and deployable by the player are not recommended.

2. However, if necessary to do so, keep the player associated with the consequences of their actions.

Regarding number 1, there's a real-world concept of devaluing nuclear weapons as they're represented in news media and that same concept can be applied to entertainment. The results of this, explained by Ritchie (2014) is part of the road to disarmament: "Nuclear disarmament, though, will necessarily entail a process of devaluing, or 'un-valuing', nuclear weapons since states are unlikely to surrender voluntarily what are considered highly prized national assets" (602) One way to do this within the relationship of the player with the game itself is to limit access to certain weapons without limiting player agency. Mateas and Stern (2006) describe the challenge of balancing this agency for players with narrative sophistication as both "having characters whose motivations and desires are inferable from their actions" (p. 659) and reconciling narrative material with formal constraints (p. 662) in a way that preserves the agency of the player to interact with elements of the game without sacrificing enjoyment or ludological cohesion.

Metal Gear Solid as a series fulfills this model almost perfectly. Metal Gears themselves are nuclear-capable mobile weapons that vary in their degree of mobility but are typically designed with a physical pilot to direct it manually. In only one of the titles in the series are players instructed or allowed to pilot a metal gear themselves (that one not being armed with nukes), instead always facing off with one as an adversary. Still, it goes without saying that video games are primarily an entertainment medium, so this framework of recommendation tries to take that into account. In contexts where it's necessary for the player to have access to nuclear-based weapons that they can deploy, it's imperative to not alienate the players from the consequences of their actions. This can take many forms, as well, depending on the angle and

degree to which the game represents a nuclear ideology.

Fallout as a series, however, only somewhat made it less appealing to use nuclear-based weapons in the beginning of the series that is analyzed herein, with an overt transition to nuclear-based weapons being easier to acquire, less dangerous to use, and more likely to reward the player. Detonating the bomb in Megaton, for example, directly rewards the player -- and, to its credit, punishes the player to a lesser degree within its own measure of morality -- with the tableau of the mushroom cloud and other material gains. It also renders the nuked area unreachable, divorcing the player completely from any visual consequence. The ease of use and entertainment value of these weapons in the context of *Fallout* puts it squarely in the realm of spectacle and leaves little room for meaningful semiotic investigation by the player.

Fallout is too mired in the establishment of nuclear warfare aftermath as a setting and a playground to be concerned with the implications of using nuclear weapons in a post-nuclear-war world. *Fallout 3* made these weapons somewhat dangerous to use to the player, which if done to a stronger degree could impart valuable semiotic understanding to the player. Using the player's own inherent avoidance of loss (especially when that loss involves dying in a violent way and having their progress impeded) helps facilitate an appropriate sensation to the player (Denham & Spokes, 2019, p. 740) and connecting it directly with the use of a nuclear weapon conceptualizes an anti-nuclear sentiment.

In *Metal Gear Solid V* players *are* encouraged to use nuclear weapons on rival players, but this is done via a plain menu with no fanfare and no animation. With this example, *Metal Gear Solid V* doesn't so much play into spectacle, but still plays into how Sicart (2009) describes the 'banality of evil' concept in video games: without strong attachment to consequence, unethical behaviors -- in this case, nuking another player -- can lead to desensitized reflective

capacities when evaluating actions that are simulated by the game itself (193-194). The reward for dismantling nuclear weapons is a disarmament event hidden under layers of secrecy, only ever achieved through cheating or modifying the game itself.

There's value in mediating certain ideological messages through this relationship between narrative and gameplay devices that the player experiences. This method of message conveyance complements a natural form of learning and perception forming discussed by Gee (2004) who stated: "Humans do not usually think through general definitions and logical principles. Rather, they think through experiences they have had" (p. 22).

Solution: Part II

The unique trait of video games as opposed to other forms of visual media is that the settings and contexts in which the player is engaged are constructed from nothing by the teams that make them. Every choice that a player is able or unable to make is inherently by design. It goes to say, then, that the producers of these games (at all levels) are in a position to impart their perceptions in small ways onto these games. However, doing so deliberately, with a more conscious regard to the thought put into representations of nuclear warfare (should it be included at all) is not only possible, but can come easily once position is examined.

Gee (2006) describes a 'paradox about producers' in that they are "deeply enough embedded in their social practices that they can understand the texts associated with those practices quite well [but] take the meanings and values of the texts associated with those practices for granted in an unquestioning way" (p. 231). Cultural positioning of video game producers colors a lot of what they put into a game -- especially smaller details that add to realism -- and it may go unnoticed.

Fallout is a great example of this. Having a landscape visually representative of the

aftermath of a nuclear war as a playground can be considered responsible given other elements. The series' inclusion of an ever-present Geiger counter with an audible warning when the player wanders too close to areas of high radiation is an effective and realistic artifact to include when simulating surviving in a post-nuclear wasteland. However, to frame it as a preventative measure also alienates the player from any realistic depictions of devastation that goes beyond spectacle from a safe distance. To detonate the bomb inside Megaton, for example, does nothing but turn Megaton into a walled off area the player can no longer get to. For all the minor frustration that might cause a player, rather than any significant introspection, Megaton may as well not exist at all. There could also have been more narrative discussion on how the Wasteland came about, any retroactive criticism about the world's pre-war fascination with nuclear energy, weapons, and imagery. There should also be mention that responsible representation of nuclear warfare or weapons would not require alteration or removal for release to Japanese audiences.

For *Metal Gear Solid*, the series had a lot of exposition devoted to real-world discussions of nuclear politics and nuclear weapons, and a lot of it was positioned from a strong criticism of western and American exceptionalism. Turning nuclear weapons into literal monsters is a motif that goes back to the birth of *Godzilla*, and the fact that the only time a player is allowed to control one of them is in the absence of nuclear capabilities reflects the world the series producers created.

The ending of *Metal Gear Solid V* with the nuclear disarmament event hidden behind unspecified rules fails to be strong in ideology. It rewards players for a scenario that is disorganized and unregulated, so to send a message about nuclear disarmament, a game should rather model a risk-reward system that is *preferential* of nuclear disarmament, and explicitly so. Given the highly fictionalized elements of a game world that mirrors the real world, the

limitations are understandable, but in any settings, the more thoughtful producer ideology could be more of a driving force and less of a compromise.

The sway towards desire of the apocalyptic in U.S. audiences especially is not surprising. In an unauthored 1982 article, the anti-nuclear movement in the U.S. is described as having “a much more abstract character” and of being “much more apocalyptic” (p. 528). This apocalyptic quality can be maintained as long as the ideology is strong enough to subvert it as well. Going back to Derrida, Porter, & Lewis (1984), texts that conceptualize nuclear war, “to translate the unknown into a known, to metaphorize, allegorize, domesticate the terror, [etc.]” (p. 21) represent a global issue that has not yet happened, but is forever a moment away. While this seems daunting, it allows media that translates this issue into a place where players actively engage with it to be transformed. Game designers tackling the issue of nuclear warfare should consider this opportunity for transformation to instill within the audience an awareness that is not only practical (away from spectacle) and applicable to the real world.

Conclusion

As *Fallout* and *Metal Gear Solid* demonstrate, video games reside in the intersection of a globalized market and an active audience, and as such those that are “played in a society embody the values of the dominant culture [and] are ways of reinforcing through play the behaviors and models of order rewarded or punished in the society” (Gailey, 1993, p. 81). By taking a realistic global threat such as nuclear war and taking advantage of its hypothetical state, video games can use representation of nuclear war and weapons responsibly to build awareness and demonstrate consequence into a meaningful experience. At the moment, the medium prefers to showcase pure spectacle using semiotics and imagery that come from events that have devastated the environment, communities, and the lives of generations of people. This dominant perspective of

what kind of messages are delivered to an audience and how are clear from the semiotics used in both *Fallout* and *Metal Gear Solid*, a testament to the positions of their development teams.

Considering the rapidly-globalized nature of media markets, development teams should be cognizant of the ideology they're sharing with not only their own local audience, but those in other places who are perhaps differently experienced with the subject at hand.

This solution model is meant to begin a conversation between game creators -- especially those who are part of synthesizing gameplay and narrative elements to form a coherent message - - and the players. By beginning to move away from pure spectacle into more holistic considerations of how to represent issues of global violence -- especially an issue like nuclear warfare and weapons, which is polarized in perception between the U.S. and Japan -- game designers can arm players with objective knowledge. Awareness of nuclear warfare beyond extravagance is a solid first step to moderating it and maintaining realism when discussing the possible repercussions. It also demonstrates a thoughtful review of nationally exclusive perceptions about nuclear weapons in light of new media relationships between historical aggressor and victim.

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