THE REPRESENTATION OF ALZHEIMER'S IN SERIOUS GAMES INNER ASHES VIDEO GAME CASE STUDY

GUILLERMO PAREDES-OTERO

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Abstract

ideo games is a means of communication with implicit messages that reach millions of users. Mentally ill people are usually represented as violent, out of touch with reality, and often the subject of prejudice. However, there is a branch known as serious games that seeks to raise awareness of mental illness. Our objective is to study how Alzheimer's is represented in the Spanish video game *Inner Ashes* (Calathea Studios 2023), and consider the potential of serious games to raise awareness about this mental illness using a ludic-narrative analysis. The results show that narra-

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tive factors, such as characters and settings, and video game factors such as mechanics, depict the evolution of this mental condition, and players learn how to react due to the informational component. In conclusion, Inner Ashes is an example of serious games capable of educating about Alzheimer's by moving away from stereotypes and sensationalism.

Keywords

Alzheimer's, mental illness, serious games, video games.

Introduction

Mental illness is a social problem that, in 2019, affected one eighth of the world's population, a number that increased as a result of the Covid-19 pandemic (OMS 2022). Months before the pandemic lockdowns, patients with some type of dementia (including Alzheimer's) amounted to 55 million, a number that is projected to increase to 139 million by 2050 (Alzheimer's Disease International 2022).

Aside from experiencing the symptoms of mental illness, patients suffer social and occupational discrimination, including prejudice, such as being described as violent, annoying, and with whom one cannot live or work (García et al. 2023). These situations and opinions could be alleviated by making mental illness more visible, and normalizing it with awareness campaigns through the media (p. 150), including video games.

Interactive leisure stopped being merely a recreational activity decades ago and has become a tool used in all areas of society (Muriel & Crawford 2023). The purpose of these games transcends fun, and are known as serious games, a term coined by Abt (1970) to reflect their educational component (traditional in this case). Video games have the ability to influence individuals to the point of being able to build a better society (Barrecheguren 2021).

Serious games can be found in the healthcare field. These include video games able to improve health outcomes, train professionals,

and provide education related to physical and mental ailments (Quintana & García 2017). Previous studies have highlighted the potential of interactive leisure to improve the cognitive capacity of people with dementia (Ayenigbara 2022), and to be an effective tool to stimulate mental activity, and prevent this degenerative disease (Niederstrasser et al. 2016).

In this work, we focus on the potential of video games to perpetuate or eliminate stereotypes. The main objective is to verify how Alzheimer's is represented in video games, and complete a case study focused on *Inner Ashes* (Calathea Game Studio 2023). As a secondary objective, the tools used to raise awareness of this mental illness are analyzed. We start from the hypothesis that, contrary to what is usual in video games, Inner Ashes moves away from aspects such as violence and the threat posed by the patient, and is a good example of the potential of serious games to inform, in an ideal way, about Alzheimer's and how people who suffer from it live.

The Representation of Mentally Ill People in Video Games

For centuries, society has stigmatized mentally ill people by attributing stereotypes such as aggressiveness, infantilization and weakness (Cazzaniga & Suso 2015). This has resulted in this group of patients experiencing discrimination in all areas of their lives, such as lack of employment opportunities, paternalistic situations, and being seen as a burden (Magallares 2011).

The media have promoted these stigmas to suit commercial interests (Maria 2010), or to attract an audience through sensationalist coverage (Cazzaniga & Suso 2015). Journalism has spent decades relating mentally ill people to violent acts, using offensive expressions and portraying them as a danger to society because of their unpredictability (Wilson et al. 1999; Dickerson et al. 2002).

Academic research on mediatic coverage of mental illnesses is scarce in Spain. Media reports of mental illness are infrequent and often erroneous in terms of mental pathologies. The reports often have a pejorative tone, and are placed in cultural or sportive sections, instead of health (Muñoz et al. 2011). Along these lines, Aragonès et al. (2014) alluded to a link between crime and the mentally ill, who are described as people who deserve compassion rather than being depicted as useful members of society.

At the same time, some mental illnesses arouse more interest than others when it comes to investigating from a mediatic perspective. Suicide is often omitted by the media to avoid the Werther effect, or contagion, among the audience, and the mental patients themselves are blamed (Lois-Barcia et al. 2018); a self-censorship among journalists transferred from one generation to another (García 2023). There is also no global approach to suicide, only specific cases are covered and not as a public health problem, and usually without comment from experts, with sensationalist images and value judgments (Durán-Mañes & Fernández-Beltran 2020). News is written to attract attention (Olivar de Julián et al. 2021), although, in recent years social media has shown increased responsibility to raise awareness, and prevent suicide (Durán-Mañes et al. 2023).

The informative treatment of Alzheimer's also has academic scarcity. The limited studies highlight the lack of rigor by journalists and the creation of false expectations for the patient and their families (Solás Picó 2012). Also, efforts to raise awareness are meager and texts and images usedpromote stigma especially if the person suffering from it is a public figure (Giraldo Gil & Rodríguez Díaz 2017). However, in recent years, especially since the Covid-19 pandemic, there is a greater interest in talking about mental illnesses, with increased media coverage (González Ortiz 2021).

As a component of mass media, like other cultural formats such as cinema and literature, the video game, since its conception, has maintained a similar dynamic when representing the mentally ill, associating them with stigmas such as violence, misfits, being dangerous, and out of touch with reality. The horror genre offers that vision of psychological disorders, with characters who continually repeat the same patterns, such as the progressive loss of sanity (Hernán 2023); a mental instability that causes them to continually have hallucinations, which motivates jump scares and narratively not knowing what is really happening.

Mentally tormented protagonists are common in video games. *The Cat Lady* (Harvester Games 2012) is about a woman who, contemplating committing suicide, makes a pact with an entity to kill five people with the promise of a better life. *Visage* (SadSquare Studio 2020), on the other hand, is situated in a house that, over decades, has seen its different tenants suffer from some type of mental illness, such as schizophrenia or depression, before ending their lives. This game introduces two recurring factors: a supernatural entity that directs the behavior, and medical treatments that worsen the patient's condition.

Martha is dead (LKA 2022) revolves around Giulia, a young woman who lives in Tuscany during the Second World War. One night, upon discovering the corpse of her twin sister, Martha, floating in a lake near her house, she decides to impersonate her, and assumes her identity. Throughout the story, the consequences of this decision and the affect it has on her schizophrenia are explored, to the point that the player doubts whether anything she is seeing is real. While she finds out why her sister has died, at certain moments the legend of a spirit known as The Lady of the Lake, is mentioned, which motivates some of the character's actions.

Madness can also be used as another element of the gameplay. H.P. Lovecraft's cosmic horror titles, such as *The Sinking City* (Frogwaves 2019) and *Call of Cthulhu* (Cyanide 2018) include options to improve the sanity of the protagonists in the face of the creatures they are seeing during their detective cases. If mental healthy is not enhanced with points, the screen begins to represent the character's block, darkening and filling with appearances that do not exist.

Call of Cthulhu, along with other titles, depicts the mental institution as a dark place where the worst of society is locked up, with health workers that carry out experiments on them. *Alice: Madness Returns* (Spicy Horse 2011) is set in Alice in Wonderland, with the protagonist a patient admitted to a psychiatric hospital where she is abused. For its part, *Outlast* (Red Barrels 2013) presents a journalist who investigates a center for the mentally ill, and discovers that the patients are homicidal without reason. Three elements – terror, asylums and murderous patients – also appear in interactive experiences such as *Get Even* (The Farm 51 2017) where some enemies are the patients of the place from which you will have to get away.

Raising Awareness of Mental Illness Through Serious Games

Interactive entertainment is able to change behavior and perceptions, thanks to the work of the developers, who allow us to perceive the world of the characters, and therefore, empathize with their situation (Barrecheguren 2021). To do this, protagonists have characteristics with which users can identify, in situations that are morbid or far from ideal, with the inclusion of educational messages (Paredes-Otero 2020).

Whether they are known as persuasive games, which try to convince players of an argument through persuasion (Bogost 2007), or games for social change, which "while teaching social and civic values, seek to raise citizens' awareness of social problems" (Paredes-Otero 2018, p. 308), there is a trend of video games that adds "uncomfortable moments, situations that are hard to live with and that are absolutely not fun," but necessary to raise awareness and educate about mental illnesses (Matas 2020).

Actual Sunlight (WZO Games Inc. 2013) shows the daily life of a person with depression who is thinking about suicide, while *The Average Everyday Adventures of Samantha Browne* (Lemonsucker Games 2016) deals with the anxiety that a teenager feels when she has to interact with another person. As a Pictish warrior suffering from psychosis, as in *Hellblade: Senua's Sacrifice* (Ninja Theory 2017), players climb a mountain in *Celeste* (Matt Makes Games 2018) despite suffering from anxiety, or they return to the abandoned asylum where they were hospitalized in their childhood for schizophrenia in *The Town of Light* (LKA 2016). Through these games, players can experience these diseases, as the developers seek to raise awareness of the symptoms and how life is for sufferers, which enable players to empathize with the characters (Paredes-Otero, 2020). The games also depict the discrimination and lack of empathy in family, professional, social and even health spheres "to show that, although we are dealing with a fictional product, the characters and their stories are based on real events" (p. 81).

Video games that deal with the topic of Alzheimer's are rare, but are characterized by gameplay far from action and violence. *Forgotten* (Mutiny Games 2018) covers the daily life of an old woman who loses her memory, and how this affects her and those around her. On the other hand, *Her Name* (Canochaba 2017) occurs in the mind of a patient in the last days of his life, who must be helped to remember the name of his wife before he dies. Both have weak protagonists that players must help, and are experiences where interaction is based on solving puzzles, exploration, and making decisions.

Methodology

This research focuses on the capacity of video games for representation and narration. In line with authors such as Pérez-Latorre (2012), who are in favor of using transdisciplinary approaches, ludo-narrative is used and understood as a way to "unravel how the process of interweaving narrative elements in a specific video game occurs" (Cuadrado & Planells 2020, p. 41).

Ludic-narrative analysis is the method applied, composed of categories intended to study elements of the video game (such as gameplay) and also any narrative (characters, space, and messages). This procedure has already been used to study serious games about mental illnesses (Paredes-Otero 2020) such as schizophrenia, psychosis, and anxiety in the aforementioned *The Town of Light*, *Hellblade: Senua's Sacrifice* and *Celeste*, respectively.

Five aspects were studied: I) Characters, the main figure controlled by the player and the secondary ones (personality, their clothing, and the relationship between them); 2) The ludofictional world, the space where the story takes place, both physical or real and psychological; 3) Gameplay, how the player interacts with the elements of the game; 4) The symptoms of the disease, the effects of Alzheimer's and how they affect the story and gameplay; and 5) Forms of awareness, or ways to achieve user empathy in the face of mental illness.

This ludic-narrative analysis has been applied to the Spanish video game *Inner Ashes* (Calathea Game Studio 2023), which began as a university project, and later become part of the PlayStation Talents program. The game won awards at events thanks to its visual elements and soundtrack (Sánchez 2023). The game revolves around Henry, a retired forest ranger and Alzheimer's patient, who, through a book of drawings, begins to remember the reasons that led his daughter Enid to distance herself from him.

Aside from its coverage in the gaming media, *Inner Ashes* aroused immediate interest in the general media, both written (*La Razón*, *20Minutos* and *Europa Press*) and audiovisual (*Telecinco*) (Daza 2023; Europa Press 2023; Maeso 2023; Plaza 2023). These media were consistent in their approach to making Alzheimer's visible, the mechanics used, its narrative potential, and the involvement of experts to advise and portray the disease in a credible way.

The informative treatment by the mass media is clear evidence of the relevance of *Inner Ashes*, if we take into account that this type of media is not known for reporting on video games, focusing instead on the use of sensational headlines, with scarce or limited, and often erroneous coverage of specific aspects of interactive leisure (Paredes-Otero 2023). Media reporting of video games is reduced to specific areas such as the revenue that the sector generates, its artistic and cultural potential, and gaming events (López-Redondo 2012; Trenta 2014). *Inner Ashes* is a game that is recognized by the media, which has managed to get people talking about it in ways that are not usual.

Results

Characters

Inner Ashes has three main characters: Henry (the only controllable protagonist), a widowed, retired forest ranger and Alzheimer's patient, Enid (Henry's daughter), and Joseph (Henry's co-worker and caregiver once the disease develops). Players get to know the protagonists through their thoughts and comments, which appear as images depicting moments in their lives.

At a very young age, Enid lost her mother and only had her father, Henry; both of them becoming each other's support. Henry had to combine his job as a forest ranger with his responsibility to care for his daughter. For this, the help of Joseph was essential, with whom Henry could exchange work shifts, in addition to having a friendship.

Considering the psychology of the characters, Henry is a kind father who seeks to care for, and make, his daughter happy at all times. Enid, for her part, is an innocent young woman and curious about everything around her, from her father's job to wanting to drink coffee because Henry does. As the years go by, she has moments of rebellion typical of adolescence, but without wanting to hurt her father. Their relationship will break when Henry discovers her kissing Joseph, his friend. This causes an argument, which results in her leaving home to be with Joseph. Due to Alzheimer's, Henry will forget this disagreement. After several years realizes his mistake, feels remorse, and re-establishes contact with Enid, but by then his illness is at an advanced stage.

Joseph never appears physically, but is Henry's support and the link between father and daughter after they become estranged. It is Henry who tells Enid how seriously ill her father is, which causes her to send him the sketchbook that will allow him to remember what happened between them.

Normality can also be seen in the clothing; everyday clothes such

as sweaters, jackets, and belted pants, in the case of Henry, and tshirts, hooded coats, wool hat and denim dungarees for Enid. The physicality of the characters is equally normal. Henry is blonde with a well-groomed beard, an appearance that he maintains despite his illness, while his daughter is shorter in stature, with long, red hair tied in a ponytail. Both have blue eyes.

Ludofictional World

The game takes place in two spaces: the real world and Henry's mind. The first is his own home, specifically the ground floor, which has an entrance, living room, kitchen, and a small study, while the second is much more dreamlike with floating elements and bright colors. The way to access Henry's memories is by opening the drawing book, but first, players complete certain daily tasks, which provide insight into Henry's daily life and hobbies.

Henry's mind represents scenarios from his past such as forests and ruins in natural environments due to his job as a forest ranger. However, the onset of Alzheimer's causes these places to change (Figure I): they become more chaotic, the colors more subdued, going from sunny memories directly to night-time in a snowy environment. At the end of the game, however, there is a scene that is practically a white-out, making it difficult for Henry to identify the road and make any progress, indicative of the character's mental state. To return to his home, Henry must finish delving into his memories and reach a room with a huge vault and a fountain in the middle, with puzzle pieces to solve – an example of the dream state and how small it is compared to the real world.



Figure 1: Colors and the design of psychological spaces evolve as Henry's Alzheimer's worsens. Screenshot from Inner Ashes.

Gameplay

There are two main mechanics in *Inner Ashes*: exploration and puzzle solving. The player travels through Henry's physical and psychological worlds, to experience the life of an Alzheimer's patient, in his environment and in his head, and how both contexts vary depending on the evolution of the disease.

The inclusion of puzzles is no coincidence, as Alzheimer's patients are routinely offered daily stimulation with basic cognitive activities, like puzzles, crosswords and simple mathematical problems. In the game, this is reproduced in the room with the fountain, where players must complete a puzzle. Players are also presented with other challenges if they wish to continue, such as collecting certain objects and placing them in specific locations. There are also memory challenges: remembering drawings, or their order, and then replicating them elsewhere.

Symptoms of the disease

Disorientation is the first symptom – not remembering if he has completed tasks such as watering a bonsai, forgetting the location of objects in his house, and not knowing what day it is. At one point Henrry picks up a newspaper and comments, "When is this from? I think I've already read it."

Henry writes pending tasks on a whiteboard. These include cleaning tasks and making breakfast, and he leaves paper notes throughout the house to mitigate disorientation. The number of notes and the tasks he completes increase as his memory fails, and the house becomes full of them for the most basic tasks (Figure 2). For example, on a toaster is a note that says, "To toast bread" and on a microwave, "To heat food".



Figure 2: Reminders are a narrative element used to tell Henry's mental deterioration. Screenshot from Inner Ashes.

Henry has two main hobbies, coffee and carving objects, and both are affected. On one occasion, the player must help him to prepare a cup of coffee by following specific steps, such as putting the cup on the table. Believing that the task has been completed, the player then discovers that, in reality, it is not, and that the objects have changed places. Likewise, his favorite hobby – carving wooden figures – which he initially enjoyed and found easy. The figures become less realistic.

Henry's disorientation worsens, and he now forgets the most basic things. Joseph has to visit him daily because, as Henry confesses, "I have a hard time remembering the order to do certain things," and he recognizes that he no longer has the ability to complete pending tasks, like fixing a radio.

In the final levels of the game, Henry is not even able to express

himself or say complete sentences. He no longer knows how to carve, and is unable to understand his notes. He becomes a person mentally disconnected from the world – a dramatic but realistic ending of the game, if we keep in mind that Alzheimer's has no cure.

Forms of Awareness

Calathea Game Studio uses five strategies to raise awareness of Alzheimer's: first-person view, family relationships, environments, situations experienced by the characters, and collectibles.

The first-person perspective makes the player feel the effects more deeply. Players can see the world through Henry's eyes, and experience his disorientation and the changes taking place in his environment. The realism is enhanced by the lack of a general view, which is why players constantly have to move the camera to know what is happening around them. Henry is a homodiegetic and intradiegetic narrator. He tells his own story of being present within the ludofictional world. He does it through thoughts and comments, and also with phrases written between one level and another such as "We were still united. But something inside me was lost and confused. I knew things would change, sooner or later".

Empathy is also achieved by normalizing the disease with realistic characters. Players are able to identify with these characters and the relationships between them. In the case of *Inner Ashes*, a father and daughter who have become estranged, and a patient who needs help because he forgets everything. Players also find everyday life in the game's scenarios, especially the physical one, as a good part of it takes place in Henry's house, depicting his daily routine, such as making coffee or enjoying his favorite hobby.

Finally, collectibles have informative and educational value (Figure 3). The game establishes a dialogue with the player, who learns more about Alzheimer's. Throughout all levels of the game, there are documents to collect that explain everything, including how to recognize the first symptoms of the disease, the importance of specialized caregivers, how the family should respond, the effects of

this mental illness such as agnosia (not being able to identify objects through the senses) or aphasia (inability to understand and communicate with others), and the need for more academic research.

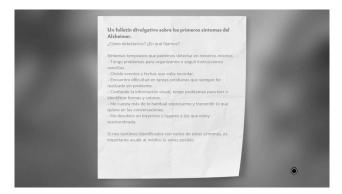


Figure 3: Collectibles are informative messages expressly directed to the player to complement the educational aspect of Alzheimer's through interaction. Screenshot from Inner Ashes.

Conclusion

The results show that *Inner Ashes*, in addition to the ludic aspect, is a genuine serious game in the healthcare sector (Quintana & García 2017) that interactively informs about Alzheimer's. The results also confirm the video game's ability to raise awareness of the disease (Paredes-Otero 2018).

In contrast to the usual media depiction of mentally ill patients as dangerous and unpredictable (Muñoz et al. 2011), and associating related games with the horror genre (Hernán 2023), Calathea Game Studio follows the approach of other developers by moving away from stigmatization and, through narrative and interactive elements, seeks to evoke user empathy for patients, and improve the understanding of the disease (Paredes-Otero 2020).

The good intentions and fragility of the protagonist/patient, their clothing, physical appearance, routine actions, and the implications of a family relationship enables players to identify with the character. The game also reflects other issues, such as the help and understanding of a close inner circle, and professional caregivers, as well as the importance of academic research.

The importance of normalizing and giving visibility to Alzheimer's (García et al. 2023) is continually highlighted, as demonstrated, for example, by the patient performing a series of daily domestic tasks before being aware of the protagonist's memories. The mechanics are equally far from the violence and are associated with the exploration of environments (to learn about Alzheimer's) and the puzzles (real sanitary recommendation to delay the effects).

The intention is for players to experience the illness, including the patient's disorientation, and then guide the character, thanks to the first-person perspective. Players also learn from the educational and informative collectibles. Henry's comments and the game's messages create a sense of reality, and give the impression that the developers and the main character are speaking directly to the player.

All in all, *Inner Ashes* is a valid video game that presents, in a realistic way, without sensationalism, a social problem such as Alzheimer's and its effects on patients and their close circle, which confirms the starting hypothesis. It moves away from the notion that patients are violent or dangerous, and it is a good example of a serious game that effectively informs about Alzheimer's and the real problems that its patients have.

Academic studies focusing on the image of Alzheimer's in the media, including video games, are scarce. However, this work can be a starting point to study to raise awareness of this mental illness in a serious and real way thanks to a mass media so present in contemporary life such as interactive leisure with a working method that can be replicated to analyze other serious games focused both on this or other psychological disorders.

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