GUN HERO: ASSESSING THE ROLE OF
VIOLENCE IN ENTERTAINMENT VIDEO GAMES

THESIS

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This work is dedicated to my wife, Ellen

for dealing with my crap.

ABSTRACT

Gun Hero

by

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Violence has been an integral component of entertainment media for the entirety of recorded human history. Every new breakthrough in media technology has faced its share of controversy directed at its ability to adversely affect the behaviors of its audience, as is the case with video games. The interactivity of video games puts the audience into an active role as an agent that performs potentially, and commonly, violent acts, which has alarmed parents, policy makers, and academics. The first-person shooter format used by some of the most popular contemporary video games especially pushes connects the real and virtual world by putting the player into increasingly more realistic environments and exposing the player to increasingly more detailed depictions of violence. The bulk of significant studies directed towards video games focuses on the effects the games have on players. This thesis shifted this focus instead on the players and looked at why violence is appealing outright, not necessarily the immediate and long-term behavioral effects of violent content. *Gun Hero* is a game based on this research, which used case studies of related inquiries and an extensive historical study of violence in literature, entertainment, and video games. The game analyzes player's physical and emotional reactions to see how and why people are entertained by different characteristics of violence. While providing potential insight into why violence entertains game players, the game also illustrates the Violence Spectrum, a video game categorization tool created for the study and the fundamental direction for the game's design. The study and game product of the thesis explores how different forms along the Violence Spectrum appeals to game players due to historical ties to culture, connection of players to virtual worlds, and the fulfilment of fundamental psychological needs.

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Introduction

　　When discussing the future of video games, imagery of black masks strapped to people's faces typically comes to mind. The current state of virtual reality comes in the form of these black masks, the glowing screen moved from the living room wall to directly in front of the optic nerve. As more advanced computational and graphics-processing technology becomes more accessible to the average consumer, what games can potentially accomplish mechanically and visually will only increase. To reference Moore's Law, over the history of computing hardware, the number of transistors in a dense integrated circuit has doubled approximately every two years (Moore, 1). In this exciting time of digital media, the human viewer inches closer and closer to the screen, pining for the day they truly interact with the virtual worlds inside it. But what do people do in these virtual worlds? Stare into the virtual sky and contemplate the virtual universe?

　　There exists an obsession with aggressive gun-based fantasies in Western culture (Weaver, 233). From before the earliest video games, to the advent of written language, people have relished tales of daring heroics, brutal combat, and the horrors of warfare (Halter, 5). But violence in stories would lead to interactive and engaging activities designed to satisfy some fundamental desire to better others on the field of battle, from sports that mimic the physical attributes of combat to tabletop games that cater the more cerebral qualities of war. These two qualities of interactive entertainment with violent themes would culminate, over hundreds of years of evolution, into one of the most popular video game genre around the world: the first-person shooter (FPS). *Call of Duty*, a 13-year old video game franchise, is the 4th best-selling game franchise in history, at 250 million copies sold. These sales trail behind only *Mario*, *Tetris*, and *Pokémon*, which

have been around nearly twice as long. (McWhertor). Therefore, *Call of Duty,* a relatively young media franchise, exhibiting such high market performance indicates that the game has qualities that make it appealing. *Mario* and *Pokémon*, while still having violent implications (killing enemies and animal pit-fighting, respectively),

What is it about violence that makes it so appealing to watch and play? Studies indicate that 68% of all published video games, 60% of television shows, and 90% of movies have some kind of violent content (Happ & Melzer, 8). Why has generation after generation learned and expressed the absolute horrors of nation-against-nation warfare to person-to-person murder, and yet children clamor for plastic guns with orange tips and urban fashion lauds epaulettes, olive drab and combat boots?

Because of the prevalence of violence in popular games and the amount of interest surrounding the subject, and because depictions of violence in future of video games and will only improve graphically and mechanically with advancing technology, it is imperative that we explore and assess the role of violence in video games. While much of the exploration of this thesis applies to games in general, the focus rests on the FPS genre, due to its popularity, its propensity for violent content, and its historical ground work laid for virtual reality games, which could potentially be the next step for the future of video games with breakthroughs in consumer technology. To better understand the role of violence in games, this thesis project attempts to explore historically established aspects of FPS and why people find them attractive or compelling.

The project is called *Gun Hero* because playing the game has an experience akin to the popular *Guitar Hero* franchise due to the plastic gun, but also the theme of "hero

with a gun" is a critical aspect of the literature surrounding the topic of violence in entertainment media. The *Gun Hero* project itself is an arcade game. The capstone for the thesis project, the proof of concept, was drafted to satisfy these three objectives:

1. emulate an "old school" light-gun arcade game with a modern flare
2. collect data from people playing the game to contribute to further research on why violence is appealing to game players
3. encourage players to think about the role of violence in video games, especially games with a first-person perspective.

External to context of the study, it was constructed as an homage to the classic "light-gun" game that was popular in pre-Columbine arcades in North America, though it functions more like a first-person shooter with a controller that allows the player to shoot the screen. The game intends to simultaneously honor the first-person shooter as an influential medium of contemporary culture and critique the current relationship between advancing technology and increasingly more realistic warrior fantasies. The controller, which resembles abstract sculpture with a mildly discernible form, represents the very nature of violent games. When asking people why they play video games, many will say "to feel like they're actually doing something." This reflects many of the anxieties contained in the Information Age, that due to shifts in industry towards digital production and middle-class lifestyles centered on mundane routines, many feel a loss in genuine experiences (Martino, 55). With FPS games, the player becomes the avatar in exciting situations with constant reaffirmation in tests of skill that manifest with every trigger pull, every corner cleared, and every bullet dodged. And to these players, these tests are genuine, the experience is genuine, and the accomplishment is genuine. But in the

physical reality, they are not warriors on a battlefield. They are holding a piece of plastic in their hands that tells a computer what memory cells to access next. Therefore, the *Gun Hero* controller is not a gun, just like violence in a game is not actual violence. But to the player, the controller is a gun, and in the game the violence kills people. This underlying experience of playing violent games, especially first-person shooters is explored in the thesis discourse, which looks at how the historical ties between violence and culture contributed to an appeal for war and gun use as inspiration for games. The thesis also looks at how depictions of violence enhances the connection between a player and a virtual game world. Lastly, the thesis questions the psychological motivations of game players and how violent content may enhance fulfilment of these needs, either directly through violence in mechanics or indirectly through violence in narratives. The *Gun Hero* game ties these inquiries together by basing the aesthetic design on the history of violence in games, building an interface that emphasizes connection of player to the virtual world, and a pre- and post-survey assessment to gather data on how violence appeals to the motivations of game players.

The end of ludic wars and the rise of the hero with a gun

In 1935 Johan Huizinga wrote the classic work *Homo Ludens,* which has played an important role in game studies. In *Ludens,* Huizinga discusses the "ludic", or the showing of spontaneous and undirected playfulness, and its necessity in cultivating culture. Huizinga asserts that warfare has traditionally been part of this ludic, in that it contained a "cultural play element" (Huizinga, 91). During the 18th and 19th centuries, war between nations had many elements of a game: there were rules, there were procedures, there was an opponent, there was a victor. However, "as long as war

maintained a difference between combatants and civilians and admitted a rough parity between the combatants, war was a game" (Campbell, 183). In "ludic war," combatants acknowledged each other as equals of similar capability. Also in a ludic war, the object of the campaign was to *defeat* the enemy, not *destroy* them. Ludic wars generated a certain appeal for warfare. The honor held for warriors, generated over millennia, stayed true into the Age of Reason. But with reason came sensibility, and honor was placed on civility as well as heroics in battle. The 19th century also saw the genesis of the war novel genre, with classics like *The Charterhouse of Parma (1839), War and Peace (1869),* and *The Red Badge of Courage (1895)*. These novels initially resembled the ancient epics discussed in the previous section. They typically condoned heroics and attacked cowardice, but as time passed they also began to question the moral implications and brought to light some of the bloody horrors of war alongside the glorification of combat. Although the literature towards the turn of the 20th century exhibited a lot of anti-war sentiment, much of the young male public still had an innate desire for adventure, which, at this time of burgeoning industry, could only be satisfied by becoming a soldier (Martino, 21).

This all changed with World War I, when armed conflict would forever transform from "ludic warfare" to "total warfare." Erich Ludendorff, general of the German army under Paul von Hindenburg, is commonly associated as the individual responsible for this shift in warfare strategy. Ludendorff took previous primary motivation of war, that "war is the continuation of politics by other means," and inverted it into "war no longer to be the seeking of political ends by military means, rather the political state was to serve the military ends" (Campbell, 183). Every aspect of civilization was mobilized to the war

effort: civilians were drafted into the war, factories produced weapons, and the infrastructure served the needs of the military. Now, because civilian components were utilized to overwhelm and defeat the enemy, the civilians then became a target. War was no longer removed from every-day life. War was no longer the stuff of legend read about in exciting novels. War was no longer about defeating the enemy, the enemy had to be destroyed (Martino, 21).

World War I was the first and only war where the combatants were more excited about its beginning than its end, primarily in Great Britain, where mechanized industry truly disturbed the zeitgeist (Beckett). Civilians were excited to join up because of three fundamental reasons. First, because of the anxieties of industrial life, young people were left wanting an opportunity to find fulfilling purpose. Second, because of the significant amount of propaganda generated to dehumanize the enemy and its entire civilian population, there was little ethical resolve inhibiting the desire to kill. Third, later in the war once the initial excitement was outweighed by stores and death tolls from the front, further propaganda attacked the masculinity of those who did not volunteer, therefore enlisting was the only option to preserve identity (Beckett). World War I literature illustrated two "myths" about World War I. The "Victorian hero myth" revolved around an image of the hyper-masculine warrior, which referenced the epic hero traditions discussed earlier, romanticized accounts of the Boer Wars, "public-school ethos," and propaganda (Pividori). The "Ghost Myth," which developed later, presents the opposite image of a soldier whose masculinity has metaphorically been stripped from him, leaving only a weak "ghost" of a man, thus destroying the notion of a heroic, honorable war (Pividori).

World War II had the same aspects of total war as World War I, only much worse and on a grander scale. By the second World War, civilian soldiers were more cautious and less excited, for now the horrors or war were much more apparent thanks to early films like *All Quiet on the Western Front (1930),* based off the classic novel of the same name (1929). But because of a world-wide economic crisis that developed between 1923 and 1929, nationalism rose to new heights and to terrible effect. Nationalism caused boys to enlist once again for "god and country," echoing the Crusades once again (Rose, 5). Rampant nationalism, the Great Depression, and propaganda drove people to genocide, and civilians were now the primary targets of the war, completely engulfing the world in total war and eliminating any notion of Huizinga's ludic war. How did we go from World War II, the most profoundly non-pleasurable, horrible, and non-ludic event in human history, to *Call of Duty,* the best-selling video game franchise? The answer lies in Hollywood and American gun culture.

In the United States, especially, the gun was perceived as a tool to aid in self-sufficiency and self-defense, and could turn the everyman, once again, into the hero (Emberton). The liberty of the original colonies was won at the end of a musket, held in the hands of the armed public. The gun made the average citizen a hero, at least, that's the romanticized interpretation of it. This is the kind of image protected by the Second Amendment – that at any moment, the everyman can take up arms against a threat to his liberty. This romanticized ideal of gun violence continued as the country widened its frontiers into the west, where having a pistol or rifle was critical for the survival of family and livestock (Brumberg). The most contributing factor to this uniquely American gun

culture, ironically, came from the lack of exposure to real warfare on United States land - - everyday civilian experience was far removed from armed conflict (Martino, 20).

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The Western film genre reinforced the romantic tradition of the cowboy, the drifter, the gunslinger. The stars or these films were men who had to protect their land and their ideals with bad guys with guns, and had to secure their own meals. Eventually World War II movies would follow this format. The mid-20th century war films as well as the more recent adaptations such as *Band of Brothers*, and *Saving Private Ryan* also emphasized the theme of characters being both the victim and the hero. The "Victorian Hero Myth" and the "Ghost Myth" from World War I literature converged into a much more complex dynamic of heroism that focused on the group and less on the individual, contrary to the cultural individualism present that grew during the period in the Western world (Pividori). This mentality of "fighting for the man next to you" would carry over into World War II, which then materialized in full force in film adaptation of the war, where protecting friends in exotic locations in far from home to fight evil forces became a common aesthetic background for plots in war films and later wargames (Ramsay, 96).

Later in the 1950s we see a fascination with destruction, with further destruction thwarted by, once again, the heroics of a man with a gun. Films become increasingly removed from real-life events with the introduction of outrageous science fiction. Giant robots from outer space or Soviet experiments gone wrong were thinly-veiled metaphors for the country's paranoia and anxiety surrounding nuclear weapons and Communist infiltration during the Cold War (Barr, 19). Disasters were the outcomes of evil doers, and in the end a hero with a gun apprehends the evil robot or mutant creature, just as peace and security in real-life are maintained by a superior military force. The Cold War also saw an increasing US military interest in board game development for training and strategic planning purposes, as game developers at the time displayed an uncanny ability

to devise simulation systems that mimicked reality, as with the game *Tactics* (1958) (Deterding, 28-29). This interest in game development had a similar effect in the pioneering of video, which indicated how war inspired the earliest video games like *Spacewar!* (1962), *Maze War* (1974) and *Spasim* (1974). Relationships between warfare, military and game development was not a new development in the Cold War -- such a relationship goes back to the first board games.

Military and gaming: tabletop games, Kriegsspiel, and tin soldiers

To adequately understand the appeal of violence in video games, we look how military systems and activities permeated the first games. Huizinga's concept of the "Ludic War" expresses how pre-Industrial Revolution warfare had several elements that emulated gameplay – rules, objectives, distinct opponents, victors and losers. Compounded by the compelling factors of exciting narratives of heroics, masculinity and adventure, the characteristics of warfare made it appealing as a form of play, and as such the relationship between war and games have had a long history:

> *Ever since words existed for fighting and playing, men have been wont to call war a game... The two ideas often seem to blend absolutely in the archaic mind. Indeed, all fighting that is bound by rules bear the formal characteristics of play by that very limitation. We can call it the most intense, the most energetic form of play and at the same time the most palpable and primitive (Huizinga, 89).*

The integration of war strategy into games dates back more 5,500 years to the ancient Chinese game of *Go* (4th century BCE) (Halter, 18-23). *Go* is a turn-based board game between two players, where each player takes turns placing stones – one person black stones the other white. The object of the game is to end the game with the most points, which are obtained by surrounding territory in your color stones and capturing

your opponent's stones by surrounding them. The legend of the game's creation claims

that the game was created by warlords who used the black and white stones to plan

attacks on enemy fortifications (Halter, 22). Regardless if the legend is true, the game has

cultural parallels to military strategy, although not as obvious.

     Chess has a more obvious analog to warfare, with its knights and castles ready to

defend the king or the realm. The commonly presumed predecessor to Chess was the

Indian *chaturaṅga* (6th century CE)*,* which translates approximately to "four divisions,"

in reference to its four types of pieces: elephants (bishops), chariots (rooks), cavalry

(knights), and infantry (pawns). C*haturaṅga* and its successor *shatranj* traveled along the

silk road around the 9th century to Europe, where it was adopted in southern Europe by

aristocrats and royalty as an engaging pastime. Boards and game pieces have been found

in forts as far was a Britain, with one unearthed from Hadrian's Wall, as well as in the

homes of the wealthy, who would wage miniature battles while safe in their Palatine

villas and seacoast resorts (Halter, 15).

     What we recognize today as *Chess* emerged when the rules for "western chess"

became standardized across Spain and Italy around the 15th century. During the 19th

century, *Chess* migrated north to France and Germany where the game became

ubiquitous among the aristocracy, so much in fact that the game started to find its way

into the education of military officers. While *Go* represented a more eastern approach to

warfare, which focused on long-term strategy, massive groups of equal units, and subtle

mind games between general and opponent*, Chess* aligned more with Western war

traditions: specialized units, sacrifice of lower ranks to protect the leadership, and more

focus on play-by-play tactics than immediate decision on end-game formation from the

onset of battle. Because of *Chess's* likeness to military doctrine and vast complexity (despite *Go* having exponentially greater number of board arrangements), military leadership would introduce the game to their children, along with other toys to inspire military mindset, like tin soldiers and model artillery, in hopes of cultivating great officers (Halter 28).

To train new officers, there needed to be a tool that would simulate warfare under the guise of a game. Prussian army Lieutenant Georg Leopold von Reiswitz and his son Georg Heinrich Rudolf von Reiswitz created the game *Kriegsspiel* (literally "war game") for King Wilhelm III. It consisted of a modular grid system representing different terrain, such as rivers, mountains, forests, and open fields. The game included dice to simulate unpredictable situations on the battlefield, and even mechanics to simulate communication failure among units and incomplete knowledge of the enemy, commonly referred to as the "fog of war." The development of the incomplete knowledge system inspired a modification to *Chess*, where the player only knew the location of their pieces and not their enemy's.

The realism of *Kriegsspiel* captured the attention of civilian men in the late 19th century who wanted to experience the thrill of being in command of an army without any of the responsibility or risk. The game granted a satisfaction of a masculine power fantasy, like how sports translate the show of physical prowess without the necessity of killing your opponent. It channels the warrior myths, the hero worship, the intrigue, the espionage, and other aspects that make violent conflict captivating, but in itself is still not *real war* (Burrill, 16). The game board and the opponent exist in the same world as the player, so defeating the real player in a fantasy simulation satisfies the desire to have the

glory and honor of a warrior besting an enemy in combat. This demonstrates how historically the popularity of wargames was directly linked to the quantity of detail pulled from reality. Thus, in games of strategy, there was a desire to increase the fidelity of the violent content (considering troop morale and projectile ranges), which would eventually evolve into the video games of today through iterations of remediation (Deterding, 22)

Throughout the 19th century and up to World War I, toymakers sold model miniature soldiers and war engines to young boys and patriotic parents. These toys were created to cash in on this 19th century patriotism, which fueled intentions to raise a new generation of soldiers excited for war. In 1873, writer W.H. Cremer encouraged "patriotic parents" to invest in their children's future with these little tin soldiers:

> *[it is] important that every child of the new royal empire should be well acquainted with the customs of soldiers of other countries against him we might one day have to stand, face to face, in mortal strife, and therefore very good copies of possible antagonists are prepared for his instruction* (Brown, 56)

The level of detail in these toys was considered important for identification of different armies of different nations. Children would memorize the colors and patterns of their neighbors' uniforms and strive to have complete collections of toy soldiers to represent any possible enemy to their homeland. Children would reenact little battles using marbles to represent cannon and musket volleys, with the goal of knocking the models over, symbolizing a successful kill.

This type of play would transcend the playrooms of little children and evolve to appeal to adults. Writers H.G. Wells and Robert Louis Stevenson were obsessed with the game, and even high-ranking officials such as Winston Churchill admitted to enjoying

collecting and battling with tin soldiers. Wells went as far to publish his own standard of

rules for a war game in his book, *Little Wars,* published only a few years before the onset

of World War I. The game he devised was heavily inspired by *Kriegsspiel,* which he had

learned from his friends in the military. He intended to further capture the spirit of

commanding an army, which *Kriegsspiel* he believed failed to do because of its focus on

its strict educational objective.

> *I have had quite a considerable correspondence with military people who have been interested by it, and who have shown a very friendly spirit towards it ... They tell me -- what I already expected -- that Kriegsspiel, as it is played by the British Army, is a very dull and unsatisfactory exercise, lacking in realism, in stir and the unexpected, obsessed by the umpire at every turn, and or very doubtful value in waking up the imagination, which should be its chief function. (Wells, 41)*

What's most interesting about Well's game was the author's passion for pacifism. He

took care to clarify this position in the work's conclusion, which consists of a lengthy yet

eloquent argument that playing nursery-floor battles can advance the cause of peace. He

contended that despite his enthusiasm for "tin murder," playing out these battles in a safe

setting could allow youth and adults alike to both honor those who had fought in real war

while also satisfying men's desire to feel the thrill of war without feeling the need to take

part in it (Halter, 61). However, fellow pacifists also recognized that playing with model

soldiers might prepare youngsters for real war. Constance Wilde, wife of playwright

Oscar Wilde, was quoted in a London newspaper holding an anti-toy soldier stance:

> *...children should be taught in the nursery to be against war. It has been suggested that toy soldiers and toy guns should be kept from the children. I do not think much good can be done that way. It is impossible ... for children not to see [real] soldiers, and, seeing them, to like their bright clothes and upright bearing. At the same time, a wise mother can instill into the child a dislike of war.* (Halter, 50).

Constance Wilde was somewhat correct. In regards to the unusual "cultural bloodlust"

exhibited at the onset of World War I, some explanations point to the new rigors of

industrialized life, the wicked duo of institutionalized boredom and high-stress

environments. The environment changed, but the desires for war still boiled in the psyche

of young men, due to several generations of Europeans having a steady diet of imperialist

pop culture through the kiddie literature of the day and fighting fantasy battles with toy

soldiers. "For those who never knew war firsthand, these fictions portrayed it as a great

adventure, a thrilling, testosterone-affirming escape from the emasculating drudgery of

modern existence" (Halter, 51).

Leading up to and during the war, other "civilian" wargames complimented the

flood of tin soldiers in Great Britain, including *The Great War Game* (1910) and the first

version of *Stratego* (1910). Despite the horrors of the World Wars, civilian wargames

would only increase in popularity over the next 20 years, with still popular board games

Risk (1957) and *Diplomacy* (1959) created during this period (Deterding, 25). Civilian

wargames in the 1950s onward were inspired by the complex wargames used by military

officers as training apparatus in the 19th century, with the introduction of more realistic

terrain, hit-point systems, differentiation of units, and mathematical probability charts

calculating everything from soldier moral to the likelihood of nuclear attack. By the

1970s, even Pentagon officials considered these games as "legitimate" pastimes due to

their accuracy to real combat situations while maintaining some level of amusing

attractiveness (Allen, 111). The US military started to pay increasingly more attention to

these types of games and their developers when they realized a startling resemblance

between the games and their World War III exercises. The collaboration between

commercial civilian game developers and the military would continue to influence the trajectory of interest in gaming, which would eventually transfer to the electronic realm as early video games borrowed from the older board game technology (Deterding, 28 - 30).

Violence in the dawn of video games

Contemporary video games owe much of their existence to military interest. If it weren't for the Cold War, there wouldn't be well-funded armies of computer engineers supplied with the most powerful supercomputers and ample free time to tinker with programs (Halter, 67 -117, Poole, 15-16). Despite the low-fidelity graphics of these early video games, the implied violence in the games, along with military involvement -- both intentional and unintentional -- propelled the genre forward by drawing in players and opening the imagination to the possibilities of computer-generated virtual worlds and what to do in them.

A critical example of military involvement in early video game development manifests itself in the historic game, *Spacewar!* The game does not directly influence the trajectory of game development that lead to first person shooters, but *Spacewar* is immensely important in sparking the popularity of the medium amongst other programmers in research institutions. The game was created in a research institution at MIT in 1962 as a more interesting demonstration of the PDP-1 Minicomputer's display capabilities.

Other early games on computing machines like the PDP-1 were simply analogs of

tic-tac-toe and line drawing systems, which were unsuccessful in inspiring people to

develop programs for computers for the sake of amusement. *Spacewar!* tapped into the

imagination of the space race and science fiction of the time, and the networked

competitive combat element captivated players and spectators. Because the close

relationship between American universities and the military, the computer scientists that

worked on Cold War research projects that played *Spacewar!* at university would install

the game onto machines operated by military research facilities. *Spacewar*, like the table-

based wargames played at the time, would soon inspire military researchers and game

designers alike, creating a partnership and relationship between the real military and those remediating its activities as entertainment (Deterding, 28-29).

Ten years later, the first-person shooter was born

Figure 1 Maze War

with the creation of *Maze War*

and *Spasim*. *Maze War* was first created as game where the player controlled a character

and viewed the virtual world from a first-person perspective (Figure 1). The movement of

the character was not a one-to-one[1], but the shooting mechanic and perspective inspired the later first-person shooter genre. *Spasim* also featured a first-person perspective, but of a pilot of a space ship. The movement was more one-to-one than *Maze War,* and as such its more accurate representation of three-dimensional space drew the attention of military researchers, and *Spasim* became the foundation of early digital flight simulators (Halter, 129).

In 1980, at the height of the arcade "Golden Age" Atari published *Battlezone,* which was another spiritual ancestor of the first-person shooter. In *Battlezone*, the player is a pilot of a battle tank. The initial novelty of the setup is that the player *is* a character in the game, not a god-like entity that controls a character on-screen. The player uses two joysticks on the cabinet to control the virtual tank, much like how operators pilot real tanks, and drives around a flat vista to seek and destroy enemy tanks and aircraft while dodging incoming attacks. Putting the player in the perspective of the tank commander's view, even though it was rendered by vector graphics (Figure 2), puts the payer into a different frame of mind -- they are in the game, they are the tank driver, they are the killer (Call, Whitlock, & Voorhees, 127).

Soon video game development would allow players to become killers with an even greater one-to-one relationship with the virtual world by being human characters in fully navigable 3D environments, as realized by the new first-person shooter genre.

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[1] In the three-dimensional space that we inhabit, we have infinite possibilities in terms of movement fidelity. That is, given adequate time or energy, one can translate position or rotate orientation in infinitely small increments and in infinite directions. However, in computer representations of three-dimensional space, the fidelity, or amount of increment, is determined by the processing power of the machine on which the representation resides. Earlier games, like *Maze War*, the avatar was limited to positional movement of invariably large increments and rotations along only one axis (yaw, or spinning in place) of 90 degree increments. Contemporary games, especially games that strive for competitive precision like *Counter Strike,* allow for greater range of movement – avatars can move and rotate on all three axes in very small increments.
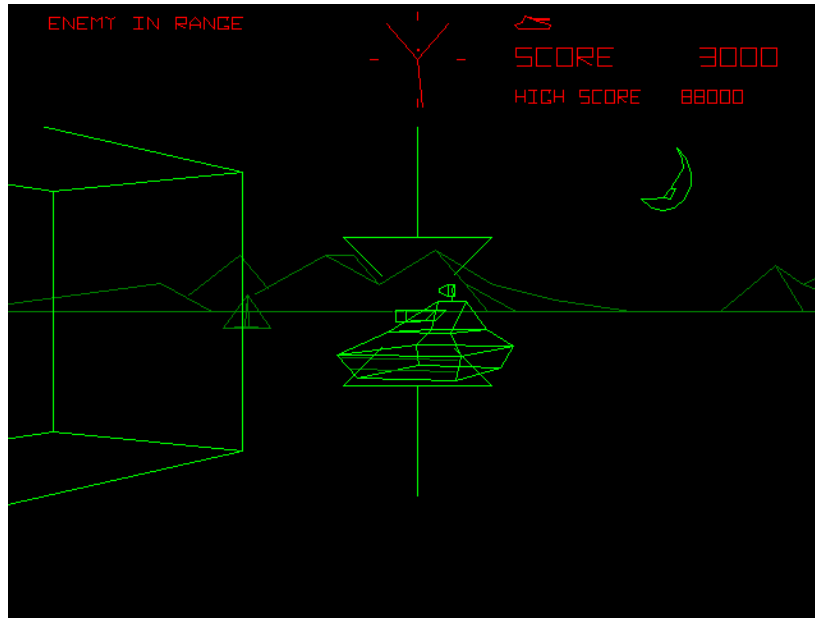
Figure 2 Atari's Battlezone

Becoming a killer: evolution of the first-person shooter

The first-person shooter (FPS) in its current incarnation is the result of developments in video game technology and marketing over the last twenty years. The possibility of the FPS was first seen in vehicle simulation software designed by the military and the resulting civilian commercial games like *Battlezone*, but the mechanics and aesthetics of contemporary FPS games came from the work of id Software.

In 1991, id Software released *Hovertank 3D,* which showcased their recently developed ray casting technology[2]. *Hovertank 3D* operated much like *Battlezone,* where in both games the player takes the role of a tank pilot and views the game world through the pilot's perspective. Where *Battlezone* had vector graphics, *Hovertank 3D* utilized state-of-the art 3D rendering to provide more realistic visuals. *Hovertank 3D* makes for an interesting example of improvement in computer technology warranting more realistic graphics and to better connect the player to the action on screen, but the true milestones of first-person shooter aesthetics and mechanics are id Software's next works, *Wolfenstein 3D, Doom*, and *Quake.* These three games incorporated game engines that would serve as the base for almost every current FPS game.

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[2] Ray casting technology renders only the models and surfaces that the player actively "looks" at as displayed on the screen. This allocates improved performance, as the computer does not have to calculate the surrounding models and only what the player currently needs to see, which in turn allows for better graphics.

A timeline of the first-person shooter milestones

1993 Wolfenstein 3D -- the first true FPS, starting the genre with shooting Nazis and monsters with gory detail, soon to be the mainstay of the genre and the target of its critics.

1993 Doom -- Did what Wolfenstein 3D did, but more outlandish and with more gory detail. If Wolfenstein 3D started the genre, Doom made it popular and permanent, with its hundreds of "clones" and mods. Immediately draws criticism to genre and video games in general for being too violent.

1994 System Shock – brought focus to narrative and roleplaying to FPS, and popularized emergent gameplay.[3] Famous for pioneering trend of giving players more control over the game

1996 Quake -- id Software continued their dominance over the genre with the introduction of the Quake game and engine[4], which revolutionized game graphics and founded the most current game engines. Popularized multiplayer.

1998 Unreal -- much like Quake, introduced another game engine that would continue to evolve in the future. Popularizes fast arena style combat.

1998 Half-life –With no cut scenes and a breakthrough in graphics, player took active role throughout the game and the perspective never left the player character, breaking new ground in first-person narratives. Like Doom, it also spawns several modded

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[3] Emergent gameplay is when seemingly complex situations and dynamics arise come from simple mechanics.

[4] Game engines are the backend programming that controls fundamental functionality in a game, including how the game is rendered, how physics are handled, and interactions between game elements. Some game developers will build their own engines to accomplish specific tasks and stand out from other games, while other developers will license engines that are already built.

games and introduces the popular Source engine.

1999 Counter Strike -- mod of Half Life, combines fast arena style multiplayer combat with realistic weapons, environments and scenarios, encourages start of professional FPS leagues.

1999 Medal of Honor -- start of the WWII game franchise that emphasized narrative gameplay from first-person perspective, gamified the D-Day landing. Story created by Steven Spielberg, who worked on the 1998 film, Saving Private Ryan.

2001 Halo: Combat Evolved -- ushers in next phase of the FPS. Motivates emphasis on internet multiplayer combat with more realism. One of the first games to popularize limited weapon loadouts and regenerating health system, which are common features of contemporary FPS games.

2002 Battlefield 1942 -- latches onto appeal of multiplayer games to recreate WWII battles with large numbers of human players. Battles incorporate land, sea, and air vehicles based on real military hardware.

2002 America's Army -- Video game funded by the US Army as a recruitment tool. One of the first examples of a video game used as propaganda. Team-based multiplayer gameplay always had the player's team as the US Army, and the opposing team as an unidentified middle-eastern group.

2003 Call of Duty -- WWII game that started trend of "cinematic" gameplay, where the player feels like a character in a well-produced war film, now possible with available

graphics and audio capabilities. Differed from Medal of Honor by looking at different

perspectives of different soldiers in multiple theaters of combat instead of a single

soldier, and focuses on squad mechanics and less on "lone wolf" action.

2003 PlanetSide *-- first massively multiplayer FPS game, where thousands of players*

log on to a game world and wage battles between warring factions across several

continents.

2006 Gears of War *-- not strictly a FPS, but shares almost every aspect other than the*

perspective. Very gory and designed with mindset of replicating tension of combat by

emphasizing cover and strategic firing inspired by paintball and actual combat

experience, making it very popular among those in the military.

2007 Team Fortress 2 *-- multiplayer game with unrealistic graphics and gameplay and*

featured a "free-to-play" model, where the game was free but with purchasable

cosmetic options. Example of an immensely popular game without adherence to

realism.

2015 Grand Theft Auto V (PC edition) *-- introduces first-person perspective to the*

most controversial video game of all time, which puts the player in the role of a

criminal.

2016 Overwatch *-- made by Blizzard, the studio behind* World of Warcraft, *showing the*

market popularity of the arena-based FPS format. Return to unrealistic gameplay

without reducing competitive scene, inspired by Team Fortress 2.

Figure 3 Timeline of first-person shooter milestones

Connecting real and virtual worlds through a gun

In video games with a first-person perspective, the player has closer link to the periphery of the in-game avatar, that is, the player sees what the avatar sees and hears what it hears. The avatar inhabits a digital environment, which can range from an accurate representation of reality to wildly fantastical worlds. Regardless of what form the digital environment takes, it will possess in some capacity four essential properties: a digital environment is procedural, participatory, spatial, and encyclopedic (Murray, 72). In the context of video games, the first two encapsulate the game mechanics and its controls, respectively, whereas the latter two are what make games as "explorable and extensive as the actual world," contributing to a sensation of *immersion.* Janet Murray, in her book *Hamlet on the Holodeck,* defined immersion as an aspect of digital environment interaction centered around encapsulating the audience with a reality different from their own:

> *The experience of being transported to an elaborately simulated place is pleasurable regardless of the fantasy content we refer to this experience as immersion. Immersion is a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling from a psychologically immersive experience that we do for a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely other reality, as different as water is from air, that takes over all of our attention, our whole perceptual apparatus (Murray, 98).*

The spatial and encyclopedic properties of digital environments, in the context of video games, are the representations of physical space and the detail within that space. Interactive fiction adventure games like *Zork* (1977) created an illusion of space with textual descriptions of the virtual world. *Maze War* and *Battlezone* graphically represented space with vector graphics that drew images of maze walls, mathematically

rendered to replicate linear perspective and diminution.[5] Contemporary games accomplish spatial representation with sophisticated physics engines that can simulate everything from light refractions to sand in the wind. However, as Murray addresses, spatial representation is not dependent on creating an extensively accurate replica of reality when the most immersive experiences are the ones that masterfully limit the representation. Instead, the most immersive works focus on "finding the border" between the illusion and reality and directing the audience to it (Murray, 100 – 103). In games, limitations in technology that may hinder space or details, such as controller hardware or graphics processing, are overcome by implementing procedures and participatory mechanics that manipulate the player's participation in the game to prevent the player from destroying the illusion.

The first-person shooter, ever since its early incarnations in the mid-1990s, is defined by the first-person point-of-view, which lies at the general location of the player character's eyes. The exact location of the camera varies, but typically, with military shooters such as *Call of Duty* or fantasy role playing games like *The Elder Scrolls,* the camera can clearly see the character's hand-held weapons. The participant does not control a separate character; they are the character. Of course, this kind of perspective is not exclusive to shooters, as several 3D narrative games take place in the first-person perspective such as *Ultima Underworld* (1992), *Thief* (1998), and the more recent *Gone Home* (2013) and *Firewatch* (2016). What the FPS provides, however, is a unique continuous connection between the participant and the virtual world by connecting

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[5] These are ubiquitous methods of creating depth on 2D surfaces. Linear perspective pertains to drawing lines that converge on a "focal point" on the "horizon." Diminution simply means making subjects smaller as they get further away from the viewer and into the scene.

projectiles to targets. This facilitates a mutual reinforcement of connection to and

identification with the player character (Call, Whitlock, & Voorhees, 34).

The weapons in the FPS allow the player to "connect" with the world further via

projectiles propelled from a gun and hitting game objects, with the gun serving as the

fundamental bridge into the virtual game world. The connection feels real to the player

because of the disconnect between the player in the real world and the game object the

projectile hits. Just as a marksman fires a rifle to hit a target, the marksman does not hit

the target himself but via a propelled, separate projectile (Extra Credits). Because the

player character does not (normally) physically touch targets to "hit" them, first-person

shooters can use the gun as an effective bridge between the real and virtual world. The

combination of the haptic sensations produced by some game interfaces (Figure 4) further

enhances this link to the game world by providing physical feedback of actions of the

gun, the player's bridge, which reinforce its perceived presence.

Figure 4 Sony's DualShock 3 controller with two haptic feedback motors in the hand grips exposed

The guns in FPS games have similar structure and behavior as their real-world counterparts: a hand-held tool that propels a projectile with enough force to inflict harm on a hit target. The primary difference is materiality -- the video game gun does not have the capacity to cause harm, and as such evokes different emotions (Lukas, 76). In reality, a gun functions by its symbolism alone and does not have to be fired to fulfill its purpose -- like a nuclear weapon, the gun can work as an altercation deterrent by its mere presence (Cooke, 3). In a game, the gun must fire to do its job, which is to complete the game's objectives and in turn provide pleasure and control to the player. The gun is then the conduit that connects the real world to the game world because of its familiar symbolic passive meaning in real life and how that meaning translates to an active role in the game, and in the opposite direction the active role of the gun in a FPS game then emphasizes the concern of the passive meaning of the gun (Lukas, 76-77).

This form of translation is most apparent in arcade games that use gun controllers with which players "shoot" the screen to hit targets. These kinds of games are commonly called "light gun games" by association with the technology that drives them that involves a system of bright lights and

Figure 5 Nintendo's "Zapper" light-gun controller

light sensors to indicate proper aim.[6] This type of set up originated in the 1920s as mechanical carnival games that gave a safer and more cost-effective alternative to target shooting with actual firearms (Ashcraft, 145). The light-gun technology found digital applications in the military realm due to its ability to train soldiers' rifle accuracy and uncanny similarity to the real activity (Halter, 85). In the mid-1980s games like Nintendo's *Duck Hunt* (1984) and Taito's *Operation Wolf* (1987) used the same style of

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[6] Early pre-70s light gun games used bright lights on the targets and a light-sensitive material on the end of a prop gun. If the gun was aimed properly at a target, the material would react and indicate that the target was hit. Later light gun games used cathode ray tube (CRT) displays to function in a similar fashion. When the trigger on the gun was pulled, a small number of special frames would display and disappear fast enough that humans can not see them. These special frames were essentially the game scenes with targets masked in black, and everything else unlit black. The gun had a type of camera that would detect bright white images. Therefore if the gun is aimed correctly at one of the all-white masked targets on the special frame, the game would indicate a hit. This kind of gameplay phased out in the 90s when technology moved beyond CRTs, and non-CRT screens do not have a high enough refresh rate or phosphorescence required for the camera in the gun to register a correct hit. There are contemporary work-arounds that use infrared lights and an IR camera system, which is the same technology used in Nintendo Wii controllers. This solution is not nearly as accurate as traditional light-gun games.

gameplay into the digital arcade game market.

The light gun game peaked in popularity in the

early to mid-1990s. The game *Mad Dog*

McCree (1990) used live-action footage

inspired by tropes of old Western films as the

game's visual content, and hitting or missing

targets would trigger different videos to play.

Other games ranged from the benign *Police*

Trainer (1996) which involved shooting

nonliving targets to test the player's aim and

reaction speed, to the *Area 51* (1995) which pits

the player against terrifying alien monsters that

explode with gore when hit. The most influential

light-gun game was *Virtua Cop* (1994), which

introduced full 3D models to the FPS genre,[7]

and inspired gunplay mechanics like shot

Figure 6 Time Crisis 4

Figure 7 Nintendo 64 with Z trigger button on center hand grip

placement in contemporary FPS games.[8] Games like *Time Crisis* (1995) and *House of the*

Dead (1997) implemented 3D models as well; they also featured plastic gun controllers

with motors that simulated the recoil of actual firearms, further enhancing the connection

between the player and the game. These games had one of the simplest and most intuitive

human interfaces for a video game due to the relationship the controller had with the real

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[7] *Virtua Cop* made use of polygonal meshes for both its environments and entities. For comparison, games like *Doom* used sets of 2D images for its entities.

[8] Prior to *Virtua Cop,* a shot anywhere on a target would warrant a "kill" and trigger the same animation. In *Virtua Cop* and games that took inspiration from it, shots placed on different parts of a target's body would cause different animations and different amounts of "damage."

tool, the gun, it represented (Poole, 24). The intuitive interface of a gun continues to affect game control methods, seen in console controllers (Figures 6 – 7) and current iterations of VR technology (Figures 8 – 10).

Figure 9 Xbox 360 controller with two triggers

Figure 8 HTC Vive with trigger

Figure 10 (left) Virtuix Omni treadmill and harness for virtual reality

Figure 11 (right) Cyberith treadmill and harness for virtual reality

Why being violent is fun Part I: Self Determination Theory in Gaming

The previous sections culminate into this single inquiry: from what history has shown about the stories we tell and the games we play, and how these fascinations have coalesced into the contemporary first-person shooter, why do children and adults find amusement in simulated violence, especially when put in control of the violent agent? The propagation of violent media illustrates its prevalence in popular culture. In the realm of violent video games, the violence typically exists as the central aspect of the game's mechanics, certainly with first-person shooters. Games exhibit both categories: *Team Fortress 2* capitalizes on the fun aspects of violence as seen in 1970s spy movies, while *Medal of Honor* evokes the somber tones of World War II films. However, both somehow can generate entertainment value from making the player an active participant in violent acts.

It is often assumed that people find violence in games fun because of natural inclination or instinct towards violence. In 1986, a group of behavioral scientists on behalf of the International Society for Research on Aggression released a document with an, intended to address this assumption and prevent misuse of scientific theories and data to justify war and violence. The document, *Statement on Violence by the International Society for Research on Aggression,* explicitly states five scientific inaccuracies, and the following should be considered false:

1. we have inherited a tendency to make war from our animal ancestors

2. war or any other violent behavior is genetically programmed into our human nature.

3. in the course of human evolution there has been a selection for aggressive behavior more than for other kinds of behavior

4. humans have a "violent brain."

5. war is caused by "instinct" or any single motivation

Humans have a biological capacity for war and aggression due to several factors, and there are some rare pathologies that increase aggression genetically, but healthy humans are not predisposed to violence by nature, per the international committee of scientists that drafted the document. Because this desire for violence is not natural, insight into what motivates some game players to seek out violent content may come from psychological frameworks, such as self-determination theory.

Self-determination theory, in its contemporary context, pertains to fundamental psychological needs and how human motivations revolve around fulfilling those needs (Deci & Ryan). The original terminology for these needs are *autonomy, competence,* and *relatedness*, but I prefer a slight variation provided by developmental psychologist Douglas Gentile that follows a handy "ABC" acronym: **A**utonomy, **B**elonging, **C**ompetence (Gentile). Autonomy reflects the desire to have the ability to make choices. People also want the satisfaction of making correct decisions. Autonomy revolves around the concept of decision making, but also include having control over decisions. Belonging, or relatedness, concerns the desire to be a part of something bigger than the self, whether that involves working with a small group to accomplish something or feeling accepted by a large community. Belonging can also correspond to providing meaningful contributions to a group of people, to feel useful. Competence encapsulates

the desire to have and use knowledge. People also want to demonstrate their knowledge

to others, and sometimes the amount one knows becomes competitive.

Violent content in video games bolsters the satisfaction of these three basic

motivations, especially true in first-person shooters, where the player must make

thousands of choices every second. Stephen Totilo, editor of *Kotaku*, explains the effect

of the frequency of choices in a first-person game:

> *Any good game is a series of decisions. They're not necessarily always decisions that you enjoy intellectualizing or thinking about in terms of their context, but they're interesting. What can I do next? What will I do next? What will I choose not to do next? And the shooter games wind up presenting some of the most interesting, in-the-moment decisions available when you're playing games. Simple things that you wouldn't really want to have to worry about in real life, but should I run here or should I hide? Should I shoot? Should I shoot here? Should I shoot there? Constant decision making is what these games are all about (Totilo).*

The frequency of decisions made in this context increases the amount of satisfaction

experienced when these choices successfully keep the player character alive. The life and

death scenario of these games enhances the satisfaction obtained from decision making

because of the sense of meaning derived from the depicted situation, whether it be a

realistic military war zone or futuristic starship. Even though the depicted situation is

simply a recreation on a digital screen, the immersion of the game makes the player feel

like it's actually happening.

In a similar fashion, the life and death scenarios in first-person shooters increase

the effectiveness of a game's ability to satisfy belonging and competence. By aiding to

keep teammates "alive" in a dangerous situation, a player can feel they made significant,

meaningful contributions to a combined group effort. Staying alive in such a game also

demonstrates one's competence in a game, but because of the sense of reality crafted by

the game, the competence can be regarded to have translated to real-life application. Most modern first-person shooters, like *Call of Duty*, *Counter Strike: Global Offensive*, and *Battlefield*, have competitive multiplayer as a critical component, that is, the game would not function without the multiplayer[9]. Playing and communicating with other people to accomplish objectives further satisfies the need for belonging and in a manner that includes more authenticity than with computer-controlled allies (Rigby & Ryan, 71). In a competitive context, "killing" an opponent proves a player's competence in the game exceeds that of the "slain" opponent. Because one player is depicted as dead while the other is alive, the imagery and context provoke satisfaction of the most carnal achievement, survival. Players of these games experience a rush of adrenaline when exposed to simulated risky situations, which is the same reaction when exposed to real-life risky situations. According to Gentile:

> *These gamers do have an adrenaline rush, and it's noradrenaline and it's testosterone, and it's cortisol — these are the so-called stress hormones ... that's exactly the same cocktail of hormones you drop into your bloodstream if I punched you ... But when you know you're safe, having that really heightened sense of stress can be fun (Yenigun).*

When in danger, humans, like other animals, kick into fight-or-flight mode to ensure they live another day, either by getting as far away as possible from a threat or by becoming a threat to their threat. Humans are naturally wired to have this response, and when the response is triggered in a secure environment, like when playing a video game, it can arouse a sense of enjoyment (Yenigun). As an activity approaches a point where security loses absolute certainty, as experienced in haunted houses, roller coasters, or

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[9] These listed games have modes where the player can play solo. However, in the community of players for these games, the majority of gameplay comes from the multiplayer game modes and the multiplayer play is the prime focus of the game's development and the reason the player buys it.

paintball, the fight-or-flight response continues to increase in magnitude but fear for security will eventually take over for most people (Tajerian). With a haunted house, a person can have direct physical contact with their biggest irrational fears; with roller coasters, there's an awareness that some people have died from similar rides; with paintball, real pain occurs when hit by an opponent. As brought up by Gentile, people get pleasure from the chemicals that result from getting punched in the face, but the actual pain resulting from getting punched in the face can offset that pleasure. The same occurs with violent games and a player's sense of morality.

In a study conducted by Przybylski, Ryan and Rigby, games with violent content have shown to empirically motivate players to play video games, because the senses of mastery, achievement, heroism, and self-directed action satisfy the psychological needs outlined in self-determination theory, however the motivating element may not be the violent content, but the coincidental elements of autonomy and competence granted in the games (Przybylski, Ryan & Rigby, 244). *The Art of Producing Games* comments on how violence in games affords ultimate autonomy in a virtual world, and that perhaps people are drawn to this affordance and not the violence itself:

> *In all the tabloid-inspired furor over* Grand Theft Auto's *questionable content, it is easy to lose sight of why it's such a successful game in the first place. People don't play it for the violence; they play it because it affords the opportunity to do whatever they please.* (McCarthy, Curran, & Byron, 14).

Games with violence typically have consistent narratives or settings what would contribute to autonomy or competence, such as war (*Call of Duty*), organized crime (*Grand Theft Auto*), and martial arts fighting competitions (*Mortal Kombat*) (Przybylski, Ryan & Rigby, 245). This reflects many of the same conclusions made in the background

research for the *Gun Hero* project, such as opportunities for empowerment through heroic warrior fantasies and culturally-enforced desire for aggressive activity. The conclusions of the Przybylski study, however, indicated that games with violent content did not satisfy autonomy or competence any more effectively than games without violent content, and yet games with violent content are more likely to be purchased and played. Therefore, in addition to psychological need fulfillment, there's likely more concrete reasons for why people seek out games with violence and why game developers continue to make violent games. To further explore why violence is fun, we must step back from the purely introspective perspective of psychological need fulfillment and look at game consumption with consideration for game production and the utility of games.

Why being violent is fun Part II: Uses and Gratifications Perspective

While self-determinism theory is sometimes sufficient for looking at these motivations, other times the theory takes a too simple and vague of an approach to the subject. Another approach comes from the Uses and Gratifications Perspective (UGP), which applies specifically to media and how people consume TV, movies, and video games to have "rewarding experiences" (Palmgreen, Wenner, & Rayburn, 142-143). UGP takes an audience-centered approach to "mass-media communication." It takes into consideration the goals of media producers and media consumers, which follows the assumption that media is a utility to meet ends, which in our context is to make money from making entertaining experiences and being satisfied by entertaining experiences, respectively (Severin, Werner; Tankard, James, 4).

A study conducted by Wolfgang Bösche involved a standard lexical decision task consisting of positive, aggressive, non-aggressive negative, and neutral "target words." Participants in the study played 20 minutes of a violent and a nonviolent game, and then were tested on their priming on different words. Bösche's study looked at how game players are affected holistically and not specifically at aggression. The goal of the study was to challenge the popular notion that violent games only trigger aggressive thoughts (Bösche, 139). The study was inspired, similarly to this thesis project, by the market's preference for violence in video games, which is "apparent" and the "popularity of violent video games in particular cannot be overstated" (Kirsh, 228). Because of the popularity of violent games, "one might expect a priming of positive probe stimuli" (Bösche, 140). The study concluded that violent games were more effective than non-violent games at triggering aggressive and positive priming, which suggests that there are gratifications specific to interactive violent content in these games, which might even lead to enhanced performance in these games. The gratification achieved by the games comes from violent games and their playful interactivity (Bösche, 144).

Steven J. Kirsh wrote extensively on the application of UGP to why children and adolescents are attracted to violent entertainment. Using the most "frequently cited needs / gratifications" that apply to general media, Kirsh indicates how violent entertainment, especially video games, are exceptionally effective in satisfying needs (Kirsh, 78).

List of reasons why youth consume violent media
1. Companionship 2. Escape 3. Habit 4. Learning 5. Passing Time

6. Relaxation
7. Sensation Seeking
8. Vicarious Aggression
9. Identity Formation
10. Defiance of Restrictions
11. Empowerment
12. Social Status
13. Mood Management

Figure 12 List of uses and gratifications pertaining to violent games, from Children, Adolescents, and Media Violence: A Critical Look at the Research

While Kirsh's writing focuses on application of UGP to youth, there is some valuable insight that can be applied to adult gamers. One of the field studies conducted for this thesis project, explained in detail in a later section, surveyed people on what they considered as primary motivations for their game playing, which uses the above list as a reference (Figure 8). Some reasons, according to Kirsh, are unique to violent media. Vicarious aggression, identity formation, defiance of restrictions, empowerment, social status, and mood management were listed as these unique reasons, and incidentally are the reasons most applicable to youth. (Kirsh, 83 - 86). Coincidentally, these reasons for *violent* media consumption mattered far less to the adults surveyed than the other reasons for *general* media consumption, with companionship the most important gratification to come from violent games (Kasumovic, Blake, Dixson, & Denson, 210; Appendix A).

A field study (Appendix A) was conducted alongside user testing of an iteration of the *Gun Hero* game proof of concept to apply the research addressed in the previous sections and the uses and gratifications proposed by Kirsh. The study consisted of an electronic survey composed using a Google Form. 124 people responded with many of the participants from the NYU Media and Games Network or close friends of those from there or in similar programs. Because of the close association with the Media and Games

Network, the results are biased towards those who have a professional or academic investment in game development. This selection makes the survey reflect the perceptions of highly educated individuals with an inclination towards alternative video games and an extensive study of the medium, whereas conjectures made in prior research reflected the gaming audience as a whole. The average age of the surveyed selection was 21.7 with a mode of 23 and standard deviation of 0.0386. Female and male identifiers were each at 48.8%, with the remaining 0.4% responding as non-binary, therefore gender bias was minimal. The responders who considered the games they play as "casual" made up the majority, at 41%.

Referencing the list of gratifications proposed by Kirsh, one of the survey questions probed for the reason why the survey participants play games, any games (Figure 13). This identifies reasons for game play that could be seen as childish and immature despite having heavy consequences and implications such as vicarious aggression, and that adults often play violent games for simply because their friends play them, and that they cherish the experience of doing an activity with others enough to outweigh the immature reasons aspects of violent games. Additionally, having a large number and variety of utilities for violence in games indicates the influence of systemic acceptance of violence and warfare in culture, reinforcing the notions indicated by the historical background and market data and the success of the ludification of warfare for games.
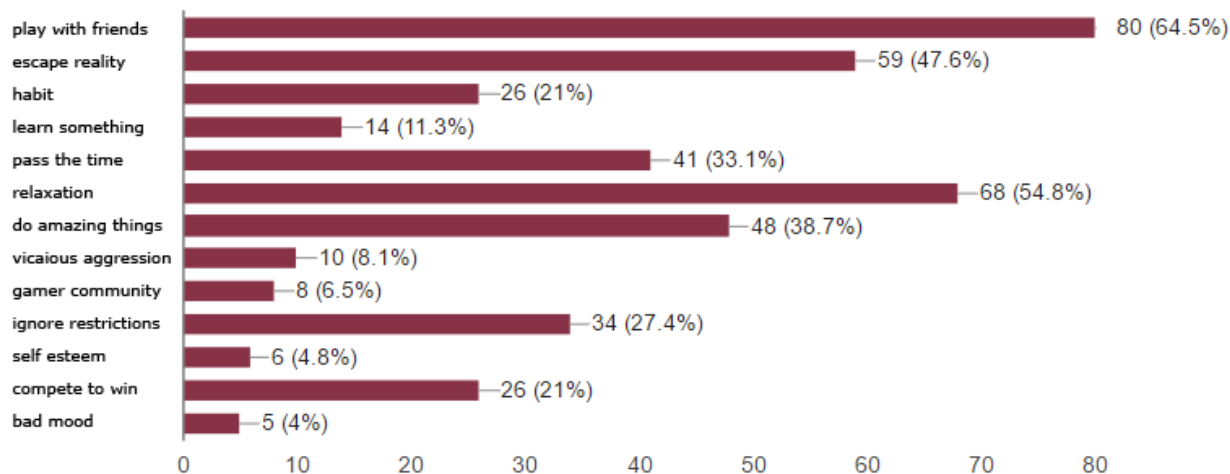
Figure 13 Graph of responses to "for what reasons do you play games," as inspired by Kirsh's study

Another important result from the survey was the overwhelming majority the responded that violence was not important in the games they play. Participants were instructed to rate on a scale of 1 to 10 the importance of violence in the games they play, with 41% responding with the value "1." The next two highest responses were "5" at 15%, and "3" at 13%. Another question asked from a list of answers, "why do you like violence in games?" with one of the available answers being "I do not like violence in games." As one would expect, the result would be similar to the violence-importance question; 38% of respondents said they did not like violence in games. Despite these participants expressing how they do not like violence in games, when asked the last three games they played, these are the responses the survey received (Figure 14):

Broken Age, Papers Please. Life is Strange
Fifa, Grand Theft Auto V, Super Mario Bros
Little big planet, lego Harry potter,
"Journey," "Harvest Moon: Animal Parade," "Harvest Moon: Another Wonderful Life"
Overwatch, Dots & Co, Peggle
"Halo 5", "Titanfall 2", " The Witcher 3"
"Skyrim," "Pokémon," "Sims"
Skyward Sword, Overwatch, Guild Wars 2
The Sims 4, Shelter 2, 3d Mario world
"Journey," "Magicka 2," "Fez"
Rome 2: Total War, Proteus, Twilight Princess
"Grand Theft Auto 5," "Borderlands 2," " Far Cry 4"
"Pokémon: Moon," "league of legends," "diablo 3"
Binding of Issac, Left 4 Dead, Pokémon Moon
Pokémon, watch dogs 2, gears 4
"Shovel Knight," "Castlevania: Rondo of Blood," "Pokémon Moon"
Guitar Hero, Call of Duty: Ghosts, FIFA 2015
Game One: Wii Bowling, Game Two: Wii Baseball, Game Three: Wii Archery
Super Mario bros, smash, sonic
Sims 4, Zork: Grand Inquisitor, Fable
"Final Fantasy IX," "Legend of Dragoon," "Kingdom Hearts"
"Pokémon," "super smash bros," "super metroid"
"Final Fantasy IX," "Legend of Dragoon," "Kingdom Hearts"
"Final Fantasy IX," "Legend of Dragoon," "Kingdom Hearts"
"Final Fantasy IX," "Legend of Dragoon," "Kingdom Hearts"
Party Hard, Sonic All Star Racing, Going Home
"Final Fantasy IX," "Legend of Dragoon," "Kingdom Hearts"
Victoria II, Battlefield 1, Star Wars The Old Republic
Wii Dance, Wii Bowl and Wii Sports
"The sims," "tony hawk american wasteland," "left for dead 2?
"Warframe," "Overwatch," "Soul suspect"
Fallout 4, War frame, Terraria
Starcraft, WoW, Age of Empires

"The Last of Us," "Mario Kart Wii," "Overwatch"
Titanfall, Destiny, Valiant Hearts
Just Cause 3, Call of duty black ops 3, Grand theft auto 5
"Titanfall 2," "Grand Theft Auto 5," "Mortal Kombat XL"
"GTA", "COD", "PacMan"
Mario Kart, Forza, NBA 2K
"Prison Architect", "Kentucky Route Zero", "Spelunky
Ennuigi, No mans sky, Spelunky
Mario Party, League of Legends, Osu
Pokémon Sun, Skyrim, Pokémon Omega Ruby
Overwatch, Until Dawn, Pokémon Sun
Pokémon OmegaRuby, Animal Crossing, Smash Brothers 3DS
League of Legends, Gwent, Life is Strange
"The Sims 4
Call of Duty: Black Ops 2, Space Channel 5, Little Big Planet
"Titanfall 2," "Grand Theft Auto 5," "Mortal Kombat XL"
"Super Mario", "Just Dance", "The Witness"
Overwatch, Fallout 4, Rocket League
"Pokémon Omega Ruby," "Don't Go in the Old Greene House," "Grab Them by the Eyes"
"Super Mario Brothers","Assassins Creed","Catan"

Figure 14 All responses for "last three games you played" by participants that rated importance of violence in games with 1 out 10

One wouldn't expect those who don't like violence in games to play games like *Grand Theft Auto V*, *Skyrim, Mortal Kombat XL, Fallout 4, Left 4 Dead,* or *Call of Duty*, and yet some do. This may confirm findings from research conducted by Andrew Weaver, Anne Bartsch and Marie-Louise Mares on violent films and other media and apply them to video games specifically. While the presence of violence my initially seem to generate appeal for the games in which it appears, seeing the violent content sometimes detracts from enjoyment while viewing (Weaver, 244). This insight implies

that audiences associate the anticipation of violent content with potential for greater

meaning in media, thus indicating an implied relationship between violence and mature,

adult entertainment (Bartsch & Mares, 956 - 958). Additionally, some individuals choose

to watch content that they do not expect to enjoy because of an expectation of other

rewards, such as the opportunity to wrestle with own struggles and world issues, and to

reflect on what really matters in life (Bartsch & Mares, 969 - 970). This therefore implies

that violence makes the gratifications gained from consuming media more significant,

pronounced, believable, or realistic enough to provide these intellectual, emotional, and

psychological rewards.

The field study survey concluded with a non-mandatory open response section for

those who wanted to express other thoughts they had on violence in games. One of the

participants who did not like violence in games replied with the following:

> *A lot of the games I play are pretty violent, but I mainly play for the storyline,*
> *quests, puzzles, and building things. Like the settlements in Fallout 4 or building*
> *houses in Terraria. I find it annoying when I have to stop whatever quest I am*
> *doing or item I am building to fight NPC's. If there were no violence in these*
> *games I would still play them and enjoy them the same* (Anonymous).

This further reflects the phenomenon of violent content serving as a critical component to

the story or dynamic of games but not the fundamental appeal for some gamers.

However, this participant also indicated playing *Warframe* recently, which is a

cooperative multiplayer shooter arena, where the primary focus is violence.

Those who ranked the importance of violence in games between 5 and 10

validated key insights as well as bring to light new ones. First, violence for some

provides humor when in the proper context. One participant elaborated this notion,

saying, "I mainly like violence if it's over the top and silly. Fighting games are the only

ones that I go to for violence. The more realistic the violence, the less I am interested."

Next, those who like violence in games validated that violence in games enhances their

psychological satisfaction because of the simulated life-or-death situations:

> *I think violence in games creates a state in which the game has stakes. Violence is a simple and emotionally effective method of transmitting the notion that what we do in the game has consequences. There are other ways to achieve this end result, but violence is effective and simple, while being universally understood. If I die in game, I know what that means and it has a real-world equivalent that I seek to avoid.*

Next, violence enhances gameplay because of the ability to emulate warrior fantasies:

> *Violence in videogames makes for fun gameplay. We go see movies and we see action heroes, then we get to become those heroes. Not every video game I play is violent, but I do tend to gravitate towards action/adventure games. I'm a very passive person. Very non-aggressive, but I do enjoy violent videogames.*

And lastly, violence can provide satisfaction in itself if the player likes the visceral

sensation of violent content.

> *I love "violence" in the game just because I wonder how the ragdoll physics are like, and it's pretty satisfying to see the people splat and fly around. Like running over civilians in a car or tackling them in FIFA and injuring them*

All the research to this point culminates into a revelation on how people

historically seek out violent and war-themed games for different reasons, and some even

seek out violent games when they do not like violent content. Furthermore, survey

participants and other research indicated how different forms of violence, such as those

created with intentions for verisimilitude or intentions for slapstick humor, motivate their

gameplay in different capacities. Therefore, the underlying foundation for the game

project would center around an effective classification system that could further develop

insight on a final burning curiosity – can different forms of violence motivate people to

play differently in a game?

Classifying violence and conceptualizing the game

To better organize characteristics of violent video games for the sake of the *Gun Hero* project a spectrum was constructed -- the Violence Spectrum. The spectrum optimizes gauging interest in violent games and categorizes different aspects of different types of violence. For this iteration of this project, there are five levels, based on the literature review and the characteristics of first person shooter games, as well as consultation with several game designers and self-identified gamers around NYU Media and Games Network.

The number of categories was arbitrarily picked as a starting point for a framework. Up to ten categories was desired, but due to the limited time allotted to making the game, which would include a level and assets for each category in the framework, only five were finalized.

Before the framework was fully developed, the first prototype of what would eventually become the *Gun Hero* game was created to demonstrate the idea of "different look, same game" to identify how violent content motivates gameplay and player's feelings towards a game, controlling for the underlying mechanics. The game I constructed was a simple 2D sprite game akin to the Midway game, *Gun Fight* (1975)*,* where two opponents face off and shoot at each other, able to hide behind cover and move vertically up and down the screen to dodge incoming projectiles. For my game, I let the player control what the game looked like. With a button press, the character models, the bullet sprites, the cover, the background, and the music would change. The game had three collective forms of the three listed assets (Figure 15).

The aspect prototype game exhibited the same mechanic of a simple shooting game, but users commented how the change in aesthetics felt like entirely different games, suggesting the amount of influence graphic content can have over a game's reception. This also illustrates how concerns generated by violent games emanate from the graphic content, context, and implied identity of the subjects and not from how the games are played, despite the essence of the game coming from the actions of the player, not the visuals and audio. However, the prototype did a poor job of going deeper on this insight, as the underdeveloped game, with its faulty controls, distracted the players too much to obtain any useful information from their play.
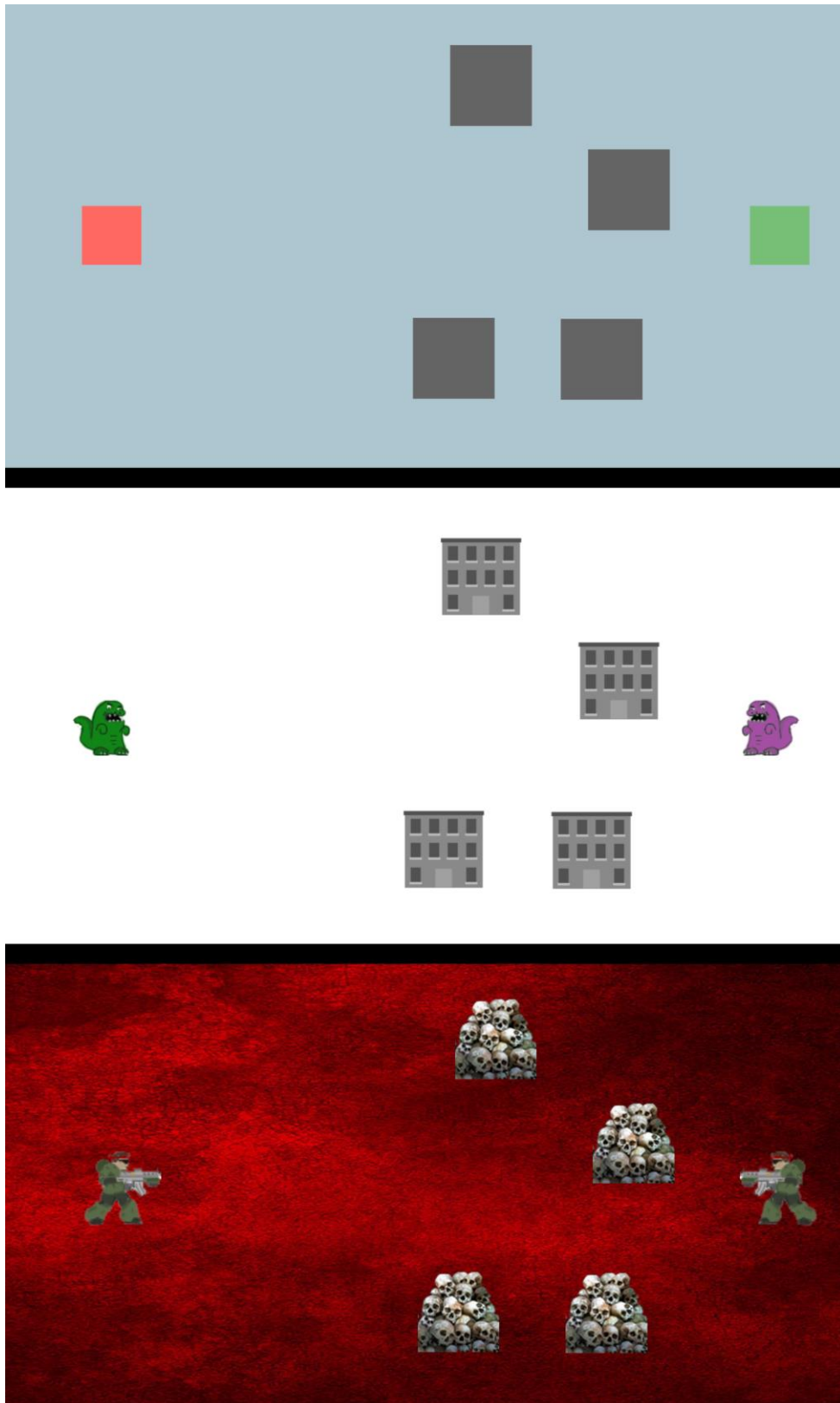
Figure 15 Three screenshots of the aspect prototype game

Consultation with game designers and enthusiasts comprised of a simple exercise to rank violent games on the Violence Spectrum to test the consistency of the framework and to explore other options. The exercise included a chart with one row and five columns. The participants were instructed to fill in each blank space on the chart with several titles of games, with the first space for games with "no violence" and the last space with "extremely violent." The showed a consensus on how to categorize popular games in terms of violence. The games listed in the categories were used as the main sources of inspiration for the assets used in *Gun Hero's* five levels, as well as starting points for discussion on how to refine the characteristics of each category.

0 Completely not violent	1 Comical violence	2 Fantasy violence	3 Realistic violence	4 Insanely, barely tolerable violence

Figure 16 Table to organize games that fit into the five categories

The dialog helped refine the characteristics of the categories and what properties should separate each. These were the properties used to judge the categories:

- Imagery, ranging from abstraction to realism.

- Presence of death

- Depiction of physical harm or gore

- Intent or reasoning of violent contact, such as humor or military simulation

Violence Category	Examples	Characteristics
1. No	*Tetris, Fez, Viva Piñata, Gone Home, Firewatch, Polynomial*	Imagery encompasses abstraction, stylization, and realism. If any aggression occurs between entities, it's either through dialog or humorous contact with no physical harm inflicted.
2. Comical	*Mario Franchise, Super Smash Bros., Pokémon*	Stylized or cartoon imagery. Physical harm comes to other entities, but in comical fashion and rarely results in death.
3. Fantasy	*DOTA, League of Legends, Final Fantasy, Kingdom Hearts, World of Warcraft, Overwatch*	Imagery approaches realm of realism yet emphasizes fantastic aspects. Art focuses on depicting impossible visual phenomenon. Physical harm and death occur often but through unrealistic circumstances and with minimal gore.
4. Realistic	*Battlefield, Call of Duty, Medal of Honor, Grand Theft Auto, Total War*	Audio, art, and animations mimic real-life as much as budget allows. Death is primary method of neutralizing entities. Camera typically in first-person perspective. Physical harm represented with anatomical correctness and gore certainly occurs. However, the gore occurs in a controlled fashion.
5. Hyper	*Bioshock, Gears of War, God of War, Dawn of War, Mortal Kombat, Dead Space, Doom, Far Cry*	Primary focus of art direction is to emphasize visceral qualities of violence and typically horror. Gore, while sometimes anatomically correct, is abundant, and violent actions aim to generate as much gore as possible. Imagery drifts back to stylized realm but typically stays within boundaries of realism.

Figure 17 Violence Spectrum

These five categories were then applied to the qualities motivate people to play games, as

revealed by the field survey and the background research. Each level's assets were then

designed around a single quality that best fit into each category. Level 1 would focus on

the mechanical satisfaction of hitting a moving target with a projectile. As such, the

assets needed to minimize any sense of violence or aggression, as outlined by the

properties of Category 1. Level 2 would focus on the humorous qualities of slapstick

humor, channeling the comedies of Shakespeare and modern works like *Monty Python*'s

Flying Circus. To adhere to Category 2, the enemies would have to show some form of

pain, but they would not visibly die. Instead, they would implement a visual cue of being

"knocked out" with stars moving around the head while exhibiting a dazed posture – a

staple of classic cartoons like *Tom & Jerry* and *Looney Toons*. Level 3 would take on the

fantasy aspects of violent games. The level would take visual cues from adventurous

science fiction that minimized visceral qualities of violence while still having death

clearly present, like *Star Wars* and the multitude of PG-13 summer blockbusters, which

follows Category 3. This would include bright lights in place of blood, unrealistic

weaponry, and faceless enemies. Level 4 would center on verisimilitude and the current

obsession with Middle Eastern conflict in contemporary first-person shooters. This fits

with Category 4, which requires presence of death, realistic gore, and real-world-inspired

weapons and environments. Lastly, Level 5 would focus on the visceral and horror

qualities of violent games, and would feature over-the-top gore effects, dismemberment,

and an overarching "hyper realistic" aesthetic. This would be accomplished with lens

filters, gritty detailed textures, and saturated colors. The enemies would be inhuman

form, but still identifiable as humanoid, like zombies or aliens, to cater to the horror

qualities associated with Category 5.

The intended final product was to be a matured evolution of the aspect prototype,

ensuring the quality of the game does not take away from the intended investigation and

application of the Violence Spectrum framework. The system prototype (Figure 18) was constructed to illustrate, in detail, what the game would accomplish. Initially the game was planned to be a VR FPS game that would allow the player to change the form of violence, like in the aspect prototype before it.

The final product would serve two purposes: it would be a fun game and a tool to learn more about the relationship people have with violent content in games. Potentially useful information could be found by tracking the objective physical responses of the players. Numerous studies have shown how games indicate psychological arousal through heart rate (Barlett, Harris, & Baldassaro, 545) and skin conductivity, standardly referred to as electrodermal activity, or EDA (Drachen, Nacke, Yannakakis, and Pedersen). From these residual effects, researchers can extract a player's feelings in game, such as fear, excitement, or frustration (Cicchirillo & Stewart, 383). The game would track the player's kill-to-death ratio as another metric into player performance, to see if the player would get a different average game score with the introduction of different levels of violence.

An original idea for the game that did not make it into the final iteration was the player control the over changing the "forms." The plan was to track the time spent in particular forms to collect more subjective information. This information would theoretically coincide with the questionnaires conducted at the beginning and end of the study -- if someone expressed feelings that violence is critical to the games they play and have no problem with excessive gore, then they would in theory spend the most time in the most violent form of the game. However, the player's preference in violence says
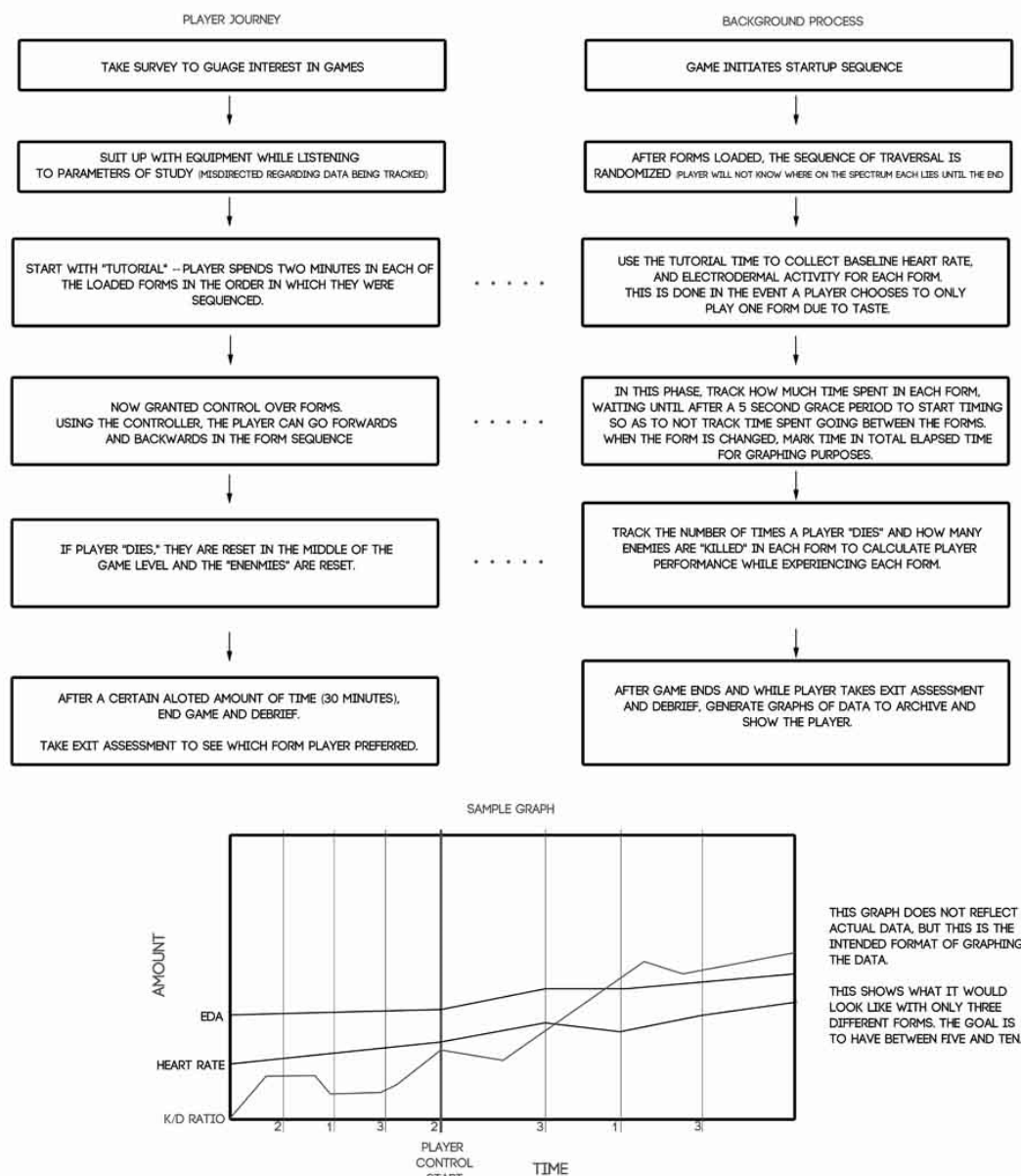
PLAYER JOURNEY

| TAKE SURVEY TO GUAGE INTEREST IN GAMES |

BACKGROUND PROCESS

| GAME INITIATES STARTUP SEQUENCE |

| SUIT UP WITH EQUIPMENT WHILE LISTENING TO PARAMETERS OF STUDY (MISDIRECTED REGARDING DATA BEING TRACKED) |

| AFTER FORMS LOADED, THE SEQUENCE OF TRAVERSAL IS RANDOMIZED (PLAYER WILL NOT KNOW WHERE ON THE SPECTRUM EACH LIES UNTIL THE END |

| START WITH "TUTORIAL" -- PLAYER SPENDS TWO MINUTES IN EACH OF THE LOADED FORMS IN THE ORDER IN WHICH THEY WERE SEQUENCED. |

| USE THE TUTORIAL TIME TO COLLECT BASELINE HEART RATE, AND ELECTRODERMAL ACTIVITY FOR EACH FORM. THIS IS DONE IN THE EVENT A PLAYER CHOOSES TO ONLY PLAY ONE FORM DUE TO TASTE. |

| NOW GRANTED CONTROL OVER FORMS. USING THE CONTROLLER, THE PLAYER CAN GO FORWARDS AND BACKWARDS IN THE FORM SEQUENCE |

| IN THIS PHASE, TRACK HOW MUCH TIME SPENT IN EACH FORM, WAITING UNTIL AFTER A 5 SECOND GRACE PERIOD TO START TIMING SO AS TO NOT TRACK TIME SPENT GOING BETWEEN THE FORMS. WHEN THE FORM IS CHANGED, MARK TIME IN TOTAL ELAPSED TIME FOR GRAPHING PURPOSES. |

| IF PLAYER "DIES," THEY ARE RESET IN THE MIDDLE OF THE GAME LEVEL AND THE "ENENMIES" ARE RESET. |

| TRACK THE NUMBER OF TIMES A PLAYER "DIES" AND HOW MANY ENEMIES ARE "KILLED" IN EACH FORM TO CALCULATE PLAYER PERFORMANCE WHILE EXPERIENCING EACH FORM. |

| AFTER A CERTAIN ALOTED AMOUNT OF TIME (30 MINUTES), END GAME AND DEBRIEF. TAKE EXIT ASSESSMENT TO SEE WHICH FORM PLAYER PREFERRED. |

| AFTER GAME ENDS AND WHILE PLAYER TAKES EXIT ASSESSMENT AND DEBRIEF, GENERATE GRAPHS OF DATA TO ARCHIVE AND SHOW THE PLAYER. |

SAMPLE GRAPH

THIS GRAPH DOES NOT REFLECT ACTUAL DATA, BUT THIS IS THE INTENDED FORMAT OF GRAPHING THE DATA.

THIS SHOWS WHAT IT WOULD LOOK LIKE WITH ONLY THREE DIFFERENT FORMS. THE GOAL IS TO HAVE BETWEEN FIVE AND TEN.

Figure 18 Flow chart and example graph for final game experience

nothing about how their physical body will react to the different forms of violence or how

their score in the game would be affected. Player control of the forms was later scrapped

for several reasons, primarily because the entire methodology assumed. Additionally, the results would not reflect much about the player's feelings towards violence in games. Two likely scenarios would occur. First, the player might get distracted by the gameplay and forget about changing forms. Second player might see the form changing mechanic as a novel part of the gameplay, and then the form changing would become a toy play around with, and not a way to gauge the player's feeling towards violence in games. The final iteration of the game automatically changed forms at a consistent time interval.

Further research into VR technologies found that the hardware and gameplay for VR experiences was not the best approach to the project. Booking space for testing the game proved difficult and acquiring the hardware was expensive. Furthermore, because VR is still a cutting-edge technology that few people have used extensively, and project implementing VR would put the sole focus of the audience on the tech itself. The thesis project, while it has its origins in VR research and still has some groundings in the implications of VR gaming, is not solely focused on VR tech. Instead, it aims to explore historically established aspects of FPS and why people find them attractive or compelling. This objective is best achieved through something more traditional, or rather, something inspired by traditional interaction.

Enter the light-gun arcade game. The genre of game has nearly phased out due to technology shifts (they required large and inefficient CRT monitors, outmoded by Plasma, LCD, and LED displays), but gamers of the millennial and prior generations instantly recognize the format as an "old school" relic of the old arcades. The original purpose of using VR was to emphasize a connection between the virtual and real world by having the player interact with a virtually rendered gun. The light-gun game arguably

accomplishes this goal better by putting a physical "gun" into the player's hands that they can see with their own eyes. The light-gun game would also be relatively easy to move around and setup, because the game would not require a giant desktop computer or the several fragile components of a VR rig. Only if the game became a true arcade cabinet would it be difficult to move.

Figure 19 PVC prototype for controller

The next prototype involved a PVC pipe construction measured to the dimensions of a real-world rifle and fitted with an infrared camera and sensors, and a projector screen as a display (Figure 19). The basic technology, which was used in the final proof of concept, is the same type of hardware found in a Nintendo Wii controller system. An array of infrared LEDs is placed by a display. An IR camera in the tip of the controller sees the LEDs. Using computer vision, the controller software uses the perceived arrangement of the LEDs to determine the angle and position of the controller's tip relative to the screen. This setup allows the player to aim and "shoot" at the screen, which effectively replicates the CRT monitor light-gun experience.

Figure 20 Close-up of IR camera on PVC prototype

The PVC prototype worked to show the effectiveness of the IR system and the scale of the game space. From user testing, the length of the "gun" was found to be too long because it was hard for smaller players to hold it and it reduced the accuracy of the IR system. Using the projector screen made the experience more compelling initially because the assets on screen were life size relative to the player, but the size of the display forced the players to stand too far away from the screen for the IR system to function properly, and standing too far away reduced the reliability of the IR system. Additionally, the large scale of the game area effectively created the same space requirements issue VR experiences have. Essentially the prototype showed that the IR system did indeed work and made for a fun experience that mimicked target shooting with an actual gun but the scale of the whole setup was too large to run effectively, so in the next iteration everything was downsized.

Building the proof of concept

As a personal challenge in design, the controller needed to feel like a gun when playing, but not look like one. The look of the gun served a practical and aesthetic purpose. If the controller did not look like a gun, I could carry it around inside and outside of buildings without making people feel uncomfortable. Also, the nature of the thesis is already controversial, so making a controller that looks like a real gun would be very irresponsible. Aesthetically, the controller was to represent a central aspect of the project, that games can look like violent acts, but they are abstracted illusions. Analogously the controller is in no way a gun, but its implementation causes it to be called a gun.

Several designs of the controller materialized before construction began. These designs drew inspiration from real firearms. The feel and look, although abstracted enough to not immediately read as a "gun," was to be a commentary on historical ludification of real-world violence, which started mostly with World War II games like *Wolfenstein 3D*, *Medal of Honor*, and *Call of Duty*. There the M1 Garand, the primary rifle used by US forces in WWII, was selected as the source for the grip, weight, and length. The length, as indicated in the previous section, was reduced when the whole experience was downsized.

Out of personal taste and the voices of those asked for opinions, the controller maintained an overall rectangular form with the M1 Garand exposed through negative space. The gun inspiration coming through only the negative space creates a visually pleasing aesthetic and abstracts the "gun-ness" quite well.

To keep the minimalist design, the controller needed to look like a single piece of material, not painted, and a single color. The controller also needed some heft and sturdiness to hold up to abuse and emulate the feel of a mature interface and not a toy. It also needed to have a hollow construction to store the electronic, easy to fabricate with limited time and available hardware, and cost effective. Therefore, a single sheet of white acrylic was chosen to build the bulk of the controller. The intended construction was to layer the pieces of cut acrylic with glue to form a single construction, and then shave down the edges to make curved surfaces and an overall elegant design.

Most of the electronics came from the IR system used in the PVC prototype. A piece of acrylic rigged to a simple button wired to the PCB housing the IR camera and USB interface served as the controller's trigger and sole button input to keep the form of the controller as minimal as possible. The IR tracking was programmed to emulate mouse cursor movement and the trigger as the left-button mouse click. To potentially capture heart rate data from the player, a pulse oximeter was integrated into the controller so that all the electronics could be contained in a single unit and interfaced with a computer with one USB cord using an internal splitter.

Naturally, the controller construction ran into numerous pitfalls. First, the laser cutter used for cutting parts faulted -- the machine did not cut the parts precisely and much of the acrylic was scored by the beam, turning many of the cut parts black. Because the project was already over budget, the project had press forward with the ill-cut parts instead of trying again with new acrylic. Most of the parts did not fit together, and the black edges broke up the intended solid white color. The next issue came from the recommended glue -- it did not hold after a week of play testing. Many parts had to be

replaced with 3D printed parts, which were harder to blend with acrylic and added further contrast to the white acrylic and now the "single solid piece" idea was impossible to accomplish.

The biggest issue came from the controller's weight -- the thick acrylic was heavy to some users. Some people liked the heft, but after only five minutes of gameplay nearly everyone expressed fatigue. A simple arms strap implemented as retrofit solution helped somewhat, and further took away from the look of the piece. Future iteration may use thinner acrylic and use more 3D printed parts. For sake of proof of concept, a toy blaster could have sufficed, but to improve the quality of the project as much of original plan for the controller's aesthetic was attempted as possible.

Figure 21 final design for controller

The game was created using Unreal 4 Editor, which uses the Unreal game engine to allow for powerful programming and graphics capabilities. All the 3D models came from tf3dm.com, the sounds effects from freesound.org, and the textures from textures.com and commons.wikimedia.org. The animations were constructed using Mixamo, an online tool that rigs humanoid models for animation and applies animations from an extensive library. All the scenery in the game was created using primitives inside Unreal 4 Editor with textures applied.

The level design took heavy inspiration from the popular *Counter Strike* map "Dust II," also referred to by its filename, "de_dust2." The project did not need to dwell on effective level design. Using a map already known and tested for its playability as a reference eliminated the need to test for effective level design. The game has seven levels in total -- five using the Dust II format, one starting map to get the player acclimated to the controls and an end map to let the player see their score and serve as a buffer before the next play session starts. The five actual "play" levels have identical layouts comprised of box primitives[10], only differing in textures, background scenery, and accent lighting. The overall look of each level, design of the enemies, sounds, projectiles, and visual effects used when the player is "hit" was dictated by the five forms addressed in the Violence Spectrum.

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[10] Primitives are simple shapes used for prototyping in 3D model software and game engines. To reduce the workload for building the game, instead of building intricate meshes of the environment, cubes were used because they were readily available and could be combined with other cubes to make more intricate level designs, which was much simpler than designing the levels by hand in a mesh editor like Maya.

	Visual inspiration	Deaths	Enemies	Sounds	Projectiles	Hit effect
Level 1	*Tron*, old arcade games, electronic media	no death, enemies disappear with glowing orb	non-humanoid, glowing ellipsoids	electronic glitch sounds	glowing orbs	"fringe" glitch, separates RGB channels
Level 2	Monty Python, *Castle Crashers, Little Big Planet*	No death; enemies fall to ground, stars circle around head	Faceless knights with exaggerated features	Coconut halves hit together, foley "pew pew" noise	Coconuts shot out of bananas	Emits stars, screen blurs, increase contrast
Level 3	*Halo, Minority Report, Mass Effect*	Deaths, glowing sparks upon hits, no blood	Faceless futuristic soldiers with sci-fi laser rifles	Sci-fi laser blasts	Blue laser bolts	Emits blue sparks, screen blur, increase contrast
Level 4	*Call of Duty, Counter Strike, Rainbow Six*	Death with blood emitted when hit	Balaclava-wearing soldiers with real-life assault rifles	Recorded AK-47 assault rifle audio, with echo	Projectiles standard tracer rounds, barely visible	Emits blood splatter, increase contrast and blur
Level 5	*Left 4 Dead, Gears of War*	Death, targets can be dismembered, large amount of blood	monstrous targets, still humanoid	Generic shotgun firing, primed, and shell hitting ground	Projectiles slightly larger than in 4th, but similar	Emits a lot of blood, increase contrast and blur

Figure 22 Characteristics of each game level
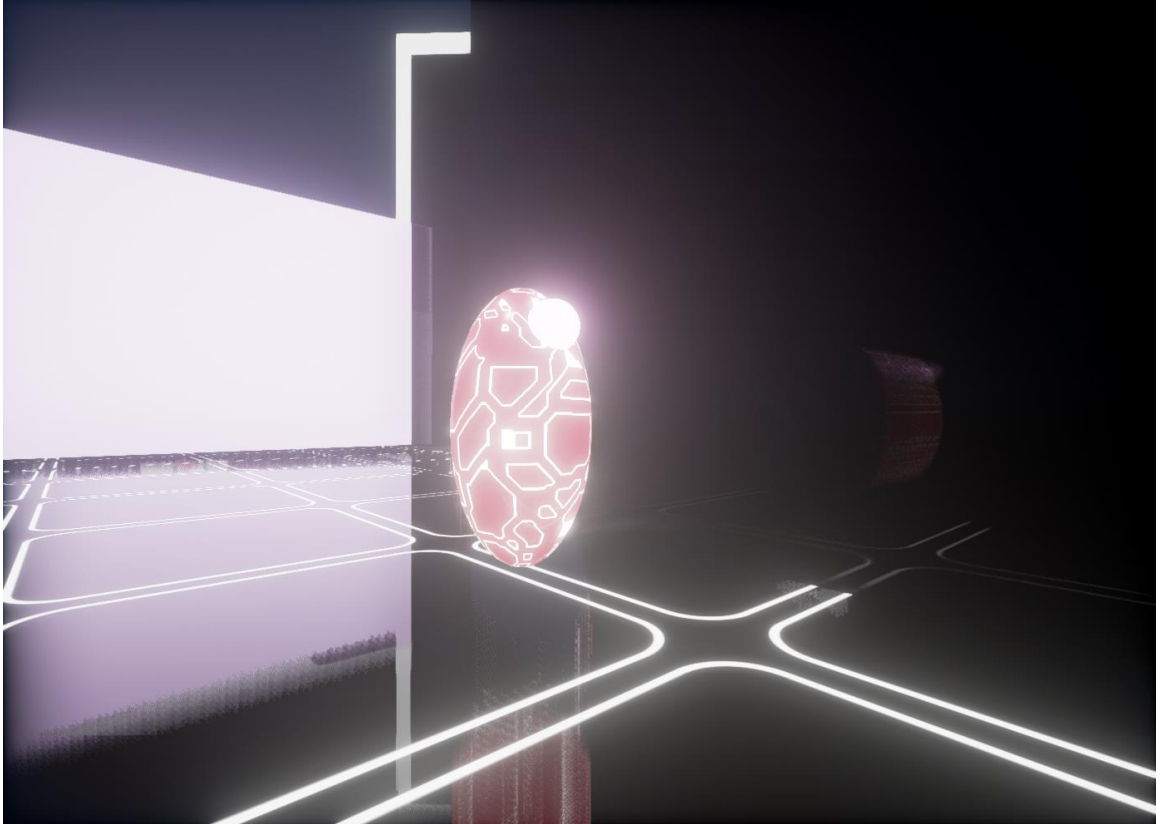
Figure 23 Level 1
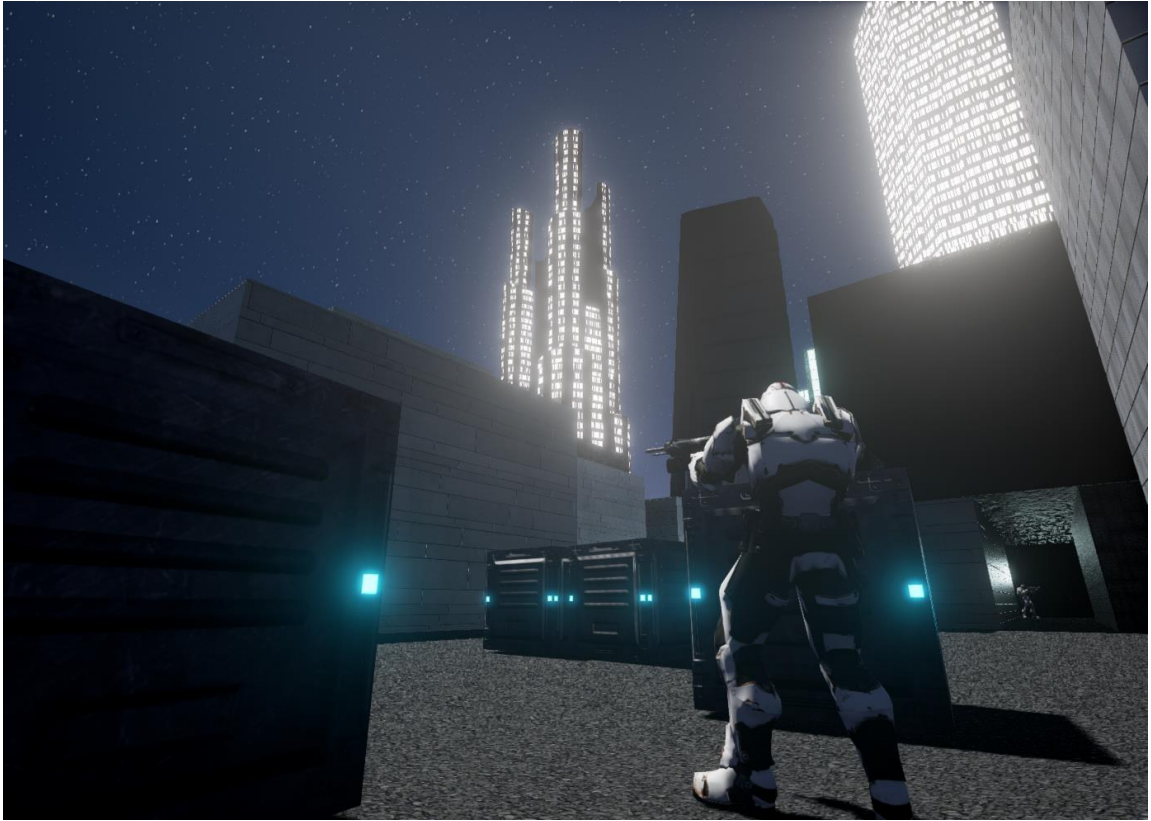

Figure 24 Level 2

Figure 25 Level 3

Figure 26 Level 4

Figure 27 Level 5

The control scheme needed to emulate a light-gun game and a contemporary FPS.

The direct inspiration for the primary aspect of controls, a "floaty" reticule as opposed to

a "fixed" reticle, comes from Free Radical's *TimeSplitters* series (2000-2005). The reticle

-- a visual UI element to tell the player where the gun is "aimed" -- typically stays in the

middle of the screen. In *TimeSplitters,* the player had the option to have the reticule move

around the screen, and when the reticle comes to one of the edges of the screen, the

player character will turn in the direction of the screen edge. This aiming scheme allows

for the light-gun inspired "aiming" control scheme, where a player aims a plastic gun to

hit on-screen targets, while also giving the player more freedom of movement found in contemporary FPS games.

The controller as-is could control the rotation of the character and the reticle's screen position, but the control scheme needed an additional interface for moving the player character in the virtual space. The PVC prototype had gamepad duct taped to the side of the PVC construction next to the player's non-trigger hand. The joystick on the gamepad gave the player the ability to easily move the character, until left-handed players tried to use the controller. By putting a similar joystick interface on the final controller, both sides would need a joystick to satisfy both right- and left-handed players. This interface would detract from the minimalist form of the controller, and increase the cost of the project and construction time required.

The attempted solution for this control problem was a calculated risk -- a *Dance Dance Revolution* gamepad, which is a mat on the floor with directional arrows that the player steps on. The gamepad aimed to increase immersion of gameplay by emulating "walking," and provide an interesting experience that would draw people to the game. This was risky because the control scheme would be exceptionally awkward, as it's a very unorthodox method of control for a FPS. However, the awkwardness could benefit the project by putting experienced FPS players on same level as those who don't play them, and make the experience more unique.

Most of the game's mechanics were lifted from standard FPS mechanics, with some notable exceptions. Shot placement came into play, with enemy "deaths" triggered by a single projectile hitting the head or by five hits to anywhere else. This rewards skillful shot placement, as it does in other FPS games. The first major divergence from

the FPS formula was player death, which was removed entirely. However, players do not know about the absence of death, and many players in testing kept expressing a fear of "dying" in the game. Leaving out player death simplified the overall design of the game by eliminating potential balancing issues that would occur with player respawn placement. Also, the total time of the experience would not be consistent between players if player death simply triggered the end of the game. To avoid these issues, the number of hits the player receives from enemy projectiles is tracked instead of the player getting killed. Another common FPS mechanic left out of the game was weapon reloading. Initial tests showed the game was difficult enough, thus adding mandatory reloading would just seem arbitrary, unless the controller had a clever control mechanism for reloading. The original plan for the controller did include a complex scheme for weapon reloading involving pull-levers, but the feature was cut to reduce fabrication time.

Each play level lasts 60 seconds, making the whole experience five minutes. The short game time increases the rate of which new people can play the game, and it makes holding the play's interest easier. The absence of breaks in the five minutes can also fatigue the player, so the short time helps account for this. The player plays the five levels in a random order to ensure any data gathered is not affected by in-game time.

At the end of the fifth level (not necessarily Level 5), the game saves data gathered during the five levels to a CSV file with a time stamp. The number of kills, number of hits received, and the ratio between the two are collected. Live heart rate monitoring had issues. Reliable data gathering reduced frame rate due to the nature of reading data from the device, which required a significant time to register a current pulse reading. Unreal does not easily allow multithreading, and the only other solution was to

write a separate piece of software to stream to the game. Due to time limitations, the solution implemented manual recording of heart rates. Four times in each level -- once every 15 seconds -- the heart rate value indicated on the pulse oximeter's LCD was written down. After a session, these values were averaged for each level and added to the CSV file manually. The player can see the data on final level in the form of several bar graphs.

User Testing

The result of this thesis project is indeed a proof of concept and is not a final product. With that in mind, the results gathered by the initial user testing were not reliable due to the quality of game, changes made to the game between tests, and faulty data gathering methods.

The most obvious flaw was the weight of controller, as addressed earlier, which possibly affected the data. The controller design process could have benefited from additional iteration, but the project was already over budget and there was no more time for further fabrication. Although the weight of the controller affected some of the data gathered, some players enjoyed the added heft. They said it made them feel like they were holding something that could do damage and not a toy. It also gave a sense of empowerment because they had to exert some force to play the game. Also, everyone loved the design of the controller, which some said looked beautiful yet powerful. This made the game effective as a representative work of the research conducted for the thesis, but in order for the game to serve its secondary purpose as a data gathering tool, additional care should be taken in future iterations of the controller design.

Players were also overly distracted by the *DDR* controller. Players frequently looked down to make sure they hit the right buttons, and many players had issues splitting their attention between aiming the controller and correctly placing their feet on the *DDR* gamepad. However, the *DDR* gamepad did put all the players on an even playing field -- that is, people who had never played a first-person shooter performed just as well as those who play them frequently. Some players wanted to ensure the tester that they lacked adequate skill in shooter games, but the game environment and knowing that everyone does poorly made these players more comfortable with the game. Also, the gamepad drew people to the game and generated interest, so it accomplished the task of making the game look interesting enough to play it. Only a few people openly expressed a dislike for the *DDR* gamepad, and that was only due to it making the game "too hard." Those who did not care about doing well in the game expressed how fun it was to use. Therefore, using foot controls is a correct direction for a control method, but the current use of the *DDR* gamepad is not the best design it can be for the game.

The game initially included the ability to look up and down in game by pointing the controller towards edges of screen in addition to turning the character left and right. People resting by pointed the gun towards ground made the player character look down, which caused disorientation and frustration when the character would get stuck looking at the ground. The game has no real need to look up and down, therefore removing this control feature effectively fixed the problem, as people expressed less frustration after the fix was implemented. Similarly, aiming at the sides of screen made the player character turn "too fast" and disoriented players. Adding acceleration -- making turn rate start low and increase the longer player aims at a screen edge -- eased some of this initial

frustration. An interesting problem came from a misunderstanding of the IR system. Some players did not understand that the IR system was still in control of the turning and not the orientation of the controller. The interface was so intuitive that it misled some players to believe aiming the controller completely off screen, some even pointing the controller behind them, would still rotate the character. Unfortunately, when people did this, it caused the IR camera to lose tracking ability, which caused the screen to rotate in unpredictable ways.

Another major issue was the reticule size and color, as levels with more blood made it hard to see the red reticule, which caused unpredictable character turning. When the reticle was enlarged and given a magenta color, this problem was eliminated.

Shorter and taller players caused errors in calibration of the IR system, as it caused the IR camera to misread the IR LED array. Moving the player back solved these issues.

Finally, the heart rate was hard to reliably record. The pulse oximeter would sometimes come loose from the player's finger during play. Some players with smaller fingers also caused issues with obtaining proper heart rate reads. Generally, the data gathered from heart rate did not lead to consistent results. For example, more physically fit players had more consistent heart rates between levels than less fit players. For some players, there was a clear increase in heart rate just from pressing the trigger, which is an interesting insight, but without proper recording and quantification, this kind of data does not bear much weight.

Findings from data collection and interviews

Despite the faulty data gathered from the game itself, the pre and post surveys made by players revealed some useful insights (Appendix B). 21 people played the game and completed both surveys. The pre-survey was simply the questions from field study (Appendix A), but sampling only those who played the game to directly compare results from the gameplay-exclusive post-survey and game-collected data.

43% of players said Level 4 was their favorite of the five levels, and 38% said Level 1 was their least favorite. This correlates to an appeal for realism in games, as indicated by 23.8% responding with a score of 8 on one a scale of 1-10 of importance of realism in games they play. However, there was a standard deviation of 2.58, so while a score of 8 on the scale was the modal response, the actual result is not so clearly discernable. Therefore, the greater appeal of Level 4 and lesser appeal of Level 1 might be due to other factors.
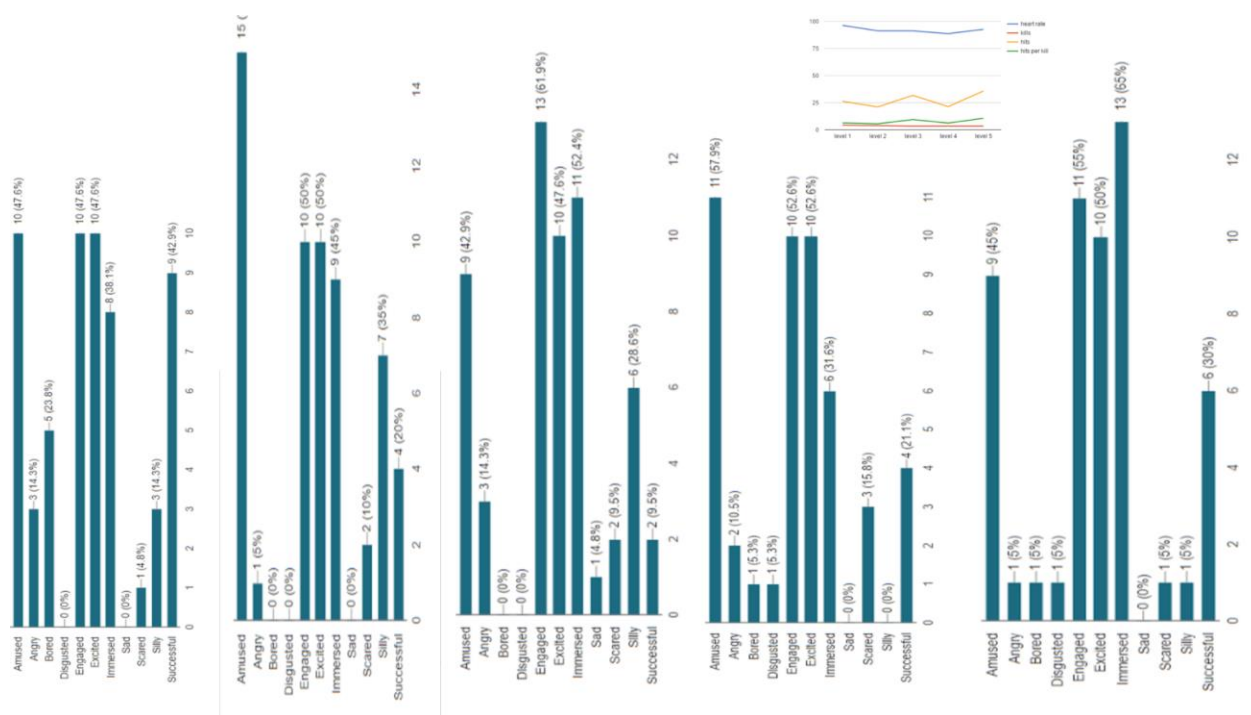
Figure 28 Graph of feeling responses for levels 1-5 (from left to right)

When compared to the other four levels, the only feeling Level 4 excelled in instilling was fear, with 15.8% saying they felt scared in Level 4. This is not terribly insightful, because Level 2, the level emphasizing the comedic qualities of violence, garnered two scared responses. What this does reveal, however, is the Level 4 did not stand out in the feelings assessment, despite being by-far the favorite of the levels. In Level 1 people expressed tedium, with 23.8% saying they felt bored in the level. And yet it scored the about the same in engagement and excitement as Level 4 (Levels 1 and 4 scored 48% and 53% in both, respectively).

In Level 5, players ironically expressed less fear than the other levels with a score of 5%, despite the stars of the level being zombies. Instead, two players indicated a sense of humor in the level. This reflects some insight from the primary field survey, which indicated how some players see exaggerated gore as a source of humor.

Performance wise, players had the best hits-to-kills scores (the number of times they were hit by the enemies divided by the number of enemies they killed) in Level 2, with Levels 1 and 4 nearly tying (Figure 24). Levels 3 and 5 had the worst scores by far, and yet the two levels had the highest engagement and immersion scores (Level 3 scored 61.9% on engagement and 52.4% on immersion; Level 5 scored 55% on engagement and 65% on immersion). As an additional interesting correlation, Levels 5 also had the least number of responses for most and least favorite game, scoring less than 9.5% on both inquiries, indicating that the level did not stand out in either regard.

Level 1	
	6.316455696
Level 2	
	5.523809524
Level 3	
	9.432432432
Level 4	
	6.184210526
Level 5	
	10.62162162

Figure 29 Hits-to-kills ratios

Level 1	-19.1
Level 2	14.3
Level 3	-14.3
Level 4	23.9
Level 5	-4.7

Figure 30 Aggregate of appeal scores (favorite% - least favorite% values)

The results for the appeal questions (most and least favorite levels) were

aggregated to see what the overall most appealing levels were, which were by far Levels

2 and 4 (Figure 25). Returning to the data of Level 2, we see players performed the best

in the level and it scored the highest amusement rating (75%). Furthermore, nobody said

they were bored with the level, whereas Level 4 scored 5.3%. From the group that played

the game, the most important reasons for playing games was playing with friends (76%),

relaxation (66.7%), and passing time (42.9%). The players' most responded aspects for

why they like violence in games was intensity (66.7%) and fun (52.4%). Applied to the

results directly pertaining to Level 2, we can see how the comedic nature of the level

appealed to a desire for fun and relaxation, whereas Level 4 can be seen to appeal for a

need for intensity. Level 5, which had an aesthetic that pushed it beyond the realm of

believable reality, made the level too humorous to appeal to a desire for intensity, yet the

hyper-real environment may have contributed to its low score on the appeals aggregate (-

4.7) by making the game seem less fun and less relaxing. Therefore, for violence in

games to exhibit optimal appeal, there must be a focus on either realistic intensity or light-hearted comedy.

The initial results of the game data–survey combo create some exciting insight into the topic of violence in a shooter game. Further runs of the game may provide a confirmation of these results, that when put into a game that emphasizes immersive gun combat, having a realistic setting would boost performance of players or enhanced gore or fantasy settings increase immersion, but realism makes a game more amusing. Regardless, the small sample size cannot confirm or deny these results, but further testing with greater control over variables and better data-survey synchronization could be fruitful.

Conclusion and future of *Gun Hero*

The project was a long and perilous journey, and nearly resulted in failure several times. The controller kept breaking. New research refuted old claims. Technology got expensive and cumbersome. The game was too difficult to play. But the project has opportunity for growth, and can only get better with more refined work. The background research identified critical aspects of violent media and how human motivation makes violence so popular, which provided valuable insight into what makes violence fun. Military involvement in early game development and the deep connection between warfare and the ludic indicates how cultural heritage further contributes to our virtual bloodlust. The field study surveys showed a vested interest in the topic, and how violence may not be the source of fun for many, but violent content still contributes to games by making stories more interesting, engaging, and realistic.

Surveys indicated a significant relationship between competitive and violent content, with most competitive games involving violence and enhancing the game experience. For gaming in general, playing with friends was the greatest reason for playing games. Future research may put more focus on the relationship between companionship and violent games, companionship in competitive settings, or the reasons for playing violent competitive games over non-violent sports games. Any of these routes, of course, would require *Gun Hero* to take on a multiplayer element, which could be an exciting development.

New technology may be considered if the project is to grow into something better. The IR system worked for some cases, but generally suffered from lack of accuracy and unreliability in the hands of active players. Excited players immediately became

frustrated players as their exaggerated movements did not cooperate with the IR tracking – such a rapid shift in mindset bodes for a perfect storm in a gaming experience. VR may come back to the table, as it is still the hot topic as of 2016 and could draw some attention to the project in positive ways. A combination of competition, violence, and VR sounds like a fascinating next step, especially because of the current climate regarding social gaming inside of VR.

As the black screens get closer to our eyes, outlook for the future of games can look uncertain and daunting. With every new medium developed, we must be critical yet encouraging toward what content can be produced. Video games provide the opportunity for the most peaceful of us to become the most ferocious forces of nature. The format of first-person shooters introduced the possibility of the player having an active role as a violent agent of destruction, which will only evolve as video games become more immersive. Violence in games will always feel problematic, especially when the games feel ever more real. Nevertheless, with violence comes more compelling stories and more exciting gameplay, and violent games will continue to sell even if the bombs stop falling and the guns stop firing. Maybe one day these games will serve as a solemn reminder of where we came from, and let us relive an aspect of the human condition present since its conception. Let us hope that one day we see the end of the need for heroes with guns, and that the only wars waged are those on virtual battlefields.

Works Cited

Barr, Jason. *The Kaiju Film: A Critical Study of Cinema's Biggest Monsters*. Jefferson, NC: McFarland & Company, Inc., 2016.

Beckett, John. "Maintaining Morale: Promoting the First World War, 1914-16." *Historian* (02651076) 130 (2016): 12-16. *Historical Abstracts with Full Text.*

Barlett, Christopher, Christopher D. Rodeheffer, Ross Baldassaro, Michael P. Hinkin, and Richard J. Harris. "The Effect of Advances in Video Game Technology and Content on Aggressive Cognitions, Hostility, and Heart Rate." *Media Psychology* 11.4 (2008): 540-65.

Bartsch, Anne, and Marie-Louise Mares. "Making Sense of Violence: Perceived Meaningfulness as a Predictor of Audience Interest in Violent Media Content." *Journal of Communication* 64.5 (2014): 956-76.

Bösche, Wolfgang. "Violent Video Games Prime Both Aggressive and Positive Cognitions." *Journal of Media Psychology 22.4* (2010): 139-46.

Burrill, Derek A. *Die Tryin': Videogames, Masculinity, Culture*. New York: Peter Lang, 2008.

Brown, Kenneth Douglas. *The British toy business: a history since 1700.* London: Hambledon Press, 1996.

Brumberg, Joan. "American Boys and Their Guns." *History News Network*.

Call, Josh, Katie Whitlock, and Gerald Voorhees. *Guns, Grenades, and Grunts: First-person Shooter Games*. London: Continuum, 2012.

Campbell, James. *Playing the Past: History and Nostalgia in Video Games*. Ed. Zach Whalen and Laurie N. Taylor. Nashville: Vanderbilt UP, 2008.

Deci, Edward L., and Richard M. Ryan. *Handbook of Self-determination Research.* Rochester, NY: U of Rochester, 2002

Deterding, Sebastian. "Living Room Wars: Boardgames, Remediation, and the Early History of Video Wargaming." *Joystick soldiers: The Politics of Play in Military Video Games.* Ed. Nina Huntemann and Matthew Thomas. Payne. New York: Routledge, 2010.

Drachen, Anders, Lennart E. Nacke, Georgios Yannakakis, and Anja Lee Pedersen. "Correlation between heart rate, electrodermal activity and player experience in first-person shooter games." *Proceedings of the 5th ACM SIGGRAPH Symposium on Video Games - Sandbox '10* (2010): n. pag.

Eastin, Matthew S. *Encyclopedia of Media Violence*. New York, NY: SAGE
    Publications, 2013.

Emberton, Carole. "The Real Origin of America's Gun Culture." History News Network.

"Extra Credits: The Myth of the Gun." *Extra Credits*.

Galloway, Alexander R. *Gaming: Essays on Algorithmic Culture*. Minneapolis: U of
    Minnesota, 2006.

Halter, Ed. *From Sun Tzu to XBox: War and Video Games*. New York, NY: Thunder's
    Mouth, 2006.

Happ, Christian, and André Melzer. Empathy and Violent Video Games: Aggression and
    Prosocial Behavior. Basingstoke: Palgrave Macmillan, 2014.

Kasumovic, Michael M., Khandis Blake, Barnaby J. Dixson, and Thomas F. Denson.
    "Why Do People Play Violent Video Games? Demographic, Status-related, and
    Mating-related Correlates in Men and Women." *Personality and Individual
    Differences 86* (2015): 204-11. *ScienceDirect.*

Kirsh, Steven J. *Children, Adolescents, and Media Violence: A Critical Look at the
    Research.* Thousand Oaks, CA: Sage Publications, 2006.

Lukas, Scott A. "Behind the Barrel: Reading the Video Game Gun." *Joystick soldiers:
    the Politics of Play in Military Video Games.* Ed. Nina Huntemann and Matthew
    Thomas. Payne. New York: Routledge, 2010. Print.

Markey, Patrick M.; Markey, Charlotte N.; French, Juliana E. "Violent video games and
    real-world violence: Rhetoric versus data." *Psychology of Popular Media Culture*,
    Vol 4(4), Oct 2015, 277-295.

Martino, John. *War/play: Video Games and the Militarization of Society*. New York:
    Peter Lang, 2015.

McCarthy, David, Ste Curran, and Simon Byron. *The Art of Producing Games.* Boston,
    MA: Thomson, 2005.

McCarthy, Niall. "America's Favorite Video Game Genres [Infographic]." *Forbes*.
    Forbes Magazine.

McWhertor, Michael. "Call of Duty Surpasses 250 Million Games Sold Worldwide."
    Polygon. 2016.

Moore, G.e. "Cramming More Components Onto Integrated Circuits." *Proceedings of the
    IEEE 86.1* (1998): 82-85.

Murray, Janet Horowitz. *Hamlet on the Holodeck: the Future of Narrative in
    Cyberspace.* Cambridge, MA: MIT Press, 1998.

Palmgreen, P., L. A. Wenner, and J.d. Rayburn. "Relations Between Gratifications Sought and Obtained: A Study of Television News." *Communication Research* 7.2 (1980): 161-92.

Pitzulo, Carrie. "Bachelors and Bunnies: The Sexual Politics of Playboy." Chicago: U of Chicago, 2011.

Pividori, Cristina. "The death and birth of a hero: the search for heroism in british world war one literature." (2012). *TDX.*

Poole, Steven. *Trigger Happy: Videogames and the Entertainment Revolution*. New York: Arcade Pub., 2000.

Przybylski, A. K., R. M. Ryan, and C. S. Rigby. "The Motivating Role of Violence in Video Games." *Personality and Social Psychology Bulletin 35.2* (2009): 243-59.

Rigby, Scott, and Richard M. Ryan. *Glued to Games: How Video Games Draw Us in and Hold Us Spellbound*. Santa Barbara, CA: ABC-CLIO, 2011.

Severin, Werner J., and James W. Tankard. *Communication Theories: Origins, Methods, and Uses in the Mass Media.* New York: Longman, 1992.

"Seville Statement On Violence." (2011): *Credo Reference Collections.*

Tajerian, Maral. "Fight or Flight: The Neuroscience of Survival Horror." Gamasutra Article. N.p., n.d.

Weaver, Andrew J. "A Meta-Analytical Review of Selective Exposure to and the Enjoyment of Media Violence." Journal of Broadcasting & Electronic Media 55.2 (2011): 232-50.

Wells, H. G. *Little Wars. A Game for Boys ... With an Appendix on Kriegspiel*, Etc. London: Frank Palmer, 1913

Yenigun, Sami. "Video Game Violence: Why Do We Like It, And What's It Doing to Us?" *NPR*. NPR, 11 Feb. 2013.

Appendix A

Field Study III: Survey questions

1. *Age and Gender*
2. *How often do you play video games?*
   Check for correlations in the amount of time people play games
3. *Do you or family have any personal history with real violence, abuse, armed conflict, or military service?*
   See if people with histories of real world violence respond differently
4. *Do you prefer games that are casual/light or serious/intense?*
   Based on prediction that those who consider themselves "hardcore gamers" would have different responses than those who are "casual"
5. *List the last three video games you have played*
   Get general idea of currently popular games and to see where on the Violence Spectrum the games lie
6. *Top three reasons you have ever played a video game (choose three)*
   a. *I want to play with my friends*
   b. *I want to escape real life for while*
   c. *I've always played games*
   d. *I want to learn something*
   e. *I want to pass the time*
   f. *I want to relax*
   g. *I want to do and see amazing things*
   h. *I want to take out my aggression against things that aren't real*
   i. *I want to be a part of the gamer community*
   j. *I want to do things I can't do in real life*
   k. *I want to feel better about myself*
   l. *I want to compete and win*
   m. *I was in a bad mood*
   Each of the choices is based on an aspect of UGT to see what aspects are most prevalent
   Was there a time in your life when you felt embarrassed to play video games?
   Based on the prediction that violence validates gameplay; also based on prediction that video games are still considered an immature medium.
7. *How important is violence in the games you play?*
   Gauge interest in violence in games

8. *How important is immersion in the games you play?*
   Guage an earlier prediction that desire for immersion drives desire for violence
9. *Does violence validate your gameplay?*

Test for a correlation between validation of gameplay and other responses, based on a prediction that those who seek validation of games may look towards violent content
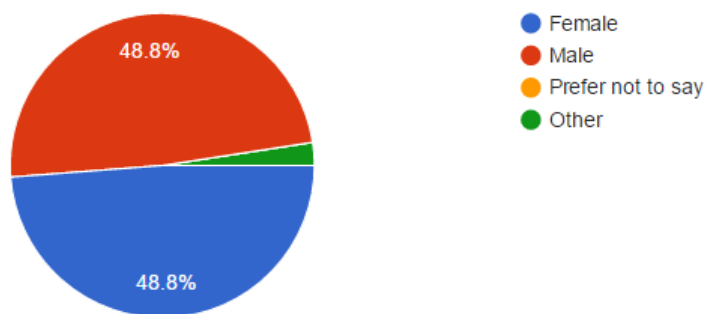
Question 11 was an open response query, giving participants an opportunity to express any further thoughts on the subject.
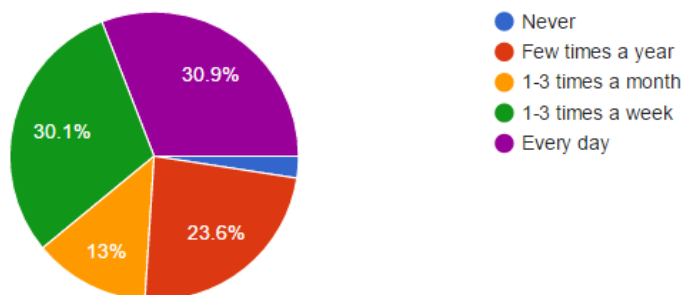
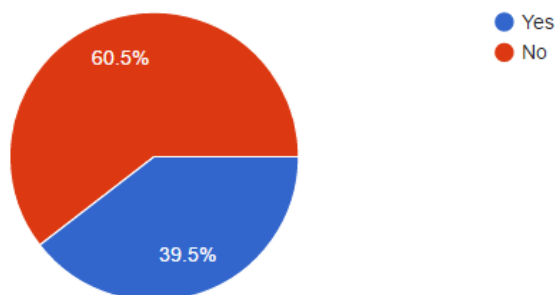*Survey Data*

Age (113 responses)
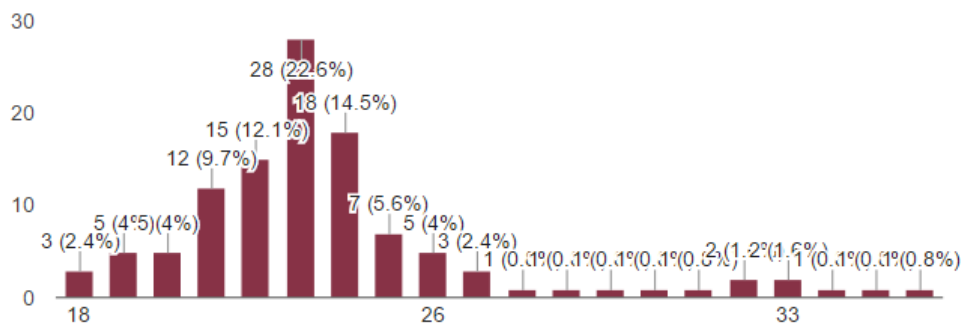
Gender (123 responses)

How often do you play video games? (123 responses)

- ● Never
- ● Few times a year
- ● 1-3 times a month
- ● 1-3 times a week
- ● Every day

30.9%
30.1%
23.6%
13%

Do you or family have any personal history with with violence, abuse, armed conflict, or military service?
(124 responses)

- ● Yes
- ● No

60.5%
39.5%

Do you prefer games that are casual/light or serious/intense? (124 responses)

- ● Casual
- ● Serious
- ● Can't decide

29.8%
29%
41.1%
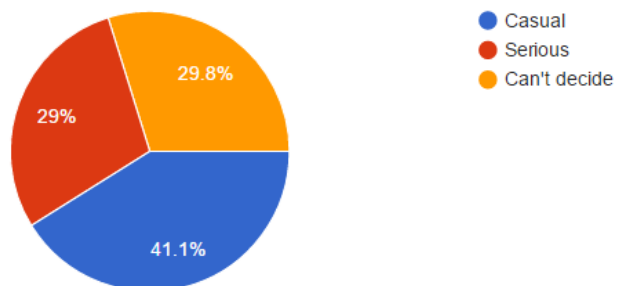
"Final Fantasy IX," "Legend of Dragoon," "Kingdom Hearts"

Red Dead Redemption, Dark Souls, Destiny

"Titanfall 2," "Grand Theft Auto 5," "Mortal Kombat XL"

Broken Age, Papers Please. Life is Strange

Fifa, Grand Theft Auto V, Super Mario Bros

Assassin's Creed Syndicate, Assassin's Creed Unity, Counter Strike Global Offensive

Mass Effect 2, Wolf Among Us, Shadow Warrior 2

Little big planet, lego Harry potter,

Pokémon, Overwatch, Kingdom Hearts 2

Ultimate Spider-Man, Middle Earth: Shadow of Mordor, Destiny

The Stanley Parable, Braid, Pokémon Go

"Journey," "Harvest Moon: Animal Parade," "Harvest Moon: Another Wonderful Life"

Overwatch, Dots & Co, Peggle

"Halo 5", "Titanfall 2", " The Witcher 3"

Overwatch, World of Warcraft, Dragon Age: Inquistion

"Rocket League," "Titan Fall 2," "Star Wars: Battlefront"

"Mario Kart" "Donkey Kong" " Mortal Kombat"

"Skyrim," "Pokémon," "Sims"

Skyward Sword, Overwatch, Guild Wars 2

The Sims 4, Shelter 2, 3d Mario world

Minecraft, Don't Starve, Pokémon

"Journey," "Magicka 2," "Fez"

"Tokyo Mirage Session #FE" "Battlefield 1" "Rise of the Tomb Raider"

Destiny, Xenoblade Chronicles X, Mario Maker

Star Wars battlefront, Super Mario Brothers, halo

Rome 2: Total War, Proteus, Twilight Princess

"Overwatch," "Battlefield 1," "Pokémon Sun"

Overwatch, Warframe, Minecraft

"Pacman Championship Edition DX+" "Civilization VI" "Overwatch"

Grand Theft Auto V, Outlast, Bloodborne

"Dragon Age: INQUISITION ," "Witcher III: Wild Hunt," "Dark Souls 3"

"Grand Theft Auto 5," "Borderlands 2," " Far Cry 4"

"Pokémon: Moon," "league of legends," "diablo 3"

Binding of Issac, Left 4 Dead, Pokémon Moon

Yes

Pokémon, watch dogs 2, gears 4

"Shovel Knight," "Castlevania: Rondo of Blood," "Pokémon Moon"

Minecraft, Skyrim, No More Room in Hell

"Battlefront," "Fallout 4," "Fallout 3"

The Beginner's Guide, Off-peak, Overwatch

Guitar Hero, Call of Duty: Ghosts, FIFA 2015

"Counter-Strike: Global Offensive", "H1Z1: King of the Kill", "League of Legends"

Skyborn, OFF, Rusty Lake Roots

Battlefield 1, World of Warcraft, Rim World

Game One: Wii Bowling, Game Two: Wii Baseball, Game Three: Wii Archery

Dishonored 2, Pokémon Moon, Bravely Default

Super Mario bros, smash, sonic

Sims 4, Zork: Grand Inquisitor, Fable

Dragon Age, LEGO Batman, Rachet & Clank

"Gears of War 4," "Tomb Raider," "Borderlands"

"Pokémon", "Stardew Valley", "Animal Crossing"

"Pokémon," "super smash bros," "super metroid"

"Angry Birds: Star Wars II," "Fallout Shelter," "Groove 2"

Party Hard, Sonic All Star Racing, Going Home

Victoria II, Battlefield 1, Star Wars The Old Republic

Wii Dance, Wii Bowl and Wii Sports

Uncharted 4, Overwatch, Mario Party 5

"Battlefield 1," "Dying Light," "Uncharted 2"

"The sims," "tony hawk american wasteland," "left for dead 2?

Skyrim, Unravel, Grand Theft Auto

"Warframe," "Overwatch," "Soul suspect"

"batman: arkham origins" "batman: arkham city" "batman: arkham asylum"

"Pokémon Sun", "Super Mario Wii", "Legend of Zelda: Oracle of Ages"

"LoZ: Twilight Princess," "Uncharted 2," "LoZ: Wind Waker"

Zelda Phantom Hourglass, Hatoful Boyfriend, Minecraft

Undertale , Team Fortress 2, Fallout New Vegas

"Witcher 3," "Grand Theft Auto 5,""World of Warcraft

"Pokémon Sun", "Mario Kart", "Destiny"

Fallout 4, War frame, Terraria

Bioshock 1, Darkest Dungeon, and Pokémon

"Dark Souls III," "Heroes of the Storm," "Bioshock"

Madden 25, Super Mario Sunshine, Mario Kart

"FIFA 17", "Watchdogs", "Payday 2"

"Bubble Shooter" "Shogun 2:Total War" "Splendor"

Battlefield 4, GTA V, PokeMMO

League of Legends, Overwatch, Don't Starve

Starcraft, WoW, Age of Empires

"Skyrim Special Edition", "Fallout 4", "Bioshock"

"The Last of Us," "Mario Kart Wii," "Overwatch"

Civilization V, Minecraft, Left for Dead

"the witcher 3," "dishonored 2," "tomb raider"

Titanfall, Destiny, Valiant Hearts

Game one- Black Ops 3 Game two- Modern warfare Game Three- Lego Harry Potter

Just Cause 3, Call of duty black ops 3, Grand theft auto 5

"Guild Wars 2," "League of Legends," "Skyrim"

"GTA", "COD", "PacMan"

"Call of Duty Zombies" "DC Universe Online" "Monster Hunter 4 Ultimate"

"Mario Kart," "Legend of Zelda: Twilight Princess," "Super Smash Bros. Brawl"

"Call of Duty: infinite warfare","FIFA 16", "The Last of Us"

Mario Kart, Forza, NBA 2K

Killer Queen, Puzzles and Dragons, Triple Town

"Prison Architect", "Kentucky Route Zero", "Spelunky". (Instead of mak I ng the survey taker conform to a syntax of quotes to fit your formatting needs, it would be better to make 3 boxes, get un adorned steongs and then stich them back together.

"LEGO Star Wars: The Force Awakens", "XCOM 2", "Fallout 4"

Ennuigi, No mans sky, Spelunky

"Mass Effect," "We Know the Devil," "Skyrim"

Overwatch, ark survival evolved, destiny

Sims,dance dance revolution, nancy drew video game

Rocket League, Battlefield 1, GTA V

Mario Party, League of Legends, Osu

Counter Strike: Global Offense, Sid Meier's Civilization V, and Sims 3

Pokémon Sun, Skyrim, Pokémon Omega Ruby

Overwatch, Until Dawn, Pokémon Sun

Pokémon OmegaRuby, Animal Crossing, Smash Brothers 3DS

Dark Souls, Pokémon X, Color Switch

assassin's creed, devil may cry, god of war

Titanfall 2, Outlast, GTAV

League of Legends, Gwent, Life is Strange

"The Sims 4", and I honestly can't remember the others, I've only played the Sims for the last few months

Battlefield , gta, star wars

Call of Duty: Black Ops 2, Space Channel 5, Little Big Planet
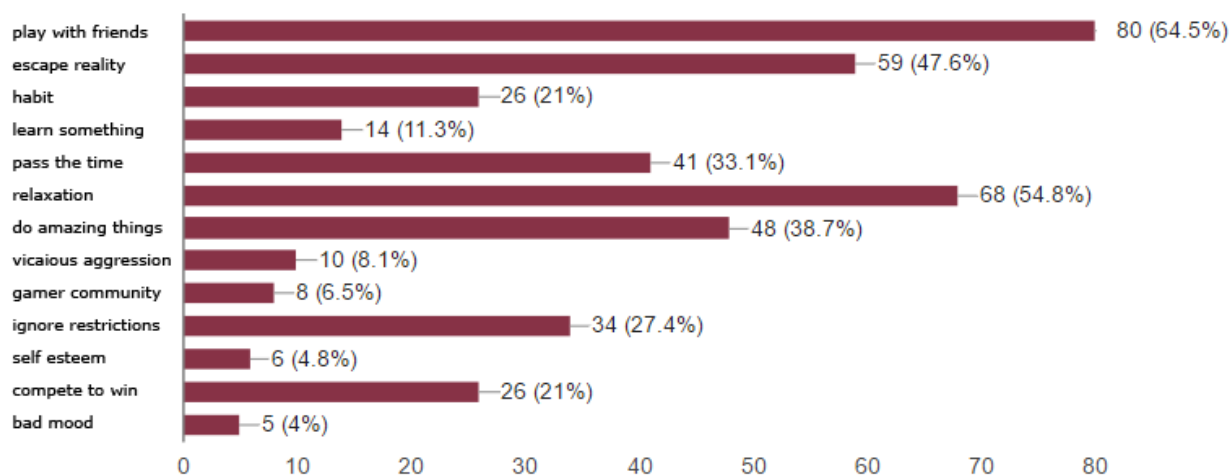
DOTS, Pop the Lock, Transformers

Super mario sunshine, mario kart, neko atsume.

"Super Mario", "Just Dance", "The Witness"
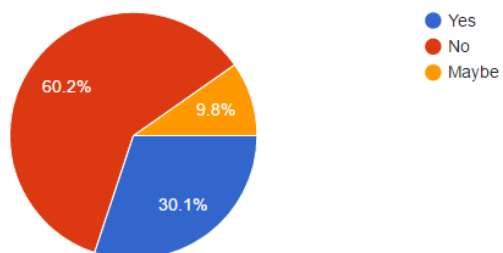
Overwatch, Fallout 4, Rocket League

"Pokémon Omega Ruby," "Don't Go in the Old Greene House," "Grab Them by the Eyes"

Select the top three reasons you have ever played a video game (124 responses)

Reason	Count
play with friends	80 (64.5%)
escape reality	59 (47.6%)
habit	26 (21%)
learn something	14 (11.3%)
pass the time	41 (33.1%)
relaxation	68 (54.8%)
do amazing things	48 (38.7%)
vicaious aggression	10 (8.1%)
gamer community	8 (6.5%)
ignore restrictions	34 (27.4%)
self esteem	6 (4.8%)
compete to win	26 (21%)
bad mood	5 (4%)

Was there a time in your life when you felt embarrassed to play video games?
(123 responses)

- Yes
- No
- Maybe

60.2%

9.8%

30.1%

How important is violence in the games you play? (124 responses)

52 (41.9%)

16 (12.9%)

18 (14.5%)

10 (8.1%)
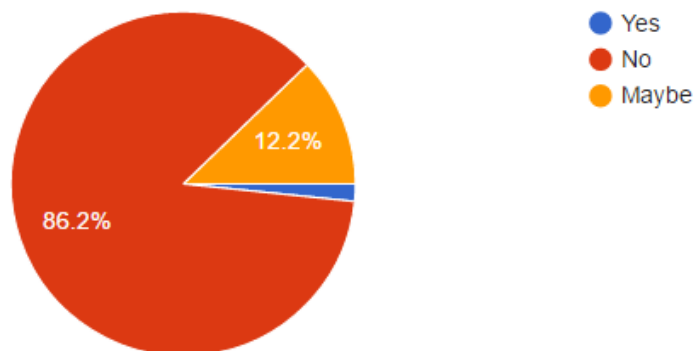
6 (4.8%)

7 (5.6%) 6 (4.8%) 7 (5.6%)

1 (0.8%) 1 (0.8%)
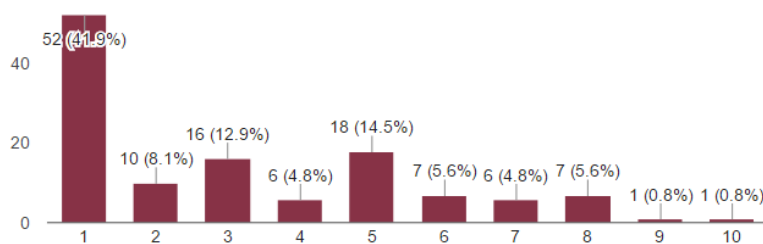
How important is immersion/realism in the games you play? (124 responses)
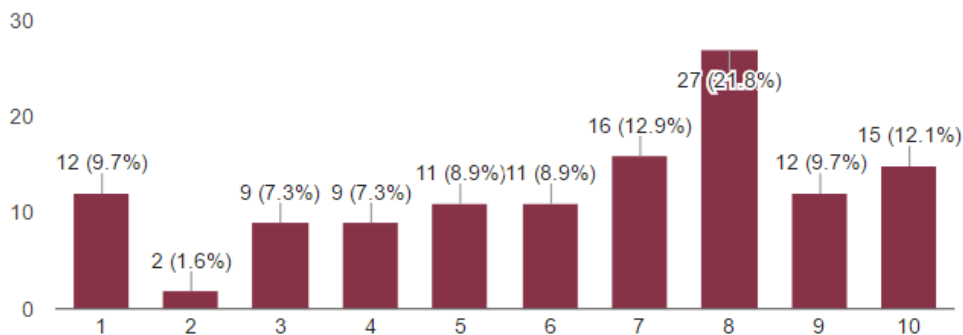
How important is multiplayer to you? (124 responses)
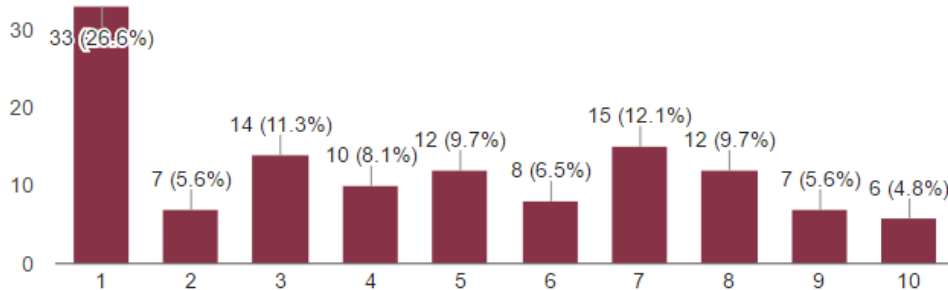
Does violence validate your game play? (123 responses)

- Yes
- No
- Maybe

12.2%

86.2%

Why do you like violence in a game? (124 responses)

Response	Count
don't like violence	38 (30.6%)
increase realism	22 (17.7%)
humor	26 (21%)
intensity	53 (42.7%)
dominate competition	7 (5.6%)
it's scary	10 (8.1%)
feel lik a badass	43 (34.7%)
it's fun	36 (29%)
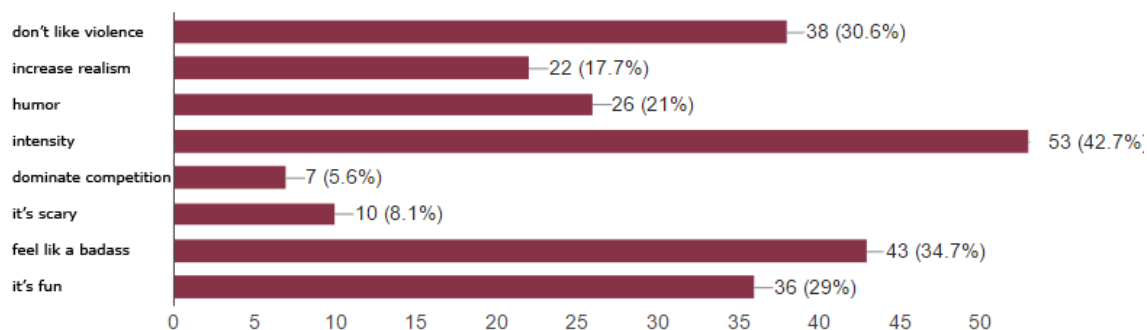
Open responses

In my opinion, violence in video games only trigger violent responses in individuals who are psychologically predisposed to violent behavior, individuals who can't differentiate between fantasy and reality.

In my opinion, violence in video games only trigger violent responses in individuals who are psychologically predisposed to violent behavior, individuals who can't differentiate between fantasy and reality.

My opinion based on my observations is that violence has a place in either improving the immersion (a la most Call of Duty-style games or horror games) or being so ridiculous it's funny (a la every Grand Theft Auto game, bouncing around in a choppy physics engine and somehow managing to commit crimes is hilarious). I don't personally prefer it, but I acknowledge it has a place in story telling or in entertainment value. Much like slapstick comedy has a huge place in our culture. It's funny to watch people hurt each other in certain situations as long as the real people end up okay.

We care about the people being hurt enough to not wish the real horrible violence on them, but a bruise here and there is comical or helps to tell a story.

My opinion based on my observations is that violence has a place in either improving the immersion (a la most Call of Duty-style games or horror games) or being so ridiculous it's funny (a la every Grand Theft Auto game, bouncing around in a choppy physics engine and somehow managing to commit crimes is hilarious). I don't personally prefer it, but I acknowledge it has a place in story telling or in entertainment value. Much like slapstick comedy has a huge place in our culture. It's funny to watch people hurt each other in certain situations as long as the real people end up okay.

We care about the people being hurt enough to not wish the real horrible violence on them, but a bruise here and there is comical or helps to tell a story.

A lot of the time games use "violence" to help gain experience to level up a character, so in a lot of ways it is needed to progress the story. I don't see it as a bad thing. I think game violence is fine, and not hurting anyone in the "real" world.

It's satisfying to be able to significantly change my environment. It makes me feel powerful in ways that I will never feel in real life. It gives me control.

I don't think violence in video games has any effect on anything. I like violent and nonviolent games.

S U C C

Sometimes is a crucial part of the narrative

Hyper-realistic violence towards women and minorities bothers me and makes me feel unsafe, and often throws me out of the gaming experience.

"How important is violence in the games you play?" This question may give you ambiguous answers. Violence is very important to me as a gamer. It is very important that a game NOT be that violent!

It's not that I do not like violence in games; I just don't go seeking it out. And I tend to avoid games that center around violence (like GTA).

I wish there was an option to list storytelling as a reason for why I play video games. I felt like the survey was almost trying to make me say "I love violence in video games."

Violence in video games is fine to me. Violence and death are a part of the natural world, so there is nothing wrong with having it contained within a virtual world as well. It is not a necessity, but can bring enjoyment to an experience/story where it fits.

I like violence in video games, provided the genre of game called for it. You wouldn't be killing people in Tetris, but if you're playing Elder Scrolls, then one might need to get their hands dirty.

I believe liking violence in video games is no different than liking action or horror in movies. Typically it's intense and kicks in your adrenaline or excites you just like how movies do, at least in my experience. Just because one craves that feeling doesn't mean people like it because they like violence IRL as well, which seems to be what some like to attribute video game violence to.

I love games where violence isn't the main detail, that it is only necessary if it has too.

Video games have evolved to a point that creators can express nearly any idea. Just like other matured mediums, such as film, literature, & music, violence is merely a tool to express both the ideas of the creator and provide exploration of the player's inner philosophy.

I'm a male.

Thanks jj

A complex subject which due to the various cultural components as well as the influence of a market for high sales make an accurate determination of anything with relation to it impossible.

What I like about the one violent FPS game I play is the intensity of story line with an end goal in mind. It's very hard to find games like that geared for adults that do not in some way involve violence. However, i understand the issue of violence exposure in our culture and don't want to see it normalized. It's a very hard concept to wrap ones head around with out the chance of doing or saying something hypocritical.

I mainly like violence if it's over the top and silly. Fighting games are the only ones that I go to for violence. The more realistic the violence, the less I am interested.

I think there are many more worthwhile endeavors that a young, talented Computer Science/IDM graduate could be involved in than development of video games, especially ones that incorporate violence.

Too many games use violence as a crutch. It can add to the experience if it feels natural, but it's often used as a substitute for proper plotting and world building.

I don't necessarily seek out games that are violent specifically because they are violent, but I do think there is something to be said for games that incorporate violence in a way that helps convey something to the player. It can help convey immense power in games like Bayonetta, or a feeling of near helplessness in games like Silent Hill. Violence for violence's sake, though, has very little purpose in my opinion. I don't think violence does or should equal sadism.

I can't decide if I think violence in games is valuable as a catharsis for certain aspects of human nature or whether it's ultimately hampering games' advancement as a valuable art form and site for humanity's cognitive development. Not sure that it can be both.

Violence should not be the sole reason why a game is fun.

I see no problem with violence in video games, it's all about teaching someone how to separate games from reality.

Violence in videogames makes for fun gameplay. We go see movies and we see action heroes, then we get to become those heroes. Not every video game I play is violent, but I do tend to gravitate towards action/adventure games.

I'm a very passive person. Very non-aggressive, but I do enjoy violent videogames.

Violence in video games doesn't cause problems, violence in people does.

A lot of the games I play are pretty violent, but i mainly play for the storyline, quests, puzzles, and building things. Like the settlements in Fallout 4 or building houses in terraria. I find it annoying when I have to stop whatever quest I am doing it item I am

building to fight NPC's. If there were no violence in these games I would still play them and enjoy them the same.

I think violence in games creates a state in which the game has stakes. Violence is a simple and emotionally effective method of transmitting the notion that what we do in the game has consequences. There are other ways to achieve this end result, but violence is effective and simple, while being universally understood. If I die in game, I know what that means and it has a real-world equivalent that I seek to avoid.

I love "violence" in the game just because I wonder how the ragdoll physics are like, and it's pretty satisfying to see the people splat and fly around. Like running over civilians in a car or tackling them in FIFA and injuring them

Thinking back on the games I've played over the years, it's clear that an overwhelming number of them not only involved violence, but were dependent on it. I'd estimate that it was an essential element of roughly 80% of the games I've played. Equally clear is the fact that this is a gross misrepresentation of how often violence is a part of any of our lives. However, this phenomenon, while perhaps pronounced in video games, is not exclusive to it. Violence often becomes a focal point of human attention, from literature and film to history and journalism. The reasons for this are simple to see: we have little to no reason to dwell on the mundane, the everyday, the comfortable, the inconsequential. People awaken to violence because it is foreign and unexpected, because it incapsulates both our greatest fears and our greatest aspirations for the future. My favorite genre of games is by far RPGs, games that tell engrossing stories of conflict over competing values and the triumph of good over evil. What draws me into these stories is plot, and all plot involves some form of conflict. What violence does is raise the stakes, giving matters of theoretical interest existential consequence. For most, or at least (I believe) for me, the violence is not enjoyable in and of itself, but as a vehicle for what it tries to communicate. Every protagonist, and the player who views/portrays them, hopes that their encounter with violence will be the last, that their victory will bring true and lasting peace. This sense of narcissism, I believe, is another important part of the appeal, that the player is the central mover and shaker of great and terrible times. These feelings have been a part of the human experience since the earliest tales of cruelty and courage were told round the fire. It is for this reason that I pay little heed to those who decry violence in video games. Whether or not there's truth to the proposition that violent games encourage violent behavior (I'm no expert on the subject), the fact is that violence as both an idea and as a reality will always have our ear, and as long as it does it will always express itself in one medium or another. Furthermore, there's a significant case to be made that exposure to the truths of violence is itself the most powerful case against it. We see

movies and plays which warn us of the dangers of succumbing to the temptation of violence. We open a history book or turn on the news and vow never to let this happen again. For the believer, the violence of the cross is a rally cry that something in the human condition needs to change. Presented in the appropriate light, a video game can be a vehicle to prompt us to reflect on these truths in an immersive way other mediums might fail to provide. This, in my humble opinion, is what we ought to strive for now and in the next generation: games that make us think about the problems of our world rather than censoring them and promoting a false sense of reality. I continue to uphold that it is better to engage with our demons than ignore them.

Not sure if these were the kind of responses you were looking for, but I hope it helps. Hope all is well. Come see me sometime. GTG

Violence in gaming as a whole isn't a passing trend. Look at Mortal Kombat, the grandfather of all modern fighters, it and Doom essentially created the ESRB, despite this there's no direct corrolation between violence in media and violence in reality. It's easy to blame stuff like video games and music for violence in real life. The real issues that often cause violence are things like poverty and rampant classicism in lower class and some parts of middle class America.

Violence doesn't matter to me, but most triple A titles are violent. If you want a good story sometimes that includes violence . I don't believe there's a connection between violent video games and violent acts in real life.

I do not like violence at all. But that will not keep me from playing some very good games that contain violence scenes as long as the game itself is cool.

It's not critical for me to want to play a game but is more likely to be able to enhance a game

I only like violence when games are making an anti-violence commentary, such as a peaceful resistance game. My mother dislikes video games because of violence and extends her disdain for video games to the profession of video game design. I've wanted to make beautiful simulation games about the amazing non violent world we live in ever since I was young, but I've had to go through a stigma against them in myour family, since they assume I will be making violent games if I become a game maker. I grew up on education games, bought call of duty 2, and didn'the find it interesting enough to get through. I've enjoyed playing dishonored for the awesome stealth aspects and bios hock for the awesome architecture and spaces.

For certain games, violence is a necessary part of the experience. I do not want to play a strategy sim game such as XCOM and not see the action sequences of the soldiers

shooting and things exploding. However, for other games such as LEGO Star Wars, the violence is just LEGO bricks breaking apart and it's cute and funny.

I'm kinda indifferent toward it as a whole. Sometimes it can be funny if it is cartoonish/overdramatic like Mortal Kombat. I tend to get more anxious in games during points where there is going to be violence, but not so much so that it diminishes gameplay. Sometimes this anxiety will eventually turn into a hyperfocus/addrenaline thing, but that is probably less about the violence & more just how my anxiety/workflow works.

Violence in games is something that has a home. For some people it is something that they don't like for others it's something they like. However it isn't something that is always needed. Certain games use violence as a means to protect things that you are supposed to care about others use it just to use it and fill a certain niche of players.

I think there might be a distinction in one who enjoys a video game because of violence and one who enjoys a game that has violence as an aspect. For example, one of my favorite video game series is the Assassins Creed series, but because of the historical environments, not the murder.

Last question assumes surveyee prefers violence in video games when there are many that find it inconsequential

Violence has a place in military training.

Violence needs to be justified or at least explained the same way Bowser uses a piranha plants in his pipes — those elements exists to make it harder for player 1 to achieve its goal and/or to create an environment where player 1 has to determine to become one with the chaotic environment or get around it. Violence cannot be an aftereffect of ephemeral nature, there needs to be in-game consequences, rather than fallen bodies. Maybe it prevents the gamer from getting hidden treasures because she killed a possible informant.

For me, often it's not the violence itself that makes a game fun, it's just the competition and high-action that I find in "violent" games is very fun and appealing. However, there are exceptions where the violence is what makes it fun by making you feel kind of like a bad-ass. Basically, violence by itself doesn't appeal to me, it's how fun the game is, violent or not.

Link to full data sheet:

jdjohnsonmedia.com/thesis_site/files/GunHeroSurveyResponses.csv

Appendix B
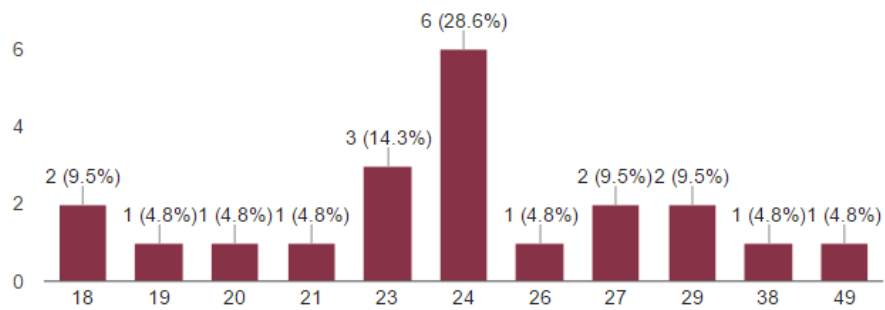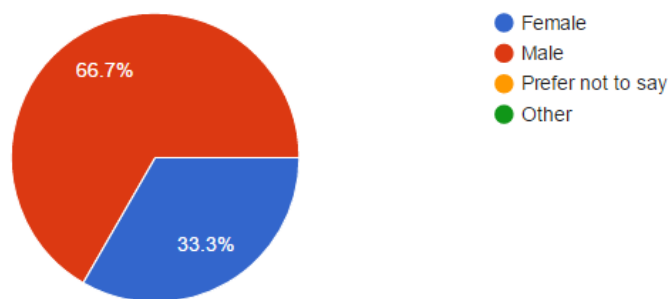
Collected game data
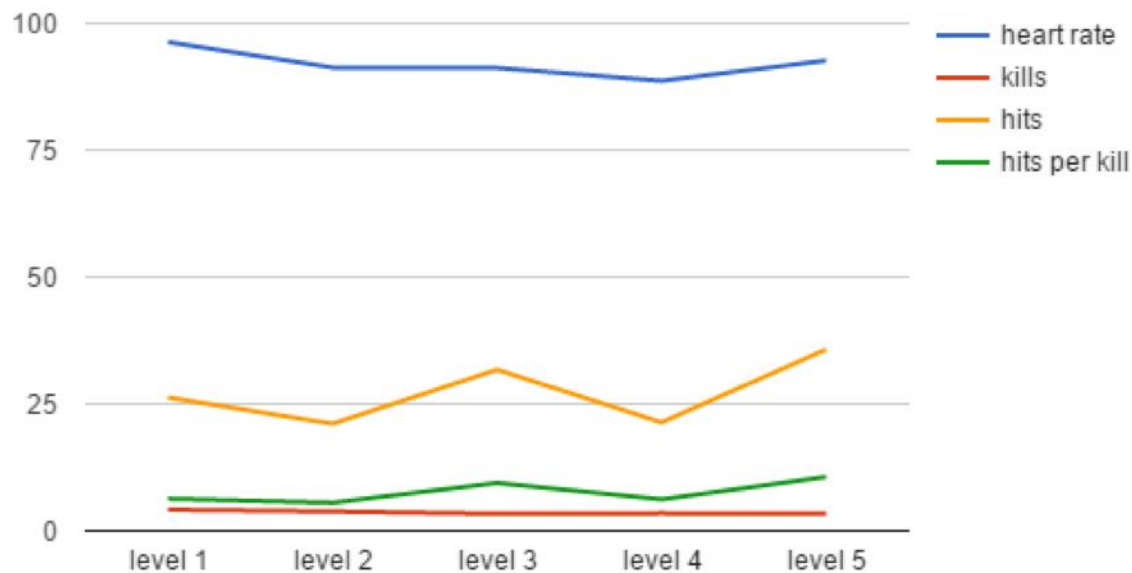
Pre-gameplay survey

This is the same survey shown in Appendix A, but the participants in the game did not take the survey in Appendix A. Also the results of the pre-gameplay survey may reflect on the results of the post-game survey and the collected game data.
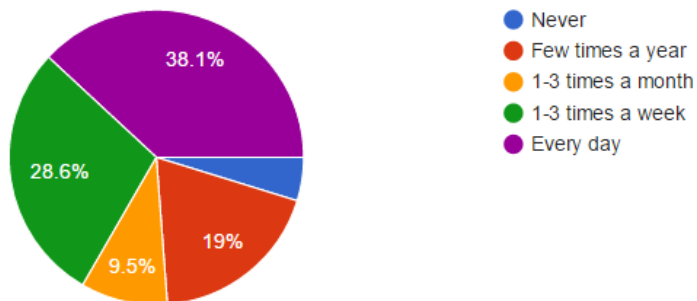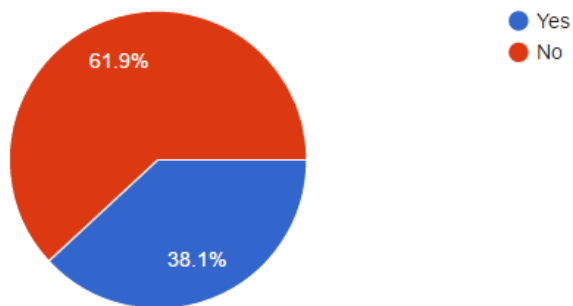
Age (21 responses)

Gender (21 responses)

- Female
- Male
- Prefer not to say
- Other

66.7%

33.3%

How often do you play video games? (21 responses)

- Never
- Few times a year
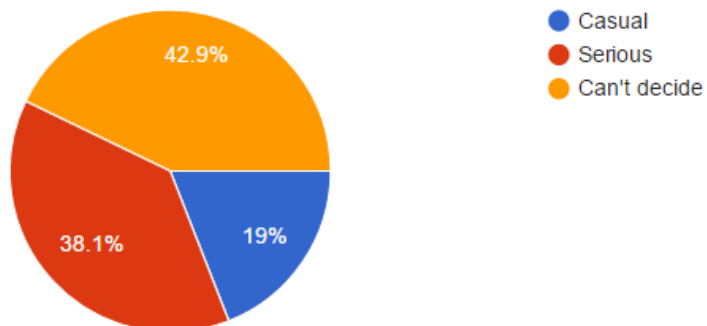- 1-3 times a month
- 1-3 times a week
- Every day

38.1%
19%
9.5%
28.6%

Do you or family have any personal history with with violence, abuse, armed conflict, or military service?
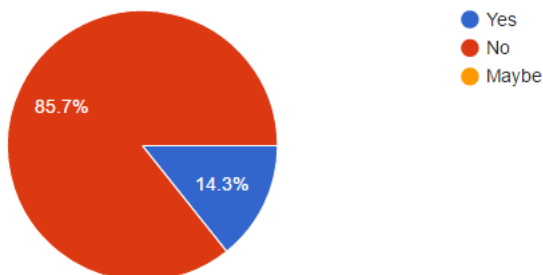(21 responses)

- Yes
- No

61.9%
38.1%

Do you prefer games that are casual/light or serious/intense? (21 responses)

- Casual
- Serious
- Can't decide

42.9%
38.1%
19%

Was there a time in your life when you felt embarrassed to play video games?
(21 responses)

- Yes
- No
- Maybe

85.7%

14.3%

How important is violence in the games you play? (21 responses)

6 (28.6%)

3 (14.3%)   3 (14.3%)   3 (14.3%)

2 (9.5%)   2 (9.5%)

1 (4.8%)   1 (4.8%)   0 (0%)   0 (0%)

1   2   3   4   5   6   7   8   9   10
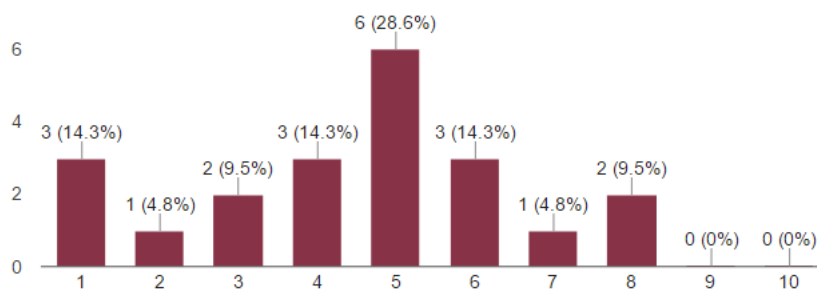
Select the top three reasons you have ever played a video game (21 responses)

play with friends	16 (76.2%)
escape reality	8 (38.1%)
habit	7 (33.3%)
learn something	4 (19%)
pass the time	9 (42.9%)
relaxation	14 (66.7%)
do amazing things	3 (14.3%)
vicaious aggression	1 (4.8%)
gamer community	3 (14.3%)
ignore restrictions	8 (38.1%)
self esteem	1 (4.8%)
compete to win	8 (38.1%)
bad mood	2 (9.5%)

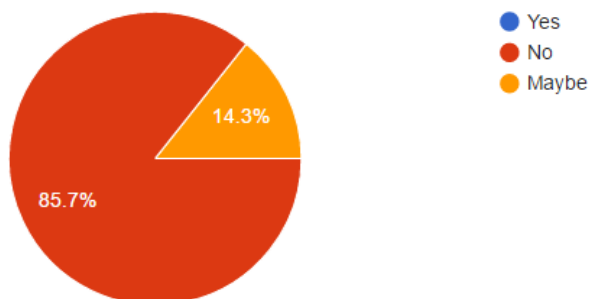0   2   4   6   8   10   12   14   16
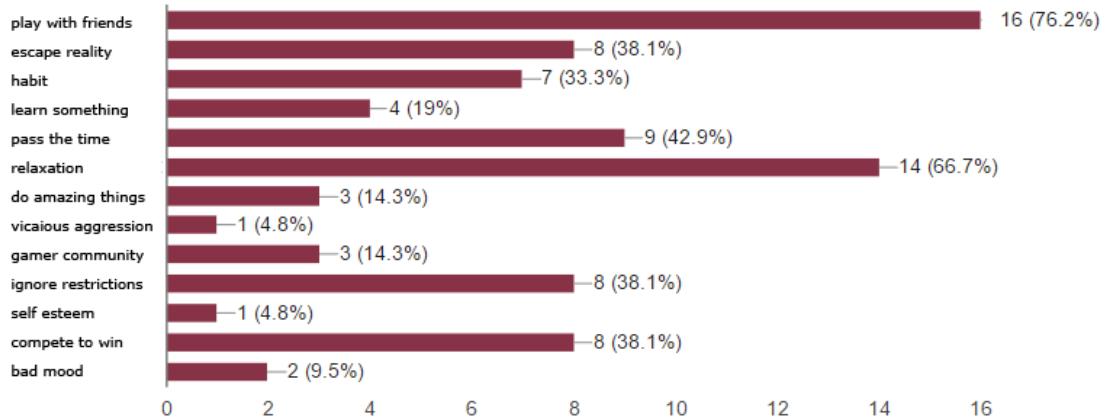
How important is immersion/realism in the games you play? (21 responses)
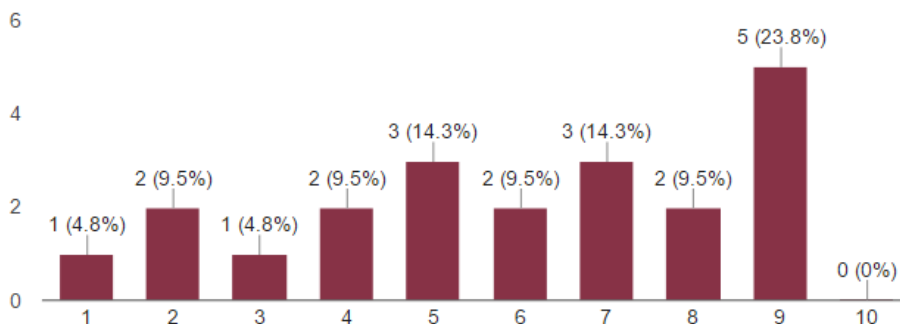
How important is multiplayer to you? (21 responses)
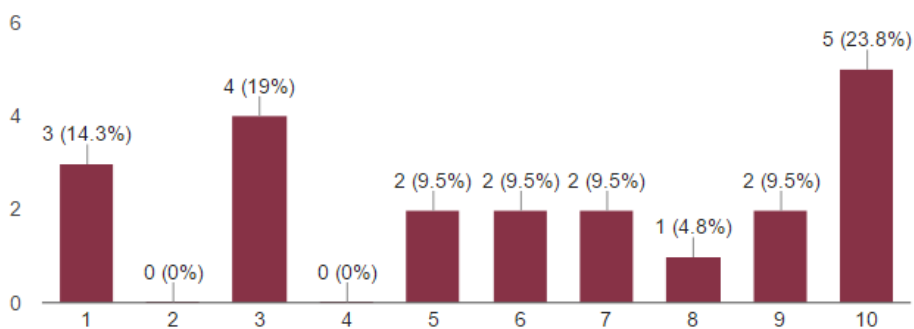
Does violence validate your game play? (21 responses)

- Yes
- No
- Maybe

14.3%

85.7%

Why do you like violence in a game? (21 responses)

don't like violence	1 (4.8%)
increase realism	5 (23.8%)
humor	7 (33.3%)
intensity	14 (66.7%
dominate competition	6 (28.6%)
it's scary	2 (9.5%)
feel lik a badass	9 (42.9%)
it's fun	11 (52.4%)
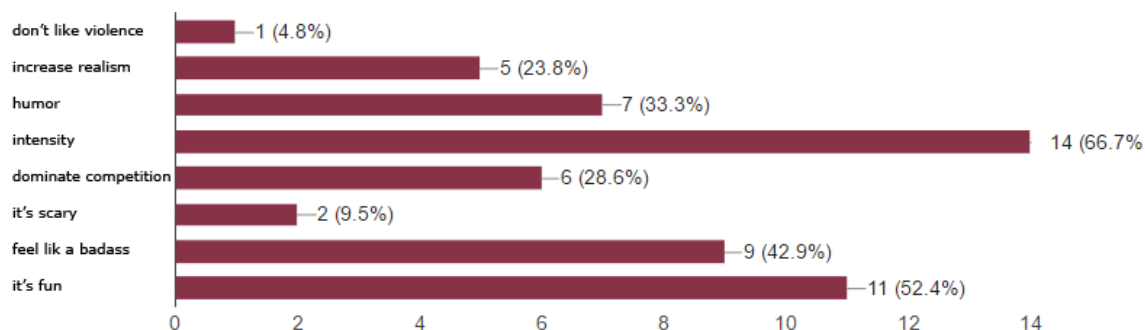
Last three games played

"Free cell", "tetris"
"Call of duty", "journey", "fifa"
Animal Crossing, Kentucky Route Zero, Corrypt
Overwatch, Rocket League, CS GO
Clash of clans, boom beach, true skate
"League of Legends"
Titanfall 2 , GTA V , The Division
Dota 2, over watch, tomb raider
Dishonored 2, Overwatch, Final Fantasy XIV: A Realm Reborn
Racing cars , shooting games don't know the name...
"Combat Arms", "Rumble Fighter", "Naruto Shippuden Fighting"
Rainbow Six Siege, Smite, Diablo 3
Mass effect trilogy, bioshock, king's bounty legends
Game one: Gone home Game two: tetris game three: ?
"Team fortress 2" "pokemon sun" "overwatch"
Killer Queen, Overwatch,, Skyrim
Game one League of Legends. Game two Earthbound. Game three Broken Age
Killer Queen, Overwatch, Rocket League
Civ 6 heroes of the storm broforce
Smash brothers, clash royale, killer queen

Open responses

I don't think violence in games is necessary, but a good story and unique gameplay is usually what keeps me going back to games

I play league of legends and kill people there it's a lot fun

It adds some fun sometimes

Good games do not have to have violence in them, but there are also good games that have violence in them. Also, video games do not make people violent, people do that.

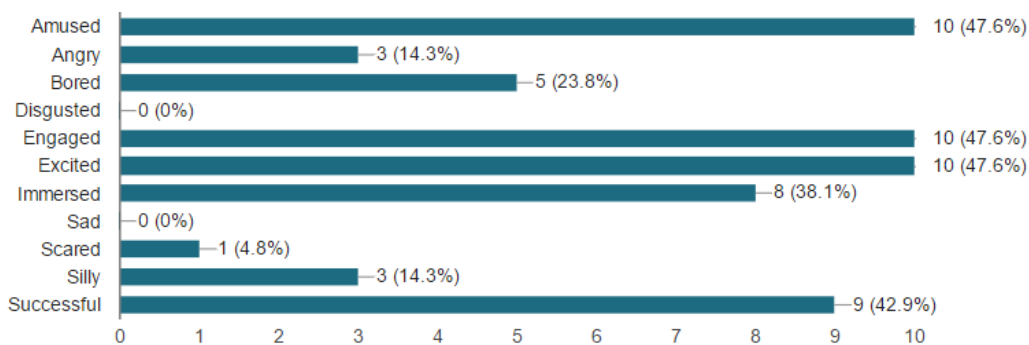Having violence depends on the game's theme

It is a secondary element.
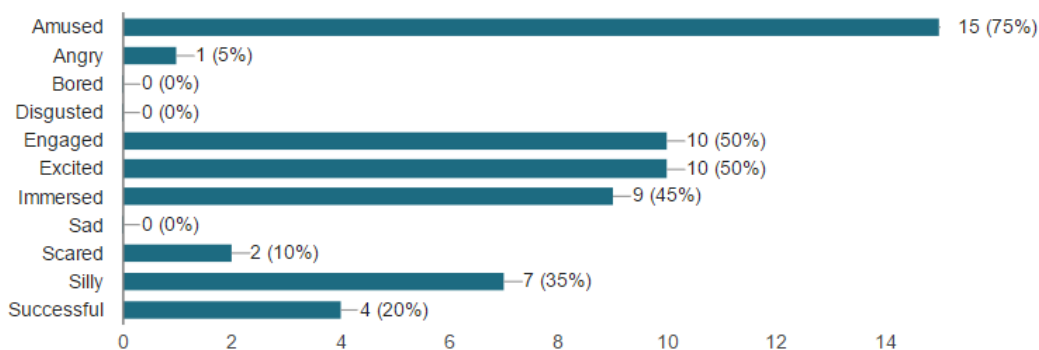

Post-gameplay survey data

The following five charts show results from a question that asked to pick three feelings from a list for each level in the game. The player only knew what the level looked like, not how it ranked on the Violence Spectrum.
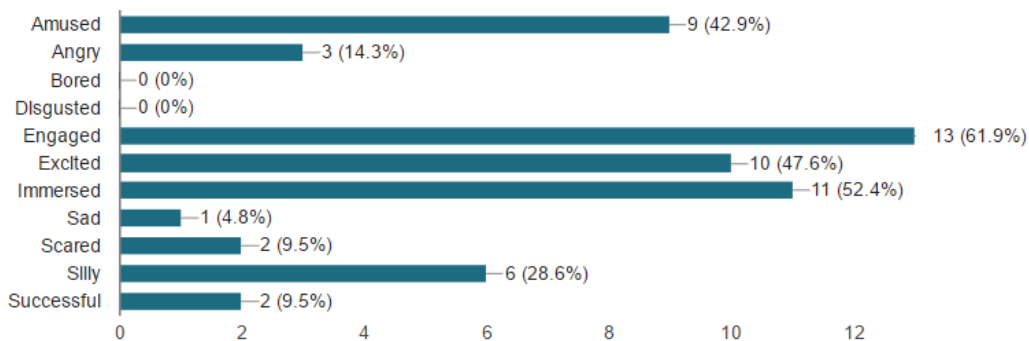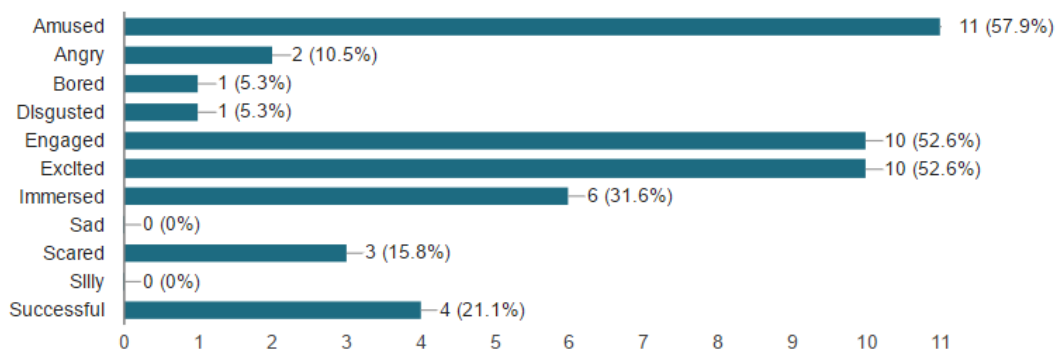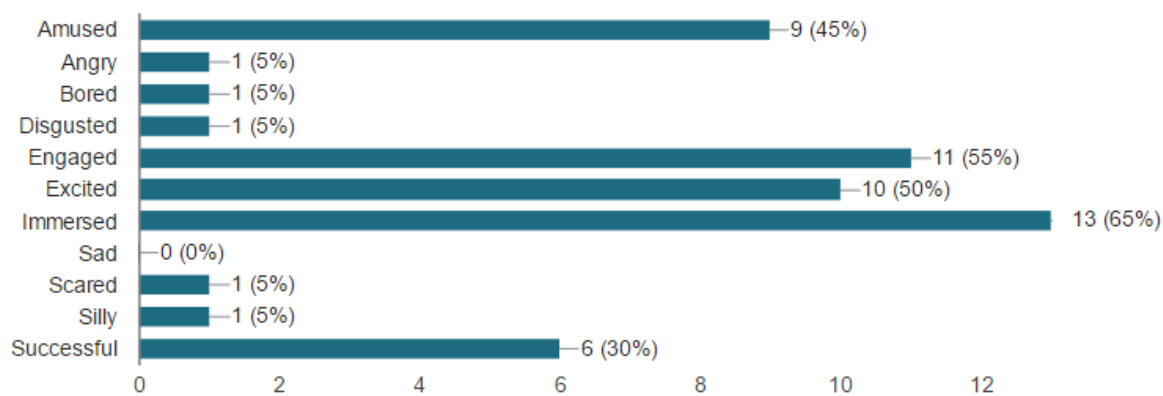
Level

1

Level 2

Level 3

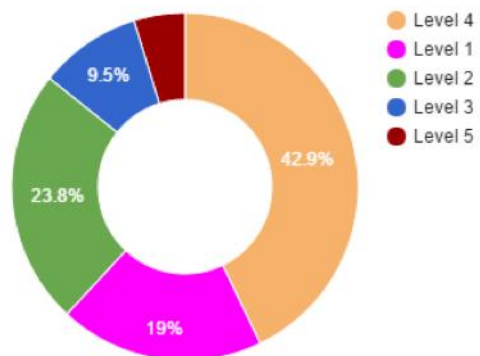Level 4

Emotion	Count	Percentage
Amused	11	(57.9%)
Angry	2	(10.5%)
Bored	1	(5.3%)
Disgusted	1	(5.3%)
Engaged	10	(52.6%)
Excited	10	(52.6%)
Immersed	6	(31.6%)
Sad	0	(0%)
Scared	3	(15.8%)
Silly	0	(0%)
Successful	4	(21.1%)

Level 5

Emotion	Count	Percentage
Amused	9	(45%)
Angry	1	(5%)
Bored	1	(5%)
Disgusted	1	(5%)
Engaged	11	(55%)
Excited	10	(50%)
Immersed	13	(65%)
Sad	0	(0%)
Scared	1	(5%)
Silly	1	(5%)
Successful	6	(30%)

Favorite level

Legend:
- Level 4 — 42.9%
- Level 1 — 19%
- Level 2 — 23.8%
- Level 3 — 9.5%
- Level 5

Least favorite level

Legend:
- Level 3 — 23.8%
- Level 2 — 9.5%
- Level 4 — 19%
- Level 1 — 38.1%
- Level 5 — 9.5%