

Non-Player Characters in Violent Video Games and the Impact on Social Behaviors

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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STS Research Paper

Introduction: Rise of Artificial Intelligence and Non-Player Characters Video Games

Over the last five decades, there has been exponential growth in advancing high-definition graphics to create virtual realities. The main component in creating virtual realities is Artificial Intelligence (AI). Artificial intelligence can create responsive, adaptive, and intelligent behavior decisions. These actions are used primarily on non-player characters (NPCs) to emulate human behavior. AI in video games originated in Pong in the 1970s and Pac-Man in the 80s. The AI was simple and based on patterns and deterministic actions. Entering the 21st century, nondeterministic AI became the focus of major gaming companies. Nondeterministic AI introduced inconsistent gameplay and adaptive behaviors creating new challenges for players who found deterministic AI fast, easy, and predictable. AI in gaming systems now provides a more lifelike experience. This experience includes NPCs reacting based on the player's actions and environments that emulate real cities. The gaming experience evolved from a small black-and-white screen to advanced virtual realities.

As AI became more prevalent in video games, various genres emerged. The violent genre included depictions of human-on-human violence in which a player kills or causes physical harm to another human. Violent video games started to gain popularity in the 1970s with 'Death Race.' 'Death Race' was a lo-fi black and white video game that caused controversy because of its sound effects when another character died, revealing a gravestone ("A Timeline of Video Game Controversies," n.d.). Despite much controversy, the violent game genre continued to expand. Mortal Kombat was the first video game to have more gory animations 1993. It was the first game to contain animated blood and cartoonish actions of ripping out spines. The new game became the focus of the 1993 Congressional Hearings. These hearings resulted in the formation

of the Entertainment Software Ratings Board (ESRB) (“A Timeline of Video Game Controversies,” n.d.). The ESRB provides consumers with information about the context of a video game, explicitly helping parents make informed decisions about video games (*ESRB Ratings / Entertainment Software Ratings Board*, n.d.).

In 1997 violent video games were under attack once again with a lawsuit. The lawsuit claimed that violent video games were responsible for the violence perpetrated by teens. This lawsuit came after the tragic High School shooting that resulted in 3 children's deaths. The perpetrator had been a regular consumer of violent video games like Doom and Resident Evil (“A Timeline of Video Game Controversies,” n.d.). Eventually, the courts decided to dismiss the lawsuit. One year later, Grand Theft Auto was released, depicting prostitutes, federal agents, drugs, and porn in the design. The NPCs depict the illegal sectors of society. In the decade to come, the number of violent video games in the market grew exponentially.

During the 2020 pandemic, the need for socialization increased. Outside entertainment and interactions were limited. Entertainment within one’s home became necessary and led to a 71% increase in the consumption of video games (Skwarczek, 2021). Interactive video games especially increased volume because of the immersive experience, entertainment, multiplayer options for socialization, difficult obstacles, strategic thinking, and relaxation (samdo, 2021).

The top interactive game styles in the violent genre include first-person shooter, fighting, and battle royale games. First-person shooter style (such as Call of Duty, Half-Life, SWAT, and Halo) revolves around guns and other combat weapons. The player experiences combat and other actions through the player's first-person perspective. The fighting game style (i.e., Capcom3, Mortal Combat, and Street Fighter) consists of a player battling another character controlled by another human player or a NPC. Battle royale games (i.e., Fortnite and Call of Duty: Warzone)

are multiplayer games that rely on survival and being the last man standing. This style of game often includes scavenging and exploration. First-person shooter, fighting, and battle royale games are among the video games that have increased in usage since the pandemic. Advanced NPCs, coupled with the rising over-exposure, has brought concerns about decreasing social interactions.

Problem Definition: Extensive Exposure to NPCs in Violent Video Games poses a threat to Social Behaviors

Non-player characters (NPCs) can exhibit a limited form of intelligence. This intelligence and interactive experiences draw players in and suspend their reality, allowing video gaming to become a vehicle for entertainment. Advanced NPCs give the human player a better opponent to compete against in the virtual reality game. The NPCs exhibit survival instincts and/or hunting capabilities to compete against the human player (Wodecki, 2021). The interactions between characters and human players brings many ethical concerns that could influence a human's social behavior. Most of the concerns are focused on interactions with violent video games and their behavioral influence on individuals. A growing body of evidence suggests that video games may harm the brain. For example, some studies include that players gain better sustained and selective attention, while others say that violent video games cause increased aggression and change in behavior (Anderson, 2001). Many reference the slight additivity of video games and the correlation to increased social isolation, maladaptive coping strategies, low self-esteem, and irritability (Braun et al., 2016).

From isolation, boredom can stem, creating a cycle of reverting to the comfort of a screen. This cycle concerns scholars because gaming is a leisure activity and encourages prolific use. The possibility of in-game behavior becoming more linked to external reality could distort an individual's perception or social acts. Many scholars argue that in-game aggressive behavior has shifted consumers' attitudes toward violence. Others argue that there are positive improvements in emotions and social relationships. Researchers cited improved special awareness and problem-solving skills, enhanced visual processing, increased socialization and teamwork, and stress relief (Wang & Wang, 2018). Some say that violent video games provide opportunities for children to explore the consequences of violent actions (ProCon.org, 2021). Thus, exploring how players interact with NPCs within violent video games and corresponding social behaviors in the real world is essential.

Age of Consumers posing negative side effects

With over 3 billion people playing all types of video games, the primary age group is 18-34, with under 18 being second. These two groups are relevant social groups because they most interface with this technology. The main differentiating factor is what specific games these social groups are playing. According to Andrew Przybylski in the Royal Society, aggressive games are marketed primarily to the 18-34 age group, making this the leading social segment (Przybylski & Weinstein, 2019). Games aimed at adults are also popular with younger users between 10 and 18.

Consumers under 18 years old are the most impressionable from this technology. Children interact with increasing amounts of virtual representations of physical objects and people. The main concerns for children under 18 are that their brain and body development is incomplete (Daughtry, n.d.). Studies find that children who engage excessively in mindless

violent gaming will have a much different brain and body (Daughtry, n.d.). Changes to the brain and body include brain plasticity (the brain's ability to change and adapt), cognitive functions (attention span or decision-making), eye strain, headaches, poor posture, and motor skills (Castro et al., 2016). The intensity of a high-paced violent action scenery game and extensive exposure brings more significant risk than other video game genres.

Problematic Themes within Violent Genre

Many of the themes within the genre of violent video games are harmful. The games use AI to project many derogatory visuals and actions through characters. Fady Ghattas and Lilia Reyes's Research "Positive and Negative Themes in Popular Video Games Based on Entertainment Software Review Board Ratings" studies whether the number of positive and negative themes in video games differ based on rating (Ghattas & Reyes, 2019). Ghattas and Reyes used the ESRB ratings to categorize content into positive or negative themes. Many of the negative themes selected were present in the ESRB description for Teens, Mature, and Adults Only 18+ ratings. Negative themes include the use of alcohol, use of drugs, use of tobacco, blood, and gore, physical violence, gun violence, sexual content, sexual humor, profanity, derogatory comments, and theft. Eleven negative themes combat nine positive themes.

Positive themes include promoting problem-solving, planning, and budgeting skills, socialization with computerized characters, leadership skills, team-based cooperation, perseverance, good sportsmanship, and management skills and help in increasing attention span (Ghattas & Reyes, 2019). The positive themes derived from more educational games and ESRB rating Everyone (E). If a theme appears in a video game, it could combat negative themes. Comparing the two opposing themes in individual games can analyze the impact of vicious content.

NPC Roles and Designs

Non-player characters portray different roles in designs and various storylines to help bring a game to life and make players feel more invested. Each role the characters performs signals a different trope and story for the human player. NPCs help advance storylines or game experience by providing exposition, context for the player's actions, advancing the plot, creating conflict, adding emotional depth, or providing companionship. NPCs have become a valuable tool for game developers to create engaging storylines and exemplifying themes (Schwerin, 2022).

Another detail is the appearance of the characters. In the most popular violent video games, animations mimic humans and the real world. Considering that the characters are taking on roles as enemies or a friend, the character's appearances are their identity in the game and how the player recognizes the enemy or friend (Peckham). If an enemy appears as a specific race, inherent bias could be impressed upon a player. It is also essential to look at the effects of visual design choices for various AI character roles.

Methods: Human action's influence NPC actions

Pinch and Bijker's Social Contract of Technology (SCOT) methodology advocates that human actions shape technology. Understanding the purpose of the technology is understanding how it is used in a social context. SCOT formalizes the steps and principle when analyzing positive and negative technological effects. The core concepts are split in to two stages. The first stage is interpretative flexibility. Interpretative flexibility is the understanding that each

technological artifact has individualized meaning and interpretations. The artifact could have multiple characteristics and effects in various groups. Interpretative flexibility includes analyzing relevant social groups, design flexibility and problems and conflicts to further understand positive and negative effects. Formulating relevant groups allows for diverging interpretations of the technology. Design flexibility explores the different ways of constructing the technology and purpose for a particular design. Problems and conflicts focus on the criteria that differ in different social groups. The second stage in the SCOT method is Closure. This stage assesses alternative designs and why they diminished and redefines the problem that the technology still faces.

Human Role in creation of NPCs

SCOT is formulated on the idea that human actions define technology. Artificial intelligence is evolving computers and machines to act more like a human. The technology purpose is to create environments and systems that can reason, learn, and act like basic human intelligence. Specifically violent video games are based on many real-world experiences. NPCs are designed to emulate a real player or person(Seemann & Bourg, n.d.). Human actions and thought processes are used to generate the NPCs. In combat video games NPCs act differently depending on their role. A NPC could display hunting skills or survival instincts similar to a human.

Creators of violent video games have been successful due to the understanding of the social groups they are aiming to satisfy. The most popular violent games in the industry right now are tailored towards adults 18-34 years old. Often rated M for mature and tailored to excite the age group with murder, killing, fighting, scavenging, survival, an alternative reality. Due to

their narrow focus group, the technology is regulated and developed on consumers within this category.

Content importance and impressionability

Content analysis study examines the number of positive and negative themes in popular video games. A rubric for scoring analyzed six of the most popular violent games, from the T for Teen and M for Mature ratings (Ghattas and Reyes). Representation of a positive or negative theme within gameplay videos available on YouTube or research added a point to the game's score.

Results: Extensive interaction with NPCs in Violent Video Games can change negatively affect Social Behaviors

Positive and Negative Themes within Popular Violent Games

Examining themes and actions by NPCs represents social actions that players are witnessing. Violent video games' negative themes outranked positive themes. Games such as Grand Theft Auto exhibited all the negative themes: use of alcohol, use of drugs, use of tobacco, blood, and gore, physical violence, gun violence, sexual content, sexual humor, profanity, derogatory comments, and theft (Throneful, 2014). In comparison, it only exhibited three out of the nine positive themes. In the famous first-person shooter game Call of Duty: Infinite Warfare, four positive themes (Promotes perseverance, time management skills, problem-solving, and team-based cooperation) and six negative themes (blood and gore, gun violence, physical violence, derogatory comments, profanity, and sexual content) were depicted throughout the game (ARKDAEMOS, 2022). Resident Evil 7: Biohazard contained four positive and negative

themes (Markiplier, 2017, p. 1). Grand Theft Auto, Call of Duty, and Resident Evil 7: Biohazard are rated M for Mature. There was an average of 5 negative and 3.5 positive themes.

T for Teen-rated violent games also exhibited both positive and negative themes. Overwatch, a first-person shooter, exhibited four positive and negative themes (Throneful, 2021a). In comparison, Destiny, a first-person shooter, had four positive and two negative themes (Throneful, 2021b). Injustice two was a teen-rated fighting game with one positive and six negative themes (theRadBrad, 2017).

NAME	RATING	GENRE	# POSITIVE THEMES	# NEGATIVE THEMES
GRAND THEFT AUTO 5	M	First-person Shooter	3	11
CALL OF DUTY: INFINITE WARFARE	M	First-person Shooter	4	6
RESIDENT EVIL 7: BIOHAZARD	M	First-person Shooter	4	4
OVERWATCH	T	First-person Shooter	4	4
DESTINY	T	First-person Shooter	4	2
INJUSTICE 2	T	Fighting	1	6

All six violent games exhibited at least two negative themes and a minimum of one positive. Most consumers are extensively witnessing these behaviors because they are present in Mature and Teen rated games. Extensively witnessing negative behavior can change a person's view. When excessively interacting with negative themes at a young age, many ideals and

impressions are imposed (Daughtry, n.d.). The negative actions are the social behaviors a child may exhibit in the real world.

Young exposure to violent video games comes with a greater risk

Younger age groups consuming fast-paced, violent video games for extended periods may exhibit greater adverse effects. Consumers' bodies are commonly sedentary when playing a video game and often remain sedentary for long periods. For the social group under 18, sitting for long periods of time engrossed in violent actions has caused nervous systems to respond in a "flight or fight" manner (Daughtry, n.d.). This nervous system reaction is due to the adrenaline release that violent video games provide. Long-term adrenaline stress can result in chronic adrenal fatigue. Young consumers can also experience brain damage. The frontal lobe in younger children is vulnerable because it is still developing. The frontal lobes are responsible for attention, memory, and impulse control (Daughtry, n.d.). When a child spends much time playing violent video games, one's frontal lobes are rarely required to operate due to mindless playing requirements.

The above adverse effects exhibit poor social relationships and behaviors. Children gain social skills from watching and interacting with people around them. Many social skills are missed when one spends more time interacting with non-players than real individuals (Daughtry, n.d.). The player is witnessing a virtual world that often demands survival or the killing of another player. Constant emergence in a virtual world can create great difficulty in dealing with demands and interactions in the real world.

Non-Player Character Appearances and racial stereotypes

A virtual character can appear as any race. Many video games contain racial bias, either intentionally or unintentionally. There are recurring patterns of Black and Latinx characters being stereotyped or completely absent within a video game. Some studies have found that certain video games may reinforce negative racial stereotypes or promote biased attitudes toward certain racial groups. For example, a study conducted by James Retana found that the popular game Grand Theft Auto V contained multiple instances of racial bias and stereotyping. Gaming critics criticized Grand Theft Auto V for its racial bias and stereotyping. The games' negative stereotypes of Black people and women promote violence against these groups exhibited by the NPCs. Some examples of this include the portrayal of Black characters as criminals and the use of derogatory language and slurs (Retana, 2019).

Grand Theft Auto V is not the only franchise criticized for perpetuating negative racial and gender stereotypes in their NPCs. Researchers and players have argued that other games reinforce harmful stereotypes of specific cultural groups. The Call of Duty franchise is one example and criticized for harmful stereotypes, like portraying Middle Eastern characters as terrorists and Russian soldiers as ruthless and villainous (Akbar). Call of Duty's portrayal of women in a sexualized way within the game enforces a narrative of how to perceive women. The reinforcement of social stereotypes continues to influence and create bias among players. If a Middle Eastern character is always the enemy NPC, a player could treat those people differently in the real world.

However, it is essential to note that not all video games perpetuate harmful stereotypes or biases. Some games display positive representations of diverse characters and cultures. For example, "The Last of Us Part II" has been applauded for its thoughtful and nuanced portrayals

of NPCs from marginalized communities ("Last of Us Part 2"). Overall, game developers and players alike need to be aware of the potential for racial bias in video games and to actively work towards creating a more inclusive and equitable gaming community.

Conclusion:

Despite the elevated experience that NPCs brings to players, violent video games have the potential to affect social behaviors. It is important to consider that excessive exposure to violent virtual realities, affects various social groups differently. While many adult users are normally not as affected, children are more likely to have negative side effects. NPCs are designed to enhance a storyline by exhibiting roles such as enemies, teammates, or informational character. The appearances of these characters and the tropes that are relayed to the player can have an impact on how players perceive them. This perception can create biases towards other social groups and races. NPCs can also perpetuate racial stereotype or biases, particularly towards Black and Latinx communities. Extensive use and promotion of these storylines can potentially change a player's opinions socially. Overall, it is important for game developers and players alike to be aware of the potential negative impacts of violent video games and to work towards creating a more inclusive and equitable gaming community.

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