12-2023

Impactful Interactivity within Video Games

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IMPACTFUL INTERACTIVITY WITHIN VIDEO GAMES

by

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Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Arts in Game Design
at
Lindenwood University

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in Partial Fulfillment of the Requirements for the
Degree of Master of Arts
at
Lindenwood University

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December 2023

ABSTRACT

Title of Thesis: Impactful Interactivity within Video Games

Luke Maeser, Master of Arts, 2023

Thesis Directed by: Jerimiah Ratican, Professor, Game Design

Despite half a century of existence and dedicated academic programs educating next generations of game developers, conclusive evidence does not exist as to if video games are beneficial to learning or costly. Examining the notion of benefit versus cost, it is important to assess the value of video games when leveraged as tools for learning as traditional educational methodologies are not infallible. This paper explores how video games can generate psychological responses; and therefore, one must conclude learning has occurred. The following is encompassed: meaningful interactivity within video games (regarding narrative and gameplay), video games as educational tools, video game development (including design), and possible emotional and psychological effects associated with their use. Through researching viewpoints from multiple disciplines, the capacity for video games to impact players in significant ways is analyzed—informing the design of the video game project *Al+One*. As new educational mediums become available, they should be embraced if they can benefit learning. Video games having unique value to other artistic mediums and learning methods is asserted.

     Keywords: digital humanities, educational tool, immersive experience, impactful interactivity, psychological response

Dedication

To my loved ones.

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Introduction

Devoid of real-world hazards, video games are an art form with capacity to evoke emotional and psychological responses through interactivity, fostering learning. By utilizing articles analyzing video games and educational systems in tandem with articles on game design and narrative within video games, the educational ability of video games and effects possible through their interactivity is explored. Although not always deeply provocative, video games can be educational tools capable of psychological impact, providing interactive narrative, problem-solving opportunities, and exposure to life's challenges.

Highlighting the artistic and educational significance of video games, this paper reinforces the stance they are more than casual social activities and should be taken seriously. This paper also seeks to demonstrate potential practical application of findings through the video game project *Al+One*, leveraging game design knowledge in conjunction with peer-reviewed academic resources. Game-induced emotions and psychological responses such as guilt lose potency without choice. Considerable player involvement is essential to player-character action promoting feelings of responsibility—effectively educating.

Literature Review

Beginning with a comprehensive examination of the industry's growth in the 1980s, Kevin Brooker (2013) analyzes various facets of video game development and the process of becoming a video game designer in "Making the Best Quest List." Seeking to provide an enlightened (albeit brief) history lesson of the video game medium, Brooker reflects on the immense cost (financially and in terms of labor) to develop video games. Further, during the medium's adolescence, video game designers held various educations not specific to game design, such as film animation. However, video games are no longer merely an arcade activity for adolescents, but a high revenue-generating industry with dedicated academic programs serving to educate the next generation of game developers.

Focusing on education, Brooker (2013) discusses the programs and skills now required for access and success in the field. An understanding of art, mathematics, and technology, now cornerstones of video game design. According to Avrim Katzman, Coordinator of Game Design at Sheridan College, in Oakville, Canada, "Students in game design often think it's all fun, and soon begin to realize it's fun having fun, but making fun is hard work. It can be tedious" (Brooker, 2013, p. 28). Video game development is a laborious career requiring vast amounts of time and energy. Regardless of any stigmatization, the effort required warrants appreciation as a serious artistic and technical accomplishment.

Despite controversy existing since its inception, there is another source of evidence supporting video games being considered forms of art with beneficial qualities. In the article "Game On! Teaching Video Game Studies in the Arts Classroom," Stephanie Veronica Martyniuk (2018) addresses the notion of video games benefiting or harming a player and their status as a form of art. Intrigued by this 40-year-old debate, Martyniuk endeavors to definitively

prove video games are forms of art with educational value. However, their intentions do not exclusively pertain to ending the debate as they speculate there is a bigger question at stake. As Martyniuk (2018) argues, the question of video games being an art form with potential to educate is irrelevant. Their existence is validation. The real question is how they can best be leveraged as tools for learning.

Reflecting on other technological mediums intertwined with modern society (such as cellular phones and laptops), Martyniuk (2018) highlights the inevitability of video games reaching a similar status if not already achieved. In light of mass acceptance, Martyniuk concludes the contested status of video games is an antiquated notion hindering learning and must evolve. Referring to a quote by Dr. Kerry Freedman (1997), a professor of art and design education, "Are we not, as art educators, responsible for teaching all aspects of technology?" (p. 11). In parting, Martyniuk (2018) directs these words to educators, proclaiming an educators' mission is to provide students a modern education and embrace the evolving landscape of technology. With the appropriate facilitation of a teacher, a student could navigate a video game academically, extracting knowledge both consciously and unconsciously. For example, scholar Ryan Patton (2015) highlights: over the last 40 years, games of various forms (such as memory games) have been employed in education.

Illustrating how video games may be integrated within education, Jonathan Kinkley (2009) reviews evaluations of computer-assisted art history curriculums relative to those lecture-based at the University level. According to the editorial board of *Art Journal* (citing research from the National Training Lab in Bethel, Maine), commonly practiced "lecture method of teaching produces the lowest learner retention rate" (Art history survey, 2005, p. 36). In the digital age, various teaching methods are becoming antiquated. Students are intimately familiar

with navigating technology, finding manual reading a lesser learning method. Enter interactive technology as a tool for learning, a tool with proven success inside undergraduate art history programs (Cason, 1998).

Exploring the relationship of games as tools for learning, Jason Cox (2014) looks to role-playing games (RPGs) to ascertain educational merit. Leveraging personal experience, Cox explores both a traditional academic setting, as well as curriculums within art education, to understand potential educational application of games. While not all games are virtual, concepts employed within them are largely the same. Regarding RPGs, whether virtual or non-virtual, a player or group of players assume a role within an imaginary world confined by a defined framework of rules. Virtual games—synonymous with video games—allow expansion upon the imaginary aspect of non-virtual RPGs, providing visualization with 3D virtual environments and further opportunities for social interaction. Independent of medium, RPGs are unpredictable. Their existence is shaped by human involvement, providing new and endless opportunities. In addition to entertainment, RPGs allow for examination of a state of being and expression of opinions related to the real world—all within a safe imagined environment.

As in other art forms, RPGs evoke emotions and encourage self-analysis in a uniquely visceral manner. Cox (2014) highlights the value of games and their impact on players, addressing how RPGs blur reality from fiction and assist in the development of empathy for others. The notion of recognizing the educational value of video games is not exclusive to Cox's work as, similar to his analysis, Teachers College, Columbia University (n.d.) is actively researching the educational potential of games. Cox's (2014) article demonstrates how video games function as tools for learning, providing new and unique educational opportunities.

Even games designed without intention to foster learning have learning potential. In the article "Gamifying Reality: How Should History Intersect with Fantasy," author Marko Suvajdzic (2016) effectively communicates the concept of video games being a highly efficient method of stimulating learning, regardless if designed to do so. Assessing the state of video game research (the majority of which focuses on video games designed to promote and support learning) and looking to other video games for evidence, Suvajdzic pursues games not explicitly designed with the intention of teaching to assess educational merit. Suvajdzic makes an important conclusion: even games not primarily designed for learning have value as indirect teachers, capable of providing education throughout their gameplay in mindful and unintentional ways. A difference between intentional and unintentional learning is what the player learns and how they process and store this information. Although video games are a relatively new form of games, games have been a source of entertainment and learning for thousands of years. As a more sophisticated form of games, video games can amplify these abilities.

In addition to educational merit, Marissa D. Willis (2019) explores the notion video games are unique and notable forms of interactive fiction in the article "Choose Your Own Adventure: Examining the Fictional Content of Video Games as Interactive Fictions." In this article, Willis argues against an influential model of fictional truth established by Kendall Walton, arguing the model doesn't account for all fictional truth present in video games. Walton (1990) defines all "representations," even portrait paintings, as fiction (p. 3). Willis (2019) disagrees with this broad approach, taking into account inherent philosophical obstacles existing within fictional truths present in video games. The author first defines fictional truth as facts about fictional media. For example, Detective Sherlock Holmes lives at 221B Baker Street, London, but in reality, he cannot be found there as his existence is fictional. Using this definition

as a framework, the author creates new vocabulary arguing video games contain two different types of fictional truths: playthrough and video game-truths. The former relates to truths specific to a given playthrough. These truths may be absent in another player's playthrough, as they are not truths of the game itself. An example of a playthrough-truth for a video game where the player controls an acrobat; preoccupied with another task, player left the game active and acrobat player-character stood motionless for a period of time. However, another player may complete the game without hiatus resulting in acrobat player-character never standing still for any significant duration. The latter type of fictional truth refers to truths present in the game itself, as they are fictionally true in every possible playthrough of the game. In the fictitious example, a video game-truth is player-character is an acrobat.

Despite disagreement from Martin Ricksand on the distinction between playthrough and video game-truth, Willis (2020) is resolute in their vocabulary. Ricksand suggests a distinction of fictional truths is incorrect. Willis wonders if Ricksand fully appreciated their distinction as much of their argument was disregarded. To illustrate their point, Willis refers to players failing a video game level and watching their characters die on screen before being sent back in the level to try again. Although the game truth may be the player-character is alive at the end of the game, a playthrough-truth (in the aforementioned example) is player-character died before game ended.

Tuen Dubbelman (2011) discusses video games as a form of narrative media with unique capabilities in their article "Playing the Hero: How Games Take the Concept of Storytelling from Representation to Presentation." Dubbelman explores the limits of a structuralist approach to understanding narrative, theorizing it as an analogical or literal depiction of real or fictitious events. Their argument: The approach doesn't apply to all games and a more comprehensive

approach is required for comprehension. To clarify the concept of narrative for video games with prior academic analysis, they propose two conceptualizations: presentological and representological. The former refers to story events occurring in the present; the latter describes a narrative in which past story events are communicated. A key difference stems from their relation to a specific narrative format. Regarding the broader notion of branching narrative, Graham A. Wilson (2020), lecturer in computing at Moray College UHI, researches the concept of a branching narrative within software development fleshing out possible opportunities through the digital medium. In their article "The Use of Using Digital Tools in Developing Branching Narrative," Wilson seeks to increase the employment opportunities of creative writing students by researching and demonstrating how the concept of a branching narrative can effectively be developed through digital tools.

Exploring camera perspective and its significance within video games, Adam Charles Hart (2019) reflects on Alexander Galloway's research on the subjective camera shot in "The Searching Camera: First-Person Shooters, Found-Footage Horror Films, and the Documentary Tradition." Galloway establishes a clear distinction between the subjective and point-of-view (POV) shot in their analysis. Combining the camera with a character's eyes, the subjective differs from an abstract POV shot as the latter reveals an approximation of what a character sees (Willemen, 1994). Subjective shots are positioned within the skull of a character and designed to mimic sight, complete with interruptions such as blinking and blurred vision. Concerning a POV shot, or first-person camera, Hart (2019) expands on Galloway's research discussing the specific type of game design called the first-person shooter (FPS). In an FPS game, player action and field of view are synergized. Hart argues, to keep the player on edge, a video game typically features FPS design. The player is unaware of what is outside of their field of view, forcing them

to engage often with the camera and monitor their surroundings. An FPS game seeks to create vulnerability within the player as their view of the world is from their character's perspective. The player projects themselves onto the character. The vision of the character becomes an extension of their own.

In "What's My Motivation? Video Games and Interpretative Performance," Grant Tavinor (2017) investigates the concept of player-character motive within video games—relative to narrative and player interpretation. Tavinor seeks to understand the relationship between the imagination of a video game player and decisions made within a video game's narrative. As game design varies across video games, the author concludes only general rules can be derived for how the motivations of a player manifest. For instance, some games prioritize identities of their fictional characters within the narrative. The result evokes player interpretation in the third-person perspective as players make judgments based on how they perceive a narrative's in-game character. However, other games may feature characters with little to no distinctive qualities—prompting player to interpret narrative through the first-person perspective. The player imbues player-character with personality through their in-game playthrough-decisions.

The author (Tavinor, 2017) introduces the game design variation where gameplay produces player motivation. Games referenced include *Uncharted: Drake's Fortune* which features levels where player must kill mass amounts of non-playable characters (NPCs) to progress from one level to the next (Naughty Dog, 2007). Tavinor uses the game to discuss the concept of "ludonarrative dissonance" (Hocking, 2007), describing the problem of inconsistency between a game's narrative and gameplay in which *Uncharted: Drake's Fortune*'s narrative does not feature significant reflection on player-character violence. While the protagonist only kills in self-defense after being attacked—unless the player initiates conflict altering the fictional

playthrough-truth—unchangeable narrative events largely ignoring the killings indicate absence of significant player-choice. An example of video game-truth, limiting potential feelings of responsibility.

Morgan Luck (2009) concludes no real harm could occur from video game play as all game actions are virtual. Supporting Luck's conclusion, in the article "Roles Games can Play," game designer and academic Prayas Abhinav (2021) draws on twelve years of experience with the video game medium to illustrate its impact on players. While discussing the principles that make playful process-driven video games, Abhinav addresses how real-life situations can be encapsulated within them. This allows players to be educated with reduced stakes. For instance, within video games designed around warfare, it's possible for player to gain an appreciation for what it means to be a soldier in combat without physical risk. The player can be virtually exposed to the dangers of combat and moral ambiguity of a warzone in a civilian area without involvement of actual human life. Craig Bourne and Emily Caddick Bourne (2019) agree with Luck (2009), concluding player interactions within a game do not generate fictional truths of player actions. Furthermore, games may feature acts such as virtual murder not to corrupt players but, rather, encourage reflection on equivalent real-world acts.

Applying psychoanalysis to identify psychological ramifications of video games, no conclusive evidence exists of either negative or positive impact on players (Ferguson & Kilburn, 2009). In the article "Players, Characters, and the Gamer's Dilemma," Craig Bourne and Emily Caddick Bourne (2019) explore the concept of committing murder and other ethically wrong acts within the confines of a video game. Building on Morgan Luck's (2009) "Gamer's Dilemma," they develop an approach ascertaining if similarities exist between committing ethically wrong acts outside of video games. The article provides insight into the ethical nature of video games

and their psychological ramifications, arguing the following: Ethically questionable acts committed within video games must be understood within the fiction-making resources accessible to video game players.

In Tobi Smethurst's (2017) case study on the video game *Spec Ops: The Line* by Yager Development (2012), Smethurst goes beyond recognizing video games as art and a viable form of storytelling; emphasizing their unique ability to encourage introspection through interactivity. Smethurst demonstrates how *Spec Ops: The Line* employs its narrative and mechanics not only to tell a story, but to immerse players in moral dilemmas intensified by control over in-game action. The interactivity is pivotal—transforming the game from a passive narrative to an active experience capable of compelling player to grapple with the moral weight of in-game playthrough-decisions. A transformation diminished within less interactive mediums such as film.

The game provokes an identity crisis, encouraging player to contemplate morality within the game's narrative (Yager Development, 2012). Smethurst (2017) argues the game challenges conventional narratives that prioritize victims' experiences—manipulating players into a sense of complicity with the narrative's atrocities, often unknowingly. The game is deceptive. Smethurst contends the player becomes morally entangled in the crimes of protagonist player-character Captain Walker through their continued participation. However, it is important to ponder this assertion in light of the constrained sequences presented by the game's design, and the nature of video games as a whole (Evens, 2011). In *Spec Ops: The Line,* the player rarely has significant freedom within the game as they are largely forced to adhere to its design and narrative. Further, in-game player actions generate fictional truths regarding the player-character, they cannot

generate these fictional truths for the player (Bourne & Caddick Bourne, 2019; Evens, 2011; Luck, 2009).

Players of video games do not share responsibility for fictional game events, regardless of player in-game action or motive for engaging. It's fiction. Equating responsibility for player-character action onto the player would be comparable to suggesting readers of a book are culpable for crimes within it. While video games are interactive reacting to player input unlike traditional literature, each medium is bound by their creator's design. Thus, player autonomy along with their relationship with player-character action is diminished. However, when a game event occurs due to the player's in-game choice, a sense of responsibility is possible. Although *Spec Ops: The Line* encourages self-reflection, its muddled by in-game moments where player choice is absent. The player may initiate actions through the protagonist, but most of them are unavoidable within the game—an example of Willis' video game-truth (2019). It is akin to a book's narrative being fixed.

Successful incorporation of meaningful interactivity—fostering self-reflection and emotions such as feelings of guilt within the player—exist if player has choice and is capable of avoiding the horrific acts possible in the game without ceasing play. Smethurst (2017) aims to illustrate the player's implication through the game's white-phosphorus scene, "Walker is accountable for the massacre of the civilians and, because they were in control of Walker as he directed the mortar shells, so too are players" (p. 212). The scene in question features player-character Captain Walker pinned down by heavy fire. Previously, Captain Walker states his resentment toward using a weapon like white-phosphorous as he, and by extension, the player, saw how devastating it is. However, in this scene, the player is presented an illusory choice. They are incapable of not using the white-phosphorus weapon. To progress, if the player

attempts to run away or kill those shooting at player-character in self-defense without using white-phosphorus, they are unable.

Unlike the player-character's weapon arsenal, the amount of non-playable assailants is unending. The only way to advance through the game is to follow narrative's lead and commit a war crime as it is revealed the weapon not only eliminates attackers but innocent people nearby (including a mother with her young child). While the scene is profound as a horrendous amount of tragedy occurs in a flash, its design undercuts the potential for feelings of responsibility. Players are placed in a situation where choice does not exist, the use of the white-phosphorus weapon—a video game-truth. The involvement of restricted game design nullifies potential for narrative-induced feelings of guilt.

While *Spec Ops: The Line* questions morality and player complicity, distinguishing between narrative-driven action and player choice is critical. Instances of game design employing meaningful player choice with potential to encourage moral introspection and feelings of responsibility include: scenarios such as the player choosing to commit a war crime on their own. For example, when the player stands in front of a crowd of citizens protesting player-character's involvement in the affairs of their city. Fearing for their lives and mourning fallen citizens, the crowd killed one of the player-character's companions. The player is given the choice to kill all of them out of revenge for the player-character's companion, or spare them and move on. Leveraging aforementioned academic resources and building off instances of psychologically effective game design, the project *AI+One* encapsulates narrative-defining moments into binary choices within a dynamic game experience. Thus, providing options with consequences designed to stimulate learning through psychological response. While player-character action does not generate fictional truth of the player, *AI+One* aims to demonstrate

game design featuring in-game choice capable of generating feelings of responsibility within the

player.

Methodology

The project *Al+One* seeks to provide meaningful interactivity with narrative-defining possibility, leveraging the methodological approach psychoanalysis to accomplish the following goals: Identify and implement choices critical to narrative by embracing limitations inherent to video games; foster psychological responses achieving learning through a sense of attachment to player-character action. The tools utilized to produce project: 3ds Max, Blender, Substance 3D Painter, Unreal Engine 5, and ZBrush. The gameplay mechanics of *Al+One* are created through Unreal Engine's Blueprints Visual Scripting system with aspects of the project built through C++. Gameplay mechanics within *Al+One* strive to provide significant interactivity, namely player action affecting player-character emotion with gameplay effects. Attempting to promote non-frivolous player behavior as all player in-game action has effects within the game, *Al+One* features a realistic art style. In an effort to enhance the connection between the child player-character and player, the player-character's distinguishing features are concealed and their distinctive qualities are incidental (allowing opportunity for player to be immersed as they can imbue player-character with aspects of their identity). Player action affects player-character emotions, gameplay, and narrative, creating a transformable game experience aspiring to provide educational value applicable to the non-virtual world.

Through the perspective of a young child, player action defines the game experience such as choosing whether to protect a small, defenseless robot NPC capable of comforting the player-character. The game environment is surreal: a dangerous, frozen world paired with atmospheric sounds that establish a foreboding tone. The player must nurture the player-character's emotional state to avoid detection while eluding nightmarish danger. Attempting to heighten player-character connection to player, their vision and the game's third person camera (positioned

behind player-character) are linked (comparable to a first-person camera). Matching realistic vision restrictions, the camera is incapable of looking at the player-character's face. The camera also features natural rotation constraints—the player-character will turn-in-place adjusting accordingly when looking too far to a given side. The camera's functionality is designed to subconsciously enforce the idea of synergy with player-character vision. The concept of player in-game interaction not generating fictional truth of player action is personified by the game's camera. While the player can look behind the player-character by turning player-character around, only the player-character turns in place—not the player. Additionally, the camera allows player-character body language to non-verbally communicate current condition to player.

In "The Logic of Digital Gaming," Aden Evens (2011) analyzes the appearance and behavior of video games illustrating effects on players. Specifically, they demonstrate the idea video games purposefully heighten contrast between the virtual and physical world. As video games are programmed by game designers, all elements of a video game's virtual world require explicit human involvement to exist. Due to this convention, real-world results are not guaranteed when a player applies real-world logic. In-game object behaviors and player actions are possible because a game designer put them in the game. Utilizing object-oriented programming (OOP) in this endeavor, game designers link appearance and behavior around a common set of data expediting game development.

Due to the nature of video game design, players must discover the possibilities of a video game's world to learn. Through exposure to a game's algorithmic logic, the player shapes their method of play accordingly. Evens (2011) expands on this notion explicitly stating a video game's design is conceptualized and deliberate. A challenge with designing a video game is constructing a world where appearances and behaviors are intuitive enough to avoid player

frustration. However, intuitive game mechanics do not explicitly translate to representations of reality—the amount of choice within a game is constricted by design. Game designers work to construct immersive worlds with elements authentic to the holistic experience of a video game, but players will always be restricted by the choices game designers allow, affecting the connection between the player and player-character. According to Evens, a reason game designers include mass amounts of violence in their games is to emphasize distinction between the game world and reality. Further, games often contain their own version of physics authentic to their virtual world's mechanics, inviting players not to approach the game world with preconceived notions of what's possible.

Deviating from the game design tenet of prioritizing a disconnection from the non-virtual world, the framework of *Al+One* aspires for the player to employ morals and logic used in reality. The goal of the game mechanics in *Al+One* is to instill feelings of responsibility within the player for player-character action by offering significant control. While the virtual world of *Al+One* contains fictional elements such as monsters and a conscious robot, *Al+One* attempts to promote principals prevalent within the non-virtual world through universal scenarios such as caring for the vulnerable. *Al+One* explores the concept of accountability: If the player abandons the innocent and defenseless robot, the game experience shifts endeavoring to subconsciously deepen the connection between player and player-character, enforcing causation.

Production

Through applying the methodology psychoanalysis while leveraging relevant academic resources, *Al+One* implements game design strategies intended to provide: significant control of the player-character, and learning opportunities within an immersive experience. With the connection between player and player-character placed at the forefront of the development of *Al+One*, even subtle player choices can alter gameplay mechanics—shifting the game experience. For example, the player-character emotional state mechanic (encompassing player-character fear and happiness) reacts to player action and influences player-character functionality. Player-character fear increases when the enemy is nearby or visible, eventually resulting in fast panicked player-character breathing animation and sounds. With the potential of alerting the blind monster actively roaming inside *Al+One*, elevated player-character fear has dangerous consequences. Opposite to the player-character's fear system, happiness produced from player-character humming or contact (physical and visual) with the robot is capable of decreasing fear.

The player-character's breathing functions as a game mechanic within *Al+One* in addition to contributing to soundscape. The volume of player-character breathing impacts their detectability and is reflective of player action. When the player-character exerts themselves either by sprinting for an extended duration or jumping repeatedly, stamina is drained and breathing turns frantic as they become incapable of humming until stamina and breath recover. Another factor capable of elevating player-character breathing is the player-character becoming afraid. As the camera reflects the player-character's vision, player-character fear rises when elements intended to evoke fear within player are visible, similar to how witnessing conventionally frightening scenarios in the non-virtual world is liable to produce fear. Plausible

player reactions generated by *Al+One* are emulated within player-character affecting the game experience.

Another aspect of the soundscape of *Al+One* is dynamically changing footstep noise immersing the player into the virtual world. Sound effects and their respective volume is determined by character movement and surroundings, with level of pitch randomized between a specific range for variation. Footstep sounds are triggered when a character's feet touch the ground while moving, and a single footstep sound is produced to accompany player-character movement if brief player input occurs. Upright movement produces sounds at a normal volume, jumping and sprinting produce the loudest sounds, and crouched movement produces the quietest sounds. With a monster enemy drawn by noise, the player must be conscientious of player-character movement.

Additionally, player behavior impacts the robot's relationship with the player-character such as whether they choose to hold the robot's hand. When the robot views the player-character as their friend, their primary interest is following them. As a result, a high friendship level allows player to explore in-game temporarily without player-character holding the robot's hand to prevent them from getting into trouble. In contrast, a low-friendship level means the robot wanders if the player-character isn't holding their hand as they're curious about the world around them. However, the robot only explores a limited distance away from the player-character in an effort to prevent care for the robot becoming a burden. If the friendship level is low but the player decides to travel in-game with the robot (and if the robot isn't near or destroyed), player can search close by player-character to find them.

Expanding on the holding hand mechanic, when player-character is holding the robot's hand, player can signal to the robot to switch sides and hold player-character's other hand.

Further, the robot notices whether the player waits for them to transition to the player-character's other side. If the robot is in the process of switching to hold the player-character's other hand yet player is impatient and begins moving the player-character, their friendship with the player-character will be negatively affected. Suggesting robot is capable of thought, they will not switch to hold the player-character's other hand if obstructed. To reinforce each player in-game action having consequence: When the player initiates holding hands with the robot, robot will continue holding the player-character's hand until either player stops holding their hand or a scenario occurs disconnecting them (i.e. the player-character walking against a wall with no space for robot to continue holding the now blocked player-character's hand). If one of these scenarios occurs and robot has a high enough friendship with the player-character, robot will attempt resuming holding hands with player-character's same hand or the opposite hand if obstructed.

While interaction with the robot NPC is optional, traveling together is a powerful strategy to combat player-character fear. Close proximity to the robot increases player-character happiness, assisting management of player-character fear. Although the player is capable of increasing player-character happiness independent of the robot through the player-character humming, this method produces noise and is risky. Despite moving with the robot also increasing risk of detection due to robot footsteps adding to sound created by player-character footsteps, this option is strong as player-character fear can decrease silently when stationary. Another aspect regarding guiding and protecting the robot: If player either ignores the robot or robot is destroyed, the ending of the game will reflect their actions, with the goal of educating player about responsibility.

Elevating the interactive game experience further, *Al+One* contains an intricately designed responsive movement system paired with immersive animation. Equipped with 8-

directional movement upright or crouched, the intention is for the player to be capable of navigating the virtual environment of *Al+One* with a high degree of control. Creating an additional layer of depth to movement, multiple jump states are utilized each with unique animation. Whether executing a stationary jump, propelling forward in a moving jump, or in a free fall state, player-character animation smoothly transitions based on player input and player-character interaction with surroundings. The player-character can also jump out of a crouching position to achieve a jump higher-than-normal as they wound up and generated energy. Adding to player-character platforming capability, this feature increases level verticality potential. Attempting to incentivize the player to master movement, hidden locations exist throughout the game accessible with skilled platforming. Delving deeper into jumping abilities, *Al+One* has a skip mechanic triggered from adeptly timed moving jumps enhancing interactivity while suggesting player-character youthfulness.

Conclusion

Mechanics implemented within *Al+One* seek to demonstrate a malleable game experience meaningfully shaped by player choice, providing immersivity with lessons applicable to the non-virtual world. *Al+One* attempts to place feelings of responsibility onto the player through changeable narrative and gameplay mechanics, elevating connection between player and player-character while demonstrating video game viability as a tool for education. Each action conducted by the player has an effect, including the subject of their vision through the game's camera system, demonstrated with player-character's emotional state mechanic. By establishing a meaningful connection between player choice and events within a game, *Al+One* aims to produce effective emotional and psychological responses—creating a learning opportunity.

While scale of narrative and gameplay features within *Al+One* are limited by the project's timeline, depth was prioritized in an endeavor to accomplish identified objectives: offer significant player choice with narrative defining implications, and generate psychological reactions to educate the player through emotional attachment to player-character action. Employing both implicit and explicit narrative elements within *Al+One*, the player is capable of gaining insight into events regarding the world in which player-character resides. Although not required to complete *Al+One* or experience player instigated narrative consequences, curiosity is rewarded with context as player exploration further illuminates plot background information. Concerning gameplay, mechanics within *Al+One* offer various levels of complexity. Reaching an ending without mastering gameplay mechanics such as managing player-character emotion or movement is possible; however, experimentation and practice have potential to enrich the player's experience. *Al+One* strives to offer a personalized and thrilling escapade with narrative and gameplay intricacy contingent on player-choice.

Each aspect of *Al+One* is designed with the purpose of strengthening connection between the player and player-character, immersing them in the game. Attempting to mitigate the disconnection between the player and game experience, diegetic (existing within the game world) user interface (UI) elements are incorporated to communicate important game information. By altering breathing speed and sound to convey the player-character's emotional state, *Al+One* aspires to allow player to become engrossed in gameplay while understanding current player condition. The game's mission is to make the player feel accountable for in-game action as player choice is impactful. When events occur designed to evoke emotional and psychological responses in the player such as feelings of remorse, their genesis is rooted in player action. For instance, whether the robot considers the player-character a friend or if they're destroyed, the game seeks to make the player feel responsible. They dictate the outcome of such events through their in-game choices.

Functioning as a tool intended to psychologically impact and educate the player, *Al+One* incorporates game design strategies devised to prioritize the educational potential possible through video game interactivity. In-game consequences from player action affects player reactions. Reducing or eliminating a player's ability to shape a game's experience diminishes player emotional attachment to game events. While emotional responses are possible regardless of meaningful player choice, feelings of liability within the player may be eliminated without them. Video games have the unique capacity to immerse players into interactive virtual worlds, offering experiences and knowledge otherwise unknown.

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