Acta Ludologica

June 2024

Theory
Education
Design
Development
Research
History
Marketing
Experience
Criticism
Psychology
Social
Aspects
Future

ÜCMFMK

Journal
Orientation

Acta Ludologica is a scientific journal in the field of games and digital games. The journal contains professional scientific reflections on digital games; it also offers academic discourses on games, especially media and digital competencies, creation, design, marketing, research, development, psychology, sociology, history and the future of digital games and game studies.

Acta Ludologica is a double-blind peer reviewed journal published twice a year. It focuses on theoretical studies, theoretical and empirical studies, research results and their implementation into practice, as well as professional publication and scientific reviews of digital games.

Acta Ludologica

Editorial

In Search of Lost Gameplay

My first computer was a Commodore 64C. I cannot quite remember the first game I played but *High Noon*, *Boulder Dash* or *Commando* are likely candidates. I can remember their visuals and sounds, their mechanics and level designs but also the lengthy loading process and the commands one had to type to start the adventure. My memories of games are inseparable from their material dimension – the sturdy black QuickShot joystick and the satisfying click of its red buttons, the old cassettes with weird-sounding game titles scribbled on them and the Commodore 1530 Datasette that we put them into. But even then, the long-lost world is not complete. I have to mention my sister and dad who were right there with me, trying to figure out what to do in the games. Without any manuals or original packaging, we made up our own narratives influenced by the late 1980s 'panelák' society we lived in. And let's not forget my school friends who supplied me with a steady stream of pirated titles. They shaped not only what I played, but also how I played. All these aspects, some true and some perhaps unconsciously distorted constitute the magical memories of my childhood gameplay. Can we ever truly recreate these experiences? The answer is: No, for many reasons.

The primary goal of many game archivists, to play historical games on original hardware, is proving unsustainable. Even if we had a magical warehouse full of spare parts, only a few memory institutions could afford to maintain a collection of functional historical hardware. Emulation seemed like a logical and relatively easy way out until game historians realized it brought new challenges: it does not solve but creates new legal issues; one still needs the original peripherals to reach minimum fidelity; as it is often impossible to identify the original version of a game, we do not really know what features we should preserve to consider the emulation successful, etc. In 2012, James Newman (without rejecting the previous methods) argued that recreating historically authentic gameplay experiences has always been a fool's errand and that the „play is not the outcome of game preservation but is its object". The goal is not just to have a playable game, but well-documented gameplay from the time the game was actively played. Soon after that, Melanie Swalwell emphasized that for such

meaningful documentation we need to assemble a wide range of primary and secondary sources like design documents, source code, magazines, consumer products, gameplay videos, online forums, fan fictions, etc. Niklas Nylund recently suggested that the 'holistic game preservation' consists of all three layers: objects, experiences and context. Other game scholars have criticized the exclusiveness of existing game collections. We will never achieve complete historical accuracy with digital games, but that is true of other memory projects as well. However, if we give up on gameplay preservation, we will lose a large and ever-growing part of our culture (and ourselves) forever.

We will be revisiting this topic from a local perspective in the Interview section, but before that, this issue offers a number of other exciting topics from the world of games and digital gaming. Sina Torabi applies Aristotle's *Poetics* to the game *The Last of Us Part II* to examine a tragedy in the context of digital game narratives. The use of game design and technology in urban planning is explored by Paul Cureton and Paul Coulton. Adeline Loh deals with the issues of body politics and disability representation within the game *Yakuza 0*. Dinko Jukić examines the phenomenon of trophies in digital games from various perspectives. The issues of market position and monetisation of the digital version of the trading card game *Pokémon TCG* are examined by Miroslav Macák. Maximos S. Theodoropoulos reflects on the origins of digital games and their development in Greece. Daniela De Angeli investigates the various purposes of escape rooms beyond entertainment. And the last study, by Tomáš Farkaš, focuses on the auditory space of digital games, with a view to the design of audio games for the visually impaired.

In the following section, the books *The Performance of videogames* by Kelly I. Aliano and *The child in videogames* by Emma Reay and the digital game *Suicide Squad: Kill the Justice League* are reviewed. The issue concludes with Walter Barta reflecting on whether we are living in a computer game in the Add-ons section.

I wish all readers of the current issue of Acta Ludologica an engaging and informative read.

Jan Kremer
Národní filmový archiv in Prague, Czech Republic

Contents

A Tragedy at the Ends of Time: Applying Aristotle's *Poetics* to *The Last of Us Part II*

Sina Torabi

Sina Torabi, MA
Western University
Faculty of Information and Media Studies
Richmond St 1151
N6A 3K7 London, ON
CANADA
storabi3@uwo.ca

Sina Torabi is currently a PhD student of Media Studies at Western University, Canada. His research is mainly focused on game studies, mental disability, narratives, and the representations of neurodiversity in digital games. He is also the winner of the Catherine Sheldrick Ross Graduate Recruitment Scholarship.

ABSTRACT:
Digital games have come a long way since their origins as pure entertainment and can no longer be easily brushed aside as a frivolous pastime. The past decade or so has seen the introduction of many narrative-intensive games that take the joy of watching a great story unfold and combine it with a sense of agency in the audience, in this case, the player, thus giving us a new form of dramatic narrative. Despite the seeming appropriateness, however, attempts at conjoining Aristotle's *Poetics* to digital game scholarship have been contentious. This paper aims to show that there is great merit in viewing narrative games through the lens of the terms and mechanisms discussed by Aristotle, more specifically his outlining of the ground rules for the desired form of tragedy. Additionally, a more in-depth definition of words like hamartia, catharsis, and mimesis and their application will show the appropriateness of such a method in arguing for the artistic and aesthetic worth of this new medium that is known for obfuscating the more familiar structures of other narrative forms. To support the argument, the paper relies on recent digital game discourse and uses Naughty Dog's award-winning, and highly contentious game, *The Last of Us Part II*, to demonstrate how it fits the mould designed by Aristotle and why it deserves the title of tragedy.

Introduction

The word tragedy has been so soaked in day-to-day language that one could not be faulted for ignorance of its true Greek origins. In a technical sense, tragedy means something almost radically different than the sense we are used to today. A deeper analysis of tragedy lies beyond the scope of this paper. However, it would not hurt to have a closer look at some of the scholarly debates in the field to get a better sense of what Aristotelian tragedy is. What makes a narrative a tragedy is not so much the sad, and at times horrific, ending but the 'feelings' that it arouses in the audience (Kaufmann, 1992). Aristotle (2002) defines tragedy as an imitation of an action that "accomplishes through pity and fear the cleansing [(catharsis)] of experiences of this sort" (pp. 17-18). Hence, the end result of tragedy, according to him, is to stir a range of unpleasant emotions inside the audience who are watching the play (action) unfold and then, through careful manipulation of the plot, reach a point of catharsis for the audience. The reason why the audience will be capable of gaining pleasure from watching harrowing events (inducing the feeling of fear) befall a protagonist who probably does not deserve the severity of their punishment (hence he or she deserves our pity), is that such works so organize their material that we can recognize that toward which we feel so violently, thus setting us free to enjoy not pitiful and terrible events, but their adding up to more than just these events strung together. For in tragedy, they add up to intelligible chains of events, which illuminate human possibilities

in extremis (Schaper, 1968). So, it would not be too far-fetched to claim that it is through this recognition, enabled by proper mimesis, or imitation of the human condition, that a true tragedy, a work of art, is born.

The study to demonstrate that *The Last of Us Part II* (Naughty Dog, 2020; henceforth TLOU2) has all the makings that define a well-made tragedy based on the Aristotelian principles of catharsis, mimesis, and hamartia, all of which are included in the in-depth analysis that establishes these concepts' importance to Aristotle's tragedy as outlined in his *Poetics*. The rationale behind applying Aristotle's ideas is not to dismiss the relevancy of other approaches to narrative games, but to suggest that such time-tested ideas are also relevant in the context of digital game scholarship as they have been so in more traditional ones such as drama, fiction, and cinema and to suggest new ways of seeing an emerging medium for stories and narratives. Often praised for its narrative depth and emotional impact, TLOU2 has attracted serious academic attention from a wide range of fields, each focusing on a different aspect of the game and its reception by the players. In their important work on the online fandoms of the series, Letizi and Norman (2023) argue that the game has led to an unprecedented backlash from what they called 'alt-fandoms'. They point out that such a reaction is emblematic of a confrontational media climate that seeks to challenge any media text seeking to represent more controversial matters.

Following a similar trend, Dennin and Burton use the game as their case study to show how to employ 'experiential play' as a means of critiquing resistive queerness in digital games. They define experiential play as "the embodied experience of a player as a result of the overlapping intersection of a game's narrative, formal elements, and affective intentions" and use it to show how TLOU2 relies on representations of queerness to engender empathy among the non-queer player (Dennin & Burton, 2023, "Abstract" section). Aside from queer representation, the game has been scrutinized for its cast of female characters. For example, Tomkinson has analysed the divergent reception of Abby, a female character that we get to know in the second half of the game, particularly regarding criticism of her 'masculine' physique. She argues that these critiques reveal underlying tension in gaming discourse over realism, immersion, and the perceived politicization of video games (Tomkinson, 2023).

Moving away from the issues of gender and queer representation, there is a considerable body of research dealing with the games narrative and the issues that play a prominent role in the game's story. Johnson (2023) uses the game's midway player-character switch as a departing point for his study of how the game examines the effects of trauma and a dark circle of violence. Accordingly, such a move leads players to either adopt a flexible position that is more accepting and tolerant towards the characters, thus opening up the possibility of change and learning or one of outright rejection and inflexibility, similar to how the two playable characters in the game, namely Ellie and Abby, handle the violence and revenge. Following the player-character shift controversy, Ferrari and Soraci (2022) demonstrate how players navigate authorial intent in digital games using TLOU2 as their case study. They write that despite the game's attempt to garner sympathy for Abby, whom they see as the villain, players often resisted, refusing to harm Ellie due to their existing emotional attachment to her. This highlights the complex interplay between authors' attempts to evoke specific emotions and the players' agency to shape their own experiences. Their study suggests the difficulty of solely relying on cognitive empathy in building player connection, while also emphasizing the importance of emotional resonance (Ferrari & Soraci, 2022). There has also been research on the para-narrative aspects of the game as well and how it ties in with the events and characters in the narrative. Using Genette's (1997) concept of *paratext*, Banfi (2022) focuses on Ellie's in-game

journal where she writes her thoughts, the events that transpire, and at times doodlings of scenes or characters in the story. He tries to show how this journal, through giving access to Ellie's interior monologue and thoughts, expands the narrative and forms an intimate bond between the players and the character they are controlling. Seller (2022) argues that the game's grim and repulsive approach towards death is its way of challenging the orthodoxy of player agency and centrality in the game and anthropocentricism in general. She adds that this idea of failure and loss in the game, with its brutal tragic spiral of repetition and inevitability is in fact helping players rethink the idea of success, negativity, and what it means to play a game in general.

For this study, we decided to utilize a comprehensive approach that combines close playing and textual analysis to critically examine the characters and narrative structure of TLOU2. The first section that follows explores how Aristotelian concepts have been borrowed and used to analyse other digital games. Next, we provide a background for the core Aristotelian concepts that will be used in my analysis of the game. The last two sections deal with the application of these concepts and how they are relevant when analysing the narrative structure of TLOU2.

Aristotle and Game Studies

The scholarly field of digital game studies is no stranger to Aristotle. Meakin et al. show how fruitful it can be to perceive the unique ways in which games such as *Hellblade: Senua's Sacrifice* (Ninja Theory, 2017) make meaning through the lens of Aristotle's theories (Meakin et al., 2021). Humphreys tackles the question of whether playing digital games, in general, is a moral activity and how gaming aligns with Aristotle's conception of a life well lived (Humphreys, 2016). In another interesting take, Mawhorter et al. try to fashion a working theory that reconciles the two opposing poles of diegetic and extra-diegetic choices in digital games using Aristotle as their starting point (Mawhorter et al., 2014). Meanwhile, Owen reconciles the famous Aristotelian notion of unity of time and place with the general plot line of *BioShock* (2K Boston & 2K Australia, 2007) while demonstrating how the game closely follows the narrative structure that Aristotle prescribed (Owen, 2010). The studies that were picked here are only a handful and there are more papers where scholars have deemed it worthwhile to apply Aristotle's ideas to game studies. The move in game studies to embrace theories with a focal point in the narrative, such as *Poetics*, has not always been a smooth ride. One of the more formidable and influential figures of this resistance, which, for the most part, has run out of steam today, was Aarseth, who led the charge against the position that games are narratives and textual, like films and novels:

> Games are not "textual" or at least not primarily textual: Where is the text in chess? We might say that the rules of chess constitute its "text," but there is no recitation of rules during gameplay ... A central "text" does not exist – merely context". (Aarseth, 2004, p. 47)

While his caution against overgeneralizing and seeing games as something they essentially are not, namely narratives, could be seen as somewhat relevant even today, the extent of the full argument is harsh. The militaristic opposition in this case, however, is understandable due to the state of digital games in the early 2000s. With most games still dabbling with incorporating plot as a fundamental and irreplaceable part of the gameplay experience, the earlier academic attempts to elevate them as a genuine medium for telling stories were going a step too far.

Another, more recent attempt at contesting the applicability of universal narrative models, like that of Aristotle, comes from Koenitz et al. (2018) who argue that "Aristotle's work is often misunderstood as a general description of narrative, when a closer reading actually reveals the opposite: it is a medium-specific understanding of narrative that distinguishes between epic (prose) and mimetic (dramatic) forms and focuses on the latter with a detailed analysis of the tragedy" (p. 109). While this position is not as dismissive as that of Aarseth, it is still wary of accepting digital games under the larger umbrella of narrative studies discourse. However, it is not impossible to challenge this position. To begin with, we must remember that "Aristotle's observations are form, rather than medium, dependant" (Meakin et al., 2021, "Aristotle in Videogame Discourse" section, para. 3). This follows that mimesis is an integral part of Aristotle's understanding of tragedy, and narrative in general, and that mimesis is also a major aim of any narrative digital game in order to help create a believable layer of meaning-making for the player. As a second riposte, it could also be argued that games rely on player action for their story to progress, and action, according to Aristotle is an integral part of the narrative structure (Mateas, 2001).

Before moving further, it is paramount to address two important ambiguities that might hinder the argument if left unattended. The first has to do with the issue of agency in digital games. As discussed earlier, one affinity of digital games with Aristotelian drama is the concept of action carried out by the player, who is also the audience. However, some have argued that in order for the action to be meaningful, there has to be true agency in the form of absolute freedom on the side of the player with noticeable ramifications for the game's overall story, which is at odds with the plot design in games (Frasca, 2010). To work around this issue, this paper adopts a new definition of agency that provides a workable solution to this internal dissonance between freedom and narrative structure. K. Tanenbaum and T. J. Tanenbaum (2010) redefine agency "as the process by which participants in an action commit to meaning" (p. 13). This definition is basically veering the focus away from the outcome of choices to their intents. As long as the action is meaningful, even when there is no choice but to engage in an activity in the game, we are committing to meaning. This is in line with what Aristotle deems necessary in order for catharsis to happen. If the actions of the protagonist are not plausible and do not derive from a causation chain, then we have a weak story. The second point of importance is the fact that viewing the structure of games with a strong narrative focus through Aristotelian mechanisms would allow us to discuss both the game text and its effects on the audience/player. The word text is used in the fashion suggested by Bizzocchi and Tanenbaum (2011) as a "gestalt of medium and the message", meaning that the medium is not easily separable from the message that it conveys (p. 5). This sits well with Aristotle who dedicated so much attention to the emotional effects stirred in the audience by being exposed to a story, even though we are talking about digital games, which are known for confounding the traditional norms and narrative structures.

Many digital games offer rich ground for analysis through the Aristotelian tragic framework. To explore this approach and showcase its potential, we'll delve into a few prominent examples. This comparative approach will not only position the main argument within a broader context but also highlight the valuable insights this lens can provide. The first game that lends itself well to such analysis is *Red Dead Redemption 2* (Rockstar Games, 2018), an action-adventure game set in a fictionalized Wild West on the brink of modernization. Players take on the role of Arthur Morgan, an outlaw grappling with his loyalty to his declining gang and his own mortality. When read through the lens of Aristotelian tragedy, this game is exploring the downfall of a flawed protagonist. Morgan's unwavering loyalty to Dutch van der Linde, the gang's leader, becomes his tragic flaw. Arthur remains blind to this fact until he is diagnosed with tuberculosis later in the game and starts

questioning the morally dubious decisions he has taken in the name of loyalty and seeing the increasingly bloody path that Dutch has taken. Witnessing Dutch's betrayal shatters Arthur's faith, leading to a reckoning with his outlaw past. Despite his own wrongdoings, Arthur attempts redemption by helping John Marston escape, a final act that evokes both pity for his fate and fear for the dangers of blind loyalty.

The second game that works well with such an analysis is ZA/UM's *Disco Elysium* (ZA/UM, 2019). When viewed through the Aristotelian tragic lens, the game presents a complex protagonist in Harry Du Bois, a detective whose brilliance is constantly undermined by his inner demons. Harry's hubris, a fractured psyche fuelled by substance abuse and amnesia, impedes his ability to solve a seemingly straightforward murder case. Each dead end and internal struggle represents a reversal of fortune, forcing him to confront his own failings. As Harry delves deeper into the investigation and his own psyche, moments of recognition emerge – fragmented memories, ideological clashes with the various voices in his head. The true nemesis, however, is not a singular antagonist but the totality of Harry's inner turmoil. The choices he makes throughout the investigation, influenced by these warring voices, determine his fate. Disco Elysium's catharsis is multifaceted. Depending on Harry's choices, he may achieve a fragile sense of redemption, a glimmer of hope for rebuilding his life. However, the potential for further descent into self-destruction always lingers, leaving the player to contemplate the tragic consequences of a brilliant mind crippled by its own internal battles.

The last example that we will look at is *Returnal* (Housemarque, 2021). This innovative third-person shooter throws astronaut Selene into a relentless cycle of death and rebirth on the unforgiving alien world of Atropos. Despite its non-traditional structure, analysing *Returnal* through the lens of Aristotelian tragedy holds the potential for fascinating insights. Unlike a protagonist felled by a fatal flaw, Selene is trapped in a cycle of death and rebirth due to unresolved trauma. Her relentless pursuit of escape, fuelled by grief, ironically becomes her hubris. Each death, a reversal of fortune, forces her to confront the futility of her initial approach. Fragmented memories scattered across the alien world serve as moments of recognition, piecing together the source of her suffering. The cycle itself acts as her nemesis, a consequence of her emotional baggage. Yet, *Returnal* offers a unique catharsis. As Selene confronts her past and potentially breaks free (depending on the ending), the narrative transcends tragedy, offering a glimmer of hope and the possibility of overcoming trauma through perseverance.

While these games lend themselves well to such an analysis, they are not the only ones. As it will become clear in the course of this study, such a reading could not only help us gain deeper insights into the characters' motivations and struggles, but also bring the moral dilemmas embedded within the plots to the forefront. This critical reflection extends not only to the choices presented, but also to the lack thereof and their potential consequences. Such a multifaceted approach both enriches our understanding of digital games as narratives and invites us to engage with deeper questions about the human condition.

Tragedy According to Aristotle

Compared to the other genres of writing at the time like comedy, epic poetry, and history, all of which are mentioned in *Poetics*, tragedy held an esteemed place for Aristotle. He provides the following definition of tragedy:

Tragedy, then, is an imitation [(mimesis)] of an action that is of stature and complete, with magnitude, that, by means of sweetened speech, but with each of its kinds separate in its proper parts, is of people acting and not through report, and accomplishes through pity and fear the cleansing [(catharsis)] of experiences of this sort. (Aristotle, 2002, pp. 17-18)[1]

So, to put it more simply, tragedy is an imitation of an action that has a beginning, a middle, and an ending, hence complete while also boasting a certain expanse to it, not being too short but grand instead. The subject matter should not deal with 'lowly' topics, such as the ones he later ascribes to the ranks of comedy, but with universal subjects that are serious and can exalt the mind. In other words, the audience should not be induced to laughter and ridicule by what they see. The character, along with thought, also has a higher place than the narration since it enables action, the crux of tragedy. Most important of all, tragedy would be nothing if it fails to awaken pity and fear in the audience and then handle these emotions with care to the telos, or the main goal, of the tragedy, which is catharsis. This, of course, we concede is a limited definition of some of the most hotly debated lines in *Poetics*. However, for the purposes of this paper, going any deeper would be missing the point.[2] The last bolt in Aristotle's system of tragedy that binds the whole web together is the concept of hamartia, which has been translated as flaw, mistake, moral fault, and tragic flaw (Kaufmann, 1992). While each translation is valid in some respect, this paper will use the original Greek term since it preserves the entirety of its meaning though it has no exact match in the English language. The following paragraphs will be dedicated to defining and briefly analysing the concepts of mimesis, catharsis, fear, pity, and hamartia.

Mimesis, like catharsis, is among the more elusive concepts that are put forward by Aristotle. One could say that all arts are mimetic but each with its own content and structure (Schaper, 1968). However, in the case of tragedy, mimesis is what enables the audience to feel pleasure at watching the unfolding of terrible events that are common to such plays, events that would be otherwise unthinkable in real life. In other words, it is not so much the events themselves that attract the audience but "the presentation of a coherent action, made transparent and intelligible through artistic formulations" (Schaper, 1968, p. 139). But still, one might rightly ask, what is the pleasure in watching horrendous acts portrayed? Will it not be true that making them all the more 'transparent and intelligible' will be counterintuitive by making them seem more terrifying and appalling than what they used to be? Golden (1976) would counter by arguing that mimesis involves "an intellectual pleasure" involving "learning and inference by which we move from a perception of particulars to the knowledge of universal" (p. 438). Accordingly, tragedy is concerned with what could be and what would happen as a consequence of certain actions, and the audience, through recognizing the similarities between what they see and their own lives, gain deeper insight and, thus, learning happens. Aristotle argues that tragedies of the higher order will masterfully employ mimesis with the aim of inducing such an intellectual state in the audience.

One would do Aristotle justice by claiming that catharsis is the cornerstone of any 'good' tragedy, which binds the whole together, making the narrative piece not only enjoyable but also a work of art that is aesthetically pleasing. Despite its high standing in his opus, though, catharsis is among the most cryptic and least discussed of Aristotle's ideas on tragedy and there is a plethora of studies dedicated to dissecting this same concept. Hence, it would not exactly serve the purposes of this study to dive deep into the rabbit hole of different interpretations, so snippets here are better than heaps.

---

1   Remark by the author: These lines were taken from Benardete's translation. The words in brackets were added by the author to signal the original Greek words which will later be used in the paper.

2   Remark by the author: For a deeper and more informed discussion of Aristotelian tragedy refer to Kaufman's (1992) *Tragedy and philosophy* and Kruse's (1979) *The process of aristotelian catharsis: A redefinition*.

It would be possible to sort the existing arguments on catharsis into three basic categories of 'clarification, purgation, and cleansing' of the emotions, supposedly fear and pity, stirred in the audience (Kruse, 1979). Essentially, the emotional state of the audience would not be the same before and after they are exposed to a tragic narrative, and it is the task of catharsis to ensure that this holds true. Schaper beautifully summarizes the point thus:

> In contrast to purely intellectual understanding of a given situation, the enjoyment which tragedy affords emerges from emotional response to the events and completes itself in a grasp of their significance. The emotions are not superseded or left behind; they are transformed into aesthetic emotions, that is, emotions in which being involved and being distanced through understanding are held in balance. ... The full sense [(of catharsis)] is available only when we think of catharsis as the result of a work of imitation, the result of a deliberate construction in which something about human nature and life is made clear for us. (Schaper, 1968, p. 139)

This is why we do not get the same sense of emotional involvement when reading the news of terrible atrocities happening in far-off corners of the globe, some of which far surpass those that move us to shivers in great tragedies: we have distance from the events, but we are not involved because we are not emotionally attached to the events and characters. The balance between distancing the viewer for better understanding and at the same time involving them is key for catharsis to occur. In another passage, she expands upon the concept by arguing that:

> ... what is unified in tragedy is events which in life would crush us and leave us numb, but which, in the cosmos of a work, contribute to a mimetic whole. Tragic catharsis through pity and fear, provides the most poignant instance of a cathartic effect. It shows in a very striking form what is at stake in the enjoyment of any work of art: that the emotions felt by the audiences or spectators and the complex reactions to fiction are functions of the work *qua* work, that is to say, bound up with the formal nature of the artefact. ... For Aristotle, catharsis is the response to an imitation, to that which is presented as if it were real, to that which is convincing and probable despite not being fact, to that which is complete in itself by the virtue of conforming to some formal principle of art. (Schaper, 1968, p. 141)

Now that a working concept of catharsis has been established, we must turn our attention to the remaining concepts, namely fear, pity, and hamartia. To put it bluntly, fear and pity are the elements that contribute to the sensation of tragic pleasure in the audience. This, however, gives rise to an irony: what type of fear and pity can lead to their opposite emotional state, namely pleasure? The answer could be that such feelings are felt vicariously by the audience. With a nod to Hitchcock, Nanay explains that when watching a tragic narrative:

> ... we feel anxiety for the protagonist. But anxiety for the protagonist is vicarious anxiety. Again, we do not feel self-centered anxiety: sitting in the audience, eating popcorn, I am not anxious about anything concerning myself. Nor am I experiencing imaginary or make-believe anxiety: I do not imagine myself in the protagonist's shoes and imagine his anxiety – the protagonist may feel no anxiety, so if I were to imagine myself in the protagonist's shoes, I would not experience any anxiety at all. (Nanay, 2018, p. 1377)

The key that enables such vicarious feelings is the distance of the audience from the events, which nevertheless bestows them with the privilege of knowing more than the protagonist does. This feeds very well into the concept of hamartia. As illustrated earlier, most translations of the word point to a moral or intellectual fault or error in judgment that ensures the downfall of the protagonist. What induces our pity as the audience is knowing that the protagonist acted as they did not because they were innately wicked but because

they did not know any better. We as the audience, through knowing more than the characters, know this and therefore feel pity towards a tragic hero like Oedipus. We feel this way because the misfortune befalling the character in the story is not commensurate to their misstep. Hamartia is basically the cleansing factor that reduces the severity of the character's wrongdoings by putting things into perspective and allowing the audience to feel differently than they would have done in real life. As Murnaghan explains, "*Hamartia* makes tragedy acceptable by exonerating the characters tragedy imitates, protecting tragic characters, and by extension the spectators who identify with them, from the evil that attaches to their actions" (Murnaghan, 1995, p. 764). Now that we have laid sufficient groundwork for this study, it is time to introduce the digital game that is vividly illustrative of what has so far been discussed. Doing so will demonstrate how the concept of catharsis applies to the game while discussing in more detail the makings of a game that can enthral the audience with its story alone. A Poetics reading of a critically acclaimed game with a strong narrative component like *TLOU2* will show how the journey of the player and the protagonist intertwine in a story that does not fall short of Aristotle's standards for a strong tragedy.

Ellie and the Player in *Last of Us Part II*

Naughty Dog's *TLOU2* is an action-adventure game that lets the player control Ellie, a young woman who seeks revenge for the murder of Joel, her father figure, at the hands of Abby, in a post-apocalyptic world ravaged by the cordyceps fungal infection, which has turned the greater population of the planet into mindless beasts and flamed faction wars among the remaining survivors. The first half of the game lets the player experience Ellie's bloody hunt for Abby and her friends, who helped her kill Joel, while the second half puts the player in the shoes of Abby, while providing more details about her motives and character in narrating the events she endured while Ellie was getting closer to finding her.

The first feature that must be looked for when performing an Aristotelian reading of a text is the handling of the character-audience distance and character identification. As shown earlier, catharsis relies heavily on mimesis, which gives the audience the distance they need from the events in order for them to perceive the universal truths about the human condition and not become entangled in the particulars. A suitable distancing enables the audience to feel both fear and empathy for the protagonist's deeds. A good tragedy must aim for the perfect balance since too much of either fear or pity will not be constructive towards the final goal, which is catharsis; too much of the former leads to repulsion in terror while an excess of the latter results in sentimentalism. Naughty Dog handles this task masterfully throughout the long span of the two games. Whether the player knows Ellie and Joel's story and background or is just beginning to know them, the brutal torture and the eventual murder of Joel in the game's prologue is enough to stir the feeling of empathy and justify the player's wish to help Ellie have her revenge. The degree of commitment, however, among the fans of the series and those who lacked the emotional attachment of the first group was different; those who had played as Joel in the first game did not need convincing to hunt down Abby, as the death threats to Abby's actress attest to that (Tassi, 2020), while the rest were following the journey out of their sense of justice or a mere curiosity to learn more. To try and bring the two groups of players onto the same page, the developers dropped in quite a few playable flashbacks through the course of the game which aimed to provide more background about the characters

and make them emotionally commit to the story of revenge that was ongoing in the present. As Neil Druckman, the game director, states in a podcast about the game that the goal he had in mind for the second instalment was to make the players hate a character, i.e. Abby, and then be able to bring them back from that hatred and animosity to understanding and even compassion (Spicer, 2020). Therefore, as an attempt to check the blood thirst of the die-hard fans and establish some distance between them and the well-loved player characters Ellie and Joel, Naughty Dog employed one of the boldest moves imaginable: shifting the player character and making the players gain a new perspective on the plot by playing as Abby. As with most authorial intentions in works of fiction, though, the response that came from the fanbase was extremely divided. In an attempt to study this polarization, Erb et al. (2021) employ Calleja's (2009) concept of 'focalization' where the player background and disposition is central to understanding 'alterbiographies' (or stories about themselves). It determines whether the player experiences the narrative as the story of an 'entity' (another character) or as their own alterbiography. What their study found was that the players who resisted most to this change of perspective were those invested in the characters and the story as parts of themselves, i.e. their alterbiographies, while the more flexible players viewed this change as something valuable, complex, and unique.

The midway player character shift plays a pivotal role in the narrative structure of the game. By playing as Abby, the player learns that she was also avenging the death of her father, the doctor whom Joel killed to rescue Ellie. We start this portion by playing as a young Abby on the day Ellie was admitted for surgery and Abby lost her father, and then move to the time right after she and her friends have returned to their HQ after killing Joel. We get to see how the events in Jackson have left a lasting scar on Abby and her friends, offering a glimpse into how those experiences have changed them. After playing Abby's section, it would be very difficult to deny her humanity and seek revenge blindly. This humanizing act also makes us ponder Ellie's brutal treatment of anyone who stood in her way to get to Abby. Remembering, for example, how Ellie mauls Nora, one of those present during Joel's torture, to learn Abby's hideout now seems terrifying and pitiable; terrifying because Ellie is also hacking at her humanity with every blow, and pitiful because of the fact she does not deserve this either. Without familiarizing us with the other side of things, the game might have ended up just like another revenge story of endless and pointless killings and shooting until the avenger quenches her thirst, since the distance between the viewer and the character would probably be on either side of an extreme. One would not have the vantage point, the necessary distancing achieved by mimesis according to Aristotle, to see the true horribleness of carnage and revenge.

The Vengeful Fury with a Heart: Hamartia and Catharsis

Ellie's hamartia is her inability to forgive others and this tendency shows itself in two instances, both of which lead to her downfall. As mentioned earlier, hamartia is that shortcoming or fault in the character that brings about their bitter fate and makes us pity their miserable state since we know they were not at fault, at least not completely. In effect, hamartia acts as a humanizing agent in the plot to bring us closer to the character, justify their motives and why they could not have done otherwise.

When we first meet Ellie in the first game, she has no one, and over the course of the story, comes to act as the surrogate for the daughter that Joel lost, and he instead replaces the father that Ellie never met. Not wanting to lose her, Joel lies to Ellie in the final cutscene, telling her that the previous attempts at making a cure had failed and there was no point trying again. One could easily see the hint of disbelief and suspicion in Ellie's eyes as she takes in Joel's words. The second game capitalizes on this suspicion until Ellie, eventually, learns the truth and confronts Joel. For the next two years, until Joel's death, she cuts her ties with him.

The second instance which fully bares Ellie's unforgiving nature is her relentless hunt for Abby, in which the player is also an accomplice. Her only lead takes us to Seattle, now the territory of the faction Abby belongs to, the Western Liberation Front or WLF for short. Not considering the hordes of WLF soldiers murdered by Ellie to get to those who killed Joel, there are two instances which are meant to shake the audience. The first one is when we finally find Abby's friend Nora. She refuses to give up her friend's whereabouts, so Ellie tortures her and it is the player who has to press the buttons and land the blows. We are spared the gory details but later see a broken Ellie, shaken and traumatized as she returns to an abandoned cinema in which she has set up camp. If that was not enough, the story takes another horrendous turn not very long after as Ellie finally makes it to the aquarium, where to her chagrin, instead of Abby, she finds Owen, Abby's ex-lover, and Mel, their friend and now in a relationship with Owen. A struggle ensues and Ellie manages to kill both of them with the player's help but just before we are able to add their names to the list of other indiscriminate victims of the rampage, we hear Owen using his last breath to tell Ellie that Mel was pregnant. In disbelief, she hurries to the dead body and breaks down in seeing that he was telling the truth. Feeling the sudden pangs of her humanity, she is desperate and distraught. Ellie is then taken home by two of her friends who have followed her for help. Thus ends the first half of the game with Ellie agreeing to get back to Jackson. However, it is still too soon for her anagnorisis or recognition.

As mentioned earlier, what qualifies this game as a tragedy is its constant effort to check the audience's distance from the events and characters so that they develop the necessary feelings for the catharsis at the end. If it was not for the second part where we learn more about the people we have been hunting down with Ellie one by one, we would re-main too close to Ellie to see anything beyond what she thinks, knows, and does. Naughty Dog successfully conveys the sense that it is the human condition that is in a miserable state, not that Abby and her friends are bloodthirsty villains who bask in murdering and destroying lives. The fact that we as the audience see more than Ellie does and eventually come to know more about the events and characters than she does, enables us to not only wince in fear at her cruelty but also pity her gradual loss of humanity because of some-thing she cannot control.

The epilogue of the game shows a seemingly serene Ellie and her partner living in an abandoned farm, leading a life which we soon find is not yet rid of the shadow of their past as Ellie is suffering from PTSD. Things do not stay calm, however, as Tommy, Joel's brother, brings word of a possible lead as to the whereabouts of Abby and tries to stir the fire of Ellie's revenge and succeeds. We follow Ellie in her final expedition and eventually find Abby and her newfound companion, a young boy named Lev, held captive by a crew of slavers and left to starve tied to wooden poles. Ellie cuts Abby down but will not let her go. Abby does not want to fight but Ellie forces her by threatening to kill Lev. A dramatic fight to the death ensues but just as Ellie is about to finally take her revenge, she remem-bers Joel, sitting on his porch as usual and playing his guitar, looking content. This is her anagnorisis which finally enables her to let go and forgive. In a way, one could say that seeing Abby with Lev reminded her of the relationship she used to have with Joel, the love

and caring, and opened her eyes to the horribleness of her revenge. However, unlike most tragedies that we are used to like *Oedipus Rex, Macbeth, King Lear,* or *Hamlet*, the moment of recognition for the character does not come with disaster but this time helps her avert it. This does not automatically disqualify this kind of anagnorisis, as Murnaghan argues, since "[w]hat really interests Aristotle about *anagnorisis* is the way that recognition can forestall pathos, the way it can prevent an act of violence from taking place, and the way it supplants that act of violence" (Murnaghan, 1995, p. 763). Through that recognition, the audience is granted the opportunity to see beyond the particulars of the story they just witnessed and draw universal conclusions, and thus for catharsis to happen.

Conclusion

Aspen Aarseth once said that "unlike literature, games are not about the Other, they are about the Self. Games focus on self-mastery and exploration of the external world, not the exploration of interpersonal relationships" (Aarseth, 2004, p. 50). This paper was an attempt to prove that games like *The Last of Us* (Naughty Dog, 2013-2022) series are not just about play but are fully capable of successfully drawing an aesthetically pleasing narrative picture that not only develops a story but also fully explores characters with rich relationships. The way they achieve this end, though, is through a combination of techniques drawn from various fields.

In its premise, this paper aimed to show how a coupling of Aristotle's ideas and theories about tragedy in his *Poetics* could also be fruitfully applied to a digital game. While the parts and mechanisms discussed in *Poetics* might not stand up to the most rigorous philosophical analysis on their own, their combination as a whole is extremely robust and workable. And when applied as an interconnected system, *Poetics* is indeed capable of helping us understand the complex and interrelated narrative webs, such as the one that was analysed here. Using Aristotle, we were able to see how the game makes use of certain mimetic and storytelling techniques to constantly hold the audience in the optimal position regarding the characters and the action of the story, thereby setting the stage for catharsis by arousing feelings of pity and fear and dealing with them through realization and catharsis.

The game that was chosen for analysis, *TLOU2*, is a narrative game that utilizes the abovementioned Aristotelian techniques in its narrative system in order to warrant the title of a tragedy. By artistically distancing the players from the events and characters represented, the game adeptly handles the task of creating deeper layers of meaning-making within itself, and taking the player along with the protagonist on a journey of grasping deeper truths about what it means to be human. The actual distancing technique operates within the complex and interconnected web of catharsis, hamartia, and anagnorisis, to be precise. *TLOU2* makes full use of all these techniques and mixes them to great effect, leading to a game that is both enjoyable to play as a narrative piece on its own, and at the same time, masterfully crafted to attain the status of artwork. Ellie's final overcoming of her hamartia and her newly-attained ability to forgive and let go through her deeper understanding is a prime example of how proper mimetics can lead to catharsis, thus allowing the audience to gain pleasure from watching gut-wrenching events unfold, and in this case, partaking in them as well by interacting with the game as the player. The pleasure comes not because of our sadistic nature but because we are enabled to see beyond the mere events and learn something more, a deeper, more universally applicable understanding of our nature, in a way that is both natural and at the same time not lacking.

As a final note, the author is in no way supporting the claim that all games are narrative, because they most certainly are not, and arguing otherwise would be falling for the narratologist's overgeneralization trap that Aarseth was warning us about. As we have tried to demonstrate, a narrative game is one that is fully capable of achieving the effects of narratives in other mediums through different means. The same must be said of the method chosen for conducting this study. While applying Aristotle in this instance was successful, the reader is asked to see this as an experiment to show how exciting and at the same time illuminating such projects can turn out to be.

BIBLIOGRAPHY

2K Boston, & 2K Australia. (2007). *BioShock* (PC version) [Digital game]. 2K.

Aarseth, E. (2004). Genre trouble: Narrativism and the art of simulation. In N. Wardrip-Fruin, & P. Harrigan (Eds.), *First Person* (pp. 45-55). MIT Press.

Aristotle. (2002). *On poetics* (S. Benardete & M. Davis, Trans.). St. Augustine's Press.

Banfi, R. (2022). Ellie's journal: Para-narratives in The Last of Us Part II. *Game Studies*, *22*(3). https://gamestudies.org/2203/articles/banfi

Bizzocchi, J., & Tanenbaum, T. J. (2011). Well read: Applying close reading techniques to gameplay experiences. In D. Davidson (Ed.), *Well played 3.0: Video games, value and meaning* (pp. 262-290). ETC Press.

Calleja, G. (2009). Experiential narrative in game environments. In T. Krzywinska, H. W. Kennedy, & B. Atkins (Eds.), *DiGRA '09 – Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory* (pp. 1-8). DiGRA. http://www.digra.org/wp-content/uploads/digital-library/09287.07241.pdf

Dennin, K., & Burton, A. (2023). Experiential play as an analytical framework: Empathetic and grating queerness in The Last of Us Part II. *Game Studies*, *23*(2). https://gamestudies.org/2302/articles/denninburton

Erb, V., Lee, S., & Doh, Y. Y. (2021). Player-character relationship and game satisfaction in narrative game: Focus on player experience of character switch in The Last of Us Part II. *Frontiers in Psychology*, *12*(1), 1-11. https://doi.org/10.3389/fpsyg.2021.709926

Ferrari, A., & Soraci, P. (2022). Ludonarrative dissonance in The Last of Us Part II: Attempting to create empathy with a villain. *Human Interaction & Emerging Technologies (IHIET 2022): Artificial Intelligence & Future Applications*, *68*(1) 26-35. https://doi.org/10.54941/ahfe1002709

Frasca, G. (2010). Rethinking agency and immersion: Video games as a means of consciousness-raising. *Digital Creativity*, *12*(3), 167-174. https://doi.org/10.1076/digc.12.3.167.3225

Genette, G. (1997). *Paratexts: Thresholds of interpretation*. Cambridge University Press.

Golden, L. (1976). The clarification theory of "katharsis". *Hermes*, *104*(4), 437-452. http://www.jstor.org/stable/4475981

Housemarque. (2021). *Returnal* (PS5 version) [Digital game]. Sony Interactive Entertainment.

Humphreys, D. J. (2016). Aristotle goes to the arcade: The ethics of videogames, false pleasure and the good life. In B. Kuhn, & A. Bhéreur-Lagounaris (Eds.), *Levelling Up: The Cultural Impact of Contemporary Videogames* (pp. 1-10). Brill. https://doi.org/10.1163/9781848884380_002

Johnson, S. M. (2023). "Go. Just take him.": PTSD and the player-character relationship in The Last of Us Part II. *Games and Culture*, *18*(7), 855-867. https://doi.org/10.1177/15554120221139216

Kaufmann, W. (1992). *Tragedy and philosophy* (4th ed.). Princeton University Press.

Koenitz, H., Di Pastena, A., Jansen, D., de Lint, B., & Moss, A. (2018). The myth of 'universal' narrative models. In R. Rouse, H. Koenitz, & M. Haahr (Eds.), *Interactive storytelling* (pp. 107-120). Springer International Publishing. https://doi.org/10.1007/978-3-030-04028-4_8

Kruse, N. W. (1979). The process of Aristotelian catharsis: A reidentification. *Theatre Journal*, *31*(2), 162-171. https://doi.org/10.2307/3219373

Letizi, R., & Norman, C. (2023). "You took that from me": Conspiracism and online harassment in the alt-fandom of The Last of Us Part II. *Games and Culture*, *19*(4), 1-22. https://doi.org/10.1177/15554120231168745

Mateas, M. (2001). A preliminary poetics for interactive drama and games. *Digital Creativity*, *12*(3), 140-152. https://doi.org/10.1076/digc.12.3.140.3224

Mawhorter, P., Mateas, M., Wardrip-Fruin, N., & Jhala, A. (2014). Towards a theory of choice poetics. In T. Barnes, & I. Bogost (Eds.), *Proceedings of the 9th International Conference on the Foundations of Digital Games* (pp. 1-8). Society for the Advancement of the Science of Digital Games. http://www.fdg2014.org/papers/fdg2014_paper_19.pdf

Meakin, E., Vaughan, B., & Cullen, C. (2021). "Understanding" narrative; Applying Poetics to Hellblade: Senua's Sacrifice. *Game Studies*, *21*(2). https://gamestudies.org/2102/articles/meakin_vaughan_cullen

Murnaghan, S. (1995). Sucking the juice without biting the rind: Aristotle and tragic mimesis. *New Literary History*, *26*(4), 755-773. https://doi.org/10.1353/nlh.1995.0058

Nanay, B. (2018). Catharsis and vicarious fear. *European Journal of Philosophy*, *26*(4), 1371-1380. https://doi.org/10.1111/ejop.12325

Naughty Dog. (2013-2022). *The Last of Us* (Series) [Digital game]. Sony Computer Entertainment; Sony Interactive Entertainment.

Naughty Dog. (2020). *The Last of Us Part II* (PS4 version) [Digital game]. Sony Interactive Entertainment.

Ninja Theory. (2017). *Hellblade: Senua's Sacrifice* (PS4 version) [Digital game]. Ninja Theory.

Owen, D. (2010). Aristotle would have admired BioShock while Shakespeare would have played Dragon Age. In B. Kapralos, A. Hogue, & S. Xu (Eds.), *Proceedings of the International Academic Conference on the Future of Game Design and Technology* (pp. 207-210). ACM. https://doi.org/10.1145/1920778.1920808

Rockstar Games. (2018). *Red Dead Redemption 2* (PS4 version) [Digital game]. Rockstar Games.

Seller, M. (2022). Ugly death: Rotting with the more-than-human in The Last of Us Part II (2020). *Revenant*, *8*(1), 116-140.

Schaper, E. (1968). Aristotle's catharsis and aesthetic pleasure. *The Philosophical Quarterly*, *18*(71), 131-143. https://doi.org/10.2307/2217511

Spicer, C. (Host). (2020, July 21). "You're my people" – Abby (No. 7) [Audio podcast episode]. In *The Official The Last of Us Podcast*. PlayStation. https://open.spotify.com/episode/5vH1zibdGPrMGvY19VA6Nf

Tanenbaum, K., & Tanenbaum, T. J. (2010). Agency as commitment to meaning: Communicative competence in games. *Digital Creativity*, *21*(1), 11-17. https://doi.org/10.1080/14626261003654509

Tassi, P. (2020, June 5). The Last Us Part 2's Laura Bailey getting death threats over Abby role. *Forbes*. https://www.forbes.com/sites/paultassi/2020/07/05/the-last-us-part-2s-laura-bailey-getting-death-threats-over-abby-role/?sh=6e5142b33f27

Tomkinson, S. (2023). "She's built like a tank": Player reaction to Abby Anderson in The Last of Us: Part II. *Games and Culture*, *18*(5), 684-701. https://doi.org/10.1177/15554120221123210

ZA/UM Studio. (2019). *Disco Elysium* (PC version) [Digital game]. ZA/UM.

Game Based Worldbuilding: Planning, Models, Simulations and Digital Twins

Paul Cureton, Paul Coulton

Dr Paul Cureton
Lancaster University
Imagination Lancaster
LICA Building, Bailrigg
LA1 4YD Lancaster
UNITED KINGDOM
P.Cureton@lancaster.ac.uk

Dr Paul Cureton FRSA is Director of Post-Graduate Research, LICA, Director of PhDs, Design and Senior Lecturer in Design at ImaginationLancaster, and a member of the Data Science Institute (DSI). His work transcends subjects in spatial planning, 3D GIS modelling and design futures. It is at the forefront of exploring the critical interface of new and emerging socio-technological relationships such as *Design* for Digital Twins, Drone Futures and novel process-based methodologies for Future Environments such as Geodesign and XR interactions. His recent publications include the monographs, *Strategies for landscape representation: Digital and analogue techniques* (Routledge, 2016) and *Drone futures: UAS for landscape & urban design* (Routledge, 2020) and the forthcoming title *Geodesign, digital twins & urban futures* (Routledge Planning, 2024). He is also co-author with Nick Dunn of *Future cities: A visual guide* (Blooms-bury, 2020).

Prof. Paul Coulton
Lancaster University
Imagination Lancaster
LICA Building, Bailrigg
LA1 4YD Lancaster
UNITED KINGDOM
P.Coulton@lancaster.ac.uk

Professor Paul Coulton is Chair of Speculative and Game Design within Lancaster University's open and exploratory, design-led research lab, Imagination Lancaster. His research can more generally be considered as Speculative Design which combines real and/or hypothetical extrapolations of the development of emerging technologies with a consideration of the cultural landscape into which they may be deployed. This activity is embodied as 'research through design' and, in particular, to the design of speculative physical/digital interactive games, playful experiences, and artefacts. He is internationally recognised for his work by not only academia but also industry and was the first academic invited to speak at the Game Developers Conference. Increasingly, his work encompasses a particular form of Speculative Design; Design Fiction, which is a way of exploring futures for areas such as the Internet of Things and Artificial Intelligence. Design Fictions are collections of artefacts, that, when viewed together build a fictional world. The artificially built world is a prototyping platform for the very designs that define it, meanwhile those designs reciprocate in kind and prototype the world.

ABSTRACT:

Urban planning has been simulated through various city-building games such as *The Sumerian Game* (1964), *SimCity* (1989), and *Cities: Skylines* (2015), amongst many others. Gaming technology has been utilized in 3D GIS, City Information Models (CIMs), and Urban Digital Twins (UDTs) to enhance public participation and engagement in the planning process. This article studies the overlap and 'game-like' qualities of these systems and presents an Urban Game Continuum. This interactive tool works in tandem with a taxonomy of city-building games and existing UDTs in order to assist with the design of future systems. A case study imported GeoData from Lancaster, UK, into a games platform. The continuum tool and case study offer new insights into opportunities for the utilisation of game design and gaming technology in urban planning and digital transformation. The article argues that the current use of gaming technology for real-world applications is one-directional and misses opportunities to include digital game design and research, such as mechanics, dynamics, flow, and public participatory world-building for future scenarios. By incorporating these elements, UDT systems could offer higher levels of citizen engagement.

Introduction

Digital games have a long tradition of providing abstracted simulations of various systems of human activities, such as politics, culture, society, environment, and conflict (Bogost, 2011). While some of these games were merely representations of systems, such as war in chess or the exploitation of renters in Lizzie Magie's *Landlord Game* (1904), others were used in relation to scenario planning for plausible futures. A notable example was the RAND Corporation's Mathematical Analytics Division's (MAD) development of physical games for social science to test military activity, design variables, play assumptions, and anticipate effects (Daye, 2020). Scenario techniques and forecasting developed by Herman Kahn at RAND, and later when he started the Hudson Institute in 1961, were used to create systematic conjectures of the future. A 'multi-fold trend' of some of these future scenarios was urbanisation and the growth of megalopolises (Kahn, 1967). A range of scenario techniques were developed by a number of researchers and applied to many areas, but urbanisation was featured throughout (Bradfield et al., 2005). Thus, even prior to the inception of digital games, the relationship between games , urbanisation and planning had been linked as an area of critical interaction.

These interactions between games and planning could arguably be called a 'matter of concern' in Bruno Latour's terms, which consists of the study of entanglements, complexity, and the socio-technical relations between humans and objects. What can digital games add to the urban planning space in terms of game systems, the simulation of complex urban issues, and how can game mechanics be deployed? We hypothesise that while

a range of future urban planning scenarios utilise gaming technology, they do not necessarily incorporate digital game mechanics and dynamics (Hunicke, et al., 2004), levels, progress, flows and feedback as part of worldbuilding, and this needs to be more fully understood if such systems are to yield potential benefits in terms of citizen engagement. This article develops an understanding of the role of worldbuilding digital games in urban planning, architecture, and design, through the development of a playable urban game continuum to illuminate the various nuances of a range of precedents and scaffold future applications. This interactive urban game continuum is intended for developers of future city models and urban digital twins (UDTs). It is supported via a taxonomic reference of games, city models, 3D geographic information systems and urban digital twin cases. Following this continuum, an applied case study of imported GeoData into the digital game *Cities: Skylines* (Colossal Order, 2015) creating a range of urban analyses, is then compared to real-world strategic plans in order to explore and locate usage of the urban game continuum interactive tool and explore 'game-like' aspects of planning simulation.

Worldbuilding Games and Simulation Tools

A range of terms revolves around the utilisation of digital or analogue games concerning the built environment. Terms such as 'serious games' were conceptualised as a way to describe games aimed at simulating aspects of life in procedural and rationalised manners for education and professional training whilst engaging in the aspects of 'play', with the term emerging from Abt (1970). 'Serious' games have emerged as an approach often utilised for urban planning (Djaouti, 2011). An example of an early serious game related to urbanisation is Buckminster-Fuller's *World Game* (1961), which went through a number of iterations and allowed players to cooperate on population dynamics and resource allocation issues using his Dymaxion Map ("World Game", n.d.).

Digital city planning/creation games emerged from the work of Mabel Addis Mergardt and William McKay's *The Sumerian Game (Addis, 1964), an* IBM mainframe planning game written in Fortan, designed for economic instruction for school children, which was set in Lagash in Sumer circa 3500 BC. It was a text-based game in which players managed various rounds (seasons) of land management with projections and an audio guide for each round, giving procedural choices for players. Doug Dyment later recreated the digital game (in 1968) under the name *Hamurabi* (Dyment, 1968) (earlier titled *King of Sumeria* or *The Sumer Game*). The game inspired various other versions, including George Bank, *Santa Paravia en Fiumaccio* (Blank, 1978) in which a player ruled an Italian city-state in 1400 through turn-based moves and city-building capability. These early examples helped create a trajectory for city-building games, which have emerged as a creative tool for exploring urban governance, city simulation, and planning. A two-player game by Don Daglow, *Utopia* (Daglow, 1982), featured various construction options as a precursor to real-time strategy games (Daglow, 2018). *Arguably, the most famous city building game* is *SimCity* (Maxis, 1989), also known as *Micropolis*. Will Wright formed Maxis with businessman Jeff Braun to self-publish *SimCity* in 1989. *Micropolis* allows the players to inhabit the character of the city mayor and develop various planning models, particularly through the use of zoning (Terzano & Morckel, 2017). The digital game was targeted at an educational market with a dashboard interface displaying variables and oblique and isometric virtualisation of city worlds (Gaber, 2007).

SimCity used a form of Agent-Based Modelling (ABM), cellular automata (CA) modelling, which involves 'agents' and interactions between things in order to model complexity, sometimes through the use of infinite cell structures and relationships. This has subsequently been used for real-world urban development scenarios and dynamics, such as populations or transportation modelling combined with remotely sensed data and Geographic Information Systems (GIS) (Yeh, 2021). In addition, ABM has been used to model individual behaviours and associations, such as crowd behaviour simulated in a virtual real-world space (Crooks et al., 2021). ABM and CA are processes that share system rules similar to those of city-building games. *SimCity* is CA with agents, though the design motivation is very different. The differences raise questions about the black-box nature of the city-building games and underlying parameters compared to the motivation for creating digital games such as *Micropolis* (*SimCity*), as expanded by Wright, which is firmly focused on the fiction of a city for play.

> ... you give the player a tool so that they can create things. And then you give them some context for that creation. You know, what is it, what kind of kind of world does it live in, what's its purpose? What are you trying to do with this thing that you're creating? To really put the player in the design role. And the actual world is reactive to their design. ... Giving them a pretty large solution space to solve the problem within the game. So the game represents this problem landscape. (Pearce, 2022, para. 4)

Cities and urban areas are complex systems, and games allow a player to explore the complexities of such systems, to which Wright is referring, and simulate and model behaviour and realise scenarios. However, the relationship to real-world planning should not be overstated as *SimCity* is not designed to be a planning simulation model but a game designed to create a pleasurable experience that addresses aspects of planning (Devisch, 2008). This can be juxtaposed with the game *SimNimby* (Nass & Weeks, 2022) which is a subversion of *Micropolis*, whereby players progress through futile planning experiences encompassing fifty-four different development objections, which eventually end the game and is based on the real-life experiences of game designers working in San Francisco and Brooklyn, USA. This satire highlights some of the complexities experienced in real-world planning consultations. The benefit of games such as *SimCity* is that the platform introduces players to a simplified representation of complex urban systems with little adherence to real-world planning rules and procedures, whereas *SimNimby* is a representation of a real-world planning system, which is presented as a parody to highlight frustration that often occurs when engaging with such technocratic schemes.

Players should also be aware that this introduction to planning via gaming found in *SimCity* still follows particular aspects of the real-world models, which Bereitschaft (2016) defines as 'gentrification' and represents preferential futures dominated by the motor car. The 'black box' of the Sim games rests on various designer's understanding of urban processes. The release of *SimHealth* (Thinking Tools, 1994) sought to simulate and game American healthcare during the Clinton healthcare plan reforms, juxtaposing the simulation with real-world health politics. The Markle Foundation commissioned Maxis Business Solutions to create *SimHealth* in order to provide a game experience of complex policy and health care. This was released on Capitol Hill, and copies were provided to lobbyists and the White House (Salvador, 2020). A spin-off of Maxis, Maxius Business Simulations created various corporate SIMs, including *SimRefinery* (Maxis, 1992) for Chevron, in order to simulate the complex oil industry.

This highlights that worldbuilding and strategy games have been developed with great emphasis on particular geographic imaginaries. For instance, *Utopia: The Creation of a Nation* (Celestial Software, 1991), is a micromanagement simulation game on an offworld colony inspired by *SimCity*. The subsequent development of *SimCity 2000* (Maxis,

1993) introduced several new features, such as query tools, urban decay, and more detailed game variables. Additionally, it included a disaster scenario expansion pack with various porting options *Cities XL* (Focus Entertainment, 2013), and *Cities: Skylines* (2015, 2023) are some of the most recent city-building games to be released, which expand on the *SimCity* CBG genre.

A range of contemporary game releases in this genre created meaningful game experiences, such as *Block'hood* (Plethora Project, 2016), in which players must envision a neighbourhood and maintain ecological balance; *Constructor* (System 3, 1997) in which players inhabitant a commercial construction company and undermine its rivals, and *Little Cities* (Purple Yonder, 2022), in which players develop on grid forms on an island and the prosperity is measured through the immersive design choices. Finally, *The Architect: Paris* (5PM Studio, 2021), is a high-realism city planning sandbox based in Paris with extensive detailing features in which players can realise designs in developed construction phases.

Planning Systems

If a games designer were to create a simulation game of a national planning framework, the complexity of this world-building exercise would be highly challenging. For example, in the United Kingdom, The National Planning Policy Framework (NPPF) is the government's view of the planning system in England that must operate in accordance with primary and secondary legislation with sixteen categories under the framework provision (Picture 1). The NPPF provisions are supported by further detail in the National Planning Practice Guidance (NPPG). Aligned with the NPPF, 317 Local Planning Authorities (LPAs) develop local plans and neighbourhood plans. Updates to the NPPF are frequent, often yearly. Thus, creating a simulation of the NPPF and NPPG is not conducive to game design principles, nor can the nuances and translation of a framework, primary and secondary legislation, and a range of local plans into game rules be properly enacted in totality.
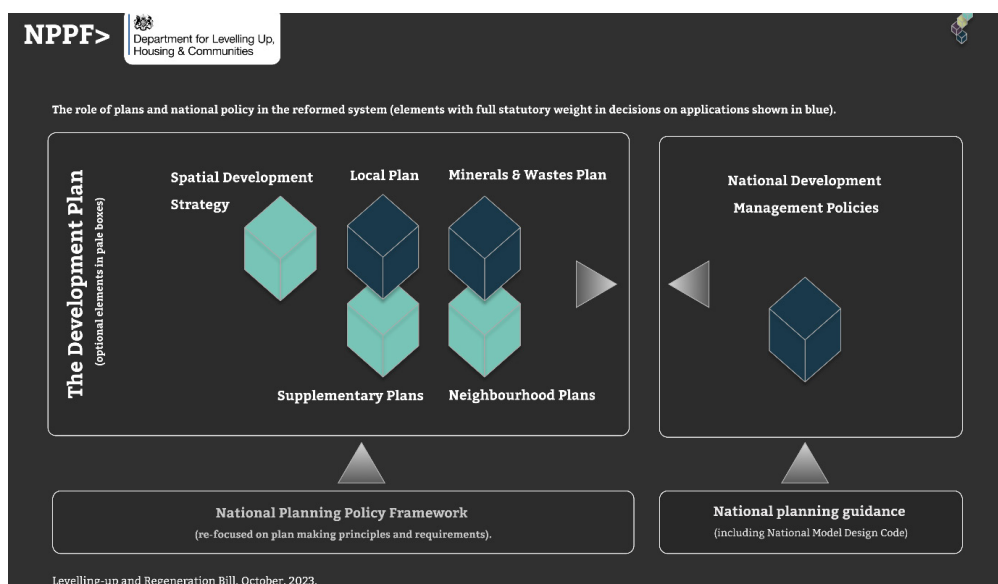
Picture 1: National Planning Policy Framework (NPPF) in the United Kingdom
Source: own processing based on "Levelling-up and Regeneration" (2023)

However, with the rise of City Information Models (CIMs), a term coined by Lachmi Khemlani in 2005 (see Khemlani, 2023), 3D Geospatial data, cloud-based services for the web and urban digital twins (UDTs) (cyber-physical systems that provide virtual replicas of real-world aspects and indicators), developers have started to incorporate various game technologies and design patterns to create interactive systems around particular aspects of the planning system. In particular, the use of game engines provides 3D experiences, interactive dashboards or game UI, interactive modelling, and immersive visualisation. Currently, digital twins of urban environments are informed through various fields as part of urban informatics, urban analytics, geographic data science and geo-computation – making geographical decisions about how best to tackle a real-world problem (Brunsdon & Singleton, 2015). In essence, urban informatics, urban analytics and geo-computation are terms with overlapping research communities across a variety of disciplines applied in the real world using a variety of approaches and methods for sensing, working with big spatial data, and the modes in which people utilise data, plus the communication of findings, models and predictions. However, there are opportunities for game design to make an integral contribution in these multi-disciplinary teams, especially in the areas of interaction. We are in a period of large volumes of ubiquitous 4D urban data (3D and time-based) captured from embedded, connected and remote sensors. The ability of participants to engage in various forms of immersion and interaction with this data has developed through cloud-based GIS platforms, yet these areas are often unconnected, fragmented and unequal (Souza & Bueno, 2022).

There is an opportunity to define the gamified and game-like systems being developed in relation to actual city-building games and game design principles in order to both understand current practices and open up the opportunity to playfully engage the general population in the complexities affecting decision-making in urban planning. Currently, many of the UDTs seek participation using gaming technology for aspects of their systems, yet miss the game's design elements, which could provide much more positive experiences. For example, Markus Persson, Jens Bergensten's *Cave Game*, subsequently *Minecraft* (Mojang Studios, 2011), is an open-world explorative free block creation game, has been translated into the UN-Habitat *Block by Block* methodology from 2012, increasing participation in a range of urban design and planning projects across the world, with a replicable workshop 'playbook' (Imam & Lahoud, 2021). Communities use *Minecraft* to plan, design and test proposals for public spaces using the game. This example is an outlier compared to current systems and cases focused on the exploitation of gaming technology only.

Arguably, there is a restrictive incorporation of gaming technologies *for* real-world planning that misses opportunities to engage players in changing the rules of the system being replicated. This is much needed as governments such as the UK argue that urgent change is required in planning if we address the chronic shortfall in housing and stimulate economic growth. Gaming technology and gamified Geodata are intended for citizen participation and access, yet fundamental challenges remain unaddressed. The Royal Town Planning Institute (RTPI) in the UK stated that "response rates to a typical pre-planning consultation are around 3% of those directly made aware of it. In Local Plan consultations, this figure can fall to less than 1% of the population of a district" (Manns, 2017, para. 3). The RTPI paper of 2020 also evidenced that only 11% of young people have been engaged in a local plan consultation (Butler et al., 2020). However, what if games research and ludic interactions are introduced, and gaming technology in which the planning system is played and redesigned? This creates alternative ways of working and new possibilities for worldbuilding and developing fundamental changes to the planning system. Games should not be vehicles in which real-world planning systems are simulated but a platform

in which alternative worlds are imagined in order to change the limitations of that very real-world system. Would this worldbuilding approach and result increase citizen participation, and what would this game system for planning look like?

Urban Game Continuum

By referencing the aforementioned range of city-building game precedents, an urban game continuum is presented in Pictures 2, isolating four major factors in this paper's range of precedents. The continuum has four level blocks. The continuum operates left to right in a similar way to the virtuality continuum created by Paul Milgram and Fumio Kishino, often used as an initial basis to discuss extended reality (XR) and the metaverse (Milgram et al., 1995). The interactive tool contains four classifications in the coloured level blocks – Geography, System, Models and Interactions common attributes of digital games, 3D GIS, CIMs and UDTs. Players map from the bottom upwards, plotting and mapping the aspects of the system for future development using coloured counters. The resultant map thus informs the system design. The four classifications are devised on these terms:

1. Interactions: Acts of open-world gaming (Left), single-player, ludic and games technology for citizen engagement (Right).
2. In terms of Models and Urban simulations, the continuum maps simulations of implausible acts and environments (Left) and augmentation of real-world urban planning (Right).
3. In system terms, a continuum for cyber networks, game systems (Black Box), data and models (Left) and their relationship with the physical (Cyber-physical) is created (Right).
4. In geographic terms, a classification and continuum are created to map pure imaginaries (Left) games and adopt high realism and fidelity (Right).
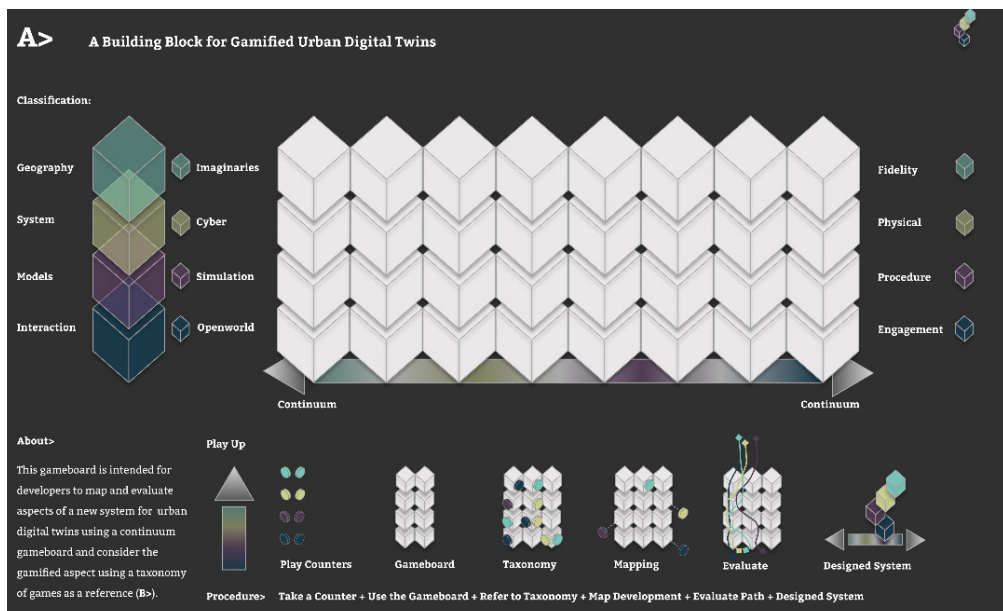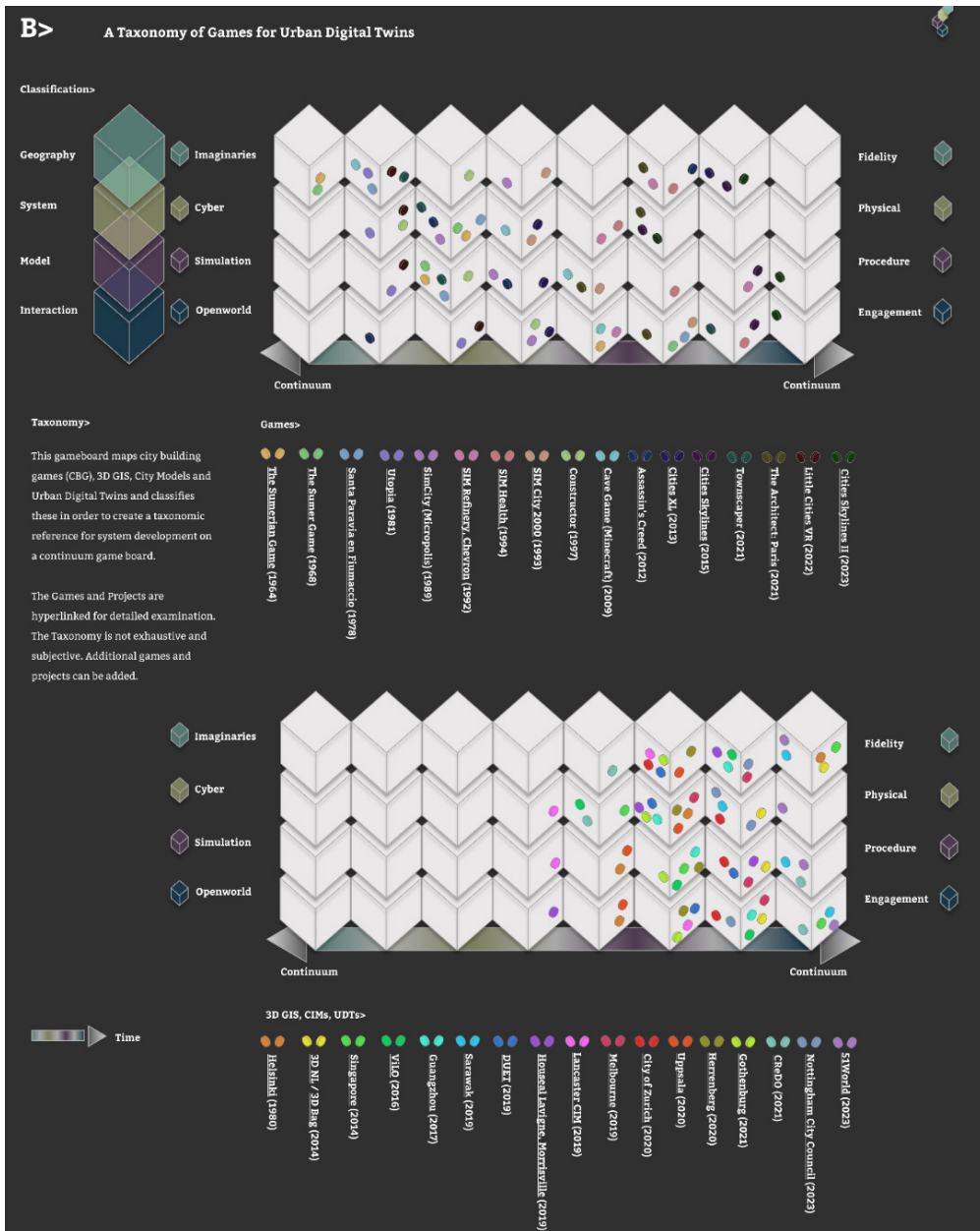
Picture 2: Urban game continuum
Source: Cureton, 2024b

In order to map a new system onto the continuum and on the four classifications, a supporting taxonomy, which is hyperlinked to the original game, case, or dataset, is developed from city building games, 3D GIS, CIMs and UDTs to support this exercise. These two components allow users/players to reference and benchmark the games and cases against their development needs. For example, a player may design a system on the continuum from left to right and benchmark from the taxonomy. For example, a user/player mapping a new system may plot their design by comparative values such as one more block face for Open-world exploration compared to the *SimCity 2000* game, two more

block faces towards Procedure nearer the game *Cities: Skylines*, and one more block face towards Physical, and three more block faces across to Fidelity.

Establishing such a continuum is essential as there is a rich territory and crossover with the increasing urbanisation and large-scale investments in smart cities. Developers can use this interactive tool to develop new systems and make reference to game titles and existing 3D GIS, CIMs and UDTs. The taxonomic reference is subjective, not exhaustive, and expandable from the seventeen Games and seventeen UDTs plotted in the first instance. However, through juxtapositions and comparative benchmarking, users can map the new system using the game board to evaluate its aspects.

In order to create this continuum, distinctions need to be made between the use of games for planning education and game technology for planning processes. For example, 'game-like' platforms, such as Cesium plugins for Unreal Engine and ESRI ArcGIS, provide 'real world' geo-located information. In another example, Houseal Lavigne used a procedural modelling program and a games engine as part of public consultation for Morrisville, North Carolina, USA (2019) and its land use plan, in which two scenarios were created for its town centre with different build-outs including a dashboard that adopted the zoning code ("Mapping Morrisville", 2021). Hence, it is relatively central on the gameboard, leaning towards Fidelity and Engagement.

Game Engines are utilised for a range of activities and simulations, including geolocated weather and 3rd-person open-world exploration, amongst other operations. GIS and game engine integration is, of course, reliant on streaming architecture. The gamification of GIS systems, availability of photogrammetry data, satellite imagery and open street map, provide environments long sought in early city-building games. Gaming technology enables fidelity and urban planning simulations to a higher degree (Poplin et al., 2020). Thus, in the seventeen cases, the majority are mapped toward the right-hand side of the continuum and support the hypothesis of the one directionality of games technology applied towards urban planning, but lacking game design principles.

The role of digital games is critical; for example, a range of planning platforms utilising 3D GIS and data dashboards to simulate future scenarios and describe developments in the current planning process. There is a user interface crossover from some of the game precedents already described, such as *Cities: Skylines II*, with a clear relationship between a computer game and a real-world dashboard of various urban indicators. In both cases, there is a need for navigable, understandable and progressive information in order to explore the various parameters of the fictional or real-world 'gamified' space (Young & Kitchin, 2020). In *Cities: Skylines*, residential development suitability is presented on a colour ramp. For Nottingham City Council, colour systems indicate the current real-world planning application and status, including public consultation (Picture 4). In both cases, the importance of game research interaction and mechanics is at a critical juncture with urban informatics and urban planning. Questions arise on the nature of interactions for citizen engagement and how decisions are formed from the basis of governance. For Nottingham City Council, applications will be assessed based on the adopted local plan by planning officers, but what role does the GIS model play in informing this assessment? Line of site studies, energy efficiencies, and environmental effects are all parameters the model can assist, and the role of 3D urban models has many benefits, such as Helsinki's energy and solar atlas and the possibilities for energy renovations throughout the Helsinki region. Building-specific information features include water consumption, district heating and electricity comparable to the indicators created in *Cities: Skylines* game ("Energia-ja ilmastoatlas", n.d.). The four sections of the data model include energy data on buildings, simulated heating demand, solar energy potential, and geothermal potential, and it is intended to be used by a variety of actors. However, unlike city-building games with

pre-defined missions, progression and open-world creativity, this 'gamified' content has profound implications. Reflecting on *SimHealth* at the time of release, and his role as a policy maker, Paul Starr, states,

> … when policymakers depend on simulations to guide present choices--especially when legislators put government on "automatic pilot," binding policy to numerical indicators of projected trends-- they cede power to those who define the models that generate the forecasts. (Starr, 1994, p. 20)
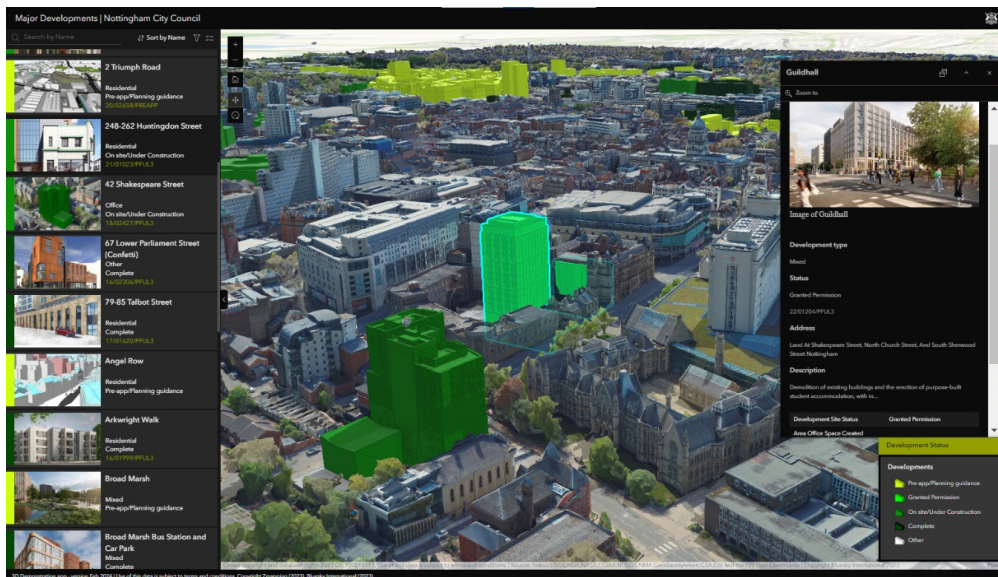
Picture 3: Major Developments portal, Nottingham City Council
Source: Nottingham City Council, 2024

Starr highlights an important research space for using gaming technology and mechanics in urban planning platforms and systems. Does the black box space of the game-like platform and model dictate decisions, and how does this change the dynamic of the planning process and judgements for progression? The social-technical relations between systems and interaction are thus a critically underexplored research space pertinent to high-level investment in UDTs, as recognised in the WEF Global Practices report on City Digital Twins in which 55.6% of DT use in public service management and 44.4% of digital twin application uses are reported in community development (World Economic Forum, 2022). Thus, games and the range of real-world planning systems using game technology is a critical research area.

Modifying Cities: Skylines with GeoData, Lancaster City, UK

Considering the Urban Game Continuum and taxonomy, a digital game *Cities: Skylines*, modification and map builder are utilised to import real-world geodata to examine the game's simulative and reductive qualities and consider real-world planning issues

in relation (Khan & Zhao, 2021). The purpose of the task is not to critique current local plans but to simulate some of the policy principles and explore options for worldbuilding outside of the NPPF system constraints. For the game *Cities: Skylines*, players can import geodata height maps (Digital Terrain Model) and export fictional cities and models to real-world digital Open Street Maps (OSM) via modifications or import real-world maps.[1] The modifications to do this in *Cities: Skylines II* (Colossal Order, 2023) were not yet available at the time of writing. Simple terraform tools of DTMs can be used to create a baseline from which to build out, and this aspect is an established workflow, though there are opportunities to demonstrate the bi-directionality of the gaming platform itself (Wicaksana & Darmawan, 2021). The game has been used to simulate Norra Djurgardstaden, Stockholm, Sweden (2017), the role of industrial zones and factories in Braunschweig, Germany (2017) (Juraschek et al., 2017), Żuromin, Central Poland (Olszewski et al., 2020) and Denpasar City, Indonesia (2021), amongst many others. Historical plans, such as Ebenezer Howard's layout for Letchworth Garden City, have also been recreated (2022) ("Recreating the first", 2022). This translatory aspect of the game towards real-world planning issues has also been applied to the player's understanding of sustainable development goals (SDGs) in their game worldbuilding (Jolly & Budke, 2023). The extent and limitations of the game can be mapped to the fidelity, physical replica, procedures, and engagement values from the Urban Game Continuum and are mapped based on the game mechanics.

This case is mapped against the degrees of imaginaries and fidelity of the game in terms of managing health, employment, traffic, and pollution levels compared to the real-world strategic plans of Lancaster City Council. The degree to which *Cities: Skylines* can relay the cyber or physical aspect of the city, the capacity of the game 'black box' to mimic planning procedures and the engagement potential and playful experience of the game for real-world issues. Indeed, much of the focus of explorations has concentrated on one aspect of the game, real-world planning issues, rather than the possibilities of new modifications via gaming and redesign of the existing real-world planning system.

A large section of the Lancashire district region has been used in the game (Picture 4), North-West UK (Lng/ -2.7984740523877747 Lat/ 54.044485589053494). The district has a population of 144,246 and area coverage of 576.2 Km² / 57,620 ha. The area was chosen for its spatial complexity, the non-metropolitan district is defined through UK Governmental Boundaries, its legislative framework and the Office for National Statistics ONS ("Adopted policies", n.d.). The district is a two-tier non-metropolitan area of high-grade agricultural land that has extensive rural coverage and mixes small towns, coastal communities, post-industrial ports and a primary 'arc-like' urban area and urban extensions. The primary urban area is an arc stretching from the coast at Heysham, upwards to Morecambe Bay and southeast to Lancaster. The study area contains the Forest of Bowland, an Area of Outstanding Natural Beauty (AONB), Arnside & Silverdale (AONB), military sites, and a nuclear power plant. The current Local Plan for Lancaster District was adopted for 2011 – 2031 and contains the policies for sustainable settlements, rural villages and future growth development areas ("Local plan", 2020).

Major motorways, local routes, railways and natural environments were mapped using the game map editor, which consists of asset paintbrushes. Manual editing is required to reference satellite images and OSM layers. The standard game checklist added Resource allocation for the game parameters and mobility requirements (Picture 5). Additional building of assets is also possible in a range of 3D procedural modelling programs, which can be imported into the game using community resources or expansion pack materials. Realistic cities, such as Rochester and Pittsburgh, USA, have been realised,

---

1   See: https://heightmap.skydark.pl/

demonstrating possibilities with additional build hours and skills ("Pittsburgh 1:1", 2022). In another project, 3D Level of Detail (LOD, 2.5) buildings were created for the district, which could be imported and developed with textures for higher levels of realism but outside of the remit of study due to time constraints (Cureton & Hartley, 2023). Additional British modifications and housing typologies could also be utilised to increase degrees of realism and suitability ("Biffa's British", 2022).

Picture 4: Lancaster strategic policies and land allocation development plan and Cities: Skylines map tiles
Source: Cureton, 2024a
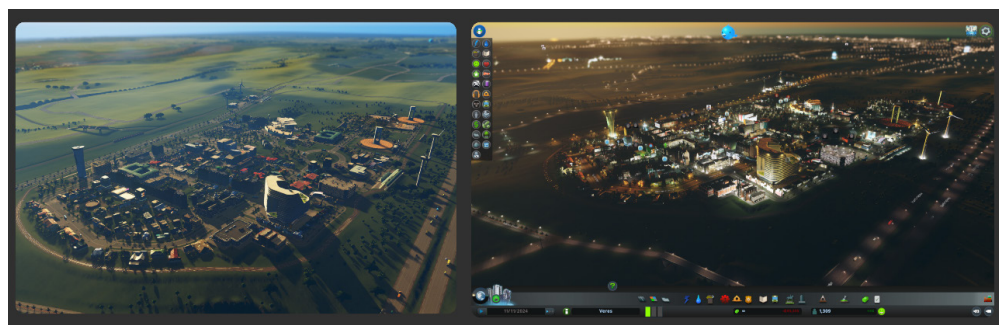
Picture 5: Lancaster South Map & Cities: Skylines in-game play
Source: authors' screenshots from the game Cities: Skylines (Colossal Order, 2015)

The start game area of the map was chosen as Lancaster University, which is nestled between the M6 and West Coast mainline railway and Lancaster Canal, which is central in the 'Lancaster South Development Area' ("Local plan", 2020). Skylines requires the starting tile area, which was used for the detailed build-out south of the University, which is a sustainable settlement policy growth and employment area (SP2, SG2) in the adopted local plan at Galgate ("Local plan", 2020). A planned broad settlement called Bailrigg Garden Village (SG1, SG3), delivered by Homes England to the west of the campus, has had outline planning for around 5,000 homes and a junction link to the M6 road, which has been put on hold. The policy for the garden village seeks community involvement in the development, of which *Cities: Skylines* could play a role ("Bailrigg Garden Village", n.d.). The authors used the policy principles and made reference to them during gameplay, as well as tested deviations from the policy. For example, for policy SG1, the following principles were considered a gameplay guide:

- The delivery of access into the Strategic Highways Network via a reconfiguration of Junction 33 of the M6 to the satisfaction of the strategic and local highways authority.
- Improvements to the local road network as appropriate to address recognised capacity issues and issues of highway safety to the satisfaction of the local highways authority.
- Improvements to the public transport network, specifically the creation of a Bus Rapid Transit System linking South Lancaster to Lancaster City Centre, Morecambe and the Employment areas on the Heysham Peninsula to provide genuinely realistic alternatives to private vehicle use.
- Improved cycling and walking linkages from South Lancaster to the north, towards Lancaster City Centre and to the south, towards Galgate. This will be through the creation of a Cycling and Walking Superhighway which will provide a safe and attractive route for pedestrians and cyclists. Improvements will also be sought for improvements to walking and cycling links along the Lancaster Canal.
- The delivery of sufficient education places at both a primary and secondary school level to the satisfaction of the local education authority.
- The delivery of new local centre(s) provision, which will include a range of local services and community facilities in an accessible location for both new and existing residents in South Lancaster.
- The provision of sufficient public open space to fully meet the amenity and recreational needs of the residents in the Garden Village ("Local plan", 2020).

The content management system and indicators of the game provide clear progression and elements to build out the university campus; game mechanics rest on building out from road networks and parking lots, over pedestrian routes, and several city elements have to be incorporated, such as a fire station and hospital, in order simulate growth. There was often a divergence between the development plans and the gameplay. Transport networks often must be looped and do not reflect the real-world situation, which may operate on larger scales. The proposed M6 highway link in the garden village plan could be incorporated into the game, but there are limitations to the highway tools. Environmental impacts are limited and especially pertinent with a coastal habitat to the west and AONB to the east, to which the authors avoided growth. The game simulated a 'happy' campus community with distanced industrial zones and infrastructure facilities. However, development potential was limited due to the transport corridors. Some existing real-world housing remained underutilised and abandoned in the game, such as a student housing block nestled against the West Coast mainline station, and heavy traffic

and congestion were featured on the main arterial route to campus and the M6 motorway link through Galgate. Interesting scenarios could be visualised, such as connecting the canal system and River Lune and a new train station for new mobilities outside of the current real-world system and policy considerations. The map and modification require further testing with a range of players to map the various scenario options and imaginaries of players. Regional planning considerations are limited due to the game mechanics, but they could be an important area of investigation to stimulate inter-urban connectivity, growth and tourism on a larger scale as well as incorporate a broader range of actors (Harrison et al., 2022). The game is more suited to local development plans than regional ones at present. Finally, once players are satisfied with modelled scenarios, a modification allows the export of the developed model as an OSM map via CimToGrapher for use in GIS software. Thus the 'Black Box' of the game system, provided ludic experiences, but devitations to the development policies regularly occurred. The possibilities of new urban forms and transport options outside the plan, such as a new train station, helped develop unconsidered options and delivered sustainable growth in the game.

Limitations

Henri Haimakainen, the game's designer for Collosal Order, Paradox Interactive, discusses the system of *Cities: Skylines II* and states that the game has five levels of educational attainment featured and mapped to school building types. Education is linked to job progress and happiness. Citizens can become criminals depending on jobs and education in the new release; high crime probability is a featured indicator in the system design (Cities: Skylines, 2023). This reductive view of citizen agents can help with game management but is far removed from the complexities of real-world demographics, and when applied to the university campus area in this study, it is highly unrealistic. The simplified view of citizen behaviour indicates the reductive aspects of many real-world planning aspects due to the goal of playability. However, the game system management and UI of both game releases are highly intuitive, with high-level overviews using a 'chirper' bot resembling social media and expandable and collapsable dashboard indicators, utilising easily readable colour ramps and real-time situations, applied policies and governance aspects for the players. This UI and the game mechanics provide a critical pedagogical tool in the game's planning and development system, with clear targets for progress, which is nonexistent in the range of UDT cases. The citizen-focused 3D experiences of UDTs, dashboards, and interaction do not help viewers navigate and understand the range of proposals and scenarios being presented or reference existing planning documentation, which normally consists of heavy text documents and PDFs, which is often assumed apriori knowledge. To a degree, the range of UDT precedents provides some accessibility through game technology but does not explain *the system of planning* itself. Many of these planning-led UDTs could reflect *Cities: Skylines*, which is transparent in terms of the *system of the game* and contains a rich range of explanations embedded in the game mechanics through the UI and bots. There is rich potential in analysing games such as *Cities: Skylines* to visualise urban informatics and introduce progressive game mechanics and transparent explanations. Notably, the building typologies present in the game could be added in some UDT cases, with 3D reality environments to present a range of scenarios for the public to sample preferable options and schemes through future co-designed workshops. Further work in the juxtaposition of real-world and game simulations requires playtesting for a range of demographics in

terms of usability and player experience for citizen engagement. Barriers to the accessibility of the game are navigated by the extensive tutorials of the Chirper 'Bot'. Interest in the CBG genre should not be an immediate barrier for usage in workshops, given the game has an estimated 10.45m owners since release, sixty-nine extension packs, with around fifty-seven thousand peak users at a time (SteamDB, n.d.). This future work also has the potential for replicability given the computing needs for the game are not intense, given the game's release in 2015.

Conclusion

The range of 3D GIS datasets, City Information Models and UDTs utilise various aspects of gaming technology, such as game engines or game-like interfaces and require unpacking to better understand how particular design decisions change the nature and focus of the experience. The increasing number of cases and applied UDTs for urban areas globally requires a tool for understanding these systems' design and social-technical relations. The urban game continuum is a playable tool created to address this challenge with reference to a taxonomy of games and existing cases. This taxonomy is expandable and provides a benchmark for devising future systems. Games cannot replicate the complete planning system, but with low engagement in the UK's case, there is a need to consider how game design approaches could play an essential role in increasing public interaction within current planning processes through an explanation of the planning system itself.

In the case of the map for *Cities: Skylines,* the game experience contains embedded learning of the game system and its mechanics, whereas the sample of existing UDT cases in the Urban Game Continuum is a one-directional information flow. Creating playable experiences with an embedded learning and progressive UIs could provide much higher-level modes of citizen engagement, reflections, and redesigns of the real-world planning system via serious games. However, a different complex system is played over the real-world NPPF system in the *Cities: Skylines* case. Ultimately, players are still utilising a range of pre-established game rules and dynamics, and there is a lack of opportunities to design an overall system in tandem with designers.

Damjan Jovanovic's (2021) *Planet Garden*, a terraform simulation game of non-linear systems in which players build and balance various sources for 'worldmaking' tested underlying urban assumptions, allowing players to design the system for a range of future scenarios. While players cannot explore the 'black box' of *Cities: Skylines* as a system, unlike *Planet Garden*, the extensive modification possibilities are useful, as are the pedagogic benefits, including players reflecting and thinking about networks, connections and relationships with each micro city building planning decision played, especially for sustainable transit networks. The reflectivity provided via gaming is an incredibly useful device to promote discourse around future environments rather than a one-way information source communicated via gaming technologies and interfaces.

Providing opportunities and games to explore 'problem landscapes' and help players scaffold their worldbuilding is essential for planning engagement. In a period in which cyber-physical sensors and models that constitute urban digital twins are increasingly being sought to virtualise our urban environments, we must introduce the ludic and not just the games technology to simulate future space and life.

BIBLIOGRAPHY

5PM Studio. (2021). *The Architect: Paris* [Digital game]. Endo Games.

Abt, C. C. (1970). *Serious games*. University Press America.

Addis, M. (1964). *The Summerian Game* (IBM 7090) [Digital game]. BOCES; IBM.

Adopted policies map – July 2020. (n.d.). Lancaster City Council. Retrieved May 21, 2024, from https://lancaster.maps.arcgis.com/apps/webappviewer/index.html?id=8a956391c7ee4c68a74b31f3732476cb

Bailrigg Garden Village, Lancaster. (n.d.). JTP. Retrieved March 5, 2022, from https://www.jtp.co.uk/projects/bailrigg

Blank, G. (1978). *Santa Paravia en Fiumaccio* [Digital game]. Instant Software.

Bereitschaft, B. (2016). Gods of the city? Reflecting on city building games as an early introduction to urban systems. *Journal of Geography*, *115*(2), 51-60. https://doi.org/10.1080/00221341.2015.1070366

Biffa's British city build – Assets (2022). (2022, January 6). Steam Community. https://steamcommunity.com/sharedfiles/filedetails/?id=2710090707

Bogost, I. (2011). *How to do things with videogames*. University of Minnesota Press.

Bradfield, R., Wright, G., Burt, G., Cairns, G., & van der Heijden, K. (2005). The origins and evolution of scenario techniques in long range business planning. *Futures*, *37*(8), 795-812. https://doi.org/10.1016/j.futures.2005.01.003

Brunsdon, C., & Singleton, A. (2015). *Geocomputation: A practical primer*. Sage Publications.

Butler, R., Garnet, L., Shah, P., & Krabbe, I. (2020). *The Future of engagement*. RTPI. https://www.rtpi.org.uk/media/7258/the-future-of-engagement.pdf

Celestial Software. (1991). *Utopia: The Creation of a Nation* [Digital game]. Gremlin Interactive.

Cities: Skylines. (2023, August 31). *Simulating Life | Developer Insights Ep 11 | Cities: Skylines II* [Video]. YouTube. https://youtu.be/OTOPkhWcIRQ?feature=shared

Colossal Order. (2015). *Cities: Skylines* [Digital game]. Paradox Interactive.

Colossal Order. (2023). *Cities: Skylines II* [Digital game]. Paradox Interactive.

Crooks, A., Heppenstall, A., Malleson, N., & Manley, E. (2021). Agent-based modeling and the city: A gallery of applications. In W. Shi, M. F. Goodchild, M. Batty, M.-P., Kwan, & A. Zhang (Eds.), *Urban Informatics* (pp. 885-910). Springer. https://doi.org/10.1007/978-981-15-8983-6

Cureton, P. (2024a, January 6). *Lancaster UK*. Steam Community. https://steamcommunity.com/sharedfiles/filedetails/?id=3132777655&searchtext=lancaster

Cureton, P. (2024b, May 22). *Urban Digital Twin Tool*. Figma. https://www.figma.com/community/file/1374999663066720955/urban-digital-twin-tool

Cureton, P., & Hartley, E. (2023). City Information Models (CIMs) as precursors for Urban Digital Twins (UDTs): A case study of Lancaster. *Frontiers in Built Environment*, *9*(1), 1-8. https://doi.org/10.3389/fbuil.2023.1048510

Daglow, D. (1982). *Utopia* [Digital game]. Intellivision; Mattel Aquarius.

Daglow, D. L. (2018). *Indie games: From dream to delivery*. Sausalito.

Daye, C. (2020). *Experts, social scientists, and techniques of prognosis in Cold War America*. Springer Nature. https://doi.org/10.1007/978-3-030-32781-1

Devisch, O. (2008). Should planners start playing computer games? Arguments from SimCity and Second Life. *Planning Theory & Practice*, *9*(2), 209-226. https://doi.org/10.1080/14649350802042231

Djaouti, D. A. (2011). Origins of serious games. In M. Ma, A. Oikonomou, & L. C. Jain (Eds.), *Serious games and edutainment applications* (pp. 25-43). Springer. https://doi.org/10.1007/978-1-4471-2161-9

Dyment, D. (1968). *Hamurabi* (FOCAL) [Digital game]. Digital Equipment Corporation.

Energia- ja ilmastoatlas [Energy and climate atlas]. (n.d.). Helsinki Region Infoshare. Retrieved May 21, 2024, from https://kartta.hel.fi/3d/atlas/#/

Focus Entertainment. (2013). *Cities XL* [Digital game]. Monte Cristo; Pullup Entertainment.

Gaber, J. (2007). Simulating planning: SimCity as a pedagogical tool. *Journal of Planning Education and Research*, *27*(2), 113-121. https://doi.org/10.1177/0739456X07305791

Harrison, J., Galland, D., & Tewdwr-Jones, M. (2022). *Planning regional futures.* Routledge.

Hunicke, R., Leblanc, M., & Zubek, R. (2004). MDA: A formal approach to game design and game research. In D. Fu, S. Henke, & J. Orkin (Eds.), *Proceedings of the AAAI Workshop on Challenges in Game AI* (pp. 1-5). AAAI. https://cdn.aaai.org/Workshops/2004/WS-04-04/WS04-04-001.pdf

Imam, A., & Lahoud, C. (2021). *The block by block playbook: Using Minecraft as a participatory design tool in urban design and governance*. United Nations Human Settlements Programme (UN-Habitat). https://unhabitat.org/sites/default/files/2021/09/1-bbb_playbook_publication_final.pdf

Jolly, R., & Budke, A. (2023). Assessing the extent to which players can build sustainable cities in the digital city-builder game "Cities: Skylines". *Sustainability*, *15*(14), 1-19. https://doi.org/10.3390/su151410780

Jovanovic, D. (2021). *Planet Garden* [Digital game]. https://worldmaking.xyz/Planet+Garden/Planet+Garden

Juraschek, M., Herrmann, C., & Thiede, S. (2017). Utilizing gaming technology for simulation of urban production. *Procedia CIRP*, *61*(1), 469-474. https://doi.org/10.1016/j.procir.2016.11.224

Kahn, H. (1967). The next thirty-three years: A framework for speculation. *Daedalus, 96*(3), 705-732. https://www.jstor.org/stable/20027066

Khemlani, L. (2023, November 14). *What happened to CIM?*. AECbytes. https://www.aecbytes.com/viewpoint/2023/issue_111.html

Khan, T. A., & Zhao, X. (2021). Perceptions of students for a gamification approach: Cities Skylines as a pedagogical tool in urban planning education. In D. Dennehy, A. Griva, N. Pouloudi, Y. K. Dwivedi, I. Pappas, & M. Mäntymäki (Eds.), *Responsible AI and analytics for an ethical and inclusive digitized society* (pp. 763-773). Springer. https://doi.org/10.1007/978-3-030-85447-8_64

Levelling-up and Regeneration Bill: reforms to national planning policy. (2023, December 19). GOV.UK. https://www.gov.uk/government/consultations/levelling-up-and-regeneration-bill-reforms-to-national-planning-policy/levelling-up-and-regeneration-bill-reforms-to-national-planning-policy#chapter-10--national-development-management-policies

Local plan part one: Strategic policies & land allocations DPD. (2020, July 29). Lancaster City Council. Retrieved February 14, 2021, from https://www.lancaster.gov.uk/planning/planning-policy/land-allocations-dpd

Manns, S. (2017, May 10). *Planning and public engagement: The truth and the challenge*. RTPI. https://www.rtpi.org.uk/blog/2017/may/planning-and-public-engagement-the-truth-and-the-challenge/

Mapping Morrisville: Land use plan. (2021, February 23). Houseal Lavigne Associates. Retrieved May 21, 2024, from https://www.hlplanning.com/portals/morrisville/

Maxis. (1989). *SimCity* [Digital game]. Maxis.

Maxis. (1992). *SimRefinery* [Digital game]. Maxis.

Maxis. (1993). *SimCity 2000* [Digital game]. Maxis.

Milgram, P., Takemura, H., Utsumi, A. & Kishino, F. (1995). Augmented reality: A class of displays on the reality-virtuality continuum. In H. Das (Ed.), *Proceedings Volume 2351: Telemanipulator and Telepresence Technologies* (pp. 282-292). SPIE. http://dx.doi.org/10.1117/12.197321

Mojang Studios. (2011). *Minecraft* [Digital Game]. Mojang Studios.

Nass, S., & Weeks, O. (2022). *SimNimby* [Digital game]. Itch.io. https://opoulos.itch.io/simnimby

Nottingham City Council. (2024). *Major Developments portal, Nottingham City Council* [Screenshot]. Retrieved December 12, 2023, from https://experience.arcgis.com/experience/85b75477ee b34f40aa42d12b99808315/

Olszewski, R., Cegielka, M., Szczepankowska, U., & Wesolowski, J. (2020). Developing a serious game that supports the resolution of social and ecological problems in the toolset environment of Cities: Skylines. *ISPRS International Journal of Geo-Information*, *9*(2), 1-20. https://doi. org/10.3390/ijgi9020118

Pearce, C. (2022). Sims, BattleBots, Cellular Automata God and Go: A conversation with Will Wright by Celia Pearce. *Game Studies*, *2*(1). https://www.gamestudies.org/0102/pearce/

Pittsburgh 1:1 Mod list. (2022, February 14). Steam Community. https://steamcommunity.com/ sharedfiles/filedetails/?id=2753745134

Plethora Project. (2016). *Block'hood* [Digital game]. Devolver Digital.

Poplin, A., de Andrade, B., & de Sena, Í. (2020). Geogames for change: Cocreating the future of cities with games. In D. Leorke, & M. Owens (Eds.), *Games and play in the creative, smart and ecological city* (pp. 64-94). Routledge. https://doi.org/10.4324/9781003007760

Purple Yonder. (2022). *Little Cities* [Digital game]. nDreams.

Recreating the first garden city using the real city plans in Cities Skylines | Timelapse | UK Build. (2022, April 1). Steam Community. https://steamcommunity.com/sharedfiles/filedetails/ ?id=2787603729

Salvador, P. (2020, May 19). *When SimCity got serious: The story of Maxis Business Simulations and SimRefinery*. The Obscuritory. https://obscuritory.com/sim/when-simcity-got-serious/

Souza, L., & Bueno, C. (2022). City information modelling as a support decision tool for planning and management of cities: A systematic literature review and bibliometric analysis. *Building and Environment*, *207*(Part A). https://doi.org/10.1016/j.buildenv.2021.108403

Starr, P. (1994). Seductions of sim: Policy as a simulation game. *The American Prospect, 1994*(17), 19-29.

SteamDB. (n.d.). *Cities: Skylines*. SteamDB. Retrieved February 10, 2024, from https://steamdb. info/app/255710/charts/#all.

System 3. (1997). *Constructor* [Digital game]. Acclaim Entertainment.

Terzano, K., & Morckel, V. (2017). SimCity in the community planning classroom: Effects on student knowledge, interests, and perceptions of the discipline of planning. *Journal of Planning Education and Research*, *37*(1), 95-105. https://doi.org/10.1177/0739456X16628959

Thinking Tools. (1994). *SimHealth* [Digital Game]. Maxis.

Wicaksana, G. B. A., & Darmawan, G. S. (2021). Geographic simulation of Denpasar City in game Cities: Skylines. In I. M. Suwitra, I. N. Nurjaya, P. D. Astuti, A. D. Y. Pratama, & R. Rahim (Eds.), *Proceedings of the 1st Warmadewa International Conference on Science, Technology and Humanity, WICSTH 2021* (pp. 3-8). EAI. http://dx.doi.org/10.4108/eai.7-9-2021.2317763

World Economic Forum. (2022). *Digital twin cities: Framework and global practices*. World Economic Forum. https://www3.weforum.org/docs/WEF_Global_Digital_Twin_Cities_Framework_and_ Practice_2022.pdf

World Game. (n.d.). Buckminster Fuller Institute. Retrieved May 21, 2024, from https://www.bfi.org/ about-fuller/big-ideas/world-game/

Yeh, A. G. O., Li, X., & Xia, C. (2021). Cellular automata modeling for urban and regional planning. In W. Shi, M. F. Goodchild, M. Batty, M.-P. Kwan, & A. Zhang (Eds.), *Urban informatics* (pp. 865-883). Springer. https://doi.org/10.1007/978-981-15-8983-6

Young, G. W., & Kitchin, R. (2020). Creating design guidelines for building city dashboards from a user's perspectives. *International Journal of Human-Computer Studies*, *140*(1), 1-17. https:// doi.org/10.1016/j.ijhcs.2020.102429
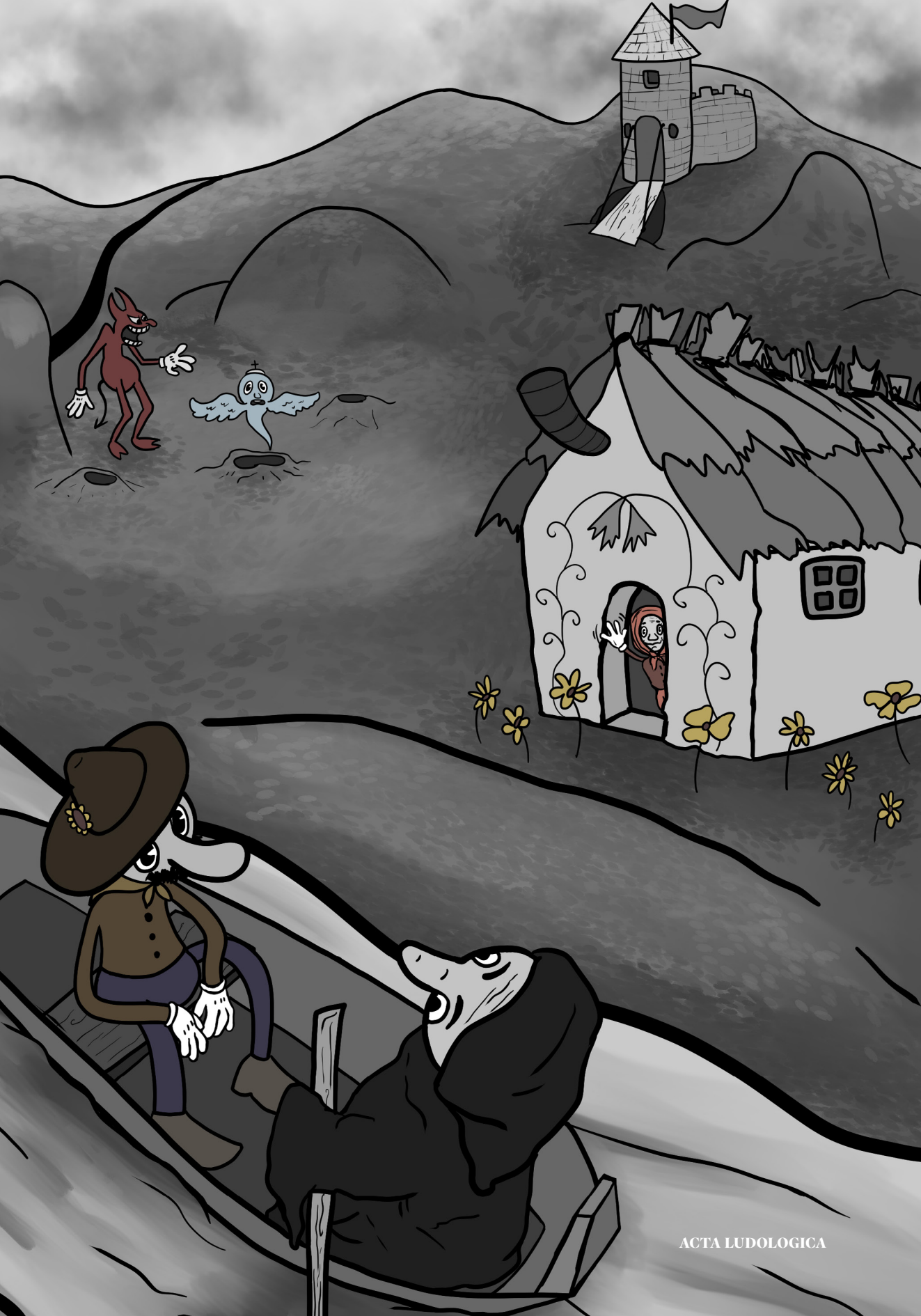
We Write in Other People's Blood: Troubling the Body Politics and Disability Representation of *Yakuza 0*

Adeline Loh

Adeline Loh, BA
Nanyang Technological University
School of Humanities
Nanyang Avenue 48
6398 18 Singapore
SINGAPORE
ADELINEB001@e.ntu.edu.sg

Adeline Loh is a writer and graduate student by research from Singapore. She is presently a MA student in English Literature at Nanyang Technological University and holds a BA (Hons) in Literature from Yale-NUS College. Her research interests include contemporary East Asian and Sinophone women's writing and media on love and feminism as well as interdisciplinary approaches to game studies.

ABSTRACT:

This paper takes *Yakuza 0*, a retrospective prequel and standalone entry to the *Yakuza* digital game franchise from Japan, as a case study for disabled feminine bodies vis-à-vis their male counterparts in game narratives. Of note is Makimura Makoto, a downtrodden Chinese-Japanese woman experiencing post-traumatic psychogenic blindness, who serves as the unwitting kingpin of the yakuza's schemes. This paper posits that a reading of the game's narrative (as supplemented by its gameplay mechanics) through the critical lens of disability studies offers a more affective and recuperative understanding of the game's treatment of its marginalised characters. This paper first seeks to intervene in the game's embodied and gendered power dynamics by attending to the body politics of its fictitious criminal underworld. Correspondingly, this paper troubles the game's presentation of disability as a gendered performance, wherein feminine bodies disproportionately experience the material consequences and trauma of their disabilities, framed as pivotal narrative movements that spur the game's male protagonists forward. Ultimately, this paper works towards a more empathetic reading of *Yakuza 0* as a roadmap for how the franchise and digital games at large can address disability as a compounding, ever-evolving relational condition in addition to its physical and/or mental dimensions.

Introduction: Welcome to Kamarochō

Few games achieve critical success and garner an international fanbase outside of their niche like the *Yakuza* (Sega NE R&D et al., 2005-2024) digital game franchise from Japan, also known as *Ryu Ga Gotoku* or *Like a Dragon*. The franchise, published by Sega from 2005 to the present-day, features sequential instalments and spinoffs, with its eighth main instalment slated for global release in January 2024. These games primarily take on the form of narrative-driven crime dramas set within the world of the eponymous yakuza, drawing from tropes associated with Japanese organised crime syndicates. Beyond heartrending portrayals of its beloved protagonists overcoming hardship, the franchise's enduring popularity can also be attributed to its trademark sense of humour that borders on the bizarre.

Yakuza 0 (Ryu Ga Gotoku Studio, 2015), a retrospective prequel released in 2015, marked a turning point for the franchise by being its first game to achieve unprecedented international attention and sales (Sakamoto & Yokoyama, 2023, as cited in Takenaka, 2023). This instalment is particularly noteworthy for explicating the backstories of two main protagonists, Kiryu Kazuma and Majima Goro, and for its employment of disability as core experiences and motivations for these characters. Of note is the game's

introduction of Makimura Makoto,[1] a downtrodden Chinese-Japanese woman experiencing post-traumatic psychogenic blindness, serving as the unwitting owner of the 'Empty Lot' – a contested lot of land required to complete the yakuza's takeover of the fictitious Kamurochō district in Tokyo, Japan – who becomes targeted by clashing factions vying to seize its ownership from her.

This paper takes up *Yakuza 0* as a case study for stereotypical representations of disability in digital games, with attention to its gendered dimensions. While a surface reading of *Yakuza 0* may raise misgivings about its seemingly gauche reliance on disability as character development and plot devices, this paper posits that a reading of the game's narrative (as supplemented by its gameplay mechanics) through the critical lens of disability studies and queer game studies offers a more affective and recuperative understanding of the game's marginalised characters that empowers players to recognise disability as a compounding, ever-evolving relational condition beyond its physical and mental dimensions.

This paper seeks to intervene in the embodied and gendered power dynamics that govern the world of *Yakuza 0,* by first attending to the body politics of the yakuza to establish how bodily harm and disability are premediated, inflicted conditions rather than individualised and medicalised conditions, divorced from their social context. Following this contextual groundwork, the paper then delves into an analysis of disability as a gendered performance in *Yakuza 0*, and how reading the game's narrative through the lens of disability studies can offer a more recuperative reading of the game that facilitates a more empathetic and sensitive understanding of disability. Finally, the paper considers the sprawling, heterogenous gameplay of *Yakuza 0* that complements its main narrative, and how queer game studies can help to elucidate the ways in which the game's structure is well-suited to a nuanced and multi-faceted presentation of disability.

The Body Politics of the *Yakuza*: Dominance and Piety

> All I was told was to kill a Makimura Makoto. Didn't know it was a blind girl. But I ain't the only one gunnin' for ya. Just who the hell are you?
>
> –Majima, *Yakuza 0*

Majima's bewildered response to finding out that his assassination target is a blind girl – ostensibly unrelated to the criminal underworld – rather than a fellow mobster running an underground prostitution ring marks the unfolding of *Yakuza 0*'s central narrative. This red herring reveals the main principle underpinning the yakuza's operations: that bodies and lives are disposable insofar as they allow the yakuza to achieve their ultimate goals. Despite Majima's desperation to successfully carry out his assigned hit as the precondition to rescind his expulsion from the Tojo Clan, he recognises the moral quandary of unquestioningly assassinating a defenceless girl who is herself clueless as to why she is being targeted.

---

1   Remark by the author: This paper follows in-game naming conventions whereby Kiryu and Majima are referred to by their last names, while Makoto is referred to by her first name.

A disability-centric reading of *Yakuza 0* must first begin with a robust analysis of its in-game world that is governed by a body politics distinct from that of civil society. The game presents two fundamental principles that undergird the yakuza's body politics. First, its subordinates are expected to demonstrate absolute subservience to their superiors. Second, deviance is punished by inflicting bodily harm upon the offender to uphold the organisation's status quo and ensure future compliance.

This expectation of absolute subservience operates within the broader definition of a body politics as "a web of power relations that situate, saturate, and constitute bodies differentially" (Coole, 2013, p. 167). In recognising how bodies as physical markers of differential experiences and treatments are correspondingly oriented within the specific power relations that they are bound to, the body then holds high stakes as potential agents for resistance or transgression within fields such as disability studies (Coole, 2013). If we are to understand a body politics to be an interwoven web with a fixed hierarchy that assigns particular roles to its members, then the ontological question of what constitutes a body within the power relations of *Yakuza 0* is best answered through a careful examination of its characters' subordinated bodies.

In its opening sequence*, Yakuza 0* first establishes subservience as incontrovertible fact for all yakuza members. The characters sport quintessential full-body tattoos, a long-standing tradition that identify them as yakuza members (Jacob, 2021). Just as their tattoos serve as voluntary markers of their allegiance to the yakuza's body politics, their bodies themselves are essentialised as subservient tools. For instance, Kuze, introduced as a key antagonist, must perform *yubitsume* – a yakuza stereotype in which a fingertip is cut off as a formal apology to a superior (Jacob, 2021) – as repentance for defying his superior and to reaffirm his loyalty to the organisation. Through Kuze, the game reifies the yakuza's body politics as one that directly disciplines its subordinates' bodies: should the body step out of line, it is corrected through physical punishment to ensure continued obedience and deter further wrongdoing. Here, deviance is viewed as a body failing to function as intended, that is, a subservient tool in service of the yakuza's goals, and must be corrected accordingly. Most significantly, this is an ethos that members are expected to uphold themselves, for Kuze is reminded of how "[he] love[s] this accountability shit" (Ryu Ga Gotoku Studio, 2015) before he cuts off his pinky finger in chapter 1. In this manner, yakuza members often initiate their own disciplinary punishment, and enable the yakuza's body politics, structured as a web of power relations, to operate smoothly with minimal coercion required.

A more extreme example of bodily harm being inflicted as punishment is exemplified by Majima, whose backstory reveals that he lost his left eye due to a year of continuous torture in a yakuza detention facility as punishment for insubordination. Although Majima is eventually released, he becomes permanently blind in his left eye and remains hostage to the yakuza, forced to operate a yakuza-owned cabaret as he endlessly works to regain their good graces. Even as he is freed from his literal imprisonment, he remains figuratively imprisoned in Sōtenbori (a fictional district located in Osaka, Japan), where his movements are constantly surveilled by the yakuza's lackeys to ensure his full compliance in running the cabaret and to deter his possible defection (chapter 4).

These examples thus demonstrate the strict hierarchy of the yakuza's body politics that demands absolute subservience from its members. Should they fall short of expectations, dominance over their bodies is reinstated through inflicting bodily harm upon them, resulting in permanent physical disfiguration and/or disability. The game then necessarily complicates conventional understandings of disability – rather than conceptualising disability as medicalised conditions, disability within the yakuza's body politics is a state that is deliberately inflicted upon an individual to maintain order.

Following this exposition on the core body politics in *Yakuza 0* as one that sustains its own web of power relations through physical violence, I now briefly turn to Makoto, whose unique position as victim-turned-target of the yakuza's schemes further illustrates disability as an inflicted condition within the game. Unlike Majima, Makoto suffers from post-traumatic psychogenic blindness. Her blindness is notably a post-traumatic response to having been kidnapped and sold into a Korean mafia's sex trafficking ring (chapter 7). While her disability is not a direct consequence of the physical harm inflicted upon her, it is crucial to note that the yakuza's victims are held to similar expectations of absolute subservience. Makoto, made powerless in the face of overwhelming power, was physically and mentally abused in service of illicit profit, thus creating the traumatic conditions for her disability to develop.

With this understanding of the yakuza's body politics as being one that complicates typical notions of disability and self-determination, reading disability in *Yakuza 0* requires acknowledgement of the ways in which disability as an inflicted condition can be interpreted as being a calculated, Foucauldian technique of power, inscribed upon the body to control their behaviour and guarantee their deference (Foucault, 1977, as cited in Coole, 2013). Most importantly, attending to representations of disability in *Yakuza 0* presupposes the player's compliance with these in-game parameters of the yakuza's body politics as 'rule-bound systems' that define the range of choices and experiences made available to them (Domsch, 2013).

Disability as a Gendered Performance: Towards a Recuperative Reading

Having established disability as a part of a web of power relations within a body politics that is bound to *Yakuza 0*'s game world, I proceed to interrogate disability in the game as a gendered performance, wherein feminine bodies disproportionately experience the material consequences and trauma of their disabilities, framed as pivotal narrative movements that spur the male protagonists onwards towards their own goals. I specifically borrow from critical disability studies to advance a reading of the male protagonists as complementary to Makoto's reclamation of her agency, thereby empowering her even within an in-game body politics that actively seeks to subjugate her.

A brief recapitulation of the characters' disabilities immediately reveals asymmetrical gendered experiences of disability. Although Majima and Makoto are blinded through similar circumstances involving forced captivity and physical abuse, it is Majima who emerges as the triumphant, resilient protagonist, while Makoto's disability augments her victimhood by further subjecting her to the yakuza's whims, who prey on her blindness as being advantageous for capturing and killing her. Yet, for the men of *Yakuza 0*, disability is but a mere occupational hazard that causes minimal disruption to their lives. It is apt at this juncture to reference "vulnerability as an ontological condition" (Weiss, 2018, p. 30) that is associated with historical assumptions of women as being weak while men are typically assigned invulnerability. If we are to understand that "not all bodies are equally vulnerable" (Weiss, 2018, p. 29), *Yakuza 0*'s gendered presentation of disability correspondingly highlights the inequalities within the characters' experiences of vulnerability.

Yakuza 0's introduction of Makoto is also paired with new gameplay mechanics that spotlight her disability. The player, playing as Majima, is tasked with escort missions that involve guiding Makoto through several streets to escape the yakuza mobs chasing the pair. When encountering mobs that attempt to abduct Makoto, the player must ensure that they fight them off before they reach her, as shown in Picture 1. Should an enemy manage to grab Makoto, her stamina bar depletes, and fully depleting her stamina bar results in immediate failure of the mission.

Picture 1: A screen capture of Yakuza 0's escort mission in chapter 4, depicting the player as Majima engaged in combat with an enemy mob while defending Makoto, who is denoted by the orange stamina bar above her head
Source: author's screenshot from the game Yakuza 0 (Ryu Ga Gotoku Studio, 2015)

The player is further challenged by a decrease in Majima's movement speed while escorting Makoto (accounting for her slower movements as a blind person), adding an additional layer of difficulty in evading the attention of incoming mobs. This gameplay mechanic, premised upon Makoto's disability, serves to immerse the player in Majima's frustration from attempting to escape while restricted in his movements to ensure Makoto's safety. In this way, Makoto's disability is utilised to temporarily impede the player's progress. Yet, Majima, as a similarly disabled individual, is positioned as Makoto's protector, who, unlike Makoto, is near-invincible with a larger health bar that depletes much more slowly and can be continually restored as needed with healing items in the player's possession. Through this mission, the game presents a gendered performance of disability, wherein Makoto's blindness renders her a stereotypical damsel in distress with Majima as her saviour. Makoto's gender therefore doubly casts her as a victim in the game's narrative thus far – she is both a pitiable survivor of a sex trafficking ring and a defenceless target for the yakuza.

This game mechanic, although dubious in its implications, is arguably crucial in fostering a sense of player identification with *Yakuza 0*'s protagonists. Digital games, as interactive environments, necessarily cultivate moments in which players do not recognise playable protagonists as entities separate from themselves, and instead "experience a merging of their own self and the game protagonist" (Klimmt et al., 2009, p. 354). The escort mission, having laid the foundation for this player identification to take place, thereby invites the player to share the compassion of *Yakuza 0*'s protagonists as the game progresses. Inasmuch as

players are necessarily assigned a role in digital games (in the case of *Yakuza 0*, players alternate between playing as Kiryu or Majima), they become active participants, rather than passive observers, in game narratives (Vorderer, 2000, as cited in Klimmt et al., 2009).

By the same token, *Yakuza 0*'s evocation of player identification enables a recuperative reading of Makoto's outward vulnerability, mediated by the game's male protagonists who commit themselves to advocating for her right to live with full bodily autonomy and without fear of persecution. Players, having identified themselves with the male protagonists, are consequently more receptive to the game narrative's shift towards reconciling the gendered, unequal vulnerabilities of its characters. Following through to the game's finale, I now attend to a more recuperative reading of Makoto within an in-game body politics that actively disempowers her. Kiryu and Majima's relationships with Makoto begin with their own interests at heart – for Kiryu, the title deed to the 'Empty Lot' is required to clear his name after having been framed for murder, while Majima is under orders to assassinate Makoto. Notwithstanding these initial motivations, both Kiryu and Majima later become aligned in their shared desire to not just prevent Makoto from being killed, but also to uplift her such that she is able to live a life of autonomy and dignity.

The optics of Makoto being reliant on these male protagonists for her survival may outwardly be read as pity from the protagonists, who then protect her out of obligation. Nonetheless, analysing Makoto through the lens of critical disability studies uncovers a more sensitive reading of the ways in which the characters extend care and concern to each other that do not rely on tropes of gender and/or disability. Considering that the earlier discussion on the game's body politics has established that the game portrays disability as a "social and stigmatised condition" in addition to its physical and mental dimensions (Goffman, 1963, as cited in Gerschick, 2000, p. 1264), disability as a gendered performance becomes a destabilising force when the characters' various stigmatised identities converge (Gerschick, 2000). Even as Makoto's gender and disability operate as converging forces that compound her vulnerability, Majima's polyvalent identities as a disabled man, albeit physically fit and proficient in combat, and former yakuza member allow him to act independently on the outside of the organisation to enact justice on Makoto's behalf. The game therefore mediates its treatment of disability as a gendered performance by demonstrating how these gendered disparities can destabilise even its own assumptions of disability as a social condition that selectively victimises its characters with no recourse.

Reading disability as an inherently affective experience that remains in flux likewise offers fresh insights into the characters' dynamics. To have a disability is to "work against a normative ableist culture that pursues its happiness through a celebration of individuated autonomy" (Goodley et al., 2018, p. 211), and this becomes especially evident in reading Makoto's trajectory throughout *Yakuza 0* as one in which she continually attempts to be self-reliant, even throughout the persecution she endures. Yet, to strive for able-bodied ideals of autonomy and independence risks emotional distress when disabled individuals inevitably fail to live up to them (Goodley et al., 2018). Indeed, Makoto suffers dire consequences in attempting to negotiate a deal with the yakuza to hand over her title deed - her demands are laughed off and she is shot by the yakuza. As she lays gravely wounded while apologising to Majima, she tearfully laments her naivete and inability to exercise her own agency, instead creating more trouble for him (chapter 16). In this climactic moment, the game further explicates a body's capacities as being "contextual and relational" (Goodley et al., 2018, p. 212), wherein Makoto's inability to outwit the yakuza was not by virtue of any inherent lack of capability due to her disability, but rather that she was striving towards a violent "fantasy of autonomy" (Weiss, 2018, p. 28), premised upon unrealistic able-bodied standards of strength that would have allowed her to stand on equal footing with the yakuza's overwhelming power.

Most significantly, understanding disability to be a necessarily mutual affective experience (Goodley et al., 2018) is crucial to appreciating the protagonists' motivations vis-à-vis Makoto. For Kiryu and Majima, their concern for Makoto goes beyond mere sympathy for a helpless blind girl being unfairly targeted by the yakuza. Rather, they are personally moved by her experience of disability as a culmination of the trauma she has experienced, and actively fight to assert her right to live an autonomous and dignified life as a matter of principle. Kiryu's vow to protect Makoto at all costs (chapter 14) is rooted in his desire to empower her to reclaim her autonomy amidst her tumultuous circumstances – he tells Makoto that "[he] can get [her] as far as the starting line" in being free to choose whether to continue wallowing in her grief or to try to move forward in life (chapter 13). Critically, Kiryu is not prescriptive in his choice to protect Makoto, and affirms her right to live as she wishes, even if it means not adhering to able-bodied notions of recovery. Likewise for Majima, his dogged pursuit of the yakuza to prevent them from assassinating Makoto stems from his sense of responsibility for "lettin' her live a real life" as a person and "not as scraps for the beasts" (chapter 11). In their unflinching commitment to Makoto's right to agency, Kiryu and Majima are galvanised into leveraging their own bodies to protect her, thus affirming their shared vulnerabilities (Weiss, 2018), overcome only by choosing to act in service of each other's best interests.

Kiryu and Majima's advocacy for Makoto go beyond lip service: they put their bodies and lives on the line while fighting off the yakuza on her behalf, thus supporting Makoto in ways that she is physically unable to do so herself. Although extreme in nature, their absolute commitment in extending their assistance and care to Makoto leans into disability studies frameworks that advance a concept of relational autonomy, wherein "neither autonomy nor care is privileged, but both are placed in service of the other" (Davy, 2019, p. 102). Inasmuch as Makoto's disability is shown to impede her autonomy, Kiryu and Majima's care empowers her to reclaim her agency through this notion of relational autonomy that affirms her individuality and personhood: Makoto's decisions and preferences are respected by the protagonists and are articulable, even if they are sometimes articulated on her behalf (Davy, 2019). Kiryu and Majima's actions ultimately lend themselves to a recuperative reading of disability in *Yakuza 0* because they help her to negotiate her hostile environments and "interven[e] in the social world to make it more accommodating" of her disability and needs (Davy, 2019, p. 109). Makoto's disability, then, goes beyond its supposed role as a plot device, and instead serves as a vehicle for a compelling portrayal of how we may extend care towards individuals with disabilities in ways that not only ensure their survival in an able-bodied world, but also promise a dignified life that is worth living.

The effects of this care from Kiryu and Majima are evident in Makoto even before the game's conclusion. She regains a little bit of her eyesight – enabling her to distinguish light from darkness – after receiving Majima's care, thus emboldening her to negotiate with the yakuza by herself (chapter 16). She is later shown in the game's epilogue to have seemingly made a full physical and mental recovery, though she is now unable to recognise Majima by sight alone, having only identified him through his voice while her vision was impaired. Makoto's recovery, owing to the relational care that Kiryu and Majima extended to her, thus resists understandings of disability as individualised conditions that occur in isolation and remain unaffected by the social circumstances surrounding them. Crucially, Majima chooses not to verbally respond to her so that she will not recognise him as her saviour. Beyond upholding his earlier commitment to her right to live a dignified life, Majima allows her to move forward in her life without any expectation of gratitude or recognition in return. His bittersweet decision encompasses the essence of relational autonomy, in which he walks the fine line between the "equally important normative poles of

relationality and autonomy, support and individuality" (Davy, 2019, p. 110). He ultimately chooses to reject re-establishing a connection with Makoto so that she can be free to live her life without any remaining ties to a member of the yakuza and to her traumatic past, at the expense of his own wish to remain a part of her life.

Finally, the delivery of this message is made doubly effective when we consider that the process of player identification has already taken place early in the game. *Yakuza 0*'s presentation of disability as a relational condition that calls upon its characters to exercise care and empathy is not just passively impressed upon the player. Rather, the player, playing as Kiryu and Majima, necessarily internalises their attitudes and conduct towards Makoto throughout their process of play. For players to maximise their enjoyment of the game, they must immerse themselves fully in Kiryu and Majima's worldviews and are accordingly steered towards a more sensitive understanding of Makoto as they, too, extend their care towards her while in the protagonists' shoes. Player identification in *Yakuza 0* can therefore be interpreted as an enabling feature that fosters a genuine sense of empathy and understanding for the complexities of disability as a real-life condition, thereby countering its presumed role as a simplistic plot device.

Substories 1-100: Of Disco Queens and Cabaret Clubs

I pivot briefly to the sprawling world of *Yakuza 0*'s eclectic mini games and side quests[2] that demands significant player attention, to the extent that the game narrative itself only comprises a small portion of *Yakuza 0*'s total possible playtime. Like the rest of the franchise, *Yakuza 0* balances out its narrative's serious tone with copious amounts of light-hearted gameplay, accessible even in-between critical narrative beats. As the player wanders the streets of Kamurochō and Sōtenbori, they may choose to detour into mini games including a disco rhythm game, karaoke, and a cabaret club management simulator, or are accosted by random encounters with non-playable characters that trigger new substories. These substories are overwhelmingly comedic in nature, featuring scenarios such as having to infiltrate a phony cult (substory 54) or defeating Miracle Johnson (a reference to Michael Jackson) in a dance battle (substory 23). Most importantly, there is no sense of need or urgency for the player to see the narrative through to its conclusion since the game refrains from dictating how players choose to spend their time.

If we consider *Yakuza 0*'s narrative, largely presented through cut scenes that interrupt this gameplay, as being secondary to and distinct from gameplay itself (Domsch, 2013), then we must attend to the very medium of the digital game as being a "fundamentally queer narrative" (Chess, 2016, p. 84). Digital games, read through the lens of queer game narrative theory, necessarily utilise narrative middle spaces to generate multiple moments of pleasure that go against the grain of working towards a singular plot climax (Chess, 2016). This rings especially true in *Yakuza 0* and the *Yakuza* franchise as a whole, in which detours from the main narrative are deliberate and even encouraged, to the extent that players may temporarily lose sight of the game's narrative (Domsch, 2013). Herein lies the queer potential of digital games, especially one like *Yakuza 0* tackling issues of disability and the right to self-determination, where pleasure is not derived from the decisive resolution of the narrative, but rather, from the very process of play (Chess, 2016).

---

2   Remark by the author: Hereafter referred to as 'substories' as per in-game titling conventions.

This queer potential therefore makes *Yakuza 0* exceptionally hospitable to this paper's recuperative reading of disability within the game as a compounding, ever-evolving relational conditional that generates care and empathy, further enabled by the game's queer structure that effectively defocalises the narrative. *Yakuza 0*'s very gameplay necessarily resists reductive readings of disability in the game as mere plot device in service of a singular, climactic pleasure. When the player does return to the game's narrative, having had their fill of the myriad wacky hijinks *Yakuza 0* has to offer, it is out of genuine care and curiosity for Makoto's story, rather than an obligation to in-game demands.

Conclusion: The Dragon of Dojima

> We write in other people's blood. That's the yakuza way. And I aim to pen my title in yours.
>
> –Shibusawa, *Yakuza 0*

Yakuza 0's narrative reaches its dramatic conclusion when Kiryu confronts Shibusawa, who is revealed to be the ringleader behind the relentless assaults on Makoto. With a comatose Makoto in a wheelchair to the side, held hostage again for the title deed, the stakes of this final fight are clearly grounded in the yakuza's body politics, as Shibusawa asserts his right to kill indiscriminately to achieve his goal to inscribe a legacy for himself. Kiryu pre-emptively rejects this reasoning, telling him to "write it in [his] own blood, not others" (Ryu Ga Gotoku Studio, 2015, chapter 17). When Kiryu finally bests him in battle, his victory is an ideological triumph for both himself and the game's narrative, which fundamentally decrees that people like Makoto are owed the right to live dignified lives without being exploited for the yakuza's personal gain. In not wavering from his resolve, Kiryu – portrayed here as a junior yakuza with only a half-finished dragon tattoo on his back – rises through the ranks through this win to become the fully-fledged yakuza legend (i.e., the Dragon of Dojima) that Shibusawa strove towards using unscrupulous means. Subsequently, Kiryu, like Majima earlier choosing not to kill the hired assassin who shot Makoto, chooses not to kill Shibusawa, thereby breaking free from the cycle of revenge and violence that has burdened Makoto throughout the narrative (chapter 17).

This paper has endeavoured to put forward a reading of disability in *Yakuza 0* that borrows from both critical disability studies and queer game studies to advance a holistic understanding of disability as a relational condition that remains perpetually in flux, shaped by its surrounding social forces, and mediated by interpersonal care. This interpretation acknowledges that this is perhaps not *Yakuza 0*'s original intention as a prequel focused on Kiryu and Majima's back stories, but nevertheless argues that this interpretation is made possible through the game's own narrative and gameplay mechanics. There are, of course, limitations to reading a Japanese game, localised for a Western audience, using Anglophone theoretical frameworks. Inasmuch as the *Yakuza* franchise deals with complex themes that merit further consideration, the reality of the franchise is that it is one developed with a specific audience in mind – the Japanese, cisheterosexual male player (Nagoshi, 2016, as cited in Sato, 2016) – and consciously resists taking input from its overseas players (Sakamoto & Yokoyama, 2023, as cited in Takenaka, 2023) and growing female fanbase (Nagoshi, 2016, as cited in Sato, 2016). Where the *Yakuza* franchise succeeds in compassionate portrayals of its male protagonists that resist stereotypes of toxic

masculinity (Maher, 2022), it fails to extend the same nuance to its female characters, who are either side-lined at best or heavily sexualised for male gratification, as is the case with non-playable female characters who are modelled after real life Japanese Adult Video actresses (Ashcraft, 2010). Conversely, where the franchise fails in its uneven treatment of gender, it is self-conscious in retrospectively making amends for past missteps, such as their editorial decision to remove a series of transphobic substories in the remastered version of *Yakuza 3* (Sega CS1 R&D, 2019) (Doherty, 2019). The *Yakuza* franchise, now looking towards the future, intends to continue grappling with difficult themes: trailers for *Like a Dragon: Infinite Wealth* (Ryu Ga Gotoku Studio, 2024), the franchise's eighth main instalment, reveal an aged Kiryu battling a grim cancer diagnosis (Swanson, 2023).

These contradictions will continue to persist in the *Yakuza* franchise, partly owing to the fundamentally queer structure of the digital game medium that lends itself to unexpected readings of the games' narratives. As is the case in *Yakuza 0*, players are free to inhabit the sprawling worlds of the franchise and its multiplicity of pleasurable moments to discover "formative and otherwise undiscovered modes of play which inspire more ethically-conscious behaviours" within them (Schänzel et al., 2022, p. 63). Ultimately, this paper echoes the call to action for both digital game developers and scholars to closely attend to the queer potential of digital games (Chess, 2016) – encompassing their narrative modes, play mechanics, and structures – as a roadmap for creating and interpreting games in ways that resist heteronormative (and in *Yakuza 0*'s case, ableist) hegemonies.

BIBLIOGRAPHY

Ashcraft, B. (2010, March 19). *Which of these ladies looks like their in-game counterpart?*. Kotaku. https://kotaku.com/which-of-these-ladies-looks-like-their-in-game-counterp-5497113

Coole, D. (2013). The body and politics. In G. Waylen, K. Celis, J. Kantola, & S. L. Weldon (Eds.), *The Oxford Handbook of Gender and Politics* (pp. 165-188). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199751457.013.0006

Davy, L. (2019). Between an ethic of care and an ethic of autonomy: Negotiating relational autonomy, disability, and dependency. *Angelaki*, *24*(3), 101-114. https://doi.org/10.1080/0969725X.2019.1620461

Doherty, I. (2019, February 23). *Yakuza 3 Remastered has removed a transphobic sidequest*. The Gamer. https://www.thegamer.com/yakuza-3-remastered-transphobic-sidequest-removed/

Domsch, S. (2013). *Storyplaying: Agency and narrative in video games.* De Gruyter. https://doi.org/10.1515/9783110272451

Gerschick, T. J. (2000). Toward a theory of disability and gender. *Signs: Journal of Women in Culture and Society*, *25*(4), 1263-1268. https://doi.org/10.1086/495558

Goodley, D., Liddiard, K., & Runswick-Cole, K. (2018). Feeling disability: Theories of affect and critical disability studies. *Disability & Society*, *33*(2), 197-217. https://doi.org/10.1080/09687599.2017.1402752

Chess, S. (2016). The queer case of video games: Orgasms, heteronormativity, and video game narrative. *Critical Studies in Media Communication*, *33*(1), 84-94. https://doi.org/10.1080/15295036.2015.1129066

Jacob, F. (2021). *The Yakuza in popular media: Honorable criminals or violent gangsters?*. Büchner-Verlag, Wissenschaft und Kultur.

Klimmt, C., Hefner, D., & Vorderer, P. (2009). The video game experience as "true" identification: A theory of enjoyable alterations of players' self-perception. *Communication Theory*, *19*(4), 351-373. https://doi.org/10.1111/j.1468-2885.2009.01347.x

Maher, C. (2022, July 5). *17 years ago, Yakuza reinvented video game masculinity*. Inverse. https://www.inverse.com/gaming/yakuza-sega-masculinity

Ryu Ga Gotoku Studio. (2024). *Like a Dragon: Infinite Wealth* (PS5 version) [Digital game]. Sega.

Ryu Ga Gotoku Studio. (2015). *Yakuza 0* (PS4 version) [Digital game]. Sega.

Sato. (2016, May 25). *Yakuza director says 20% of their players are female, but they'll still keep it a manly series*. Siliconera. https://www.siliconera.com/yakuza-director-says-20-players-female-theyll-still-keep-manly-series/

Sega CS1 R&D. (2019). *Yakuza 3* (Remastered version) [Digital game]. Sega.

Sega NE R&D, Sega CS1 R&D, Sega CS3, Syn Sophia, & Ryu Ga Gotoku Studio. (2005-2024). *Yakuza* (Series) [Digital games]. Sega.

Schänzel, D., Taylor-Giles, L. C., & Turner, J. (2022). Gamifying kindness: Toward a praxis of the ephemeral. In B. Bostan (Ed.), *Games and Narrative: Theory and Practice* (pp. 61-76). Springer International Publishing. https://doi.org/10.1007/978-3-030-81538-7_4

Swanson, D. (2023, October 16). *Like a Dragon: Infinite Wealth may have a battle Kiryu can't win*. Game Rant. https://gamerant.com/like-a-dragon-infinite-wealth-kazuma-kiryu-cancer-battle-possible-death/

Takenaka, K. (2023, October 30). *The Like a Dragon series producers talk about the "Don't change anything" policy they upkeep and fandom behavior that has surprised them*. Automaton. https://automaton-media.com/en/interviews/20231030-22625/

Weiss, G. (2018). A genealogy of women's (un)ethical bodies. In C. Fischer, & L. Dolezal (Eds.), *New Feminist Perspectives on Embodiment* (pp. 17-35). Springer International Publishing. https://doi.org/10.1007/978-3-319-72353-2_2

The Phenomenon of Trophies in Digital Games

Dinko Jukić

Dinko Jukić, Ph.D.
Trade and Commercial School "Davor Milas" Osijek
Ivana Gundulića 38
31 000 Osijek
CROATIA
dinkojukic.phd@gmail.com

Dr. sc. Dinko Jukić, MPA, MLIS, MA, is professor at Trade and Commercial school "Davor Milas" in Osijek, Croatia. An active member of Croatian Marketing Association and Croatian Pedagogical-Literary Society. He has published various scientific articles on cultural marketing, brand theory, brand image, game marketing, neuromarketing, media pedagogy, and school management. He has participated in 35 international scientific conferences. He has two master's degrees in the humanities and social sciences. He received his Ph.D. in brand perception, more specifically in brand as an emotional and rational consumer impression. His current research interests include marketing in culture, phenomenon of brand, media pedagogy and game studies.

ABSTRACT:

The study research phenomenon of trophies in digital games. It starts from the analysis of the trophy hunter and trophy community constructs. The phenomenon of collecting trophies in digital games and its impact on gamers, but also on the gaming experience, is researched. The trophy concept is a paradox because it simultaneously creates gamers who choose games according to the difficulty of the trophy, and play games they do not like because of the easiness of the trophy. The aim of the paper is to investigate, present and analyse the phenomenon of trophies in digital games from cultural, anthropological, and marketing aspects. Collecting trophies was observed in the context of the phenomenon of narcissistic culture according to Lasch's theory. Also, the study draws a parallel between the phenomenon of trophies as a reward for gamers, but also the development of niche marketing. Trophy hunters represent a more detailed segmentation of consumers who we understand as brand ambassadors for digital games. Also, trophy hunters encourage each other to collect trophies and thus shape gamers. To obtain a precise insight into the phenomenon of trophies and trophy subculture, the method of virtual ethnography was used.

Introduction

> We are all fascinated by the mirror. (Holmes, 2003, p. 7)

If it is true that we play digital games for pleasure, fun and beauty, the question arises why some play games that do not provide them with pleasure, fun or beauty? Is it a *job* or a habit? If gamers play digital games and do not enjoy it, but only *routinely* play, does this mean that fun and enjoyment turn into work? Is there a *flow* (Miškov, 2021) at that moment or has collecting trophies become more important than the game itself? Is collecting digital game trophies a form of gaming? What if trophy hunting became fun and enjoyment, a game within a game?

The digital game as a cultural phenomenon (Rokošný, 2018) goes beyond subculture and turns into the culture of modern society. In this sense, we can understand digital games as a reality (Kłosiński, 2018) that is projected in the form of symbols (Baudrillard, 2017). Observing such digital reality as one of the forms of human *essence*, the question arises: can we observe trophies in the context of digital values? These are not educational values (Vuk-Pavlović, 2016) that we find in digital games such as ethical (Magová, 2020; Ntelia, 2022) and family games (Jukić, 2021, 2023), but rather added values in a segmented gaming community. In other words, we can view trophies in the context of achievement, narcissism (Lasch, 1986) and promotion (Solomon et al., 2009).

The topic of this study will try to answer the questions that are in the subtext of gaming: the phenomenon of trophies in digital games. The phenomenon of trophies is observed in

accordance with phenomenological research (Frykman & Gilje, 2003). In this sense we start from the research question on what trophies represent to gamers. From this comes the analysis of the trophy hunter construct, which creates a kind of paradox because trophy communities create a segmented group of users who play games for trophies, regardless of whether they like the games or not. This means that this study begins with two key paradigms: the anthropological understanding of digital games and trophy hunters, but also the marketing understanding of trophy hunters as brand ambassadors of digital games and *trophy consumers*.

Theoretical Approach

The key starting point for studying the phenomenon of trophies and trophy hunters is the understanding of two concepts: reference group (Evans et al., 2006; Kesić, 2006) and narcissistic culture (Lasch, 1986). A reference group is an actual or imaginary group conceived of having significant relevance upon an individual's behaviour (Solomon et al., 2009). Some of the most important characteristics of consumer behaviour are group influences that are the basis for adopting attitudes and beliefs. The concept of narcissistic culture was observed according to critical theory (Katunarić, 1990; Kellner, 2004; Therborn, 2011), i.e. the understanding that the entire mass culture is part of a certain ideology. Such a phenomenon, the digital trophy, should be viewed from several perspectives to better understand and analyse it.

It should be noted that in this study narcissism was observed from a sociological-cultural aspect, where the psychological dimension is understood in the context of self-esteem, image, and the illusion of an ideal idea. This means that such a form of narcissism becomes socially conditioned and normal in postmodern times, where it is not considered a psychological deviation, but a paradox and a form of adaptation (Matjašević, 2016). Precisely in such a context, trophy hunters are looking for an audience that admires them and their freedom of choice does not give them the freedom to be alone. More simply, narcissism becomes a metaphor for today's society.

Reference Group in Marketing

The context in which we will observe the phenomenon of trophies refers to the concept of beliefs and attitudes (Myers, 2012). According to Blythhe (2008), attitude can be defined as a learned tendency to respond to an object in a consistently favourable or unfavourable way. One of the most enduring approaches to attitudes is the proposition that an attitude has three components: cognitive, affective, and conative (Evans et al., 2006).

The behaviour of gamers depends on the behaviour of other people, and it is a constantly changing process. A group is two or more persons who share a set of norms and whose relationship makes their behaviour interdependent (Blythe, 2008). Such behaviour of reference groups is influenced by subjective and objective categories (Hoyer & MacInnis, 2010). In this sense, the members of the reference group learn the norms and values of their group and condition the roles that follow the existing behaviour.

This means that if an individual has not played a digital game, they are likely to look for it in a reference group, i.e. an online forum. As such, the reference group has an extremely strong influence on changing consumer attitudes towards digital games. According to Myers (2012), we are the most persuaded by people in our reference groups.

A virtual community of consumption is a collection of people whose online interactions are based upon shared enthusiasm for and knowledge of a specific consumption activity (Solomon et al, 2009). From a marketing point of view, virtual communities are still a new phenomenon that has a significant impact on consumer behaviour. Some of the most important determinants of consumer behaviour are certainly group influences that serve as a foothold when adopting attitudes, beliefs, and models of consumer behaviour. The group to which an individual belongs or aspires to belong has the strongest influence on attitude change (Kesić, 2006).

The way we behave in a certain situation is often influenced by how important one value is to us compared to others (Hoyer & MacInnis, 2010). It is crucial to emphasize that beliefs represent what consumers think and know about digital games. In the broader sense of the word, the values of the reference group (online forum) can be seen as characteristics of culture. Gaming culture is created in correlation with ideology (game studies), technology (informatics development) and reference groups (gamers).

This means that gaming culture is an adaptive process that changes, as confirmed by numerous digital games through the emergence of new genres, ways of playing (Buček & Kobetičová, 2020; Foxman, 2020) and new theories (Andrade & Medeiros, 2018; Slezáková, 2018; Mago, 2018; Farkaš, 2018; Balážiková, 2019; Boszorád, 2020; Yi, 2020; Dupont & Malliet, 2021; Terrasa-Torres, 2021; Jukić, 2022; Kvetanová, 2023). However, gaming culture is transmitted, and the influence of socialization is important when forming and shaping attitudes and beliefs about digital games. Also, it is important to note that values start from impressions, therefore, they are subjective categories that are subject to emotional interpretation, and beliefs allude to knowledge about brands, which are also built on perception, image, and identity.

Narcissistic Culture and Marketing

Another concept that is related to the study of the phenomenon of digital game trophies is related to the concept of narcissistic culture. The term narcissism can be used in several different ways (Holmes, 2003). In the broadest sense of the word, it means a person who is preoccupied with himself and who always puts himself first. This is implicit in the concept of narcissism because psychoanalysis interprets how acceptable it is to be self-oriented (Kohut, 1990), i.e. interprets development and regression in the area of self-aggrandizement. The psychoanalytic understanding of narcissism warns us that we have repressed remnants of narcissism that have not been rejected but have been partially transcended in favour of the satisfaction of object relations (Holmes, 2003). According to Holmes (2003), the narcissistic self contains three layers of feeling: external denial of dependence and consequent self-admiration. Underneath that lies strong anger and envy, and at the root of it all is a frustrated desire for attention.

We observe the concept of narcissistic culture in the context of critical theory (*Kritische Theorie*). Critical theory does not want to make materialism acceptable (Therborn, 2011), but to bring it to self-awareness. In this sense, critical theory starts from the understanding of man as a subject of society (Horkheimer, 1982). The attitude of critical theory stems from the understanding that the entire mass culture is ideologically coloured (Kellner, 2004). According to Horkheimer and Adorno (1989) critical theory must not have a structure that is formal because that would mean that people have separated

themselves into abstract categories. The dialectic of the Enlightenment starts from a rational subject who deceives nature and other people (Katunarić, 1990). In other words, the subject is alienated, and culture is seen as a commodity to be sold.

Narcissistic culture is a term that observes the phenomenon of narcissism from cultural and sociological aspects. According to Lasch (1986), each time carries with it *a pathology* that arises from the current state of society. What is metaphorically related to the psychoanalytic concept of narcissism refers to the social symptom of a culture of consumption and image building. It is the so-called the passion of living for the moment. According to Lasch (1986) the symptom of modern people is an inner emptiness that they try to fill with trivial content, and man in his vanity tries to present himself as better than he is. In this sense, postmodern man develops an image cult (Lasch, 1986) and becomes a modern Narcissus.

The combination of narcissism and media culture developed in parallel. On the one hand, the digital world has enabled users to create their own identity and image, while on the other hand, the same digital world has complicated the recognition of moral, educational, and historical values (Radošinská, 2018; Magová, 2020; Jukić, 2021, 2023). Culture is reproduced through the media (Lasch, 1986), on which the modern consumer becomes dependent. Such a world is like a society of spectacles (Debord, 1999) which is subordinated to digital media, and the frequent use of such images destroys the sense of reality.

Also, according to Lipovetsky (2008), a society dominated by material focus and hyperconsumption is doomed to a feeling of alienation and emptiness. In such an understanding of critical theory, consumer and narcissistic society, consumption takes over the individual's identity. It is precisely in this sense that the concept of narcissism and trophy hunters in digital games is observed.

The Trophy Phenomenon

The phenomenon of trophies or an achievement point have gained relatively little academic attention (Hamari & Eranti, 2011; Cruz et al., 2017; Lu et al., 2020). Trophies are optional sub-goals (Björk & Holopainen, 2005) which represent virtual rewards for gamers and are not necessary to progress in the game. In other words, gamers may or may not collect trophies and the enjoyment of digital games will not affect the content of the game. In this sense, trophies represent a meta-game, a game within a game that is optional. However, according to Hamari and Eranti (2011), such an understanding becomes problematic, because, if trophies are collected in and through the game, they are no longer *per se* optional or secondary. On the other hand, trophies are integrated into games, and they represent game defined goals that gamers do not have to fulfil. That is exactly where the dilemma is.

Trophies represent a reward to gamers for completing goals in the game. These goals are not necessarily related to the content of the game and are often determined by the number of specific repetitive actions, such as killing, collecting items, passing the game on the hardest level, playing certain maps, or playing certain maps in multiplayer. Therefore, we view trophies as optional additions to the game, add-ons that serve specific tasks that may or may not contribute to the enjoyment of gameplay.

The trophy system was launched with PlayStation 3 in 2008. The first digital game to have a platinum trophy was *Uncharted: Drake's Fortune* (Naughty Dog, 2007). Trophies are earned as rewards for certain achievements when playing games. We distinguish bronze, silver, gold, and platinum trophies. Picture 1 shows the gamer with the most trophies in Croatia. On the right side we see the gamer's trophies and on the left

side we see the current games he is playing. Specifically, the games he is currently playing are *Tales from the Borderlands* (Telltale Games, 2014) and *Final Fantasy VII Remake* (Square Enix, 2020). As can be seen, trophy categories are displayed hierarchically. At the top are the platinum trophies (4,203), and at the bottom are the most common, bronze trophies (38,315).
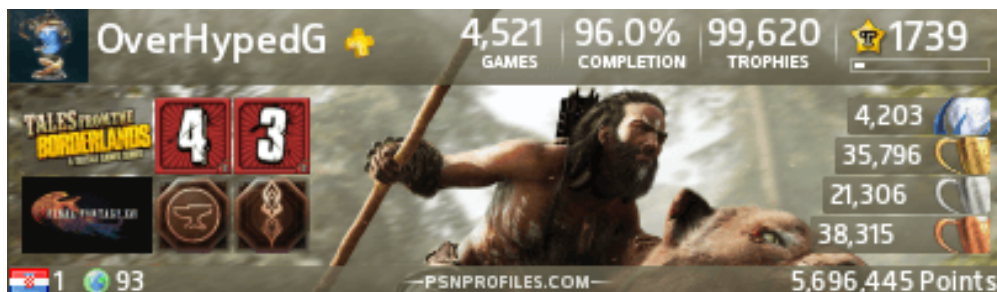
Picture 1: Gamer with most trophies in Croatia
Source: PSN, n.d.

Platinum trophies are awarded for winning all trophies in the digital game and they are the most important and rarest. Also, apart from the categories of trophies, it is necessary to mention the concept of rarity, which indicates the additional *importance* of trophies through four categories: common, rare, very rare and ultra rare. Down in the corner, on the left hand side, there is the country's flag and ranking, and next to it is the symbol of the globe and the world ranking.

As can be seen from Picture 1, the user with the most platinum trophies in Croatia has 99,620 trophies, of which 4,203 are platinum, which ranks him 93rd in the world out of a total of 4,936,421 registered gamers. Judging by the number of platinum trophies, the user belongs to the very top of the world's gamers. He played 4,521 games, and game completion is 96%. As a confirmation of recognition for collecting trophies, the Slovak digital game *The Hippo G* (Webnetic, 2022) named the platinum trophy after him, and integrated Croatian motifs (lakes and flag) into the game.

Therefore, trophies represent a kind of digital reward to the gamer, and they make it easier for the game producer to monitor the gamer's actions and help in the processing and statistical analysis of data. A new type of gamer who collects trophies in gaming communities is called *trophy hunter*. It is a community that grows every year (PSN, n.d.), and the influence of the reference group is very important, because of common attitudes, values and beliefs, cooperation during the creation of the trophy guide and assistance in winning the trophy.

Research Methodology

The study is based on the understanding of cultural anthropology (McCurdy et al., 2005; Haviland et al., 2017), on anthropological ethnography (Tierney, 2007) as a scientific method. The main feature of this methodology starts from the observation and description of the phenomenon of culture and its constitutive parts. What is crucial in this approach is that ethnography means the study of users in their natural environment. This enables a detailed study of the reference group, where the emphasis is on understanding social phenomena from the perspective of gamers and shaping theoretical conclusions.

Virtual ethnography (Hine, 2000) is a form of anthropological ethnography (Bird & Barber, 2007) in which the space of observation becomes the Internet, i.e. in this case, an online forum, and the object of observation is the phenomenon of the trophy, which we understand as a phenomenon. The concept of ethnography means the study of gamers in the natural environment, where the researcher himself is a participant in the group (Potkonjak, 2014). What is specific in the context of virtual ethnography is that through such observation and participation, an attempt is made to understand the social world of gamers and their relationship to trophies. The basis of this method is in-depth observation of the participants (Murthy, 2008; Poynter, 2010).

A gamer community, such as an online forum, which gathers and exchanges experiences, knowledge and values around the same worldviews represents ethnographic *terrain* (Potkonjak, 2014) which explores the phenomenon of trophies. The role of online forums was observed according to the psychology of marketing (Evans et al., 2006; Foxall et al., 2007; Milas, 2007; Blythe, 2008; Solomon et al., 2009; Hoyer & MacInnis, 2010) where group influences, i.e. reference groups of gamers, are observed in the context of informational, comparative, and normative influence. The research goal is to gain in-depth understanding of a particular phenomenon and detailed description of special patterns of behaviour in a particular situation (Cropley, 2022). It starts with the assumption that the form of collecting trophies, the method of collecting, as well as the complete consumer subculture of trophy hunters, represent a form of narcissistic culture.

Accordingly, we will research two key characteristics: the group where gamers gather and the cultural object of that group, i.e. the phenomenon of trophies. To achieve this, we start with the theory of social psychology (Eyal et al., 2009; Baron & Branscombe, 2012; Pennington, 2008; Evans et al., 2006) according to which a group is understood as a group of more than two people whose members have a clearly defined role and who strive for a common goal (Forsyth, 2010). The main research question is: What do trophies represent to gamers? In other words, can collecting trophies be seen as a manifestation of narcissistic culture? Finally, what is the role of trophies in digital games?

It should be noted that in this study the role of the researcher is seen as an ethnologist who historicizes the observed phenomenon. In this sense, the ethnologist's positioning explains the way in which they investigate the digital world and conclude about it. To avoid a reflexive, autoanthropological positioning (Potkonjak, 2014), a distance was made between one's own and personal understanding of digital game trophies. Precisely because of this, the researcher, in order not to be a stranger, also had to collect platinum trophies (50) to share group values, cultural knowledge and understand the trophy subculture.

The time of data collection was observed as the period from 2015 to 2023. The researcher spent 30 minutes on the online forum every week. The period was long because initially, platinum trophies could not be collected quickly. For certain digital games, it is necessary to go through the game several times at different difficulties or to play at a certain time when there are tournaments. Secondly, not all posts are relevant to research. There are posts on the forum that are not thematically or content related to the research question.

In the study, representative examples related to the phenomenon were selected. The sample consists of posts on the forum. The method by which the examples were selected results from the content analysis of the posts. The data were manually transcribed and then coded. The criteria according to which we analysed the posts are a) must be a sentence, b) not replies to comments, c) no emoticons. A total of 466 (15%) posts are related to the subject of the research. Themes were coded and sorted to identify data. Not all posts are relevant. Users who write messages about the trophy phenomenon were observed. This means that a certain number of users often impose their power and reputation through posts. The study used a qualitative content analysis.

Research Results

Online forum FFA (Free for All) was founded in 2014 as a community of gamers in Croatia, which over time developed into a portal (FFA, n.d.). They have a total of 5,013 active users. The principle of operation of online forums dedicated to the culture of digital games are like other forums that nurture gaming culture, such as PSNprofiles, GameFAQs, Reddit, or GameSpot. The online forum has proven to be crucial in shaping and expressing beliefs and attitudes, as gamers often post their achievements (trophies won). The forum has the reference and normative value of the group. The reference value represents an idea with which gamers identify, and the normative value represents the acceptance of certain rules.

The study contains research discussions related to trophies, collecting trophies and gamer comments on trophies. This includes expressing beliefs, attitudes, brand loyalty, rhetorical and ideological statements towards digital games and gaming culture. Statements related to the PlayStation forum group were observed during the period from March 6, 2015, until June 30, 2023, according to the methodology of virtual ethnography (Hine, 2000). During that period, statements were analysed with the aim of exposing consumer behaviour, forming attitudes, and identifying trophy culture.

A total of 3,113 forum posts dedicated to the trophy collecting group were analysed. Only 15% (466 posts) are related to the subject of the research. The FFA forum belongs to the category of reference group because the individual establishes their 'point of reference' in determining their own judgment, preferences, beliefs, and behaviour. This means that the FFA forum represents a framework in which gamers learn and accept points of view, values, attitudes, lifestyle, and behaviour. As an example, the FFA online forum was analysed (Picture 2).
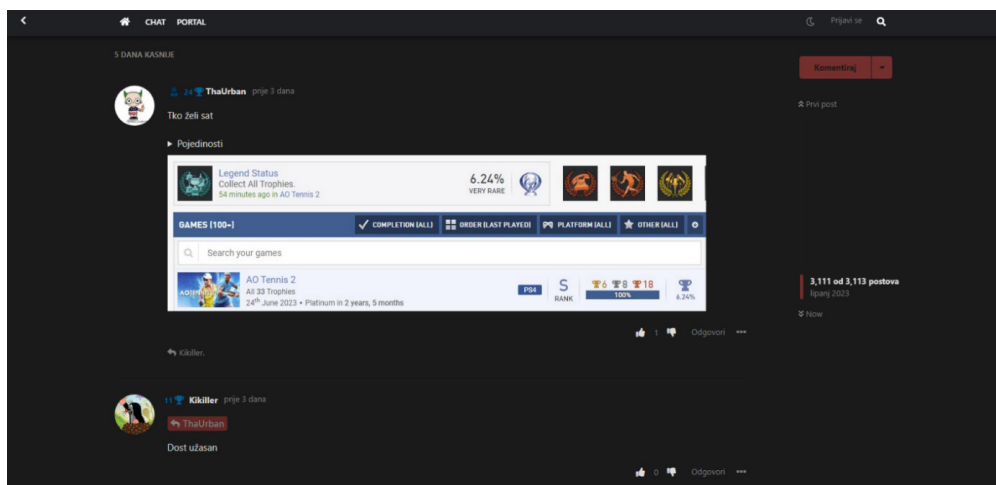
Picture 2: Online forum FFA.hr
Source: author's screenshot from FFA (n.d.)

The group's influence on an individual gamer is related to the group's power, which we observe through two categories: the power of experts and the power of rewards. The power of an expert implies the provision of expert opinions, recommendations and advice resulting from greater knowledge and competence. These skills are determined by the mutual appreciation of the group and actual knowledge (playing experience and number

of trophies). The power of awarding starts from the assumption that an award to the individual reflects a form of acceptance to the group, which is manifested by giving the sign 'like' (thumb up) as a form of acceptance, approval, and support, by quoting on the forum or by direct address.

What is crucial is that reference groups can stimulate consumer behaviour in an informative way. In particular, the power of experts can take place through trophy hunters whose opinions are respected by the members of the group. The reason for accepting such an opinion stem from the fact that users trust their knowledge and experience. This makes it easier for consumers to choose between information. The study is focused on two positions of the FFA forum (Table 1): *expert power* and *reward power*.

Table 1: The group power of the trophy hunter

The power of experts	Rewarding power
Knowledge and expertise	Reputation
Appreciation of the leader	Acceptance of the group

Source: own processing

To present the phenomenon of trophy hunters more simply in the context of narcissistic culture in an online forum, it is necessary to explain the context of the group power of trophy hunters. The strength of experts is seen here in the context of a reference group where categories of knowledge and expertise are derived from the number of platinum trophies won, which gives such gamers recognition in the form of their expertise and knowledge, especially from the aspect when the conditions for winning trophies are determined by the difficulty of the game and the percentage chance of winning. In other words, the rare platinum trophy is reciprocal to the reward power because it increases the reputation of such a gamer. Likewise, appreciation of trophy hunters is causally related to group acceptance. The thematic analysis revealed four main themes (Table 2): *narcissism*, *snobbery*, *pleasure*, and *burden*.

Table 2: Main topics in the online forum from trophy perspective

Topics	Characteristics
Narcissism	Users are bragging and proud
Snobbery	Users create categories and divisions
Pleasure	Users feel satisfaction and success
Burden	Users are unhappy and dissatisfied

Source: own processing

Below we present examples for the categories of expert power and reward power, as well as the contrast between gamers who like digital games and those who do not. The examples are listed with coded names and are presented according to the set research questions. This is only a representative part of the corpus, which, due to its extensiveness, we cannot present in its entirety. Also, the findings of this study are unique in the way data was collected and interpreted.

Qualitative Analysis

a) Theme: Narcissism

Both groups on the forum (Table 1) are manifested through expert power and reward power. In the first group are users who impose their opinion and attitudes through the knowledge and expertise and reputation of the leader. As an example, we will analyse the post of a user who differentiates trophies according to additional values: "Of course, not all trophies are equally valuable and not all games deserve to have a platinum trophy". As we can see, the user distinguishes platinum trophy winners into those who are worthy and those who do not deserve to have platinum trophies. This is confirmed by further discussion that there are different values within the trophy, and they add: "That for some digital games you need to invest effort and skills. These are the trophies that distinguish a gamer from a gamer".

From the above example, we see how narcissists distinguish a gamer from *the gamer*. According to the reference group, gamers are those who make the most of the game and win trophies that are worth winning. This is also an example that is borderline because it mixes narcissistic and prestigious elements that tend towards snobbery. "I only play quality games. My trophies are not some silly games. I don't want to ruin my image".

Another example is found in a user who states that the genre of the digital game is not important to them, and that difficulty does not represent any problem for them. They are a typical example of a self-sufficient person found in online forums:

> I play whenever I can, and I play everything. I don't care about genre, difficulty, or how long the game lasts. I have always completed games and done transitions on all difficulties, even at a time when there were no trophies and achievements as such, and no PlayStation as a console. I have 90 ultra rare platinum, like *Super Meat Boy*, *Devil May Cry 5*, *Max Payne 3*, *Ninja Gaiden Sigma 2*, *Catherine*.

A narcissist worships *heroes*. They are unconsciously fixated on idealized objects of the self that they continue to long for (Lasch, 1986). Narcissists are in eternal search for an external divinity from which they draw strength. That, conditionally speaking, *divinity* and *heroism*, is a metaphor of narcissistic extension. Such users represent, according to Lasch (1986), an extension of ownership. Such a connection of narcissistic possession can be compared to the famous quote, "the medium is the message" (McLuhan, 2008, p. 41). Therefore, we can compare Lasch's notion of narcissistic culture where digital game trophies represent an extension of gamers.

The topics of narcissism and snobbery are often intertwined. As an example, we can analyse a user who admires another user for winning rare trophies. "Congratulations, I just looked at your profile on PSNprofiles, the best thing I have seen. I appreciate even more that you solved every game 100%". Or when they compare trophy quality by rarity. In other words, users impose a burden and prestige on themselves:

> I have already mentioned a couple of times that I adore rare trophies – some ordinary, some platinum – and I have that kind of excitement when I win a trophy that is not common. And, preferably, that it is an RPG and that I need at least 80 hours.

The examples listed complement Lasch's theory of narcissistic society, according to which narcissism represents a psychological dimension of dependence that needs others to experience self-esteem (Lasch, 1986). In this sense, a narcissist cannot do without an audience that admires them (gives a thumbs up). For example: "The quality of the trophy is important. Congratulations!" However, according to Lasch, a narcissist admires and identifies with winners for fear of being labelled a loser. They try to warm themself in their reflection of brilliance (Lasch, 1986). In short, a narcissist lacks confidence in their own abilities.

Therefore, narcissistic freedom is a closed freedom that does not allow them to be alone. They depend on others and for them the digital world is a mirror. In this sense, narcissism is a metaphor for the human condition (Lasch, 1986).

b) Theme: Snobbery

Snobbery means belonging to a certain group. What is specific about such members of the group is manifested in their attitudes and beliefs of being superior to others. If we analyse the example of a user who says:

Five years ago, all I wanted to do was try out as many games as possible, and now that I'm 30+, I still like to try out a game as much as possible and brag about it. Let's say, I would never buy those useless games that only serve to increase the number of platinums.

We could conclude how the user justifies his platinums. It is clear from the statement that the user considers themself more important because they have more experience in trophies. Also, a user would never buy a digital game just to rank higher on the trophy leader board.

To achieve prestige, snobs play digital games just to have as many platinum trophies as possible. They accumulate trophies just to gain prestige in their community. "I made a new profile again. There are a bunch of games that are too difficult like San Andreas, VR Worlds, Oddworld, and now all over again". This understanding is close to Lasch's analysis of narcissistic culture. Narcissistic society worships fame, i.e. representatives of this group look at the number of platinums won, although they do not admit it. When caught in a lie, they are ashamed of their narcissistic obsession (Lasch, 1986) with fame and often hide their trophies on the PSN list. "You only play games that have easy platinums".

A snob, philosophically speaking, lives in the future. Its future is simulation. Therefore, in the previous example, we see how such users can create new profiles to hide the trophies they did not achieve. This is the reason they constantly create the image of a better trophy hunter. Also, they feel the burden of collecting trophies because they know how much effort and time it takes. "A very stupid game I play. Not even on the trail of Rima and the likes that are played on. I only play for trophies".

Every society reproduces its culture, its norms, experiences, and assumptions. In this sense, the collective mind of the online community reflects the needs of the group. This means that the symbol of digital trophies can also be viewed from the aspect of digital prints. With such an understanding, the reality is more like what we see on the PSN list.

Snobs no longer play games for the sake of the game, but for the prestige of the trophies won. The culmination is when a gamer plays digital games because of the number of trophies or the speed of winning platinum. "Stop collecting the same games to 'prove' your PlayStation devotion. Come on brother, buy something else, play something you haven't played before, have fun. Opening new accounts is running in circles". In this sense, snobs realize themselves as an extension of others. If there are no others to admire them, the snob loses their meaning.

c) Theme: Pleasure

The third topic refers to the category of user satisfaction (Table 2). It is the theme that is most intertwined in all the other groups that appear in narcissism, snobs, and burdens. An example of the expressed satisfaction felt by a gamer after winning a trophy can be seen below: "I won the platinum trophy half an hour ago. *Bloodborne* is a game that simply deserves it". The feeling of pleasure that occurs in gamers after winning the platinum trophy is a form of satisfaction and happiness. However, this is not the feeling of satisfaction that Csikszentmihalyi (2006) is talking about, at least not in this way. He

distinguishes pleasure from satisfaction. Pleasure is characterized by a sense of fulfilment and achievement.

Precisely in this sense, we achieve pleasure with a certain effort, for example: "After 400 hours in *The Division*, I finally have a platinum trophy. I have been working intensively on trophies in the last few days. I had to have that trophy because I love the game". At the same time, success in something the user considers trivial will not bring a sense of satisfaction. We can see the game as a form of culture. In this sense, we can compare the game with culture (Csikszentmihalyi, 2006). However, such an understanding of game and culture starts from norms. According to Csikszentmihalyi (2006), culture can be understood as a form of adaptation. In this sense, games can be compared to culture, i.e. the whole culture turns into a game.

It is precisely in such an experience that the *enchanting preoccupation* (Csikszentmihalyi, 2006) of the trophy hunter emerges. A user who constantly worries about winning trophies and how others will perceive them has a constant lack of satisfaction. We can analyse this using the example of when gamers experience collecting trophies as a burden and pleasure:

> Here, today I platinumed the hardest game in my 100% collection. Injustice. I don't know where to start, how many hours spent with this game, how much effort, cursing, crying and happiness when I finally passed it. The game is fun at first until you start collecting trophies, and then it goes to hell.

Pleasure is a feeling of happiness, enjoyment, or gratification that typically comes from an immediate sensory experience. Pleasure and satisfaction are both positive feelings, but they have different origins and implications. The act of collecting trophies in digital games can provide a quick burst of pleasure due to the immediate reward and recognition that comes with it. This can be particularly appealing because it offers a tangible way of marking progress and achievement, which can be very satisfying in the short term.

Pleasure appears when the gamer's expectations are fulfilled. In this sense, the trophy hunter experiences pleasure only with a certain effort. We understand this effort as an action, and the trophies won as a reward for the invested time of the user. We will analyse two different user statements that confirm the theory. "I go over each game first for the soul, and then if I like it, I go hunting for trophies. It's a gaming filter for me". As can be seen, users can play the game for the pleasure of the game itself. Only under the condition that they like the game, they can pay respect to the trophies and collect the platinum trophy. With such an understanding, trophies calm the players.

Another example refers to the statement: "I don't have any sense of prestige from winning the platinums I have. Trophies are just an incentive to spend more time in the games I love, or to try some challenges that otherwise would not have occurred to me". We can conclude that satisfaction with collected trophies does not always mean prestige. It can be associated with emotions when a gamer loves the game, when the game is important to them and when trophies encourage them to try something new in the game.

Unfortunately, the problem arises that this satisfaction lasts a relatively short time. Trophy hunters seek new confirmation of the community and themself through new trophies. The pleasure of collecting trophies goes beyond the digital game itself. Trophies become more important than the game. It is a paradox because trophies are an addition to the game.

d) Theme: Burden

Collecting trophies often becomes a burden to the gamer. Regardless of whether trophy hunters want to have as many trophies as possible or want to have platinum trophies in games that are relevant to them, collecting is a burden. This is best seen from the

example: "Trophies kill the charm of the game". It is obvious that trophy hunters represent a subspecies of users who are drawn into the circle of collecting. Their desire to collect trophies also represents the dark side of gaming.

If we compare the statement of users of the online community, we get a detailed insight into the seriousness of the preoccupation with trophies. "I've been losing my temper for a month now! The game is a drug and constantly pulls you to break those records, but it's hard to go crazy. Some levels are designed to throw the joystick into the wall". The burden placed on gamers due to collecting trophies not only limits the choice of the game but also imposes obligations to play those they do not like.

As an example of emotional exhaustion and the closed circle of collecting trophies, we will analyse in the following examples: "I am dead inside after the platinum trophy" and "You're even crazier when you play games you don't like and then go hunting for platinum trophies". The question arises: why do they collect trophies if they represent a burden? We can find the answer in the theory of narcissistic culture according to which the modern narcissist presents himself as a better gamer than other gamers. What does that mean?

Trophy hunters create the image of a Gamer who is superior to other casual gamers. They build their identity from fragments of other images, roles, and experiences. To perfect their role as the ideal Gamer, they represent a narcissist who constructs their role through collecting trophies. In this sense, trophies become a meaningful part of the game for them. Then, only then the trophies are part of the game because they collect them. At the same time, trophies represent its extension.

This is what Lasch (1986) calls *shaping his personality*. In this sense, trophy hunters live surrounded by mirrors in which they seek confirmation of their own ability to attract others. Then it is a cultural and anthropological representation of a gamer who does not collect trophies just for confirmation. The modern narcissist is self-absorbed and self-indulgent. Modern narcissists, who are often characterized by a heightened sense of self-importance and a constant need for attention and admiration, may use digital games as a platform to fulfil these needs.

The act of collecting trophies in digital games can be seen as ritualistic behaviour. These trophies serve as a tangible representation of their achievements, which they can showcase to others. This aligns with Lévi-Strauss's (1977, 1988) theory where the ritual, i.e. collecting trophies is effective if accompanied by the recitation of the myth, i.e. sharing, and showcasing these achievements to others. Moreover, the confirmation and approval they seek from others when they share their achievements in games can be compared to the social function of rituals in Lévi-Strauss's theory.

Rituals, according to Lévi-Strauss, are performed for a specific purpose and are often tied to a myth or a belief system. However, when the ritual becomes too demanding or loses its meaning, it can feel like a burden. Similarly, when modern narcissists feel compelled to collect trophies to maintain their self-image or seek validation, the act of collecting can become more of an obligation than a pleasure: "I'm trying to find some pleasure in trophy hunting, but if it's going to turn into an obligation, a job where I have to work to get trophies, waste time, be stressed, I don't see the point anymore".

In-depth Analysis

The model according to which the trophy phenomenon was analysed was observed in the context of the binary relation of trophies that gamers like and dislike (Table 3). Those digital games that gamers love, provide them with pleasure, satisfaction, a sense

of competence and personal growth and development show intrinsic motivation. On the contrary, those digital games that gamers play but do not like because they play them because of the need for trophies, PSN list, rare trophies, praise on online forums and platinum numbers, represent extrinsic motivation.

Table 3: Trophy hunting

They love the game	They do not like the game
Satisfaction	Job
Content	Form
Easiness	Frustration
Loyal consumers	Impulsive consumers
Reflection in the mirror	

Source: own processing

As can be seen from the above examples, the discussion that takes place on the FFA forum starts from the strength of experts who impose themselves as leaders of the reference group. Their statements are respected, and group members agree by showing trust and recognition. However, at the same time, there is a different perception of the value of the trophy.

The pattern of behaviour that occurs on the forum can be shown through the concept of a trophy hunter who expresses admiration for the digital game and promotes themself at the same time (Cruz et al., 2017) and another pattern of behaviour in which there are trophy hunters who play games in order to have as many trophies as possible, but do not enjoy it (Lu et al., 2020). Also, it is important to note that gamers who are intrinsically motivated and love digital games show a tendency to promote the game more often, posting photos and identifying themselves with won trophies as a symbol of mutual respect for the game and for their own success (Picture 3).
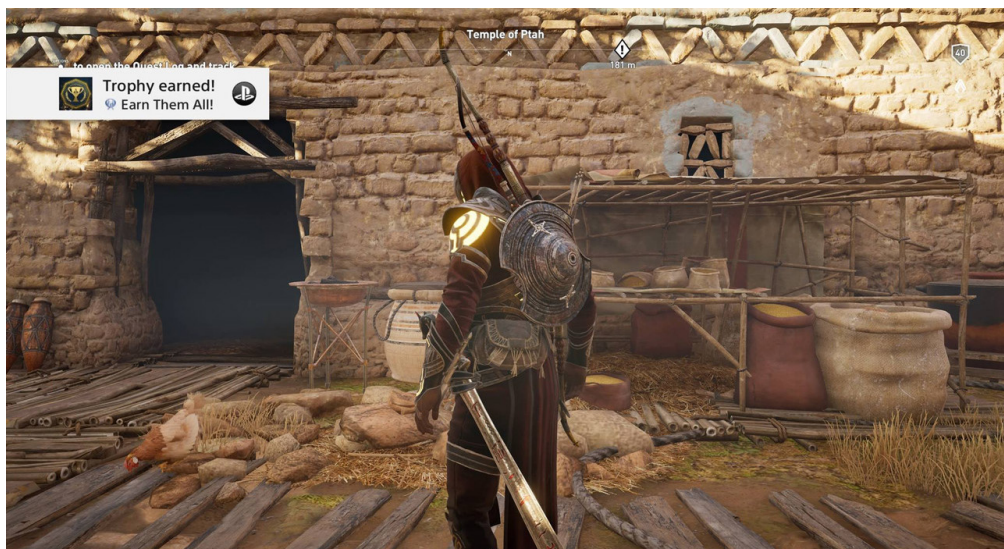
Picture 3: Platinum trophy from Assassin's Creed: Origins
Source: FFA, n.d.

We can interpret this as a form of brand loyalty (Keller, 2013; Jukić, 2020) in which satisfied and motivated gamers promote a digital game using the WOM marketing method (López, Sicilia & Hidalgo-Alcázar, 2016), they give their own judgment, performance rating and trophy hardness. Also, such trophy hunters show a tendency to complete the same digital games on different consoles, such as *Uncharted* (Naughty Dog, 2007-2016) and *Assassin's Creed* (Ubisoft, 2007-2023) series in parallel on PS4 and PS5. Finally, the strongest affirmation of brand loyalty occurs when customers are engaged (Keller, 2013). In such a case, gamers become brand ambassadors.

Also, it is noticeable how trophy hunters reveal their satisfaction after achieving their goals, a sense of pride and satisfaction, as well as the fulfilment of their own. Encouraging intrinsic motivation requires the game developer to choose an activity that gamers enjoy and want to actively participate in. This is especially evident in the example when gamers state that trophies destroy the enjoyment of playing and go as far as to never want to hear about these games again.

It is interesting to compare the extrinsic motivation of trophy hunters, which is associated with successfully performed tasks, and is based on reinforcement, feedback, and symbolic rewards. As can be seen in the example of users, who achieve the recognition of the reference group on the forum for the achieved success, but at the same time self-realization because they have achieved the given goal. At the same time, gamers who play solely for the sake of increasing the number of trophies express frustration, anger, and senselessness. Every gamer becomes an advanced gamer over time and will look for added value in the digital game. If trophies are purpose, saturation occurs. Trophies should provide some new value such as new characters, weapons or discounts when purchasing DLC.

Reward power is a construct of the need to belong within a reference group. The need for belonging, if satisfied, creates a motive for cooperation, by accepting group norms and goals. This is reflected in the reputation of trophy hunters who distinguish trophies according to hardness and rarity. Also, disdain for easy trophies that do not require any skill and investment of time appears here.

Marketing Perspectives

We can present the influence of the reference group of the FFA forum as normative because it causes similar behaviour in similar situations. It is interesting to compare the time when the trophies are collected (Picture 4) with which the others in the group agree. As can be seen, most trophies are collected from between 5 p.m. until 11 p.m. which tells us how focused gamers are on collecting, but also the conclusion of how they are at work during the day.
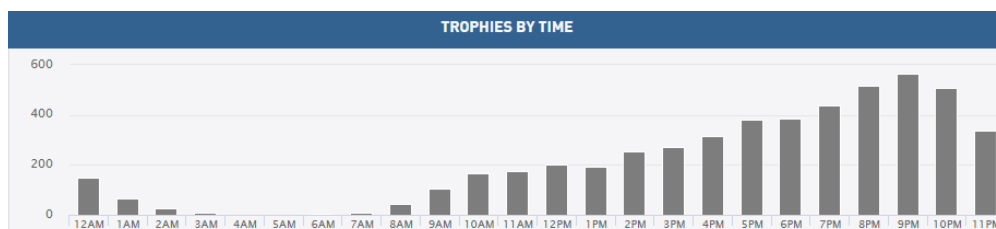
Picture 4: The time when most trophies are collected
Source: FFA, n.d.

A normative group is important from a marketing point of view because the members of the group are expected to accept the attitudes and behaviour towards the mentioned trophies. If we compare trophy hunters who collect trophies solely for the purpose of building an image of an ideal gamer that is superior and can affect a gamer's sense of self (Cruz et al., 2017), then we can conclude that Lasch is right when he states that we are overly preoccupied with ourselves and our own image. Comparing Table 2, the division of trophy hunters into those who collect trophies for the sake of form (the number of platinums and rankings are important to them), and not for the content of the game, leads to the appearance of dissatisfaction and frustration that we associate with the metaphor of the narcissistic mirror. Paraphrasing Lasch (1986), trophy hunters who play games just to get as many trophies as possible are digital narcissists who care about self-presentation.

What is important comes from a deeper understanding of the psychoanalysis of narcissism in the context of Lasch's understanding of contemporary society, where the feeling of frustration and inner emptiness prevails (Matijašević, 2016). This is especially noticeable when trophy hunters feel the guilty pleasure of owning easy trophies. It is this feeling of guilt and shame that is inherent in the *narcissistic vulnerability* (Holmes, 2003; Kohut, 1990) that represents the trapped gamer: the need to feel special and the need to fit in with the group.

In this sense, buying digital games that have *easy* trophies, the same digital games that have been remastered for a newer console, buying DLC to have a 100% complete list of trophies, cannot fill the inner void that the gamer feels and constructs a fictitious identity. This is exactly what Lasch claims when he says that for Narcissus the world is a mirror (Lasch, 1986). Holmes (2003) claims the same, explaining how it is a form of normal narcissism. However, this is no longer a question of the degree of normality, as psychiatrist Archer (2013) explains stating that people have traits on a continuum from dominant to super dominant. In other words, self-centreedness, when it becomes dominant, does have elements of narcissism.

Consumers compare attitudes and behaviours with those demonstrated by members of the reference group (McKenna & Bargh, 2006). In this way, gamers seek confirmation and support for their own opinion and behaviour. The same applies to trophy hunters. The goal of the individual is to improve their own self-concept by identifying with the group, which provides reinforcement and inner satisfaction. However, the question of the trophy hunter's motivation remains open.

Motivation towards collecting trophies, i.e. *need for achievement* (Cruz et al., 2017) was observed in the context of intrinsic and extrinsic motivation (Ryan & Deci, 2000; Vizek Vidović et al., 2003). Intrinsic gamer motivation represents internal motivation in response to gamer needs, such as curiosity, the need for development, and a sense of competence. Intrinsic motivation due to the enjoyment of gaming is the highest level of motivation. Extrinsic motivation is an external incentive, i.e. when it has its source outside the gamer and refers to a good result on the PSN trophy list, praise on the forum, rare trophies, and platinums.

The context of narcissistic culture in which the phenomenon of trophies and trophy hunters was observed is understood as an anthropological and marketing phenomenon. From the marketing aspect, trophies represent an example of a new niche marketing that is growing and, judging by the analysed FFA forum, represents a market that will grow even more in the future. The reason for this is the emergence of digital games that are based exclusively on quick and easy trophies that gamers buy to increase their rating and reputation in the community. At the same time, trophies are presented as a form of *reward* to gamers that is integrated when starting the game and is imposed as a need that gamers satisfy by winning platinum trophies.

At the same time, an anthropological phenomenon appears in which such a need becomes an impossible desire, because through the continuous appearance of new digital games that can enable the consumer to acquire trophies in 30 minutes, the space of gamer satisfaction is closed, and the desire is disguised as an obsessive longing and need for trophies. In simpler terms, trophy hunters become trapped in their narcissistic mirror because they are in a paradox between the desire for trophies and the need to build a trophy list. The beauty of collecting trophies becomes a mask in front of other gamers.

Discussion

In this study, we researched the trophy phenomenon from the perspective of online forum users. We analysed the context of trophy hunters from cultural, anthropological, and marketing aspects. More precisely, from a cultural aspect, we observed the phenomenon of trophies and trophy hunters and analysed it in the context of gaming culture. We started from the theory of narcissistic culture and media culture, according to which we interpreted the role of trophies, collection, and community.

From an anthropological point of view, we observed the gamer community that gathers around digital game trophies. We observed the phenomenon of trophies in the context of the user's experience and classified them into four themes: narcissism, snobbery, pleasure, and burden. This means that the individual is viewed in the context of the 'normality' of narcissism (Lasch, 1986), i.e. as a gamer who plays games for their own presentation and self-representation in the virtual world.

In the end, we connected two perspectives from the marketing aspect and indicated the possibility of creating a niche. Trophies are presented as a form of added value of the digital game. In other words, buying DLC represents a gamer's need not only for expanded game content, but also a new perspective of marketing communication. In this sense, the need to collect trophies represent an additional market for digital game producers. DLC, as well as *easy platinums*, indicate a consumer need.

At the same time, we provided a deeper insight into the trophy phenomenon. The main research question: what do trophies represent to gamers, is analysed. In the study, we showed that there is a link between the four topics that we classified by analysing the gamer community. The analysis was conducted using the method of virtual ethnography, and the topics were observed through content analysis.

Therefore, research questions were analysed: trophies are a pleasure and a burden to gamers. Satisfaction results only in the case when gamers like digital games and if they meet their preferences, for example, they like the content of the game, get recognition from the reference group, share the same attitudes and beliefs in the forum. Only then does collecting trophies become easy, and repeating the same patterns becomes an inherent brand of loyalty. Also, dissatisfaction, frustration, and *narcissistic rage* (Lasch, 1986) appears when gamers play games for form, when playing becomes a *job* and they no longer enjoy it. They become compulsive consumers, buying, and playing games for easy trophies.

The concept of playing digital games and winning trophies (bragging about trophies, collecting trophies, and obsession with trophies) can be linked to the concept of narcissistic culture in several ways: a) self-promotion, b) self-satisfaction, c) achievement obsession, and d) materialism.

Narcissistic culture often promotes self-promotion. In the context of digital games, gamers may use trophies to brag about their achievements on social media or to their friends. Narcissism often involves self-satisfaction. Collecting trophies in digital games

can provide players with a sense of satisfaction and achievement. This can be particularly pronounced in a narcissistic culture that values individual achievements. Narcissistic culture is often obsessed with achievements. In the context of digital games, this could mean that players are obsessed with winning as many trophies as possible, often at the expense of other aspects of the game or even their personal lives. Narcissistic culture often bases itself on materialism. Although trophies in digital games are not physical objects, they can have material value in terms of status and recognition within the gaming community, like the FFA online forum.

Lasch (1986) understands narcissism as a lack of object relations, as a glorification of oneself, which we can see in the examples that show how individuals suffer because they did not win trophies or show frustration that trophies are difficult for them. In this sense, we can connect the understanding of narcissistic culture in the gaming industry with the analysis of the self, where the number of platinums won restructures the self as an ideal representation of gamers in the community. From a marketing point of view, such image restructuring signifies a consumer who consumes trophies. This is a trophy marketing niche that produces and consumes trophies and puts them on a throne. So, the problem is in the fundamental reference group that promotes and encourages the trophy metamorphosis of consumers where the formation of identity is shown to be an illusion.

If we put the individual in the relation of the inner world to the self (Kohut, 1990), towards the *normality of narcissism* (Archer, 2013), and the image with which we present ourselves in society (Matijašević, 2016) then only the trophy hunter gets an insight into the inner monologue and motives of collecting. However, when we look at trophy hunters from the aspect of narcissistic culture then we see that individuals close in on themselves and become alienated so that they do not see anything beyond their horizon. Not only do they announce their successes with frequent forum posts and brag about the trophies they have won, they also do not recognize that they are trapped in that mirror metaphor. The problem arises when the self-image becomes more real than the person behind those trophies.

In this sense, the concept of the narcissistic culture of the trophy hunter was observed as a symptom of social changes, the spread of image and form over content. And although this form, in Kant's sense, can reveal beauty (Jukić, 2022), here we are not talking about unobjective beauty, but about an inner emptiness that has often become more important than the content itself. It is the competitive spirit that Lasch (1986) speaks of that contributes to the cult of image where the gamer puts a price on everything and even on the trophies they collect. In this paradox, the gamer develops a double absurdity: they play games for trophies and distinguishes trophies from trophies that are categorically indistinguishable.

The concept of playing digital games and winning trophies can be seen as a manifestation of narcissistic culture, as it promotes self-promotion, self-satisfaction, achievement obsession, and materialism. This aligns with Lasch's description of narcissistic culture as a culture that promotes self-satisfaction, self-promotion, and self-obsession at the expense of common values and social good. The concept of collecting trophies in digital games can have a significant impact on game marketing and sales. Based on all the above, we can list four marketing strategies in the context of collecting consumer trophies: a) impact on game purchases, b) a new niche of gamers, c) branding, and d) encouraging community.

Gamers who are obsessed with collecting trophies may be motivated to buy certain games just to win more trophies. This can lead to increased sales of 'easy' games that offer trophies for a little bit of effort. Collecting trophies can create a new niche of players – those who are particularly interested in winning trophies. This niche can be attractive to marketers (Kimura, 2006) because it represents a specific group of consumers with clearly defined interests. Games that offer satisfying and challenging trophies can

improve their reputation among players. This can lead to brand loyalty. Collecting trophies can encourage the creation and growth of online player communities. These communities can become platforms for sharing experiences, tips, and tricks about winning trophies, which can further increase engagement and game sales.

Themes and characteristics that are present among users of digital games (Table 2) can be linked to narcissistic culture. Each of these four perspectives (narcissism, snobbery, pleasure, and burden) that online gamers show towards winning trophies in digital games can have a significant impact on marketing strategies. Marketers can take advantage of this tendency of users to brag and be proud of their in-game achievement. They can create platforms where players can share their trophies and achievements, which can encourage others to buy and play the game to achieve similar.

The creation of categories and divisions among players can be used for market segmentation. For example, games can offer exclusive trophies or rewards that are only available to the top players, which can encourage greater competition and spending. The sense of satisfaction and success that players experience when they win a trophy can be used to promote the game. For example, marketing campaigns can emphasize how satisfying it is to win trophies in the game, which can attract new players.

Although dissatisfaction or unhappiness when unable to win a trophy may seem negative, marketing professionals can use this as an opportunity. They can offer additional resources, guides, or even paid upgrades that can help players win more difficult trophies, like easy *fatality* in *Mortal Kombat* (NetherRealm Studios, 2020).

The practical implications could be significant for various stakeholders in the gaming industry, including game developers, marketers, and psychologists. Understanding these characteristics can help game developers design more engaging and balanced games. For instance, if they find that trophy hunting is causing a sense of a burden among players, they might consider designing their trophy systems to be more optional or less grind intensive. On the other hand, if players derive pleasure from trophy hunting, developers could consider ways to make this aspect of the game more rewarding and enjoyable.

This information can be valuable for marketers in positioning their products. If a significant part of a game's target audience values trophy hunting, this can be highlighted in marketing campaigns. Conversely, if trophy hunting is seen as a negative aspect (e.g. due to perceived snobbery), marketers might focus on other aspects of the game in their promotional efforts. The link between trophy hunting and characteristics, like narcissism and snobbery, could be interesting to psychologists.

Limitations of this study include the language barrier. The researched online community belongs to the Croatian speaking area, so replication of the research is possible for speakers of the same language. However, the insights gained from the trophy hunter community can be viewed in a broader context. Additional limitations include the discrepancy between the qualitative methodologies. Quantitative methods were not used in the study because virtual ethnography and content analysis did not require a sociodemographic approach. The observed community is independent of gender, age, income, and level of education. What they have in common is collecting trophies.

Conclusion

Trophies are both an oxymoron and a paradox of digital gaming. The act of collecting trophies in digital games can seem paradoxical if it arises from the enjoyment of the game itself. This could be seen as an oxymoron if the *play* in *playing a game* becomes more

about trophy hunting than the game itself. This phenomenon can be linked to the way digital games are designed and how they reward players. Some games place a significant emphasis on achievements and trophy systems, which can shift the focus from the core gameplay experience to a more completionist approach. This can lead to a situation where players might spend more time and effort collecting trophies than enjoying the game's story.

In Lasch's concept of narcissistic culture, the act of collecting trophies in games could be seen as a manifestation of narcissistic culture. The trophies are a form of external validation, providing immediate gratification and a sense of accomplishment. This aligns with Lasch's description of the narcissistic individual as someone who is constantly seeking validation and affirmation from external sources.

Translating an oxymoron on a literal level becomes meaningless, because an oxymoron as a stylistic figure connects opposite concepts. However, when we understand the oxymoron in the denotative and connotative senses, its meaning becomes a game of thought. In this sense, playing digital games for trophies, or not playing digital games, takes on a deeper meaning. This means that the game as entertainment can be tedious, difficult, and frustrating. A paradox, unlike an oxymoron, requires interpretation and is always enigmatic. Trophies are a gamer's paradox in which gamers play digital games without realizing that they are in a marketing game.

In this sense, trophies do not affect the game, but are part of the *record* of the game. Their *save* was marked on the trophy list as soon as gamers started playing the game. Their winning the platinum trophy does not mean that the gamers enjoyed the game. Also, their failure to win the platinum trophy does not mean that gamers have not moved on to digital gaming. This means that trophies, viewed *a priori*, are paradoxically determined like Camus's Sisyphus, exposing the absurdity of gaming. This absurdity is determined by the moment of *realization*, about the illusion of freedom of gamers (Camus, 1998). The realization that a digital game is played for the sake of the game, not for the illusion.

This is precisely what Lasch (1986) called *pathological narcissism,* because contemporary gamers, in their longing to present themselves and others as better, build an image of the ideal (completist) gamer. Such an exemplary gamer who has a perfect trophy list represents the media-created construction of the ideal over-gamer. His goal is to collect as many trophies as possible, even at the cost of not enjoying the games. In that imaginary picture, the question is reflected: Is the digital game being played with us or are we playing with it?

BIBLIOGRAPHY

Andrade, L. A., & Medeiros, M. (2018). Towards a (ludic) resonant and sensory environment: Space, music and locative gaming. *Acta Ludologica*, *1*(1), 16-26.

Archer, D. (2013). *Više nego normalno* [Better than normal]. Profil.

Balážiková, M. (2019). Real-life frustration from virtual worlds: The motivational potential of frustration. *Acta Ludologica*, *2*(1), 56-68.

Baron, R. A., & Branscombe, N. R. (2012). *Social psychology.* Pearson.

Baudrillard, J. (2017). *Symbolic exchange and death*. Sage.

Bird, S. E., & Barber, J. (2007). Constructing a virtual ethnography. In M. V. Angrosino (Ed.), *Doing cultural anthropology* (pp. 139-148). Waveland Press.

Björk, S., & Holopainen, J. (2005). *Patterns in game design*. Charles River Media.

Blythe, J. (2008). *Consumer behaviour.* Thomson Learning.

Boszorád, M. (2020). Watch a film, play a game – play a film, watch a game: Notes on the 'intermedia-presence' of digital games in cinema. *Acta Ludologica*, *3*(1), 4-17.

Buček, S., & Kobetičová, M. (2020). Establishing new genres in digital games: The auto battler case study. *Acta Ludologica*, 2020, *3*(1), 46-66.

Camus, A. (1998). *Mit o Sizifu* [The myth of Sisyphus]. Matica Hrvatska.

Csikszentmihalyi, M. (2006). *Flow – očaravajuća obuzetost: psihologija optimalnog iskustva* [Flow – the psychology of optimal experience]. Naklada Slap.

Cropley, A. J. (2022). *Qualitative research methods: A practice-oriented introduction*. Editura Intaglio.

Cruz, C., Hanus, M. D., & Fox, J. (2017). The need to achieve: Players' perceptions and uses of extrinsic meta-game reward systems for video game consoles. *Computers in Human Behavior*, *71*(6), 516-524. https://doi.org/10.1016/j.chb.2015.08.017

Debord, G. (1999). *Društvo spektakla* [The society of the spectacle]. Bastard Biblioteka.

Dupont, B., & Malliet, S. (2021). Contextualizing dark patterns with the ludeme theory: A new path for digital game literacy?. *Acta Ludologica*, *4*(1), 4-22.

Evans, M., Jamal, A., & Foxall, G. (2006). *Consumer behaviour.* John Wiley & Sons.

Eyal, T., Liberman, N., & Trope, Y. (2009). Psychological distance and consumer behavior: A construl level theory perspective. In M. Wänke, (Ed.), *Social Psychology of Consumer Behavior* (pp. 65-87). Taylor & Francis.

Farkaš, T. (2018). Binaural and ambisonic sound as the future standard of digital games. *Acta Ludologica*, *1*(2). 34-46.

FFA. (n.d.). *PSN trofeji* [Online forum]. Retrieved May 24, 2024, from https://forum.ffa.hr/d/612-psn-trofeji

Forsyth, D. R. (2010). *Group dynamics.* Cengage Learning.

Foxall, G. R., Goldsmith, R. E., & Brown, S. (2007). *Psihologija potrošnje u marketingu* [Consumer psychology for marketing]. Naklada Slap.

Foxman, M. (2020). Punctuated play: Revealing the roots of gamification. *Acta Ludologica*, *3*(2), 54-71.

Frykman, J., & Gilje, N. (2003). Being there. An introduction. In J. Frykman, & N. Gilje (Eds.), *Being there: New perspectives on phenomenology and the analysis of culture* (pp. 7-52). Nordic Academic Press.

Hamari, J., & Eranti, V. (2011). Framework for designing and evaluating game achievements. In M. Copier, A. Waern, & H. W. Kennedy (Eds.), *Proceedings of the 2011 DiGRA international conference: Think design play* (pp. 1-20). Digital Games Research Association. http://www.digra.org/wp-content/uploads/digital-library/11307.59151.pdf

Haviland, A. W., Prins, H. E. L., McBride, B., & Walrath, D. (2017). *Cultural anthropology: The human challenge.* Cengage Learning.

Hine, C. (2000). *Virtual ethnography.* Sage.

Holmes, J. (2003). *Narcizam* [Narcissist]. Jesenski i Turk.

Hoyer, W. D., & MacInnis, D. J. (2010). *Consumer behavior*. South-Western Cengage Learning.

Horkheimer, M. (1982). *Kritička teorija II* [Critical theory II]. Stvarnost.

Horkheimer, M., & Adorno, T. W. (1989). *Dijalektika prosvjetiteljstva* [Dialectic of enlightenment]. Veselin Masleša.

Jukić, D. (2020). To Brand or not to brand: The perception of brand image in the digital games industry. *Acta Ludologica*, *3*(2), 22-35.

Jukić, D. (2021). Marketing semiotics in digital games: Myth's analysis in The Walking Dead and Heavy Rain. *Acta Ludologica*, *4*(2), 4-30.

Jukić, D. (2022). Why do we play digital games? Anthropological-philosophical-pedagogical aspects. *Acta Ludologica*, *5*(2), 30-56.

Jukić, D. (2023). Educational values in digital games. *Media Literacy and Academic Research*, *6*(2), 157-176. https://doi.org/10.34135/mlar-23-02-09

Katunarić, V. (1990). *Teorija društva u frankfurtskoj* školi [The theory of society in the Frankfurt school]. Naprijed.

Keller, K. L. (2013). *Strategic brand management: Building, measuring, and managing brand equity.* Pearson Eucation.

Kellner, D. (2004). *Medijska kultura* [Media culture]. Clio.

Kesić, T. (2006). *Ponašanje potrošača* [Consumer behaviour]. Opinio.

Kimura, J. (2006). Emergence and change of consumer product image in social constructionism perspective. In L. R. Kahle, & C.-H. Kim (Eds.), *Creating images and the psychology of marketing communication* (pp. 47-64). Lawrence Erlbaum Associates.

Kłosiński, M. (2018). Games and utopia. *Acta Ludologica*, *1*(1), 4-14.

Kohut, H. (1990). *Analiza sebstva* [The analysis of the self]. Naprijed.

Kvetanová, Z. (2023). Application of Roger Caillois' typology in the strategy game genre: A case study of Sudden Strike 4. *Acta Ludologica*, *6*(1), 96-110. https://doi.org/10.34135/actaludologica.2023-6-1.96-11

Lasch, C. (1986). *Narcistička kultura: američki* život *u doba smanjenih očekivanja* [The culture of narcissism]. Naprijed.

Lévi-Strauss, C. (1977). *Strukturalna antropologija* [Structural anthropology]. Stvarnost.

Lévi-Strauss, C. (1988). *Strukturalna antropologija 2* [Structural anthropology 2]. Školska Knjiga.

Lipovetsky, G. (2008). *Paradoksalna sreća: ogled o potrošačkom društvu* [The paradoxical happiness: essay on hyperconsumption society]. Antibarbarus.

López, M., Sicilia, M., & Hidalgo-Alcázar, C. (2016). WOM marketing in social media. In P. De Pelsmacker (Ed.), *Advertising in new formats and media: Current research and implications for marketers* (pp. 149-168). Emerald Group Publishing Limited.

Lu, C., Peltonen, J., Nummenmaa, T., Li, X., & Zhang, Z. (2020). What makes a trophy hunter? An empirical analysis of Reddit discussions. In J. Koivisto, M. Bujić, & J. Hamari (Eds.), *4th annual international GamiFIN conference* (pp. 146-156). Levi.

Mago, Z. (2018). The concept of timelessness applied to advergames. *Acta Ludologica*, *1*(2), 18-33.

Magová, L. (2020). The development of ethical education through digital games: The Butterfly Effect implementation. *Acta Ludologica*, *3*(1), 32-45.

Matijašević, Ž. (2016). *Stoljeće krhkog sebstva: psihoanaliza, društvo, kultura* [A century of the fragile self: psychoanalysis, society, culture]. Disput.

McCurdy, D. W., Spradley, J. P., & Shandy, D. J. (2005). *The cultural experience: Ethnography in complex society.* Waveland Press.

McKenna, K. Y. A., & Bargh, J. A. (2006). Coming out in the age of the Internet: Identity "demarginalization" through virtual group participation. In J. M. Levine, & R. L. Moreland (Ed.), *Small groups: Key readings* (pp. 433-452). Psychology Press.

McLuhan, M. (2008). *Razumijevanje medija* [Understanding media]. Golden Marketing-Tehnička Knjiga.

Milas, G. (2007). *Psihologija marketinga* [Psychology of marketing]. Target.

Miškov, J. (2021). Motivation with game elements in education mediated by e-learning resources. *Acta Ludologica,* 2021, *4*(1), 24-51.

Murthy, D. (2008). Digital ethnography: An examination of the use of new technologies for social research. *Sociology*, *42*(5), 837-855. https://doi.org/10.1177/0038038508094565

Myers, D. G. (2012). *Exploring social psychology*. McGraw-Hill.

Naughty Dog. (2007-2016). *Uncharted* (Series) [Digital game]. Sony Computer Entertainment.

NetherRealm Studios. (2020). *Mortal Kombat 11* (PS5 version) [Digital game]. Warner Bros; Interactive Entertainment.

Ntelia, R. E. (2022). Fortnite as Bildungsspiel? Battle royale games and sacrificial rites. *Acta Ludologica*, *5*(1), 80-100.

Pennington, D. C (2008). *Osnove socijalne psihologije* [Essential of social psychology]. Naklada Slap.

Potkonjak, S. (2014). *Teren za etnologe početnike.* [Terrain for beginning ethnologists]. Hrvatsko Etnološko Društvo, Filozofski Fakultet Sveučilišta u Zagrebu.

Poynter, R. (2010). *The handbook of online and social media research: Tools and techniques for market researchers*. West Sussex.

PSN. (n.d.). *PSN trophy leaderboard*. Retrieved May 24, 2024, from https://psnprofiles.com/leaderboard/all

Radošinská, J. (2018). Portraying historical landmarks and events in the digital game series Assassin's Creed. *Acta Ludologica*, *1*(2), 4-16.

Rokošný, I. (2018). Digital games as a cultural phenomenon: A brief history and current state. *Acta Ludologica*, *1*(2), 48-61.

Ryan, R., M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78. https://doi.org/10.1037/0003-066X.55.1.68

Slezáková, S. (2018). Pathological gambling and co-dependence. *Acta Ludologica*, *1*(1), 40-51.

Solomon, M. R., Bamossy, G., Askegaard, S., & Hogg, K. M. (2009). *Consumer behaviour, a european perspective*. Prentice Hall.

Square Enix. (2020). *Final Fantasy VII Remake* (PS4 version) [Digital game]. Square Enix.

Telltale Games. (2014). *Tales from the Borderlands* (PS4 version) [Digital game]. Telltale Games.

Terrasa-Torres, M. (2021). Difficulty as aesthetic: An investigation of the expressiveness of challenge in digital games. *Acta Ludologica*, *4*(1), 94-111.

Therborn, G. (2011). Frankfurtska škola [Frankfurt school]. Čemu, *10*(20), 18-47.

Tierney, G. (2007). Becoming a participant observer. In M. V. Angrosino (Ed.), *Doing cultural anthropology* (pp. 9-19). Waveland Press.

Ubisoft. (2009-2023). *Assassin's Creed* (Series) [Digital game]. Ubisoft Montréal; Ubisoft Quebec; Ubisoft Bordeaux.

Vizek Vidović, V., Rijavec, M., Vlahović-Štetić, V., & Miljković, D. (2003). *Psihologija obrazovanja* [Psychology of education]. IEP-VERN.

Vuk-Pavlović, P. (2016). *Filozofija odgoja* [Philosophy of education]. Hrvatsko Filozofsko Društvo.

Webnetic. (2022). *The Hippo G* (PS5 version) [Digital game]. Webnetic.

Yi, S. (2020). 'Is this a joke?': The delivery of serious content through satirical digital games. *Acta Ludologica*, *3*(1), 18-30.

Pokémon TCG Live: A Game without Monetization and Its Place in the Gaming Industry

Miroslav Macák

Mgr. Miroslav Macák, PhD.
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
miroslav.macak@ucm.sk
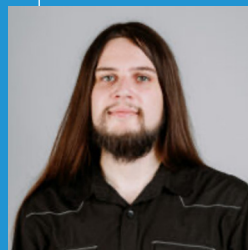
Miroslav Macák (ORCID: 0000-0002-8173-7412) is currently an assistant professor at the Faculty of Mass Media Communication UCM in Trnava, Slovakia. He received his doctoral degree at the same institution from the digital game theory program. The main topic of his scientific research is the industry of digital games. He is predominantly interested in Japanese game production. He also focuses on mainstream, AA and independent production of digital games, stories in digital games, game genres and modern trends in the digital game industry (technological, narrative and design).

ABSTRACT:
Over recent decades, digital games have been trying to find new ways to monetize their player base. The games have evolved from purely premium titles sold as a product, to repeatedly monetized free-to-play games as a service that allow players to spend limitless amount on various microtransactions. However, there are still some oddities present on the gaming market. The case study analyses the digital game *Pokémon TCG Live*, which does not have any form of direct monetization. The study points out how it corresponds to both the overarching Pokémon franchise, as well as the digital games industry. Its main goal is to identify its core mechanics that are traditionally connected with monetization practices, and find its position on the market in relation to other digital trading card games. Another point of interest for our study is the high level of interconnection between the printed and digital versions of the *Pokémon Trading Card Game* and how it impacts the online client.

Introduction: The Legacy of Pokémon Trading Card Game

The Pokémon franchise is, to this day, the most profitable multimedia franchise on the market (Guttmann, 2021). Its products range across core role-playing digital games, animated series and movies, a plethora of merchandise as well as a standalone trading card game. The physical version of the *Pokémon Trading Card Game* (commonly abbreviated as *Pokémon TCG*) had its first set released in 1996 and has since exponentially expanded in both game complexity and market reach. Reportedly, as of March 2023 there have been almost 53 billion cards produced across 14 different languages and 89 countries (The Pokémon Company, n.d.). The *Pokémon TCG* experienced a large growth during the COVID-19 pandemic, even despite the fact that tournament play was postponed. This may be attributed to people seeking nostalgia-educing products they could enjoy at home, which the collectable side of the hobby allows. Another aspect that contributed to the growth could have been major influencers who indirectly promoted the TCG, such as Logan Paul, who during said period purchased a card for over five million American dollars, which also set the world record for the most expensive Pokémon card sold (Suggit, 2022).

The digital version of the *Pokémon TCG* followed shortly after the successful release of the physical TCG. The game, simply titled *Pokémon Trading Card Game* (Hudson Soft & Creatures, 1998), was released in 1998 in Japan. A worldwide release followed two years after in 2000. The game was available exclusively for the Nintendo Game Boy Color, which was also the platform where the main series games were playable. The Game Boy game is mostly a single-player experience where the player slowly gathers new cards to enhance their deck of cards in order to defeat stronger opponents, not dissimilar to role-playing

games of the era. The game received a Japan-exclusive sequel *Pokémon Card GB2: Great Rocket-Dan Sanjou!* (Hudson Soft, 2001) in 2001, which never received an overseas release. The next global digital venture for *Pokémon TCG* was released in 2011 as an online game for PC and tablets, pre-dating many of the most popular digital card games such as *Hearthstone* (Blizzard Entertainment, 2014) or *Magic: The Gathering Arena* (Wizards Digital Games Studio, 2018). The original client under the name *Pokémon TCG Online* (Dire Wolf Digital, 2011) ran until June 7, 2023, when it was officially shut down and replaced by the current *Pokémon TCG Live* (The Pokémon Company International, 2023). The original client was exclusively available on PC and tablets and did not have a smartphone version, which could have been one of the causes for said transition. Nevertheless, it provided players of the TCG with an option to play the game against others from their homes, as well as expanded the platform reach of the franchise which was almost exclusively tied to Nintendo consoles up to that point.

Monetization as a Core Part of Digital Games

Digital games production nowadays encompasses the most profitable segment of the media industry. Its revenue surpasses even globalized Hollywood movie production known for its high budgets and large-scale marketing campaigns (Richter, 2022). Various forms of game monetization that emerged and expanded within the last decade helped in achieving the position digital games now occupy inside the industry. Digital games, as a commercial product first and foremost, seek to generate profit. The gaming industry has found new methods of how to create games in such a way as to be the most profitable. Some titles utilize premium models, selling the game itself as a product, while others find success in a free-to-play model providing the base game without any cost while opting for in-game transactions or monetized advertising. Many modern titles even combine both and allow for additional in-game purchases in premium titles (Radošinská et al., 2022). However, digital games have been called out multiple times concerning the questionable moral practices associated with repeatable forms of monetization (King & Delfabbro, 2019). Mechanics such as spinning wheels and loot boxes (both free and paid) can be perceived as a gateway to gambling, posing danger to children and adolescents who are often the target demographics for games with said features (Grosemans et al., 2024). Many of these practices do not fall under the legal criteria of gambling due to players always getting at least some items from their purchases, even if they are duplicates of those already owned or common items without any perceived value by the players. According to the research by Gam(e)(a)ble "... these gambling(-like) elements do not always fall within the scope of gambling regulation, due to complexities regarding the interpretation of the different criteria that are used to define what constitutes 'gambling'" (Feci & Declerck, 2022, p. 153). The situation has escalated to the point that certain countries are either investigating or actively restricting problematic forms of monetization through new legislations and laws (Schwiddessen & Karius, 2018).

Most free-to-play games are constructed around their monetization models. *Game-as-a-service* type games must constantly add new content and require commitment from the developers for the game to remain sustainable (Clark, 2014). Added content can be purchased or earned by the players. Some of the most popular types are *loot boxes*, seasonal *Battle Passes* and *gacha*. Each of them provides either tiered or randomized rewards

that encourage player retention and repeated spending. Gacha games like *Genshin Impact* (miHoYo, 2020) have their entire gameplay and story structure customized to allow for the limitless addition of new characters that players may want to obtain. Many players choose the characters they invest into based on their performance rather than their appearance (Šašalová, 2023). Digital card games work on similar principle as loot boxes or gacha with the distinction of card packs having a guaranteed minimum rarity of cards per pack. They are directly inspired by printed trading card games, thanks to which players accept their monetization more willingly compared to other forms of microtransactions. But how does a digital trading card game function without being directly monetized?

Pokémon TCG Live and Its Formal Processing

Pokémon TCG Live was officially released on June 8, 2023, after numerous delays and waves of closed and open beta testing phases. The game is available on Windows and Mac PC, as well as modern tablets and smartphones supporting IOS or Android. The game is available for free on each platform. The most striking feature of the game is that it does not have any direct form of monetization. Nothing in game can be purchased for real-life money, nor is there a way to associate any payment method with the game client. Players can acquire new cards either through opening digital packs, a purchase of specific cards directly for in-game currency (mostly as a part of a bundle or pre-constructed deck), redeeming product codes or through a crafting system. The game has three types of currency; crystals which can be used to acquire card packs and bundles; coins which are used to buy cosmetic items for players' avatars and credits which can be redeemed for specific cards.

Digital booster packs are awarded to the player as a reward for various activities. They can be purchased using crystals or earned as end-of-season rewards, and through progressive battle pass systems. Battle pass is a common monetization and retention strategy used throughout games made under the game-as-a-service paradigm. The player is provided with a progress bar that can be filled by meeting specific conditions while playing the game. They are often dissected into free and premium sections, later which must be purchased with either premium currency or real-life money. *Pokémon TCG Live* also divides its battle pass into two parts, however, as there is no premium currency, nor any way to directly pay in the game, the premium section is simply unlocked by paying 600 crystals (which can be earned in ten days by doing daily quests). After unlocking the premium section, the player receives additional booster packs, currency, cards or cosmetic items both retroactively for all previously reached milestones, as well as for each milestone the player reaches from the point of purchase forward. The digital booster packs themselves differentiate from standard, printed packs in both the number of cards contained and available rarities. Digital booster packs variants only contain six cards, corelating more closely with their Japanese counterparts which include five cards, rather than the international ones which contain eleven. Card rarities traditionally consisting of common, uncommon, rare, hyper rare, variations of secret rare and reverse-foil[1] are retained,

---

1   Remark by the author: In print, cards can have different levels and styles of foil layers. Those make specific cards reflect light in appealing patterns or allow for etched texture which further differentiates the card. Reverse-foil cards are either common, uncommon or rare cards which have a pattern of foiling on the lower half of the card, which contains text, rather than upper half with the illustration. There used to be one guaranteed reverse-foil per booster pack until the release of *Scarlet & Violet* base set in March 2023, which increased the number of reverse-foils to two per pack.

however their distribution in a pack differs from the physical packs. Digital packs contain one common, one uncommon or common, one uncommon, two reverse-foil (one of which can be substituted by a secret rare) and one rare or higher card. There is also a small chance for any of those cards to be randomly upgraded to a hyper or secret rare when revealed during the pack-opening sequence. Comparing this with the standard layout of the international booster pack, which contains four commons, three uncommons, two reverse-foils (with a chance of a secret rare instead of one) a single rare or hyper rare and a basic energy card, it is apparent that all of the more appealing card slots have been preserved in the digital experience, with only less valuable cards being reduced in quantity.

Available bundles in the game store reflect the printed products accessible on the market. Outside of purchasing said products for crystals, players can earn them by redeeming a code included with every *Pokémon TCG* printed product. Once redeemed, the player will receive the same content as they had in the physical counterpart with sole exception being booster packs and build & battle kit, as their contents are randomized and cannot be accurately reflected into the game. Outside of cards, the in-game shop provides cosmetic items, such as apparel for the player avatar or virtual card sleeves, coins and deck boxes. They do not have the practical usage that is to be expected of said products – providing protection to one's cards during gameplay or transportation – they only provide the customization aspect of these items and even that is vastly limited compared to the plethora of differently designed sleeves and deck boxes available for their physical counterparts. Cosmetics can be purchased using coins, which cannot be used towards anything else and similar to other currencies can only be earned through gameplay.

To obtain specific cards, players must use credits to craft them. If the player obtains more than four copies of the same card, the fifth and higher copy will be automatically converted into credits. They are also awarded as battle pass rewards or as a bonus with certain bundles. Those credits can then be used to create specific cards without the need to rely solely on the randomness that comes with opening the packs. The higher the rarity of a card a player would want to craft, the more credits are required to create it. Some cards have multiple variants with different artworks, in which case the non-standard versions are more expensive. There are no restrictions on which cards can be crafted, so players can easily get card variations that are rare and highly sought-after in the physical card game.

The home screen of the game is very simplistic, most likely to fit well on smaller smartphone displays. Currently, there are only two game modes: Standard and Expanded. Standard is the default and most supported gameplay format for *Pokémon TCG*, where only cards released within a certain timeframe (usually last two to three years) can be played. In Expanded, all cards released from the 2011 *Black & White* block onwards can be played ("2024 Pokémon TCG", 2024). The Expanded format in *Pokémon TCG Live* is currently in an incomplete state, as many of the older card sets are not yet implemented in the game client. Both formats can be played in ranked or casual mode. Ranked mode matches players against others based on their statistics and winning or losing moves the player along the ranked ladder. At the end of the season, each player receives rewards based on their ladder position. Casual mode omits the ladder altogether in an attempt to provide a less competitive environment and encourage players to use creative decks. The 'Play' button is in the middle of the lower half of the screen, which provides quick access to the game itself. Game modes and deck are chosen before initiating a match. Other interactable parts of the user interface include the in-game shop, battle pass, deck selection and editing, player profile and ranked seasonal information (Picture 1).
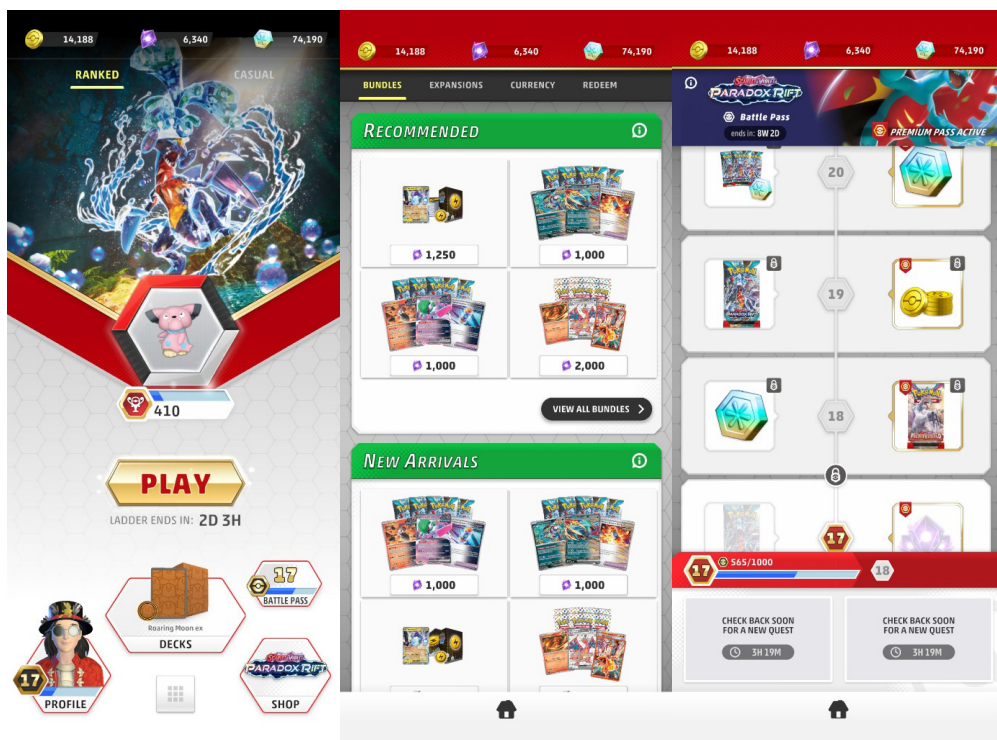
Picture 1: Pokémon TCG Live interface for smartphones (home screen; in-game store; Battle Pass)
Source: author's screenshot from the game Pokémon TCG Live (The Pokémon Company International, 2023)

Differentiating *Pokémon TCG Live* from Its Competition

The most notable difference from other digital card games is the aforementioned lack of direct monetization. Digital TCGs that do not have a physical counterpart rely solely on microtransactions to sustain themselves, and even those that adapt an existing card game, e.g. *Magic: The Gathering Arena*, *Yu-Gi-Oh! Master Duel* (Konami, 2022) heavily utilize in-game monetization. Other games in the genre, including the above examples, sell premium currency which the player can buy to obtain packs, cosmetic items such as avatars or card sleeves, and unlock premium battle pass variants, as well as soft currency which can be earned in the game and used to obtain booster packs. The premium currency is stereotypically represented by crystals, gems or other forms of precious stones. All forms of currency in *Pokémon TCG Live* are soft currencies, even crystals, which by their appearance and function allude to the connotation that they were supposed to play the role of premium currency. Even outside the visual processing of currencies, there are other aspects which suggest that there may have been some form of direct monetization planned during certain stages in development. The most striking practice in this regard is the implementation of a tiered season pass. The ability to upgrade the season pass to a premium variant is most commonly associated with either direct payment or usage of premium currency. As there are none of those things in *Pokémon TCG Live*, the design choice to lock a part of the pass behind an arbitrary 'paywall', which players can easily unlock,

evokes the feeling that there was supposed to be a layer of monetization in the game. The difference between premium and basic season passes is like that of a monetized game, with premium providing more booster packs and rare cards when unlocked. It can be attributed to trend-chasing as well because all other prominent digital card games use various types of monetized progression systems, with season passes being the most common. Season passes in digital card games mostly provide additional currencies, cards, packs and cosmetic items or alternative card arts without locking playable content behind a paywall.

The most unique aspect of *Pokémon TCG Live*, which was not yet recaptured by any of the competitors, is the direct connection of physical and digital card games by including a redeemable code in every printed product. The only other card game that has attempted to implement a similar connection is *Magic: The Gathering Arena*, but the scope of the code distribution is heavily limited. After the games release, the redemption codes for booster packs in *Magic: The Gathering Arena* were randomly inserted in booster packs but were not guaranteed. Later on, they were revised to only be included in pre-release kits or speciality products and can only be redeemed once per account for each set. *Magic: The Gathering Arena* instead shifted its focus more heavily to in-game monetization and even further distanced itself from its paper counterpart by incorporating digital-exclusive cards and formats, such as historic and alchemy. This created two similar, but freestanding ecosystems which alienated their player base and slightly divided those who transitioned from the old *Magic: The Gathering Online* (Leaping Lizard Software et al., 2002) client (SaffronOlive, 2018). *Pokémon TCG Live* on the other hand represents exact copy of physical game (at least for the standard format) and instead promotes both digital and physical play. The code distribution can also be seen as the only way the game is indirectly monetized. The player may purchase physical card packs if they wish to further expand their digital collection. However, there is a significant pricing difference when it comes to cost-per-pack in comparison with other digital card games. A digital card pack in other card games costs between one and two American dollars in general. With *Pokémon TCG*, a physical card pack can usually be found between three to six American dollars and the redemption code is considered a bonus feature rather than its selling point. As noted in the first chapter, physical cards have a monetary value and can be resold to recuperate or even exceed the entry cost. If the player wishes to only purchase the code to redeem on *Pokémon TCG Live*, they can utilize the secondary market. We must note that even though The Pokémon Company does not gain any direct revenue from the secondary market itself, cards that are being sold there must have been opened from their respective packs first, so the creators have already earned their share beforehand. The average price of a booster pack code card on the secondary market is about three to five cents, which is significantly cheaper than any of the officially sold digital packs in other digital card games.

Another aspect that makes *Pokémon TCG Live* even more affordable than other games in the genre, is the fact that the game hands out powerful pre-constructed decks at the start of each new season. These decks contain multiple high-rarity cards and require little change to be meta-relevant.[2] In other games, players must either pay to get enough resources in order to be able to create decks with similar power-levels, or play for a prolonged period of time. In *Pokémon TCG Live*, such decks are either given to players as they

2   Remark by the author: The term meta encompasses the most successful preparation strategies that are being utilized in order to win the game. In case of TCG, meta decks use the most powerful combinations of cards available in order to achieve strategic advantage. In other genres, such as MOBA, the meta game revolves around choosing statistically best characters before the game starts. Meta decks are usually well known in the given community and players either play them or attempt to design deck specifically to beat them, even if they are in a disadvantageous position against other, less powerful decks.

log in after a new season begins or are incorporated into the first few tiers of season pass rewards. This makes it possible even for brand new players to compete without being at a disadvantage by not investing enough time or money into the game.

This, however, was been the case for their prior client – *Pokémon TCG Online*, as we can see in the shift in their design perspective. *Pokémon TCG Online* provided players with some initial decks, but their power-level was that of a beginner, entry-level product and they could not compete against meta decks. Ranked ladder rewards were more scarce and less impactful towards building a competitive deck, as well as harder to get, considering the entry barrier. Instead, the game provided - *Pokémon TCG Online* exclusive pre-constructed format, where players could only use entry-level decks. There was also no crafting system. Instead, the game provided an auction house where people could post offers on cards they wanted and what they were willing to trade for them. The system was highly restrictive and gradually developed into a state where booster packs became an unofficial currency as players assigned the value of a certain card to a number of booster packs. This created an unintuitive environment that actively punished players for opening their earned packs instead of trading them for specific cards. Having played extensively during that time, the player-driven economics were off-putting for newcomers, as its rules were not explained anywhere. With less generous rewards compared to *Pokémon TCG Live*, new players without access to multiples of card pack codes had difficulties procuring a viable constructed deck and were forced to compete in the pre-constructed format or risk pairing against an opponent with a meta deck who they could not defeat.

Comparing *Pokémon TCG Live* to other digital card games as well as to its older version, it is apparent that the game has adapted to modern gaming sensibilities. Even though the game does not encompass any form of direct monetization, it still utilizes features common for free-to-play games. It also holds a unique position on the market, where it has seamlessly intertwined with its physical counterpart, creating a synergic environment for both digital and physical players.

Conclusion: How to Categorize *Pokémon TCG Live*?

Instead of providing a clear answer, the analysis of *Pokémon TCG Live* prompts a question about how the game should be classified. Digital games have always had problems with their classifications, mostly connected to game genres (Clarke et al., 2015). Marketing and monetization strategies always seemed to be clearer with their categorization. However, the purpose *Pokémon TCG Live* has in the gaming market is not as obvious. The only certain classification that can apply to *Pokémon TCG Live* is that it is a free-to-play game, as it does not require any transaction in order to be played. But as there is no additional monetization, we can look for the exact purpose the game has as a part of digital-games market. The first option that comes to mind is that *Pokémon TCG Live* is an advertising game. *Advergames*, or *adgames* were primarily created as a source of propagation (Mago, 2016). At first glance, this classification seems plausible, as the only source of income *Pokémon TCG Live* can generate for The Pokémon Company is to influence players to purchase the physical trading cards. From a marketing perspective, the main purpose of the game may indeed just be another layer of advertising to help sell more trading cards. Nonetheless, looking at the analysed features the game provides,

Pokémon TCG Live surpasses the scope of an advergame. For competitive physical *Pokémon TCG* players, it serves as the main platform for playtesting. The ease of access not only to cards themselves, but also readily available opponents of similar skill levels allow them to refine their strategy before attending real-life tournaments and events, providing an invaluable resource for players looking to improve their skills and strategies. At the other end of the spectrum, there are players who exclusively play *Pokémon TCG Live*, without any tendency to expand their hobby to the printed variant. For those, the game plays a role of a standalone digital TCG. Because of that these players do not have the potential to be monetized, as they are not interested in the product that is being promoted to them, only in the game in and of itself. One could argue that due to the inclusion of digital card packs with randomized rewards, *Pokémon TCG Live* could serve as a possible gateway to gambling. The problem itself, however, does not lie solely within *Pokémon TCG Live* but can be attributed to the core concept of trading-card games in general, as both digital and physical booster packs follow the same principles as loot boxes. More research on said topic is necessary, as the structure of booster packs and card rarities have evolved significantly since the conception of trading card games emerged in the 1990s.

Furthermore, the lack of direct monetization can be connected to the detrimental shortcomings of the *Pokémon TCG Live* client. The game has been criticized for a multitude of unfinished features and game-breaking glitches. As we already mentioned, the Expanded game mode is in an incomplete state. Many of the cards available in the printed version are not implemented into the game. This heavily limits the potential decks that can be used in Live compared to the printed counterpart as well as the training aspect of the format since players cannot face opponents using the missing cards that are prominently used in physical tournaments. Older card sets are planned to be added in the future, but there is no set date nor any development update on its progress. Glitches present a more problematic aspect and can directly impact the game experience for affected players. They vary from simple visual anomalies to actions that prevent the players from proceeding further in the match. It is not uncommon to have the entire client freeze after playing a card in a situation that is not commonly associated with it (e.g. playing a card that allows the player to draw cards and then shuffles itself back into the deck when there are no more cards left in the deck to draw). Players who find out specific interactions that crash the game can abuse them in toxic manner in order to make both players lose the game to the client on purpose. Problematic cards were banned from play for extended duration of time (sometimes over a week) during the early stages of the game's availability. Extended periods of unavailability for certain cards made it so people could not play their deck to its full potential or train against their strongest variants and severely limited games potential as a training platform. Technical shortcomings are also the main reason for low review scores on Google Play and Apple App Store where it currently garners a review score of 2,8 and 2,9 out of 5 ("Pokémon TCG Live", n.d.-a; n.d.-b). The dedicated part of the *Pokémon TCG Live* forum tracks user-submitted bug reports, where the majority of them point to game-crashing interactions or cards not behaving as intended in accordance with tabletop rulings. ("Pokémon TCG LIVE", n.d.) The prolonged technical issues the game has been plagued with since launch could be resolved in more timely manner with more or better trained developers. This opens the question of whether monetizing the game directly would allow for better development staff and in turn for a better end-user experience.

Another aspect that must be considered is the fact that *Pokémon TCG Live* is still a part of an overarching, globally successful franchise and does not exist in a creative vacuum. The game client can thus serve multiple purposes. Its advertising purpose in the scope of entire franchise is undeniable, as the player is constantly exposed not only to the card game but also to characters and features that can be found in the entire franchise.

The progression system based on daily activity helps with player retention and even though the returning players are not directly monetized, they are still repeatedly interacting with the franchise. At the same time, it serves as the main platform, where players can compete with each other outside the time-specific physical tournaments. Thanks to its generous reward system, it allows for experimentation or deck testing for competitive players and serves as the main way to play for those who do not have enough disposable income or otherwise cannot, or do not want to participate in physical play. It provides a place where players and fans of the franchise can experience the TCG without any major barrier to entry, except possible technical difficulties. Because of its multipurpose nature, it proves difficult to categorize it strictly as an advergame; simulation platform for play-testing or a standalone digital card game; as it can stand in for any of those roles depending on the end user.

Another approach that could be considered even though *Pokémon TCG Live* was developed as a global product is through the lens of Japanese *media mix*, or more specifically *anime media mix*. Even though the term itself gained its current meaning in the 1980s, the concept itself can be traced much further to the late 1910s (Nakamura & Tosca, 2020). Media mix in its broader sense can be likened to the western *media convergence*, where media production is made with its transmedia potential in mind, with content being distributed through a wide variety of media types such as movies, books, games and comics. The difference between two types of media mix is pointed out by Steinberg (2012):

> The marketing media mix aims to use the synergetic effect of multiple media in concert to focus the consumer toward a particular goal – the purchase of the advertiser's product as the final endgame. The anime media mix, on the other hand, has no single goal or teleological end; the general consumption of any of the media mix's products will grow the entire enterprise. Since each media-commodity is also an advertisement for further products in the same franchise, this is a consumption that produces more consumption. (Steinberg, 2012, p. 141)

Looking back at previous attempts at classification, even the position within the anime media mix is a bit problematic. With the indirect monetization model, there clearly is an end-goal for the *Pokémon TCG Live*; to make the player purchase the physical card game, even though it is not using direct forms of advertising. The Pokémon Company does not earn any profit from the players directly by having them play the game more, whereas in other media franchises, even watching an anime on television broadcast will earn the company royalties. It is undeniable that *Pokémon TCG Live* is a part of media mix strategy, as it functions within a wider franchise distribution network and indirectly prompts the player to engage with other products within the franchise. However, even though the player is constantly presented with characters from the series, it does not directly allude to the wider franchise, but specifically to the card game itself. It hovers in between the traditional marketing media mix and the anime media mix. The modern practices of the Pokémon franchise within the media mix should be examined further, as available works either focus primarily on its initial success (Kondo et al., 2017) or do not take the large amount of spin-off products (including *Pokémon TCG Live*) into account (Gervasoni, 2019).

Lastly, The Pokémon Company has released a trailer and promotional information for an upcoming standalone digital *Pokémon TCG* titled *Pokémon Trading Card Game Pocket* that is projected for release in 2024 ("Pokémon Trading Card", n.d.) From what is currently available we can discern that the game itself is focused on casual players, as the gameplay itself has been heavily simplified in comparison to the main card game. More importantly, the core feature of *Pokémon Trading Card Game Pocket* is the opening of card packs themselves as it is prominently shown in the trailer to be the main activity of the game. Players of *Pokémon Trading Card Game Pocket* will receive two free booster packs per day. It is yet

unclear how the further distribution of packs will be handled but the trailer itself states that the game will contain additional optional purchases. If additional packs will be available for purchase with hard currency and the main driving point of the game will remain in opening booster packs, *Pokémon Trading Card Game Pocket* will garner cause for concern due to its parallel with gambling gateway mechanics. We advise monitoring the game after release and comparing its strategy with other available digital TCGs. While *Pokémon Trading Card Game Pocket* will not replace *Pokémon TCG Live*, it targets the more vulnerable demographics by being more casual and visibly aimed at younger players.

BIBLIOGRAPHY

2024 Pokémon TCG standard format rotation announcement. (2024, January 10). Pokémon.com. Retrieved April 10, 2024, from https://www.pokemon.com/us/pokemon-news/2024-pokemon-tcg-standard-format-rotation-announcement

Blizzard Entertainment. (2014). *Hearthstone* [Digital game]. Blizzard Entertainment.

Clark, O. (2018). *Games as a service: How free to play design can make better games*. Routledge.

Clarke, R. I., Lee, J. H., & Clark, N. (2015). Why video game genres fail. *Games and Culture*, *12*(5), 445-465. https://doi.org/10.1177/1555412015591900

Dire Wolf Digital. (2011). *Pokémon TCG Online* [Digital game]. The Pokémon Company.

Feci, N., & Declerck, P. (2022). *Mapping and analysis of the current regulatory framework on gambling(-like) elements in video games – a report in the framework of the 'Gam(e)(a)ble' research project*. Gam(e)(a)ble. https://www.gameable.info/_files/ugd/7f91ff_0b51d9c313db43729fe6150ec671219a.pdf

Gervasoni, Q. (2018). Pokémon as hybrid, virtual toys: Friends, foes or tools?. In G. Brougère, & M. Allen (Eds.), *8th International Toy Research Association World Conference* (pp. 1-13). Hal. https://sorbonne-paris-nord.hal.science/hal-02170789

Grosemans, E., De Cock, R., Bradt, L., & Zaman, B. (2024). More than loot boxes: The role of video game streams and gambling-like elements in the gaming-gambling connection among adolescents. *Journal of Gambling Issues*, 1-32. https://doi.org/10.4309/GBVY4097

Guttmann, A. (2018, August 18). *Revenue of selected media franchises worldwide as of August 2021*. Statista. https://www.statista.com/statistics/1257650/media-franchises-revenue/

Hudson Soft. (2001). *Pokémon Card GB2: Great Rocket-Dan Sanjou!* (Game Boy Color) [Digital game]. The Pokémon Company.

Hudson Soft, & Creatures. (1998). *Pokémon Trading Card Game* (Game Boy Color) [Digital game]. Nintendo.

King, D. L., & Delfabbro, P. H. (2019). Video game monetization (e.g., "loot boxes"): A blueprint for practical social responsibility measures. *International Journal of Mental Health and Addiction*, *17*(1), 166-179. https://doi.org/10.1007/s11469-018-0009-3

Konami. (2022). *Yu-Gi-Oh! Master Duel* (PS4 version) [Digital game]. Konami Digital Entertainment.

Kondo, H., Miyata, K., & Sakamoto, J. (2017). Development of the Nintendo media mix strategy: Globalizing Pikachu through emergent and deliberate strategies. In *EBHA 2017: 21st Annual Congress of European Business History Association* (pp. 1-34). Vienna University of Economics and Business. https://www.researchgate.net/publication/319349166_Development_of_the_Nintendo_Media_Mix_Strategy_Globalizing_Pikachu_through_Emergent_and_Deliberate_Strategies

Leaping Lizard Software, Wizards of the Coast, & Daybreak Game Company. (2002). *Magic: The Gathering Online* (PC) [Digital game]. Wizards of the Coast.

Mago, Z. (2016). *World of advergaming: Digitálne hry ako nástroje reklamy* [World of advergaming: Digital games as advertising tools]. FMK UCM.

miHoYo. (2020). *Genshin Impact* (PS4 version) [Digital game]. HoYoverse; miHoYo.

Nakamura, A., & Tosca, S. (2020). The origin of the media mix in Japan in a media ecological perspective : examining the situation from 1915 to 1945. *Journal of College of Image Arts and Sciences, 13/14*(1), 31-54. https://doi.org/10.34382/00014336

Olive, S. (2018, October 15). *It's time to stop comparing Magic Arena to Magic Online.* MTGGoldfish. Retrieved April 28, 2024, from https://www.mtggoldfish.com/articles/it-s-time-to-stop-comparing-magic-arena-to-magic-online

Pokémon TCG LIVE bugs & feedback. (n.d.). Pokémon Community Forums. Retrieved April 28, 2024, from https://community.pokemon.com/en-us/categories/tcg-live-bugs-feedback

Pokémon TCG Live ratings and reviews. (n.d.-a). Google Play. Retrieved April 10, 2024, from https://play.google.com/store/apps/details?id=com.pokemon.pokemontcgl&hl=en_US

Pokémon TCG Live ratings and reviews. (n.d.-b). App Store. Retrieved April 10, 2024, from https://apps.apple.com/us/app/pok%C3%A9mon-tcg-live/id1557962344?see-all=reviews

Pokémon Trading Card Game Pocket: Coming in 2024 to iOS and Android devices. (n.d.). Pokémon.com. Retrieved April 28, 2024, from https://tcgpocket.pokemon.com/en-us/

Radošinská, J., Točená, Z., & Macák, M. (2022). *Synergia odvetví globalizovaného mediálneho priemyslu* [Synergy of the sectors of the globalized media industry]. Wolters Kluwer.

Richter, F. (2022, December 12). *Are you not entertained?.* Statista. https://www.statista.com/chart/22392/global-revenue-ofselected-entertainment-industry-sectors/

Schwiddessen, S., & Karius, P. (2018). Watch your loot boxes! – Recent developments and legal assessment in selected key jurisdictions from a gambling law perspective. *Interactive Entertainment Law Review*, *1*(1), 17-43. https://doi.org/10.4337/ielr.2018.01.02

Steinberg, M. (2012). *Anime's Media Mix: Franchising Toys and Characters in Japan*. University of Minnesota Press.

Suggit, C. (2022, July 7). *The $5 million Pokémon card: Inside Logan Paul's record-breaking trade.* Guinness World Records. https://www.guinnessworldrecords.com/news/2022/7/the-5-million-pokemon-card-inside-logan-pauls-record-breaking-trade-708581

Šašalová, V. (2023). Problematika herného monetizačného systému gača v kontexte zobrazovania ženských postáv [The issue of the game monetization system gacha in the context of the depiction of female characters]. *Analýza a výskum v marketingovej komunikácii*, *10*(1), 38-47.

The Pokémon Company. (n.d.). *Pokémon in figures.* Retrieved November 29, 2023, from https://corporate.pokemon.co.jp/en/aboutus/figures/

The Pokémon Company International. (2023). *Pokémon TCG Live* [Digital game]. The Pokémon Company.

Wizards Digital Games Studio. (2018). *Magic: The Gathering Arena* (PC) [Digital game]. Wizards of the Coast.

A Cultural History of the Greek Digital Games Origins: From Clones to Originality

Maximos S. Theodoropoulos

Maximos S. Theodoropoulos, MA
Panteion University of Social and Political Sciences
Department of Communication, Media, and Culture
Leof. Andrea Siggrou 136
176 05 Kallithea, Athens
GREECE
maximostheod@gmail.com
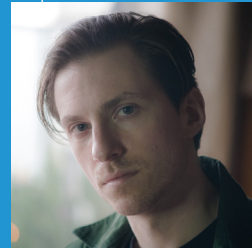
Maximos S. Theodoropoulos is a PhD candidate at the Department of Communication, Media, and Culture of Panteion University of Social and Political Sciences in Athens, Greece. His academic interests include local game production cultures, gaming history, and the convergence between digital games and other cultural industries. He is currently writing his dissertation thesis with a *Hellenic Foundation for Research and Innovation* scholarship, focusing on digital game development in Southern Europe, drawing on three exploratory case studies that include Greece, Italy, and Malta. He was also involved in film productions in various positions, as either a researcher or a crew member mainly in the cinematography department.

ABSTRACT:
Literature on the digital games industry and gaming history has for the most part focused on the global production centres of North America, Western Europe, Japan, and, lately, China. However, in recent years, a call to research the diverse and less dominant national contexts within which digital games are produced has been addressed. In this article, we shed light on early digital game development in Greece, covering the years between 1982 and 2002. This particular region has been highly neglected by both domestic and inter-national researchers. We approach Greek digital game development from both historical and cultural perspectives, through an investigation of how local game developers interact with a wide range of contextual facets in a complex interrelation between global and national conditions. This article argues that, in order to highlight the characteristics of early national game production cultures and digital games design, one must examine them as well under the broader cultural production ecosystem, along with the economic and institutional contexts and transformations within which digital game production takes shape.

Introduction

Most game researchers are focusing mainly on the 'global' sites of development and consumption of the digital game industry (Kerr & Cawley, 2012), where the large-scale digital game companies and international production networks are mostly concentrated, such as North America, Japan, Western and Nordic Europe, and, quite recently, China. It comes then as no surprise that literature on the history of digital games and the game industry such as, for example, Donovan's (2010) or Williams' (2017) monographs, tends to construct a generic, universal narrative – nevertheless, much instructive – around the Anglo-American and Japanese contexts and popular, in the Western press, digital games or established franchises. But as Jørgensen et al. (2015) have argued: "This bias is some-what understandable, but one can argue that the major industries supported by large home markets provide a very particular and somewhat limited perspective on the origins of the global game industry" (p. 2). In addition, this view excludes to a great extent cultures and practices of production that relate to less known, minor local digital game development contexts, where alternative narratives and voices can be found that can unthread the diverse regional complexities of the global digital game industry.

In recent years though, media and game studies have started to address this gap. Kerr (2017) and Liboriussen and Martin (2016) argue that if we want to better understand the digital game industry and market, we should turn our attention to local digital game production and the various ways it is shaped by transnational forces and socio-cultural conditions. Accordingly, different scholars discuss how the interrelation between global and local factors influence the evolution and history of local game industries and its games' genres (Parker & Jenson, 2017). Sotamaa (2021) shows similarly how the Finnish

digital game industry and national production cultures emerged through historical and political developments. Social historical studies on local digital game production have further been conducted on the informal production and distribution modes during the decades of 1980 and 1990 in Czechoslovakia (Švelch, 2018), the Slovak Republic (Koscelníková, 2021) and the UK (Wade, 2016), as well as in the Nordic countries (Jørgensen et al., 2015), where demoscenes helped in forming the current national digital game development landscape. At the same time, Nakamura and Wirman (2021) and Chew (2016) suggest a cultural approach, highlighting the transformations of digital game production practices in China and their effects on the design of Chinese online games in different historical phases. All these scholars show how gaming histories in diverse geographical positions have taken off during the last two decades, illuminating consequently the local game industries dynamics on the far side of transnational Japanese or American companies and digital games design.

On the other hand, a few cases still remain to be examined, having been ignored by game studies. This paper provides an overview of the history of digital game production in Greece. Today digital game development in Greece is thriving in terms of the number of established game studios and new digital games produced and released on the global markets through online platforms. In addition, digital games in Greece have been developed over approximately the last five decades – from the importation of British and American micro-computers to the current boom in local game development. However, so far the research about this particular region has been highly neglected by both national and international literature. There is just limited knowledge about the origins or the evolution of Greek digital gaming. Thus, the aim of this paper is to fill this gap by exploring the evolution and characteristics of early Greek digital game development from a historical perspective, drawing on Peterson and Anand's (2004) production of culture approach.

More specifically, this investigation's main objective is to provide a snapshot of a broader research framework that relates to mapping the production and cultural facets of digital game development in Greece, as well as the types and genres of local-produced digital games and the profiles of the people who developed them, over specific time spans. Since it is rather hard for a single person to find and analyse all the Greek digital games and companies, we will focus here on the main production events, challenges, and digital games that relate to this specific local digital game production context's origins. This research can be understood as a map which can be further divided into several papers. Therefore, this paper is an attempt to collect available information and add data from the research, offering a brief overview of the history of digital game production in Greece during its first twenty years: from 1982 to 2002. In this article, we are particularly interested in how early local digital game developers of a marginalized – regarding the global industry – region with limited resources interact with cultural, political, legal, and technological aspects, gaming markets and genres.

In particular, this investigation is structured as follows. The first section discusses the methodological research models we follow, and the method tools adopted, aiming at shedding light on the historical evolution of the digital game development in Greece. Next, the second section presents the research results, focusing on the early days of Greek digital games. This section is divided into two time periods which, in our opinion, mark a number of important transformations that shape local digital game development cultures and designs, covering the origins of Greek gaming, from the early 1980s to the early 2000s.

Methodology

This research began in 2019 as part of a thesis project to map contemporary Greek digital games development. It became clear that, unlike other local game industries where their evolution and current industrial production traits can be traced in narratives and contextual factors dating back to the 1980s or 1990s (Joseph, 2013; Parker & Jenson, 2017; Ernkvist & Ström, 2018; Chew, 2016; Nakamura & Wirman, 2021; Daiiani & Keogh, 2022), contemporary game developers seem to not share any coherent narrative with the past. In fact, their knowledge about the national gaming history is similar to the general public: *unknown*; or at best, deficient. The research on commercial gaming, not to mention its origins, is also non-existent. The only academic work we could find on this matter is the PhD thesis of Lekkas (2014) about the Greek micro-computer hacker community in the 1980s. But even though it illuminates, in many aspects, parts about the origins of local gaming, it is restricted to localized uses of early computer programming rather than on digital game making. The investigation on Greek gaming history becomes all the more difficult considering that digital game production is characterized by constant disruptions. There is not any transparent production continuity, with the exemption of the related, diachronic struggles and challenges that Greek developers endure, from different periods. And as we have argued elsewhere (Theodoropoulos, 2023), contrary to other Western countries, there has not been any industrial fabric to provide a formal, solid shape to the national indie gaming context. Therefore, there never was any official attempt – nor even an informal one – to map the different developers or archive Greek digital games.

Here, we elaborate, very briefly, on the theoretical frameworks and methodological tools we use to this day with the aim of uncovering a highly fragmented cultural media history such as that of digital games in Greece. More specifically, there are two interrelated theoretical approaches that illuminate the present investigation: a cultural approach to national gaming history and an attempt to frame it under a wider media ecosystem.

First, when assembling a local digital game production history, it is important to place it in an examination of how economic, socio-political, and cultural factors influence production cultures in a national context. For example, the emergence of the current local gaming environment is certainly as shaped by the consequences of the financial crisis as by the various technological and market trends of the global digital game industry (Theodoropoulos, 2023). For this reason, 'our' history draws on the contextual factors of the production of culture perspective (Peterson & Anand, 2004), which identifies six contextual facets (technology, industry and organizational structure, market, occupational roles, legislative framework) as central elements of shaping cultural production and cultural products like digital games. We follow this perspective to understand how Greek developers experience and interact with these contextual facets, as the latter are transformed and changing, in a national context. Additionally, as Sotamaa (2021) indicates, when adopting a cultural approach to digital game production and, generally, to gaming content: "instead of looking at games or their design 'as such'" it is more fruitful to examine "the traditions, conventions, and practices around them and the cultural, social, and historical environments in which they originate" (p. 4).

This approach is related to the second one, which regards digital games as a symbolic work within the broader cultural industry landscape. In particular, we place the national history of digital games as an integral part of a larger media ecosystem where digital games are interconnected with contiguous technological and cultural sectors. Accordingly, this research follows the Greek developers as they interact and are influenced historically by other types of media and cultural industries artefacts or practices, both local

and global. For example, this can be understood by the influence that the importation of micro-computers had in the Greek market; the role that computer and, later, gaming magazines played in popularizing digital games in the 1980s. It is also important to note that, at least in the Greek case, the interaction of local developers with other media, occasionally, worked as a way to overcome challenges associated with being marginalized from the global game industry. This means that some local digital game studios adopted video and photographic cameras and other similar artefacts to create content that could relate to 3D computer graphics, that were the dominant industry trend in the 1990s and 2000s, to compete with the wider industry.

Three types of methodological tools were utilized to collect data according to the aforementioned theoretical frameworks for investigating the history of digital games in Greece.

The first type of tool is interview data. 33 semi-structured interviews were conducted between 2019 and 2023, in Greek, with professionals and hobbyist game developers for the purpose of a larger research on digital game production in Greece. We moreover conducted informal interviews with people who once participated in digital game development. The interviews followed the oral history tradition (Thompson, 2000) which allows for a greater examination of the lived experiences and memory of people whose narratives widen the construction of a certain historical topic. Since there are huge gaps of knowledge in Greek gaming history and there is not any formal or informal digital games' archive in the country, interviews played an extremely important method for accessing knowledge that otherwise would be lost over time. The majority of the collected information for the present investigation exist in the experiences and memories of the interviewees. Following ethical principles, all interviewees were anonymised, informed of the scope of the use of the information provided and consented to its possible citation.

The second tool is primary data collection through documents. More specifically, data was collected from various sources, such as media reports, archived news surveys, product commentaries, magazines, and paratexts like in-game box booklets. In addition to this, equally important in data collection was the online retro gaming archival sites where enthusiasts were discussing or uploading material – such as the digital games themselves – associated with Greek gaming.

This leads us to the third tool used, that is playing some of the digital games in order to better understand their design. That was not always possible due to technological incompatibility or the nonexistence in any online form or emulator. Therefore, we chose instead to access materials we collected, such as manuals, in-game screenshots, or by watching walkthrough videos found on YouTube and other online platforms.

A Period of Adventures and Pirates, 1982-1992

Confining national gaming history to short periods contains the risk of excluding many thematic lines and events. As we already mentioned, the research presented should be read as a map or a call for more studies to be conducted, while it is open to dialogical discussion. Periodization in this article deals *in lieu* of what we consider as major trends and transformations of the Greek production gaming history. Principally those that gave form to the production cultures in each period. The years between 1982 and 1990 can be identified in two definable occurrences: the hatching of the production of digital games

in Greece and the very amateur spirit of the early developers, that began to decline to some extent by the late 1980s and early 1990s.

Even though, creating digital games and experimenting with computing was quite vibrant, several early Greek developers discontinued their game production as informality and the technological obsolescence of 8-bit and 16-bit computers could not promise or offer much promise for profitability and professionalization after 1991 when other systems begun to prevail. Furthermore, in contrast to other European cases (cf. Švelch, 2018; Jørgensen et al., 2015; Pérez-Latorre & Navarro-Remesal, 2021) which started off national proto-game development and distribution with the establishment of mainframe computers in laboratories and universities in the post-war era, and popularity of arcade machines, up until the 1980s there was no trace of proto-Greek games. It is sufficient to argue that before the under-examination period, the culture of playing digital games was neglected to a certain extent. However, the existence of national manufacturers of computers or arcade machines was also extremely scarce to help cultivate an interest in experimenting with digital game making. In our opinion this is because of what Dritsa et al. (2018) have argued:

> ... there is no continuity in the development of computing in Greece. Instead, the evolution is punctuated with bursts of technological developments. ... Possible reasons include the market's small size and insularity, the high cost of equipment relative to the GDP, red tape, complex localization requirements, and the lack of awareness regarding IT's benefits. (Dritsa et al., 2018, p. 57)

These *technological bursts* not only affected Greek digital game production in the 1980s but continue to this day. In consideration with Lekkas' (2014) study and our research on the analysis of the archive data, digital games, and interviews, there are three key factors that emerged throughout the period between 1982 and 1992 and which gave form and shaped the origins of digital game production cultures in Greece. These key factors can be outlined as follows: a) the advent of micro-computers, b) the wide circulation of computer magazines and diffusion of gaming listings, and c) the importance of informal practices like piracy and cloning.

By 1982, numerous 8-bit micro-computers as the Sinclair ZX Spectrum, Commodore 64, Oric Atmos, BBC micro, Dragon 32/65 and, after 1985, 16-bit micro-computers like the Atari ST, to name but a few, started to enter the Greek hardware market, to which those technologies were utterly new (Lekka et al., 2012). Even if it was a small market, micro-computer sales were booming as marked by the very high sales in Greece throughout the examined decade. Eventually, a new computer and programming culture was born among the Greek users. In particular, the British Sinclair ZX81 and American Commodore 64 became the most popular platforms in numbers of sales (Lekkas, 2014), but also in terms of the digital games and gamified demos being produced for these two platforms, as our research has found.

Lekkas (2014) argues that the popularity of these technological platforms was due to their extremely low price, their easy installation that did not demand high technological expertise from the Greek users, who by then did not have any computing knowledge, and finally digital games. For the most part, digital games – in the form of 'computer games' – tended in time to occupy all the other possible uses of micro-computers either by creating or playing them (Lekkas, 2014). Digital games, thus, turned into a very strong reason to buy a computer. It is interesting to note that, eventually, micro-computers ended up being called 'as such'. Greek users and computer magazines were alternatively calling these platforms *game machines* (Lekkas & Tympas, 2020). In line with Lekkas, the saleswoman of *Egefalos*, which was one of the most known computer stores in Athens, mentioned in a recent interview that games for micro-computers were so popular that "we only sold

computers that (were meant for) playing games" like those of Sinclair and Commodore (Kostas "The Punisher", 2023, p. 56). Not being able to create games for consoles and arcades because of the lack of the related infrastructure (and marginalization from the other Western markets), those alternative *Game Machines* must be considered as a milestone in Greek gaming history.

Picture 1: Pixel had a permanent column for how to crack a digital game's code. This issue offers the program listing of Pinball Wizard (Sagittarian Software, 1983)[1]

Source: Tsouanas, 1985, p. 40

Computer magazines also emerged in 1982. By the end of the decade, twenty-seven computer magazines were being circulated (Dritsa et al., 2018; Lekkas, 2014), most of which transformed computer gaming-only oriented content. Magazines like Pixel, Micromad, Game Pro, User, among others, played a central role not only in the proliferation of computer sales, but also to the nascent local digital game production.

---

1   Remark by the author: Title transl.: "Break Pinball". Sketch transl.: "But, it's against the law!" "Crack!".

Computer magazines helped Greek users to familiarize themselves with micro-computers and their use, which at the same time further functioned as an educational intermediary to programming expertise and, more notably, to learn how to program digital games. As Lekkas and Tympas (2020) note: "In the absence of formalized education in computing, this user-programmer was to be trained through the magazine by participating in the collective production and use of program listings" (p. 6). In the Greek case, the program listings that magazines were distributing constituted the main pillar for local users to train and learn how to make a digital game on their micro-computer at home. Written on a page of a computer magazine, those listings were essentially computing commands, which, if you transferred them to a micro-computer, allowed you to 'run' a software program. As the demand for digital games was intense, a high proportion of listings were in the form of learning how to break the code of popular micro-computer games by cracking it, with the intention to 'run' and play costly titles for free as Picture 1 shows, openly promoting the culture of hackers and piracy. Interestingly enough, almost all the interviews we conducted with local developers from the 1980s and 1990s considered gaming listings as the exclusive source on becoming competent in programming. As one interviewee mentions:

> Back then we were not able to purchase all the games we wanted to play. So, the listings on magazines helped a lot. You could type the printed code of a game and then play it. But it was also very helpful for someone who didn't know (coding) and wanted to learn how to create games. That's how I started game development, through typing listing and adding little by little, small changes.

Finally, this type of cost-free distribution of micro-computer digital games, which simultaneously encouraged hacking and programming, should be investigated in light of informal pirating and production – similarly to other countries' gaming origins, such as Italy (Fassone, 2017), Iran (Daiiani & Keogh, 2022), and Czechoslovakia in the 1980s (Švelch, 2018; Koscelníková, 2021). The enforcement of the then, newly constructed intellectual property rights was nonexistent. Consequently, individuals via local computer shops, mail or hand-in-hand exchange would extensively distribute cheap illegal copies of foreign digital games: "I sold five copies of games I cracked for the price of one", as one interviewee pointed out. Local amateur crackers were for the most part teenager computer enthusiasts and university students, coding alone or along with a limited group of friends in their spare time.

Rather than having political sensitivities (Švelch, 2018) or showing off their skills (Jørgensen et al., 2015), Greek crackers followed approximately the same practice as in the Italian context of what Fassone (2017) calls *soft-hacking*. They cracked the copy protection of a foreign digital game to add a different intro with their name on it,[2] to make it look as though it was made originally by them, or just attached small changes in the code in order to alter some visual or gameplay features. Maybe the most popular change they would incorporate was adding extra or never-ending lives or erasing game over mode, similar to today's mods. A potent example of soft-hacking practice is *Gunhed* (Hellenic Software, 1990) (Picture 2) a space shooter for ZX Spectrum computers, which is actually a clone of *Delfox* (Zeus Software, 1988). The only change that the Greek cracker made was to replace the intro with a pseudo name's company, Hellenic Software, as well as to displace the original soundtrack with a midi music cover of *Paranoid* by Black Sabbath in the intro and *The Final Countdown* by Europe when the gameplay starts.

---

2   Remark by the author: Usually was a pseudonym like a faux company's name or the cracker's gaming nickname.
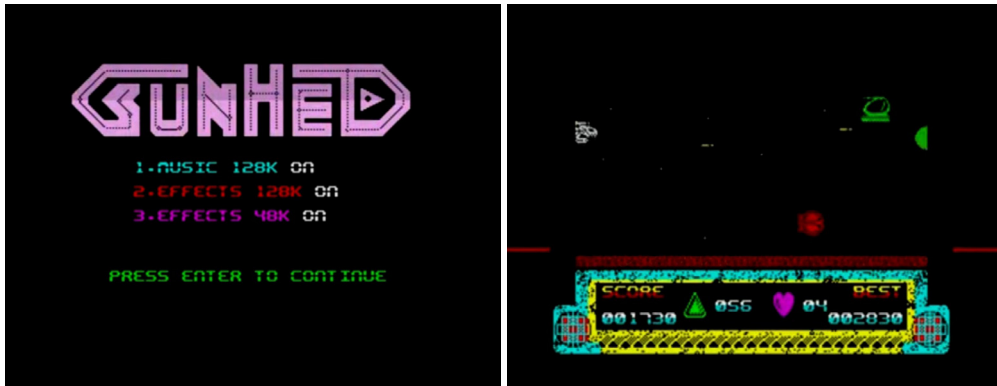
Picture 2: Screenshots from the game Gunhed by Hellenic Software (aka Theodoros Develegas) for ZX Spectrum
Source: author's screenshot from the game Gunhed (Hellenic Software, 1990)

Computer shops such as the well-known Thomas Soft would distribute lists with original digital game titles, from which you could ask for one and then their in-house cracker was able to crack it. But that professional type of cracker was quite scarce. The majority of local amateurs favour the development of text-based adventure games, containing very simple graphics and gameplay, which required typing commands. Even though they may lack originality, what is interesting is the use of Greek character fonts (Picture 3) and 'greeklish'[3] on local adventure games that also relied on program listings and which became the most popular digital games produced in the national context.

Picture 3: An example of using Greek fonts for creating fantasy text-adventure Ηρακλής [Hercules] for Commodore 64
Source: author's screenshot from the game Hercules (Pim Software, 1987)

---

3   Remark by the author: *Greeklish* is a term describing the use of Greek language written with the Latin script. It became a widely popular term in Greece with the emergence of social media where users tended to use Greeklish to communicate with each other.

Another example of localization are digital games in which the cracker gives full authorship to original companies, but offers a full translation of a particular digital game in Greek. While in some other titles, as in the unlicensed translation of *Footballer of the Year* (Gremlin Graphics, 1986), he[4] replaces the names of English teams with teams named from the Greek league (i.e. Aek and Olympiakos), providing full credit to the original developers of Gremlin Graphics (Picture 4). In general, it can be argued that the Greek language localization makes them distinctive from the latinized texts of the other European digital games. Most of them targeted developer's friends and family members. Most of these local digital games are lost in the abyss. Further research is required.

Picture 4: The British digital game Footballer of the Year localized in Greek
Source: "Footballer of the Year", n.d.

Nevertheless, piracy apparently seemed not to be a sustainable practice. Local publishers and distributors were completely absent as there was not any connection to foreign markets at that time for Greek developers. But also, the lack of coordination and technological policy, the wider societal fear of information technologies among Greek society, the small domestic market, and the lack of original ideas restricted any opportunity for professionalization and bridges to the growth of an industrial structure, as happened in other European cases.

A Period of Chaos and Formalization, 1993-2002

The second generation of local game developers saw the dawn of a very vivid period, but still immature and chaotic in comparison with digital game industries in North America, Japan, or Western Europe. In spite of that, during 1993 and 2002 one can observe intensive digital games development in Greece. The exclusive hobbyist gaming production cultures of micro-computers started to be replaced by more professionalized forms of game development on PC, which stimulated the birth of the first Greek game companies which invested on digital games. Therefore, in that transformative period, an important number of original digital games and newly established national game studios (i.e. amateur teams or teams of individuals without the legal status of a company), game production and distribution companies, continuously appeared.

---

4   Remark by the author: As in most 1980s national gaming contexts (Wade, 2016), producing, hacking, and cracking digital games was young boys only playing field also in Greece.

Although an industrial and organizational structure was not sufficiently constructed to solemnly synthesize a long-term sustainable ecosystem that could help local developers to internationalize and grow, the broad diffusion of commercial Greek digital games in the national market would characterize a fruitful period for local gaming production. A tendency towards a more formal and fresh *proto-industry* appeared.

The first Greek digital game company was Spin Software, which released 10 digital games for 16-bit micro-computers and PCs in 1993. It was a subsidiary company of Compupress which was responsible for the diffusion of computer magazines, like Computer for All and Pixel, and thus were pioneers of the distribution of program listings and the training of Greek computer users (Lekkas & Tympas, 2020). An interviewee who was one of the directors of Compupress at the time, told us that the company, already established by then, had successfully submitted a proposal to the ECC for 50% co-funding of digital games production. That's how Spin Software was initially born. This was quite innovative for the time. Years before national government support and EU initiatives dedicated to gaming (Kerr, 2013; Nieborg & de Kloet, 2017), Spin Software became then a potent example of a European digital game company that ensured early public funding. Despite not having in-house game developers or ways to find professionals, they took an alternative route, as in the Italian case of Simulmondo – also one of the first digital game companies in Italy – who did before (see Venturi, 2020): they posted a call, Pixel for amateurs, to send an original digital game copy. Eventually, the developers with the best copies would be rewarded with a job in Spin Software via which they could develop with others a better version of their digital games with the purpose of publishing it on the local market. That how Vaggelis Kratsas developed *Vandor: 10 Δοκιμασίες* [Vandor: The 10 Challenges] (Kratsas, 1993) (Picture 5), the first Greek commercial text-based adventure game with colourful graphics:

> After I finished the text adventure, I sent it to Pixel and after a while I received a phone call which invited me to go the magazine's office. There they … explained to me that Compupress has a (new) game production company, Spin Software, and that they liked the text adventure, so they wanted to collaborate on the creation of a graphic adventure title, which I wrote. I accepted the offer and begun designing the new adventure [game]. (Fallen Angel, 2017)

Picture 5: Screenshot of the commands given in Greek of the game Vandor: The 10 Challenges, published by Spin Software

Source: Fallen Angel, 2017

This event indicates to some extent how Greek digital game amateurs gradually started to transform into professionals, organized inside a company structure. Spin Software, however, even if it managed to distribute ten commercial titles in 1993, failed to meet expectations relatively quickly. As a director at the company states:

> The idea was to further grow to a big software house like those in the UK and elsewhere. We wanted to be the first ones to construct a [digital] game industry in Greece and accumulate the best talents. But unfortunately, there wasn't adequate interest from the market[5] and the consumers, resulting in its suspension and not evolving to the creation of a Greek gaming software house as planned from the beginning. After all, against this was a big part of the Greek PC gamers whose faith was in the famous 'information wants to be free' [original in English].

On the other hand, in our opinion, there were larger domestic and international challenges than piracy and the disinterest of the market, which highlight the production cultures of the local game studios that emerged during this period. To better illustrate this point, the organization structures local game companies followed were apparently messy to chaotic. Most local game studios consisted mainly of very small teams of one-to-four individuals, producing between one to three digital games. There was not any form of division of labour. Everyone was doing a little bit of something, where a developer embraced labour intensive multi-tasking practices and who was simultaneously a writer, a director, a programmer, as well as occasionally being responsible for marketing promotion.

Moreover, one of the biggest obstacles those early developers faced was the deafening absence of game development expertise and the experience needed to learn how to produce and market digital games and run a related company. Training in game development most of the time was learned in situ, through trial-and-error or from the feedback of consumers received only after a digital game's release. Many also had second jobs to make a living. All this resulted in various precarious forms of working conditions, prevalent in the wider digital games industry (Consalvo, 2008). Thus, although the professionalization and commercialization of local digital game production had begun, the amateur structures adopted were dominant. Nonetheless, the production cultures of the early digital game companies in Greece were close to what today we call *indie* gaming (Ruffino, 2013), way before the American-focused documentary *Indie Game: The Movie* (Swirsky & Pajot, 2012). This is rather expressed by the professional development team of Anima Interactive in the manual of their first FMV title, *Συνωμοσίες* [Conspiracies] (Anima Interactive, 2002) (Picture 6):

> The team of the individuals who worked are primarily 'gamers' like you, that have much appetite and passion to create a game with Greek dialogue, protagonists, and a lot of humour. The difficulties we faced seemed often to be insurmountable and the option to quit was the most rational choice. But our faith that there are people out there that'd love a Greek game armed us with the required courage and strength to carry it out.

A peculiar case of small developers that started as a small team and then became large during this period was Gennadios School Publications. As its name points out, it formed inside a well-known private school in Athens by members who worked there as teachers. Despite the limited budget and lack of hard notion corporate hierarchy, the company was creatively autonomous from the rest of the school. It began to steadily grow in size after the successful release of three short arcade-like/semi-visual novel titles based on the universally famous myths of *Hercules* (Gennadios School Publications, 1996) the

---

5   Remark by the author: More precisely, here, he means that the brick-and-mortar stores were not interested in the risk involved in buying and eventually selling a digital game 'made in Greece'.

Hunchback of Notre Dame (Gennadios School Publications, 1997) and *Mulan* (Gennadios School Publications, 1999), targeting 6-12 year old children. More than a random choice, those digital games for PC were based on Disney animation movies of the same name. Therefore, they capitalized informally on the success of a global conglomerate, making unlicensed Disney digital games:

> As you can understand, if Disney was about to release a movie during Christmas, we tried to take advantage of the fuss and publish our same [content] title simultaneously with Disney. If we had released it later, we would have lost loads of money. … So, we capitalized on the fuzziness of the huge marketing that Disney was doing.
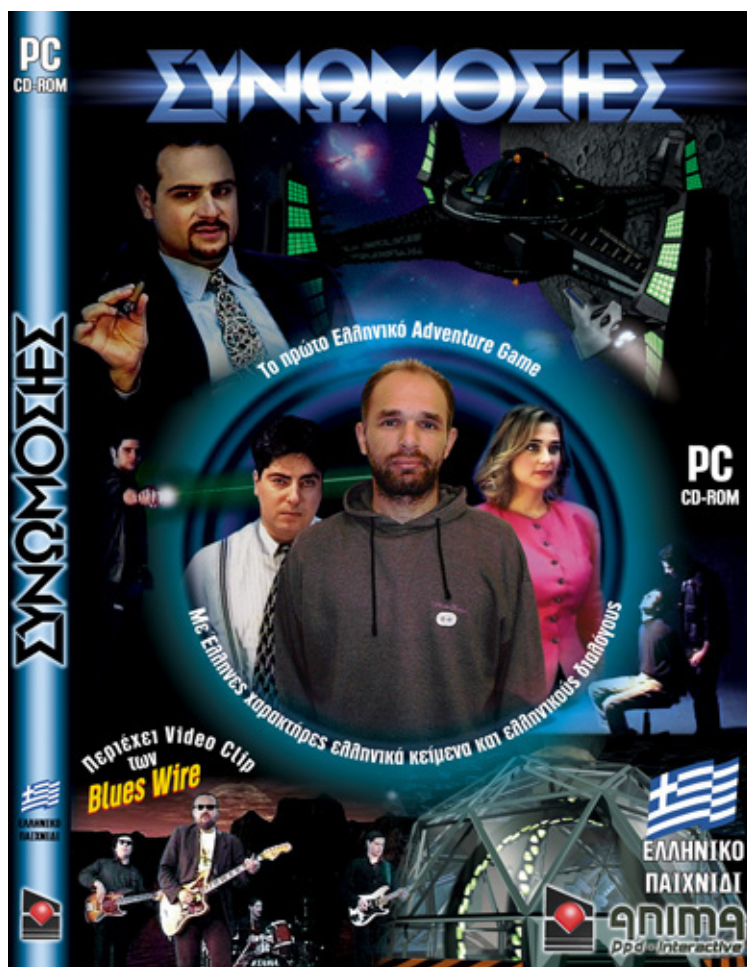
Picture 6: Box cover of the game Conspiracies for PC by Anima Interactive[6]
Source: author's photo taken from the cover of the game Συνωμοσίες (Anima Interactive, 2002)

This is just one of the many examples of how, marginalized from the global industry game companies can find alternative ways to create and promote digital games in symbiosis with transnational cultural products. But that was not the only cultural industry Gennadios School Publications converged with. As it was difficult to search for individuals with a digital

---

6   Remark by the author: Text transl.: "The first Greek adventure game. With Greek protagonists, Greek texts and Greek subtitles". As already argued it is not truly the first Greek adventure digital game, but it's one of the first that uses FMV technology in Greece.

game programming or designing background, the company instead decided to put emphasis on animations. As a result, it tended to collaborate with comic/sketch artists and, most importantly, it established good relations with the Department of Graphic Design of the University of West Attica, from which the company contracted the majority of its employees.

Furthermore, in order to avoid competition with the more popular foreign game companies, it adopted rigorous marketing campaigns in rural areas where it was not easy to buy digital games, as well as collaborating not only with local computer stores, but also with many bookstores; namely, places where it was not usual to find gaming products. This marketing tactic was eagerly adopted by the two other digital game publishers (MLS and Centric). In this sense, we believe that convergence with other cultural sectors (education, comics, books, graphic design), instead of with high-technology industries, is significant for production cultures and media historiography, as, in the case of Gennadios we can observe a type of 'media convergence' (Jenkins, 2006) that happened locally in a marginalized context, before convergence as a concept became popular.

Finally, the company's signature title was the shoot'em-up *Κρίση στο Αιγαίο* [Crisis at Aegean Sea] (Gennadios School Publications, 1998) (Picture 7), considering its popularity among Greek consumers. Yet, it developed internally a diverse library of numerous digital games and published many other titles produced externally by smaller local teams: from arcade-style, shooters, and multimedia/educational titles to punkish (*Γίνε Πρόεδρος Ποδοσφαίρου* [Become Football President] [Volax Interactive, 1999]) and gothic themed (*Erevos* [Nyx, 2002]) digital games.

Picture 7: Crisis at Aegean Sea by Gennadios School Publications
Source: Hall of First Person Games – Obscure FPS Archiv, 2019

Another notable Greek digital game studio of this period was Volax Interactive (after 2000 it would be renamed as Icehole Games) and InterAction Studios. Both are operated mainly by one-person teams – collaborating with no more than two third-party individuals for each title and have developed acclaimed digital games, including *World Basketball*

Manager (Volax Interactive, 1998) and *Chicken Invaders* (InterAction Studios, 2002) which since then have had multiple sequels, respectively. Those two local digital game studios would be the longest running developers in the Greek context. InterAction, the oldest active Greek digital game company, is still publishing titles up to this day, while Icehole only ceased operation during 2019. An investigation in to the design of early Greek digital games shows that it is strongly influenced by cultural, social, technological, and economic facets of interrelated global and local specificities.

The mid-90s was a crucial era for digital games industry. It experienced the transition from two-dimensional (2D) to three-dimensional (3D) graphical representation in digital game design, along with the release of game consoles from the USA and from Japanese manufacturers that were introduced with highly polished blockbuster digital games (Arsenault et al., 2013). Titles like *DOOM* (id Software, 1993), 3D processor units for PCs from 1995 onwards, and Nintendo, PlayStation or Xbox home consoles permeated *inter alia* gaming (consumer) culture also in Greece. In these circumstances, what does then eventually happen for marginalized Greek developers, who work with fewer resources in smaller teams, as well as lack digital game making experience and knowledge, when demand is determined foremost by foreign goods?

The Greek-developed digital games of this particular period strive for visibility that functions under distinctive national features. There is a need to create a Greek style on the one hand, in addition to the need to produce something than can relate, at least, visually to international standards, on the other. Consequently, the majority of local developers are using exclusively Greek fonts in-game, including paratexts written also in the Greek language. In the case of FMV games such as *Conspiracies* and later *Συνομωσίες II: Φονικό Δίκτυο* [Conspiracies II: Lethal Networks] (Anima Interactive, 2011), you can hear actors speaking and interacting with objects in their native language. In today's hyper-globalized world, it is rather rare to play a digital game entirely in Greek, but for that time, this strategy promoted equivalent accessibility and – at the risk of sounding nationalistic – digital cultural products that expressed a different, more locally-produced cultural content. Greek digital games thus offered a welcoming alternative for the local players.

In accordance with that, there is moreover an extensive tendency in using local themes inspired by Greek humour and history or contemporary events and culture mixing them with international established genres. An example is *Ναυμαχία* [Battleship] (Spin Software, 1993) which is basically a WWII version of the famous foreign board game *Battleship* where Greek partisans fight Nazis. The digital game simulates the gameplay aesthetics of the original board game. But it adds sarcastic Greekish names to the German soldiers, while mocking players when they miss a number of rounds, presenting a pre-rendered animation and lines from the humourist shadow play from Greek folklore 'Karagiozis'. The military-themed *Crisis at Aegean Sea* is set in an alternate present where Turks have occupied Greece –which the player must liberate– due to a political misunderstanding. The game's narrative is apparently contextualized by the Greek-Turkish incident in 1996. *Become Football President* (Volax Interactive, 1999), published by Gennadios School Publications, satirizes the popular series *Football Manager* utilizing simple mechanics and comic-style graphics. Rather than being a sport manager simulation, the title developed by Thanasis Triantafyllou, who went on to form Icehole Games in the early 2000s, makes you take the role of a Greek football president who will speak in vulgar language, fix matches and bribe referees in the Greek football league, parodying overall the corruption which dominates 'traditional' football in Greece. The *Chicken Invaders* series is a direct parody of *Space Invaders* (Taito, 1978). More broadly, the presence of humour, satire, and parody in digital games in a localized context, developed along with more global genres and digital games, can be argued that belongs to a greater extent to the wider

European traditions and styles of digital games produced throughout the 1980s and 1990s (Pérez-Latorre & Navarro-Remesal, 2021).

On the other side of the coin, local digital games must also be examined at the same time as transnational products. Our research assumes that with the exemption of InterAction Studios whose solo developer created a proprietary engine, all the other Greek developers adopted programming languages and bought ready-made game engines of that time from abroad. Usually, they were cheap, relatively easy to very easy and flexible to use languages and all-in-one tools, which had the capability to enable digital game production for individuals who did not have any particular programming knowledge, as Unity and Unreal engines have been doing from 2014 onwards (see Nicoll & Keogh, 2019). It's interesting to note that several of the hardware and tools used were technologically obsolete, something that resembles other cases in the European periphery during the 1990s (Švelch, 2021).

Either way, Greek digital games further involve globally recognizable genres, designed in a way to meet, as much as possible, the expectations of the national market in which players are mostly consuming foreign titles. Titles, for instance, like space-shoot-'em-up *Απόδραση-Runaway* [Escape-Runaway] (CyberTech Creations, 1998), published by MLS, has been, where possible, created by using pre-rendered graphics to look visually like a 3D digital game. In some cases, however, it is rather intriguing that local developers turned their attention to technologies from different cultural sectors, as argued by an interviewee: "We well understood that people wanted 3D and we didn't know how to construct such graphics. So, we thought of different alternatives when our colleague brought a Sony Mavica".

More specifically, Anima Interactive, which begun as a TV advertisement production company, took advantage of the importation of the first HD video cameras and HD systems in Greece and used real humans via a blue screen, to integrate FMV photorealism in their title. In a similar way, *Συμμορία των Αθηνών* [Gang of Athens] (Gennadios School Publications, 2000) (Picture 8) by Gennadios School Publications, is an FPS, designed entirely from thousands of static photos thanks to then new digital cameras. In its production, in place of NPCs and avatars, student cinema/theatre actors played the roles of the Athenian 'gang': "I am speaking now for ultra-photorealist graphics. They couldn't get any better. It was real photography!". That also means that a player could navigate in the Athenian environment of that period through still images.

Picture 8: Shooting inside the Greek metro station of Omonia of the 1990s, using still photography
Source: author's screenshot from the game *Συμμορία των Αθηνών* (Gennadios School Publications, 2000)

Finally, a special mention should be written about *Erevos* (Nyx, 2002) (Picture 9) by *Nyx* studio from Thessaloniki – the only developer team from Thessaloniki, "the darkest ever themed game from Greece". It is a first-person horror adventure game where you play as a vampire. *Erevos* was produced on the, by then, obsolete programing language of Visual Basic and most of its 3D graphics are mainly pre-rendered images. Yet, this digital game also makes use of still photography and cut-scenes,[7] created using again digital video cameras with real individuals. Additionally, the final in-game aesthetics were inspired by the American film *Blair Witch Project* (Myrich & Sánchez, 1999) released the year the game started production. In a way, *Erevos* feels like you are playing in a vampiresque version of the film with disturbing moments. A unique immersive aspect of its design is not allowing gameplay during the day due to a specific mechanic, that locks-out players. That makes sense, since the protagonist avatar is a vampire and the narration happens at night. Thus, in order to play you must open it after midnight, otherwise changing the computer's clock is required.

Picture 9: Screenshots from the horror game Erevos by Nyx and its Blair Witch Project vibes
Source: author's screenshots from the game Erevos (Nyx, 2002)

All the aforementioned Greek digital games cited in this section must be examined as potent examples of how the global digital game industry and, generally, internationally cultural or technological trends are concurrently shaping whilst at the same time interrelated with locally-produced titles. This condition will change radically in the next few years. From now on, Greek developers will attempt to internationalize, as digital platforms with new opportunities will steadily come to the surface. Yet, this highly transnational aspect of digital game production cultures in Greece, during those years, are what makes early Greek gaming design style distinctive just like 'French touch' or 'Italian connection' design traits (Donovan, 2010).

Conclusion

This article contributes to shedding light on the *early* digital game production cultures and digital games design in Greece, spanning 1982 to 2002. Greek digital game development has been absent in any form of referencing by domestic or international studies. Studies that offer insights on either global (Kerr, 2017) or European digital game production contexts (Nieborg & de Kloet, 2017; Pérez-Latorre & Navarro-Remesal, 2021),

---

7   Remark by the author: Cut-scenes were first introduced in the 1990s, often offering a cinematic appeal to digital games. It is not a coincidence that the developers of *Erevos* chose to add cut-scenes to their title, following the design trends of the era.

as well as works on gaming history (Donovan, 2010; Williams, 2017), have ultimately overlooked this national case study. Of course, this can also be a symptom of the relatively small number of active game scholars in Greece, in conjunction with the equally small size of the local digital game development community and the wider indifference local developers experience from both national institutions and the public. Therefore, following the recent call for a more localized research approach to digital game production, we attempted to reconstruct the history of the early Greek digital game development context by focusing on the various transformations and tendencies that took place. We argued that the production of digital games in Greece is shaped by a complex interaction of local and global conditions and trends, within a larger cultural production ecosystem.

The characteristics of digital game production throughout the first period (1982-1992) are influenced by the import of foreign micro-computers and the widespread circulation of computer magazines that altogether diffuse technological knowledge and expertise among the Greek users. Playing and coding digital games became the dominant way of using a micro-computer at home. Piracy also tended to be the main practice of distributing digital games. It was also highly encouraged by the local computer magazines in the form of the publication of program listings, many of which were the written code of popular foreign computer titles. If it was not for this series of events and, primarily, for the Greek crackers to acquire knowledge and skills from informal practices, digital game development in Greece would have happened much later. Even so, challenges related to domestic conditions did not allow the local game development to grow.

However, the second period (1993-2002) witnessed a vivid environment for national digital game production. This period incorporated, in the first instance, opportunities for professionalization. More specifically, during those years, a more formalized digital game production structure emerged, wherein game companies formed and began developing commercial digital games. Greek developers embraced the financial opportunities of selling digital games for profit, while expressing at the same time their creativity in what were new, for them, digital means. Even though local game studios lacked access to international networks and markets, they distributed their products exclusively on the small national consumer market. That meant that they had to invent distinct ways to make their digital games visible, so as to attract attention to the Greek texts, local themes, obsolete but easy-to-learn technologies, and/or to detect alternative distribution routes (for instance, bookstores and rural areas). Today, neither Greek language nor locally-inspired themes are lucky enough to be found in contemporary Greek digital games.

Finally, this research further reveals an intensive convergence with other cultural industries. For example, the majority of the developers were not originally programmers or designers, but individuals that came from other cultural fields (i.e. graphic design, music, video making, multimedia). Meanwhile, companies capitalized on internationally popular genres and animation film marketing (i.e. Disney films). In the cases of a few local digital games, photography and video cameras were used as the main game production tools. This type of convergence places Greek digital game development in a wider transnationally cultural ecosystem.

Unfortunately, none of the companies or game studios were able to survive. The only exception was that of InterAction Studios, with all the other companies ceasing operations after a while. Interviewees from both periods examined, always argued that developing digital games in Greece was practically an impossible task, in terms of both the absence of infrastructures, as well as being outside of the main digital game production centres: "There was not a way to live from making games here. After I became a father, I quit and did something completely different. If I was born in England, then I would have given you another answer". In a similar vein, a developer explained that:

I worked for 16 hours a day: eight hours in my first job to have food for me and my family and the rest were for getting the game completed. … There was a lot of stress that resulted in a heart attack. After that I said 'enough!'. I could only continue if a venture capitalist came and paid me for developing a game. But c'mon… where you could find one here?.

Additionally, a mix of mismanagement of project planning, lack of deep technical knowledge, budget-limitations, and the indifference of public institutions to acknowledge local digital game production, if not support it, represent just a number of the chronic challenges local developers were facing and still face right up to the present time. Studying digital games in Greece means studying the history of an apparently marginal gaming field, which has not been able to create a solid industrial infrastructure that can relate neither to the Western nor East-Asian digital game industries.

In conclusion, in this article we strove to illuminate the yet unresearched origins of digital game development contexts in Greece and establish a starting point for further studies, and thus to contribute to the ongoing investigations on national digital game production contexts by taking into account their distinct regional specificities and developers' 'voices'.

BIBLIOGRAPHY

Anima Interactive. (2002). *Συνωμοσίες* [Digital game]. Got Game Entertainment; GMX Media.

Anima Interactive. (2011). *Συνομωσίες II: Φονικό Δίκτυο* [Digital game]. Anima Interactive.

Arsenault, D., Côté, P.-M., Larochelle, A., & Lebel, S. (2013). Graphical technologies, innovation and aesthetics in the video game industry: a case study of the shift from 2d to 3d graphics in the 1990s. *G|A|M|E The Italian Journal of Game Studies*, *2*(1), 79-89.

Consalvo, M. (2008). Crunched by passion: Women game developers and workplace challenges. In Y. Kafai, C. Heeter, J. Denner, & J. Y. Sun (Eds.), *Beyond Barbie and Mortal Kombat* (pp. 117-190). MIT Press. https://doi.org/10.7551/mitpress/7477.003.0017

CyberTech Creations. (1998). *Απόδραση-Runaway* [Digital game]. MLS.

Daiiani, M., & Keogh, B. (2022). An Iranian videogame industry? Localizing videogame production beyond the "global" videogame industry. *Media Industries*, *9*(1), 37-66. https://doi.org/10.3998/mij.89

Donovan, T. (2010). *Replay: The history of video games*. Yellow Ant.

Dritsa, K., Mitropoulos, D., & Spinellis, D. (2018). Aspects of the history of computing in modern Greece. *IEEE Annals of the History of Computing*, *40*(1), 47-60. https://doi.org/10.1109/MAHC.2018.012171267

Ernkvist, M., & Ström, P. (2018). Differentiation in digital creative industry cluster dynamics: the growth and decline of the Japanese video game software industry. *Geografiska Annaler: Series B, Human Geography*, *100*(3), 263-286. https://doi.org/10.1080/04353684.2017.1423506

Fallen Angel. (2017, June 11). *Γνωρίζουμε τους Έλληνες game developers: Βαγγέλης Κράτσας* [We meet Greek game developers: Vaggelis Kratsas] [Interview]. Adventure Advocate. https://adventureadvocate.gr/apopseis/item/game-developers-2

Fassone, R. (2017). Cammelli and Attack of the Mutant Camels: A variantology of Italian video games of the 1980s. *Well Played Journal*, *6*(2), 55-71.

Footballer of the Year. (n.d.). GameBase64. Retrieved June 6, 2024, from https://gb64.com/game.php?id=9214&d=33&h=0

Gennadios School Publications. (1996). *Hercules* [Digital game]. Gennadios School Publications.

Gennadios School Publications. (1997). *Hunchback of Notre Dame* [Digital game]. Gennadios School Publications.

Gennadios School Publications. (1998). *Κρίση στο Αιγαίο* [Digital game]. Gennadios School Publications.

Gennadios School Publications. (1999). *Mulan* [Digital game]. Gennadios School Publications.

Gennadios School Publications. (2000). *Συμμορία των Αθηνών* [Digital game]. Gennadios School Publications.

Gremlin Graphics. (1986). *Footballer of the Year* [Digital game]. Kixx; Gremlin Interactive.

Hall of First Person Games – Obscure FPS Archiv. (2019, December 11). *Crisis in the Aegean Sea (1997) PC "Griechisch/Greek"* [Video]. YouTube. https://www.youtube.com/watch?v=1SXO_h-3dHg&t=309s

Hellenic Software. (1990). *Gunhed* [Digital game]. Hellenic Software.

Chew, M. M. (2019). A critical cultural history of online games in China, 1995-2015. *Games and Culture*, *14*(3), 195-215. https://doi.org/10.1177/1555412016661457

id Software. (1993). *DOOM* (MS-DOS version) [Digital game]. id Software.

InterAction Studios. (2002). *Chicken Invaders* [Digital game]. InterAction studios.

Jenkins, H. (2006). *Convergence culture where old and new media collide*. New York University Press.

Jørgensen, K., Sandqvist, U., & Sotamaa, O. (2017). From hobbyists to entrepreneurs: On the formation of the Nordic game industry. *Convergence*, *23*(5), 457-476. https://doi.org/10.1177/1354856515617853

Joseph, D. (2013). The Toronto indies: Some assemblage required. *Loading… The Journal of the Canadian Game Studies Association*, *7*(11), 92-105.

Kerr, A. (2017). *Global games. Production, circulation and policy in the networked era*. Routledge. https://doi.org/10.4324/9780203704028

Kerr, A. (2013). Space wars: The politics of games production in Europe. In N. B. Huntemann, & B. Aslinger (Eds), *Gaming Globally* (pp. 215-231). Palgrave Macmillan. https://doi.org/10.1057/9781137006332_16

Kerr, A., & Cawley, A. (2012). The spatialisation of the digital games industry: Lessons from Ireland. *International Journal of Cultural Policy*, *18*(4), 398-418. https://doi.org/10.1080/10286632.2011.598515

Koscelníková, M. (2021). History of Slovak video games and their localization. Translation in time and time in translation [Special issue]. *BRIDGE: Trends and Traditions in Translation and Interpreting Studies*, *2*(1), 68-87.

Kostas "The Punisher". (2023, September). Συνέντευξη με την Δεσποινα Χαραλαμπίδου ιδιοκτήτρια του καταστήματος Εγκέφαλος [Interview with Despoina Charalampidou the owner of Eggefalos store]. *Retroid*, *9*(1), 55-56.

Kratsas, V. (1993). *Vandor: 10 Δοκιμασίες* [Digital game]. Spin Software.

Lekka, A., Chalkides, A., & Proedrou, M. (2012). *Abacus — aspects of computer history in Greece.* National Hellenic Research Foundation.

Lekkas, T. (2014). *Δημόσια εικόνα και κοινότητες χρηστών των οικιακών υπολογιστών στην Ελλάδα, 1980-1990* [Public image and user communities of the home computers in Greece, 1980-1990] [Doctoral dissertation]. National and Kapodistrian University of Athens. http://hdl.handle.net/10442/hedi/47515

Lekkas, T., & Tympas, A. (2020). Global machines and local magazines in 1980s Greece: The exemplary case of the Pixel Magazine. *WiderScreen, 23*(2-3), 1-24. http://widerscreen.fi/assets/Lekkas_Tympas_2_3_2020.pdf

Liboriussen, B., & Martin, P. (2016). Regional game studies. *Game Studies*, *16*(1). https://doi.org/10.1007/978-3-031-23161-2_301000

Myrich, D., & Sánchez, E. (Directors). (1999). *The Blair Witch Project* [Film]. Haxan Films.

Nakamura, A., & Wirman, H. (2021). The development of greater China's games industry: From copying to imitation to innovation. In O. Sotamaa, & J. Švelch (Eds.), *Game Production Studies* (pp. 275-292). Amsterdam University Press. https://doi.org/10.1515/9789048551736-016

Nicoll, B., & Keogh, B. (2019). *The Unity game engine and the circuits of cultural software*. Palgrave Pivot. https://doi.org/10.1007/978-3-030-25012-6

Nieborg, D. B., & de Kloet, J. (2017). A patchwork of potential: A survey of the European game industry. In A. Fung (Ed.), *Global Game Industries and Cultural Policy* (pp. 201-226). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-40760-9_10

Nyx. (2002). *Erevos* [Digital game]. Gennadios School Publications.

Parker, F., & Jenson, J. (2017). Canadian indie games between the global and the local. *Canadian Journal of Communication*, *42*(5), 867-891. http://doi.org/10.22230/cjc.2017v42n5a3229

Peterson, R. A., & Anand, N. (2004). The production of culture perspective. *Annual Review of Sociology*, *30*(1), 311-334. https://doi.org/10.1146/annurev.soc.30.012703.110557

Pérez-Latorre, Ó., & Navarro-Remesal, V. (2021). Euro Ludens: On the Origins, Playing Region, and Imaginaries of the European Videogame. In V. Navarro-Remesal, & Ó. Pérez-Latorre (Eds.), *Perspectives on the European Videogame* (pp. 15-36). Amsterdam University Press. https://doi.org/10.1017/9789048550623.002

Pim Software. (1987). *Ηρακλής* [Digital game]. Pim Software.

Ruffino, P. (2013). Narratives of independent production in video game culture. *Loading… The Journal of the Canadian Game Studies Association*, *7*(11), 106-121.

Sagittarian Software. (1983). *Pinball Wizard* [Digital game]. Sagittarian Software.

Sotamaa, O. (2021). Studying game development cultures. *Games and Culture*, *16*(7), 835-854. https://doi.org/10.1177/15554120211005242

Spin Software. (1993). *Ναυμαχία* [Digital game]. Spin Software.

Swirsky, J., & Pajot, L. (Directors). (2012). *Indie Game: The Movie* [Film]. BlinkWorks Media.

Švelch, J. (2018). *Gaming the Iron Curtain: How teenagers and amateurs in communist Czechoslovakia claimed the medium of computer games*. MIT Press. https://doi.org/10.7551/mitpress/10964.001.0001

Švelch, J. (2021). Promises of the periphery: Producing games in the communist and transformation-era Czechoslovakia. In O. Sotamaa, & J. Švelch (Eds.), *Game production studies* (pp. 237-256). Amsterdam University Press. https://doi.org/10.1515/9789048551736-014

Taito. (1978). *Space Invaders* [Digital game]. Midway Manufacturing.

Theodoropoulos, M. (2023). Load game: Η ανεξάρτητη παραγωγή ψηφιακών παιχνιδιών στην Ελλάδα [Load game: The independent digital game production in Greece]. *Open Journal of Animation, Film and Interactive Media in Education and Culture*, *4*(1), 1-17. https://doi.org/10.12681/afiinmec.34002

Thompson, P. (2000). *The voice of the past: Oral history*. Oxford University Press.

Tsouanas, N. (1985). Σπάστε το Pinball [Break Pinball]. *Pixel*, *1985*(9), 40-42. https://archive.org/details/pixel-gr-009/mode/2up

Venturi, I. (2020). *Life of videogames: 8-bit memories*. Bologna.

Volax Interactive. (1998). *World Basketball Manager* [Digital game]. Volax Interactive.

Volax Interactive. (1999). *Γίνε Πρόεδρος Ποδοσφαίρου* [Digital game]. Gennadios School Publications.

Wade, A. (2016). *Playback: A genealogy of 1980s British videogames*. Bloomsbury.

Williams, A. (2017). *History of digital games: Developments in art, design and interaction*. Routledge. https://doi.org/10.1201/9781315715377

Zeus Software. (1988). *Delfox* [Digital game]. Dinamic Software.

Escape with a Purpose

Daniela De Angeli

Dr. Daniela De Angeli, EngD.
University of Bath
Department of Computer Science
Claverton Down
BA2 7AY Bath
UNITED KINGDOM
dada21@bath.ac.uk
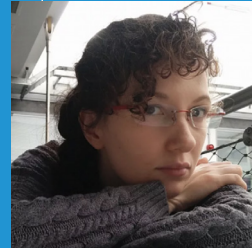
Dr De Angeli has more than 10 years of experience designing games and interactive exhibitions for museums and other organisations in the USA and Europe. She is currently a Lecturer in the Department of Computer Science at the University of Bath and the Co-Director of Echo Games CIC, a community interest company developing 'seriously fun games' (echogames.co.uk). She completed her Doctorate at the Centre for Digital Entertainment at the University of Bath in the UK, with a thesis exploring the power of games to educate and share meaningful stories in museums. Her research is interdisciplinary and ranges from memory theories, art and social studies to human-computer-interaction and serious games. For example, she led the design and evaluation of two Agonistic games – the first official attempt to adapt Agonistic theory in games (see study *Unsettling play: Perceptions of agonistic games*). Agonism is a theory from memory studies that emphasises multiple perspectives in a conflict, highlighting the relationships between all agents involved, including bystanders and perpetrators.

ABSTRACT:

Escape rooms are increasingly popular all around the world. Due to their popularity, we are also seeing more variations in concept, form, and aim. For example, nowadays we can engage with physical, digital or mixed escape rooms. Escape rooms are also developed for a range of purposes beyond entertainment, including to broadcast a message, train, and/ or exchange data. However, past research on escape rooms has focused mostly on analysing physical versions or on investigating if and how escape rooms can educate players. This paper aims to overcome these gaps by exploring how escape rooms (digital, physical or mixed) can be designed for a variety of purposes beyond entertainment. Hence, this paper offers two main contributions: a definition of escape rooms with a purpose and a framework that can be used to both design and analyse escape rooms with a purpose. The framework is initially implemented based on a literature review in the fields of serious games, escape rooms and puzzle design. Its efficacy is then tested through the analysis of three escape rooms with a purpose. Following this analysis, the framework is finalised to include the following key design elements: concept/idea; stakeholders (target players and others); purpose; goal/winning condition; equipment; theme; narrative (puzzle organisation and storytelling methods); puzzle design; and evaluation.

Introduction

Escape rooms have a rich and diverse history, making their origins a topic of ongoing debate. Some attribute the genesis of escape rooms to television shows like *The Crystal Maze* (Heyworth et al., 1990-2020) and *The Adventure Game* (Dowling & Oliver, 1980-1986) (Suleski, 2024; Ascalon, 2021). These shows required participants to solve puzzles in order to exit a room, which aligns with the core concept of escape rooms. But escape rooms may also trace their roots back to point-and-click adventure games like *Behind Closed Doors* (Zenobi Software, 1988) and *True Dungeon* ("True Dungeon", n.d.). Another precursor could be the computer game *Crimson Room* (Takagi, 2004), where players need to solve a series of puzzles to escape from a crimson-hued room (Suleski, 2024; Ascalon, 2021).

While opinions may vary, it is widely accepted that the first official escape room ran in Japan in 2007 (Corkill, 2009). This was a single-room escape game for teams of 5-6 players ("About SCRAP", n.d.). Since then, escape rooms have become increasingly popular all around the world (Makri et al., 2021). Due to their popularity, we are also seeing more variations in concept and aim (Krekhov et al., 2021). For example, teachers started adapting escape rooms for educational purposes (von Kotzebue et al., 2022). The rise of digital technologies and the COVID-19 pandemic also accelerated the development of digital versions, which tend to be low-cost and flexible (Bezençon et al., 2023; Buchner et al., 2022; von Kotzebue et al., 2022). Thus, escape rooms can now take a variety of shapes and

forms. For instance, there are treasure hunts, live-action role-playing (Vidergor, 2021), VR experiences, board games, mobile and augmented reality versions (Krekhov et al., 2021).

Despite their popularity, research on escape rooms is still limited and is mostly focused on analysing physical versions or investigating their educational impact on players, while other platforms and purposes are often overlooked (Makri et al., 2021). Furthermore, while taxonomies for the design of escape rooms have been proposed, they tend to focus on recreational or generic escape rooms (Krekhov et al., 2021). This paper aims to overcome these gaps by exploring how escape rooms – whether digital, physical or mixed – can be designed for a variety of purposes beyond entertainment.

This paper explores the design of escape rooms with a purpose beyond entertainment, aiming to inform a framework for their development. Additionally, this framework can be utilized to evaluate and enhance existing games. After introducing the concept of escape rooms, this paper delves deeper into their purposes and design process. Drawing from a literature review in the fields of serious games, escape rooms, and puzzle design, we propose an initial framework for creating escape rooms with a purpose. Our goal is to bring together elements from various works within these fields, resulting in a new framework specifically designed to inform the creation of escape rooms with a purpose. To test this framework in practice and investigate its effectiveness, we used it to analyse the design of three escape rooms with a purpose. The insights gained from this analysis informed the final framework. In summary, this paper provides a set of design recommendations, laying a foundation for the development and critical analysis of escape rooms with a purpose.

Defining Escape Rooms

Escape rooms are commonly defined as games where players need to accomplish a goal (usually escaping from a room) within a specific time limit by discovering clues, solving puzzles, and completing a number of other tasks (Buchner et al., 2022; Nicholson, 2015; Vidergor, 2021; von Kotzebue et al., 2022). The time limit can vary but is often 45 or 60 minutes (De Souza & Kasseboehmer, 2022; Makri et al., 2021; Veldkamp et al., 2020). Furthermore, escape rooms also tend to have a theme (Bezençon et al., 2023) and to be team-based, meaning a group of people need to collaborate to complete the game on time (von Kotzebue et al., 2022). Usually, the game is played by groups of 3-6 players (Makri et al., 2021), although there are some cases of single-player games, but those are more common in digital versions (Krekhov et al., 2021).

While originally escape rooms were exclusively physical, nowadays they can also be digital or mixed. Indeed, the rise of digital technologies supported the rise of digital escape rooms. Some escape rooms are fully digital. For example, they can be web-based applications (Makri et al., 2021), Virtual or Augmented Reality applications, or online games (Krekhov et al., 2021). While fully digital versions may be preferred due to their lower cost and the fact that they can reach a wider audience (Makri et al., 2021), they do not necessarily exclude physical artefacts or environments (Huang et al., 2020). For example, Huang et al. (2020) explain how escape rooms can supplement physical environments with digital materials such as video, QR codes, and augmented reality.

Whether the escape rooms are physical, digital or mixed, players always must solve a variety of puzzles (Krekhov et al., 2021). According to Makri et al. (2021) we can call 'puzzles' any activity or challenge within an escape room. Usually, all puzzles need to be solved to complete the game (Krekhov et al., 2021). Those puzzles vary in form and style (Makri et al., 2021).

They also require a variety of skills to solve, which may be mental and in some cases, physical. While other games have puzzles, the peculiarity of escape rooms lies in their variety and the fact that they adhere to a coherent theme or narrative (Krekhov et al., 2021).

Given the great number and variety of escape rooms, Nicholson (2015) argues that the term *escape room* may not be appropriate anymore. He suggests alternatives such as *live-action adventures* (Nicholson, 2015). There are already cases in which the term 'escape room' is not used but rather 'exit games', 'breakout games' or 'unlock games' (Krekhov et al., 2021). While escaping a room is often part of the experience, we could argue whether this is a necessary feature at all. As a matter of fact, the 'room' aspect of the escape rooms is sometimes abandoned altogether. Sometimes, the 'escape' aspect is also abandoned as players need, for example, to break in rather than out (Veldkamp et al., 2020). Hence, we cannot help but agree with Nicholson (2015) in suggesting that other terms - such as 'live-action adventure' or 'unlock game' – could be better suited, although the name 'escape rooms' is very popular. Independently from the label we decide to use, this paper defines escape rooms as *games where players solve puzzles within a themed environment to achieve a goal.*

Escape with a Purpose

While escape rooms started as a form of entertainment (Nicholson, 2015), they have moved beyond the simple purpose of 'fun'. An in-depth analysis of the purposes of escape rooms does not currently exist. However, there have been attempts to categorise the purposes of serious games.

According to Abt (1987), who first used the term, '*serious games*' are games that not only entertain but also instruct and inform. Over time, this term has expanded to encompass a wide variety of game types, including edutainment, persuasive games, games for good, and games for change (Bogost, 2007; Djaouti et al., 2011b; Antle et al., 2014; Jarvin, 2015). Essentially, any game that goes beyond mere entertainment falls under the umbrella of serious games. Within the diverse and wide range of serious games, we encounter a spectrum. On one end, we have 'games for a purpose', which maintain aspects such as challenges and fun (Marsh, 2011). These games sit closer to the traditional gaming experience, emphasizing engagement and enjoyment. On the opposite side of the spectrum, we find environments with minimal gaming features (Marsh, 2011). Even when escape rooms fall into the 'serious' category, they still retain their gaming nature, making them a better fit within the games-for-a-purpose framework. Hence, in this paper we will use the term 'escape rooms with a purpose' to refer to *games developed with a purpose beyond entertainment where players solve puzzles within a themed environment to achieve a goal*.

Due to the variety of serious games, a few efforts have been carried out to classify them, including their purpose. For example, Djaouti et al. (2011a) first list six main objectives of serious games: to increase awareness, to stimulate reflection, to train, to inform, to teach and to influence. The same authors then group those six sub-categories into three main purposes:
- Games designed to broadcast a message, including messages that are educative, informative, persuasive and/or subjective.
- Games designed to train, for example, to improve cognitive or motor skills such as Exergames.
- Games designed to exchange data such as knowledge games where players provide, collect, process and/or analyse data (Schrier, 2016).

These main purposes can be applied to escape rooms with a purpose as well. For example, escape rooms have been used to broadcast a message, especially an educational one. Based on their experience with recreational versions, teachers started using escape rooms in their classrooms to support learning (Vidergor, 2021). This was the beginning of educational escape rooms. Recreational escape rooms and educational escape rooms have many similarities. In particular, they both have puzzles. However, recreational escape rooms usually target a broad audience, while educational escape rooms are often designed for specific target groups (Bezençon et al., 2023). Furthermore, recreational escape rooms primarily focus on entertainment purposes (Makri et al., 2021), while educational escape rooms take advantage of the collaborative nature of the game and the use of puzzles to achieve specific learning goals and objectives (Bezençon et al., 2023; Buchner et al., 2022). Indeed, puzzles have been successfully designed to test knowledge and stimulate active learning (Vidergor, 2021), although puzzles are not always effective in acquiring new knowledge (Veldkamp et al., 2020). In some cases, additional knowledge should be provided before and/or after the game to support learning (Veldkamp et al., 2020)

Due to the capacity of escape rooms to broadcast a message, they have been designed for different venues as well. For instance, escape rooms have been deployed in schools, where they engage and motivate students (Ang et al., 2020). A study even found that schoolchildren often prefer escape rooms to other types of digital games due to their collaborative nature (Vidergor, 2021). Museums have also started offering escape rooms. For example, the State Library of Western Australia offered Memori, to educate visitors about Western Australia's history ("MEMORI: Live", 2014).

Escape rooms have been used for training as well (Veldkamp et al., 2020), for example, to train designers (Li et al., 2018), healthcare professionals (Adams et al., 2018; Anderson et al., 2020; Brown et al., 2019), or computer scientists (Ho, 2018). Since players need to solve clues and puzzles, escape rooms can be used to stimulate problem-solving, critical thinking and creativity (Ang et al., 2020; Makri et al., 2021). Research has also found that digital escape rooms can help players express themselves and talk about difficult subjects like addictions (Bezençon et al., 2023). Furthermore, when escape rooms are team-based, they are quite successful in training teams by supporting collaborative work, communication, and social experiences (Nicholson, 2015). However, it is important to note that digital escape rooms are often single-player (Krekhov et al., 2021). In this case, the benefits of teamwork and collaborative play are removed. Even when digital escape rooms are designed for multiplayers, communication may be harder than with physical versions. As a result, physical versions tend to elicit more teamwork, communication, and social behaviour than digital ones (Ang et al., 2020).

As we will further discuss, escape rooms are sometimes evaluated. In those cases, data is collected from players. Escape rooms have been also used as a research tool, for example, to explore the dynamics and communication strategies within a team (Cohen et al., 2020). And more recently, escape rooms have been investigated as an evaluation tool for students' learning. In this case, players would provide data, for example, on how much they have learned about networking communications (Roig et al., 2023). However, to the best of this author's knowledge, there are no existing examples of escape rooms specifically designed to process and analyse data yet. Hence, escape rooms have been mainly designed to:
• broadcast a message (e.g. educate, inform, persuade, raise awareness);
• train (e.g. improve communication, problem-solving, and physical skills);
• exchange data (collect/provide data).

Design with a Purpose: An Initial Framework

Given the popularity of escape rooms, there have been efforts to investigate their design (Table 1). We conducted a literature review encompassing escape rooms, serious games, and puzzles to identify existing theories and patterns applicable to the development of escape rooms with a purpose. Google Scholar was used to find relevant academic publications on three topics:

- *Escape rooms*. Papers discussing different types and purposes of escape rooms, as well as their design. Some of the work found is broad, including any escape room (Krekhov et al., 2021), while other papers focus on educational escape rooms (e.g. Botturi & Babazadeh, 2020; Clarke et al., 2017).
- *Serious games*. Given the limited publications in the escape room field, we also explored papers discussing the design of serious games.
- *Puzzles*. Recognizing puzzles as a central feature in escape rooms, we also searched for papers addressing puzzle design and taxonomy for games.

We excluded papers lying outside these domains or those accessible only in abstract or presentation form. Ultimately, we reviewed 35 papers. Our focus was on identifying common design elements in serious games, particularly escape rooms, and categorizing puzzles. We used an excel sheet to record the frequency with which each element and puzzle were described. The elements and puzzles were listed in the first column, grouping similar elements together using colour coding, while the papers we reviewed were noted on the first row. In this section, we present the results of our review, highlighting key design elements for escape rooms with a purpose (Table 1, 3).

Table 1: Design Elements in Escape Rooms

	Krekhov et al., 2021	Botturi & Babazadeh, 2020	Clarke et al., 2017
Focus of the Analysis			
Recreational Escape Rooms	X		
Educational Escape Rooms		x	x
Design Elements			
Learning goals or objectives			x
Learning process		x	
Target group or participants	X		x
Equipment		x	x
Modalities and platform	X		
Theme	X		x
Narrative/story		x	x
Structure (Game/flow/narrative)		x	x
Puzzle organization	X		
Puzzle design	X	x	x
Hint system and failure handling	X		
Evaluation			x

Source: own processing

a) Purpose and Goal

Botturi and Babazadeh (2020) – one of the two models that focus on educational escape rooms – do not specifically list a learning purpose. The learning process includes how the learning is supposed to happen and the expected outcomes (Botturi & Babazadeh, 2020). Instead, Clarke et al.'s (2017) model starts from the learning goal or objectives.

It is important to note that 'learning goals' are independent of the goals to win the game (Veldkamp et al., 2020). In this paper, we refer to 'Goal' as the players' mission or winning condition. Such a goal is usually to (Doherty et al., 2023): escape from a locked environment, solve a mystery, accomplish a task.

Instead, the 'Purpose' refers to the non-ludic objective that designers set for players when developing a game. As Clarke et al. (2017) suggest, the developers of serious games should establish the purpose from the outset. This is because the purpose significantly influences the entire game design process (Murphree et al., 2020). For 'escape rooms with a purpose,' defining the non-ludic objective early on becomes even more critical. Typically, such a purpose falls into one or more of the following three categories: broadcast a message, train, exchange data. Those purposes are in addition to the ludic objective of an escape room. And balancing this entertaining side with the purpose can be a difficult task. For example, focusing on entertainment may hinder the purpose and vice-versa. And in some cases, players may feel overwhelmed (Buchner et al., 2022).

b) Target Audience

Neither Botturi and Babazadeh (2020) nor Clarke et al. (2017) include the target audience in their model. This is interesting as educational games are usually designed for a specific group of people (Bezençon et al., 2023). Only Krekhov et al. (2021) suggest that the design of escape rooms should take into consideration the target audience, including the team composition and size. For example, Veldkamp et al. (2020) suggest that groups of 4-6 players are ideal to support communication and social engagement. Makri et al. (2021) also note that diverse groups are the most successful and Nicholson (2015) observes how escape room players tend to be equally male and female. Identifying a target audience is also important in order to balance the game difficulty. If the target audience is too wide, for example, including players of different ages, it may be difficult to balance the game difficulty (Murphree et al., 2020; Nicholson, 2015).

Djaouti et al. (2011a) list three main types of target audiences for games with a purpose beyond entertainment: general public; professionals; and students. However, these categories may be too broad. For example, a game may be developed for the general public, it may target a specific sub-group, like children or elderly people. Similarly, the category 'students' may include adult students (e.g. University or College) as well as schoolchildren. When Ratan and Ritterfeld (2009) analysed serious games, they identified four groups, divided according to age: preschool and below; elementary school; middle school and high school; college, adult and senior. Ravyse et al. (2017) classified the target audience by their level of education: primary (elementary and middle) school; high (secondary) schools; undergraduate studies; and professional. When Nicholson (2015) surveys escape rooms, he identifies four main groups of players: families, younger players (under 21), adults over 21, and corporate clients.

While Nicholson (2015) classifies all minors within one target group, both Ratan and Ritterfeld (2009) and Ravyse et al. (2017) – who review specifically serious games – divide young players into multiple target groups. This makes sense as children learn differently according to their age (e.g. Kuhn & Pease, 2006). As for older players, Ratan and Ritterfeld (2009) argue that serious games developed for adults generally do not target a specific age range. Hence, all adults can be classified into one group. However, both Djaouti et al. (2011a) and Ravyse et al. (2017) consider 'professionals' as an independent target group.

Escape rooms with a purpose fall under the category of serious games. Consequently, it is crucial for developers to identify their target audience early in the design process (Bezençon et al., 2023). Drawing from previous audience classifications, we propose six distinct categories for escape rooms with a purpose:
- preschool children (up to 5 years old);
- schoolchildren (aged 6-12);
- teenagers or teens (aged 13-18);
- college/university students;
- professionals;
- general public (broad target audience).

While this classification may apply to any game, the target audience remains a crucial design element, particularly for serious games like escape rooms with a purpose. Each audience group brings unique perspectives that shape the design and purpose of escape rooms. Whether it is educational enrichment, team-building, or pure entertainment, understanding the intended audience is essential for creating engaging experiences that align with the game purpose.

c) Equipment, Modalities and Platform

Whether they are recreational or not, escape rooms have platforms or equipment that are physical, digital or both, like any other game (Table 1). For the sake of simplicity, in this paper, we will use the term 'equipment', merging 'modalities and platform' and 'equipment' into a unique category of design elements including:

Platform. The game may be developed for digital, physical or mixed platforms. For example, a game can be implemented exclusively for a computer platform as well as for a growing number of other digital platforms including PlayStation and Nintendo (Ratan & Ritterfeld, 2009).

Input modalities. The number and quality of game controllers have grown in recent years, mainly due to the increasing number of players across multiple platforms (Sinclair, 2023; Skalski et al., 2010). Hence, interaction modalities are not restricted to traditional keyboard/mouse and single-button joysticks anymore. There are also intangible interfaces involving movement tracking and eye tracking, as well as a variety of other sensors and game controllers (De Angeli et al., 2022; Laamarti et al., 2014; Murphy & Lefloïc-Lebel, 2023). Furthermore, Cairns et al. (2014) identified three main modalities to interact specifically with mobile games: touch, tilt and slip. For example, players can tilt the device to engage with a game, touch the screen or slide a finger along the device. Other ways of interacting with mobile games have been also explored – including speech input (Azenkot & Lee, 2013) – and in some cases, the mobile device itself is used as a game controller or gamepad (e.g. Torok et al., 2017). Thus, we will categorize the interaction modalities as:
- traditional computer controls (keyboard/mouse);
- gaming controllers that are wired directly to a device or wireless (e.g. joystick, Xbox controller, Nintendo Wii Remote, Nintendo Switch). Gaming controls can also be tangible or intangible when sensors track gestures or eye movements;
- mobile interface, which includes any interaction involving a mobile device;
- tangible items or objects used in physical or mixed games.

Platform and interaction modality are key design elements for any game, but they become even more significant in serious games like escape rooms with a purpose. After all, the choice of platform and interaction mode influences the overall experience and engagement level in escape rooms. Developers of escape rooms must carefully choose

a specific platform and interaction mode based on both the intended purpose and target audience. For example, if developers want to link the game experience to a specific location, they might opt for a physical platform. This could involve creating an escape room within a physical space, such as a themed room or building. If instead the goal is to reach a wide audience, developers may choose a widely available platform and modality. For example, more households worldwide have access to computers than video game consoles (Alsop, 2022, 2023). Therefore, a digital escape room developed for computers, utilizing keyboard and mouse input, could be the most accessible solution for the general public

d) Theme

The 'theme' is the general setting of a game (Krekhov et al., 2021). A setting can be a period in time and/or a location/environment where the game is taking place. Such time and space can be historically accurate or completely imagined. These settings can range from historically accurate to completely imagined. While not all escape rooms feature a fully developed narrative, they all share a common characteristic: 'a themed environment'. The most popular escape room themes are historical, futuristic, fantasy, horror, scientific, military, steampunk, everyday life, seasonal, pop culture, and abstract (Nicholson, 2015).

In escape rooms, a theme can be influenced by the purpose and the narrative. In turn, the theme may influence aesthetics, sound design, puzzles, and narrative (Doherty et al., 2023; Krekhov et al., 2021). For example, if the game's purpose is to educate about a specific historical event, developers will likely evoke the look and feel of that particular period. Interestingly, Botturi and Babazadeh (2020) did not consider the theme a key design element of escape rooms. However, escape rooms, even when lacking context and narrative, still feature a themed environment. Nicholson (2015) categorized this as an 'abstract' type of theme, emphasizing that theme remains a central feature in escape rooms.

e) Narrative and Puzzle Organization

Narrative can be defined in several ways and there are differing opinions around the meaning of narrative in games (Backe, 2012). However, it is a common assumption that a narrative is a series of events perceived in a logical sequence (Backe, 2012).

While both recreational and educational escape rooms can include a theme and a narrative, recreational versions tend to rely on aesthetics to support the theme rather than on a fully developed story (Nicholson, 2015). This could be why the model from Krekhov et al. (2021) does not consider the narrative, while both reviews of educational escape rooms list the narrative as a key design (Botturi & Babazadeh, 2020; Clarke et al., 2017). Indeed, games with an educational purpose tend to incorporate storytelling to increase immersion, engagement, and motivation (Naul & Liu, 2020).

Furthermore, both Botturi and Babazadeh (2020) and Clarke et al. (2017) include the game flow or structure as a design element. In the context of escape rooms, we can describe game flow or structure as how designers plan for the game to progress and, if there is a narrative, which elements of the story should be enjoyed and when. Rather than game flow, Krekhov et al. (2021) talk about *puzzle organisation*, which is how all the puzzles and tasks are connected and the order in which they are solved. The difference between game structure and puzzle organisation can be blurred with escape rooms, which are a list of puzzles linked by a theme and/or a narrative. Aarseth (2012) also suggests that players will perceive the structure of the narrative depending on how the game world is structured. Indeed, looking at both the ways a narrative and a game can be structured, we can find similarities.

The narrative can be structured as a linear or non-linear series of events. The narrative is linear (or embedded) when the story is crafted by the designers and told to players. In this case, events are predefined by the author or designer. This type of narrative is pregenerated and used to justify events and actions in the game as well as to motivate players (Salen & Zimmerman, 2004). This narrative is instead non-linear (or emergent) when it emerges as players engage with the game, so it is more complex and unexpected as it depends on players' choices. The events can change and are not under the strict control of the author/designer. Games can also combine linear and non-linear elements (Backe, 2012). For example, a larger narrative can be embedded but there can be emerging moments.

Similarly, a game world can be linear, open, or multicursal/mixed. In escape rooms specifically, this is largely reflected in how puzzles can be organised (Nicholson, 2015) (Picture 1):
- *Open*, where puzzles are solved at the same time and provide the solution to win the game.
- Sequential or *linear*, where puzzles are solved one after another in a specific order. Puzzles usually provide solutions for subsequent puzzles. Digital escape rooms often organise puzzles in this way (Makri et al., 2021).
- *Path*-based, where puzzles can be solved following a set number of paths.
- *Hybrid*, which combines different paths (e.g. to create a Pyramid).
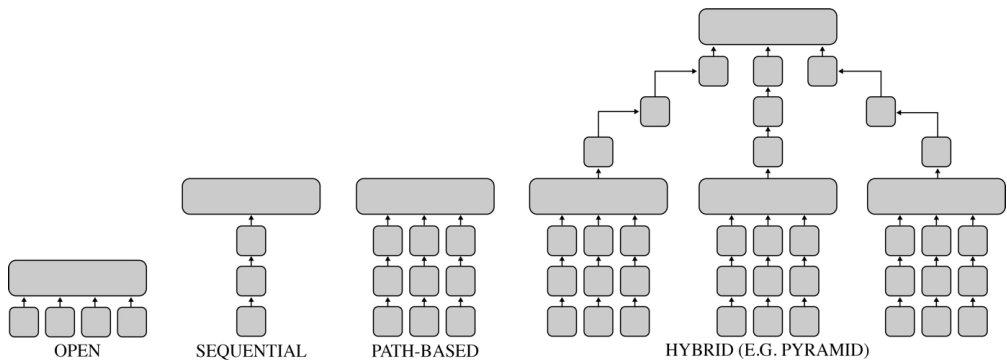
Picture 1: Puzzle organisation
Source: own processing based on Nicholson (2015) and Veldkamp et al. (2020)

The fact that the narrative structure is provided by the puzzle organization - meaning the order in which the puzzles are presented and solved (Krekhov et al., 2021) – is not only a key design element but also one that differentiates escape rooms from most other games. In more common game narratives, events unfold to express a plot and reveal a story (Ip, 2011). For example, linear narrative structures often follow the three-act model borrowed from literature and film scriptwriting (Lindley, 2005). This structure divides the story into three main parts: beginning or setup, confrontation, and resolution. Another popular narrative framework is the hero's journey, which traces a protagonist's path through various stages (Lindley, 2005).

However, in escape rooms rich in storytelling, the narrative may extend beyond mere puzzles. It becomes a sequence of events or stories. When discussing educational escape rooms, Botturi and Babazadeh (2020) argue that content can be delivered through both a story and puzzle-solving. In games, storytelling can be supported in three main ways (Zubek, 2020), as illustrated in the table below (Table 2). An escape room can employ any of these methods to support a narrative and guide players through the game. Hence, we define *narrative* as a blend of *puzzle organisation* and *storytelling methods* (although only the former will be relevant for some escape rooms).

Table 2: Methods to support storytelling

Explicit or Exposition	Non-player character (NPC) Interactions	Environmental
Cut-scenes	Scripted conversion to provide additional information	Different areas of the game may provide different information
Through game objects such as storybooks and bestiaries	An NPC reacts to the players in pre-scripted ways	An area can suggest a story through visual cues (e.g. traces of blood) or sound

Source: own processing

f) Puzzles Design

Puzzles are a key element of both recreational and educational escape rooms, although puzzles are sometimes less complex in the latter (Veldkamp et al., 2020). Furthermore, the three models indicate that the puzzle design should follow other choices (Table 1), such as the target audience, the narrative, and/or the purpose (Nicholson, 2015). Thus, creating the puzzles is not an easy task as they need to: 1) support the chosen purpose; 2) adapt their challenge level to the selected audience; 3) integrate well with the theme and the narrative.

According to Browne (2015), there are so many different types of puzzles that it is also not possible – or even useful – to define them. For example, there are word puzzles, jigsaw puzzles, logic puzzles, dexterity puzzles, physical puzzles, and physics-based puzzles (Browne, 2015). Hence, there is no official taxonomy of puzzle types. Nevertheless, there have been some efforts to classify puzzles, depending on which elements are taken into consideration and how (Davanzo, 2021). For example, based on Wiemker et al. (2015), Makri et al. (2021) lists three broad types of puzzles:

- Cognitive puzzles rely on thinking skills and logic. For example, counting is very popular (Nicholson, 2015). Other types of cognitive puzzles could include cryptograms and riddles. In general, cognitive puzzles seem to predominate in digital versions (Makri et al., 2021).
- Physical puzzles rely on physical skills. For example, searching for hidden objects and using a light are very popular (Nicholson, 2015).
- Meta-puzzles depend instead on the narrative, where solving a puzzle provides an item or data that is essential for solving another puzzle and progressing the narrative.

But there have been also other classifications, some of which are less broad or take into consideration more elements (see Table 3). These classifications often include logic and mathematical puzzles, riddles and word puzzles, mazes or some other type of exploration. For example, Lindley's (1897) lists specific types of mathematical puzzles based on numbers or geometry (forms and shapes). Brathwaite and Schreiber's classification of puzzles also includes many puzzles based on cognitive skill (Brathwaite & Schreiber, 2008). This may be because their classification focuses on the digital version of escape rooms where cognitive puzzles are often preferred (Makri et al., 2021). For instance, their classification includes puzzles that require some 'out-of-the-box thinking' (lateral thinking) as well as puzzles solved by finding/using an item (item use) or reaching a specific point (exploration). While this classification is based on video games, escape rooms can take many forms including physical rooms, boardgames, digital games, and mixed experiences such as augmented reality. Hence, a comprehensive classification of puzzles should take into account both cognitive and physical skills. For example, Lindley's (1897) classification also includes mechanical puzzles with a tangible element such as containers with secret compartments, physical puzzles, or puzzles with multiple complex shapes.

While De Kegel and Haahr's classification (De Kegel & Haahr, 2020) includes 11 categories including cognitive and physical puzzles. For example, there are puzzles solved by sliding shapes (sliding puzzles) or items (sokoban-type) in a specific order or configuration; by arranging items of different shapes to create bigger objects (assembly); or by using items or skills to link two points (path-building).

Depending on how broad a classification is, some puzzles can fit within one or more categories. Some puzzles may also require both cognitive and physical skills. For instance, traditional mazes (paper-based or digital) usually require cognitive skills, while hedge mazes require players to also physically move through the maze (Pai Raikar, 2022).

Table 3: Classifications of Puzzle Types

	Makri et al.'s classification	Lindley's classification	Brathwaite and Schreiber's classification	De Kegel and Haahr's classification
Mathematical/Numerical/Geometrical	x	x	x	
Mechanical/Dexterity/Physics/Secret container	x	x		
Assembly				x
Word/Language	x	x		x
Logical/Logic/Philosophy	x	x	x	x
Riddles/Dilemma	x	x		
Spatial reasoning			x	
Pattern recognition/Matching			x	
Path building				x
Exploration/Maze	x		x	x
Item use	x		x	
Sokoban/Sliding				x
Tile-match				x
Narrative	x			x

Source: own processing

While the four classifications presented here (in Table 3) are quite comprehensive, there are some limitations, mainly due to the wide range of puzzle types. Some types of puzzles are not formally cited as an example in the majority of classifications, yet could be included, either in one of the suggested categories or in new category. For example, spotting the difference and pattern recognition/matching could be grouped together in a category based on keen observation, while memory-based puzzles could be included in a cognitive-based category such as the one suggested by Makri et al. (2021) together with other puzzles based on logic and thinking skills like mathematical puzzles. And we could also argue that word puzzles and riddles also require cognitive skills.

Both Makri et al. (2021) and De Kegel and Haahr (2020) cite puzzles that are based on the narrative. This makes sense as narrative is a key element in the design of escape rooms with a purpose. Narrative-based puzzles are fully integrated into the narrative, and are part of its progression (De Kegel & Haahr, 2019). For example, these puzzles may require exploration to find context-based items or information (e.g. puzzles requiring social interaction with game characters or other participants) as well as logical and creative

thinking to proceed with the narrative (De Kegel & Haahr, 2019). To conclude, based on the review of the different classifications (Table 3), we propose the following puzzle classification for escape rooms with a purpose:

- *Intellect*: puzzles involving cognitive and creative skills, including mathematics, memory, and logic as well as word puzzles and riddles.
- *Dexterity*: puzzles based on dexterity, speed and physics (e.g. gravity in *Tetris*).
- *Exploration*: puzzles involving exploration to gather new knowledge and increase players understanding of a place or object. Exploration puzzles may include secret containers, mazes, and finding items.
- *Observation*: puzzles where players need to look at objects and/or environments carefully, for example, to spot a difference, match patterns or pattern recognition.
- *Creation*: puzzles that create shapes, images or paths, including path building, sliding and Sokoban.
- *Narrative*: puzzles that require to collect/find an item (e.g. drag and drop) or socially interact with other participants/characters in the game to continue the story.

Finally, while Krekhov et al. (2021) considers *hints* as a key design element, Botturi and Babazadeh (2020) and Clarke et al. (2017) – who both focus on educational escape rooms – do not include hints in their categorisations. Hints may be more important for recreational rooms than for educational ones, which may prioritize sharing educational content rather than providing clues to solve puzzles. Thus, we decided not to include hints in the initial framework.

g) Evaluation

Clarke et al. (2017) is the only model that includes *evaluation* as a key design element. While playtesting escape rooms is essential to identify issues (such as usability) and balance game challenges (Murphree et al., 2020; Nicholson, 2015), escape rooms with a purpose do not always undergo such evaluation. This is because they often have fewer resources available for evaluation compared to recreational ones (Ang et al., 2020). Consequently, Botturi and Babazadeh (2020) did not consider *evaluation* a key design element. Nevertheless, an escape room with a purpose may still require evaluation to determine whether the intended purpose was achieved and, if not, to understand why the game did not have the desired impact (Murphree et al., 2020). For example, developers may design surveys to evaluate learning outcomes or collect in-game data to track players' decisions (De Angeli & O'Neill, 2020).

Case Studies: Using the Framework to Analyse Existing Escape Rooms

In this section, we analyse three escape rooms with a purpose to investigate the framework's effectiveness. Our aim is to verify whether the initial framework is complete – so it already includes the key design elements of escape rooms with a purpose – or if a revision is needed.

We first identified the three games. The first game was developed by the author's company (*Unlock Bath*), while the other two were found by searching through the directory

of Games for Change, which houses an extensive collection of serious games – over 150 titles in total ("Game directory", n.d.). The games were selected following four criteria:

- Escape rooms: we specifically considered games where players must achieve a goal by solving puzzles in a themed environment.
- Escape rooms with a purpose: Our focus was on games that align with the definition provided in this paper for 'escape rooms with a purpose'. These purposes could include broadcasting a message, training, or exchanging data.
- Available gameplay: we ensured that the selected games were either playable (online or in proximity to the authors) or had their full gameplay recorded and shared (e.g. via YouTube videos or academic publications).
- Design process information: To gain deeper insights into their design, we sought games with available information about their development process. This could include reports, behind-the-scenes videos, or academic publications.

Then, we ran a qualitative content analysis of the three selected games (Table 4). There are different methods to analyse the content of games, based on different elements or aspects. For example, Consalvo and Dutton (2006) suggest making an inventory of game objects, to analyse the user interface and the different ways in which players can interact with objects. However, our primary objective was to understand how escape rooms with a purpose are designed. To achieve this, we either played the games or closely observed gameplay and we used the initial framework to take note of the following design elements into an Excel sheet:

- Purpose: we noted the purpose of each escape room (broadcast a message, train, exchange data);
- 'Players' goal or winning condition: we recorded what players needed to achieve within the escape room (escape from a locked environment, solve a mystery, or accomplish a task);
- Target audience: we noted the intended audience for each escape room, spanning various demographics (preschool, schoolchildren, teens, college/university students, professionals, general public) and number of players (single-player, multiple players);
- Equipment: we recorded the type of platform (physical, digital, mixed) and interaction modality (compute controls, gaming controllers, mobile interface, tangible) used in the escape room;
- Theme: we noted the thematic setting of each escape room (historical, futuristic, fantasy, horror, scientific, military, everyday life, steampunk, seasonal, pop culture, no theme/abstract);
- Narrative: we recorded how the narrative is woven into the puzzle organization (open, sequential/linear, path-based, hybrid) and the storytelling methods (explicit or exposition, npc interactions, environmental, no storytelling);
- Puzzle design: we noted the types of puzzles within each escape room (intellect, dexterity, exploration, observation, creation, narrative);
- Evaluation: we recorded if and how the game was evaluated (i.e. which method was used to evaluate the escape room).

Furthermore, we delved into the design process followed by escape room creators. By doing so, we gained a deeper understanding of their thought processes and how the games were developed. Our main goal was to test the framework in practice, ensuring its effectiveness in identifying the key features of escape rooms with a purpose.

Unlock Bath

Unlock Bath ("Unlock Bath", n.d.) is a single-player digital escape room developed in 2022 for the web using Unity and a keyboard/mouse as an interaction modality. In it, players step into the shoes of a researcher from the future with the mission of travelling back in time to investigate a colour-changing phenomenon related to the city of Bath.

Through the game, players learn about the story of Bath from different perspectives. Bath has a very rich yet socially divisive history. Throughout the centuries the city was promoted and invested in by the wealthy yet developed and shaped by the workers. So the purpose of this game was to broadcast a message: there are different sides to every history. In particular, the game wishes to inform players about the stories of both the wealthy and the working class, exploring the brighter and the darker times that shaped Bath into the city that is today. The theme is historical, and the game is targeted at the general public. The puzzles are path-based with four parallel paths of puzzles, each with three puzzles. Players need to solve all the puzzles to collect the clues to solve their mission. They can start from any path, although these paths sometimes cross and players may have to solve a specific puzzle from a path to unlock a puzzle in another path. The game deploys two out of the three storytelling methods:

Explicit or Exposition: the player is given information related to the narrative through a specific game object: a file with papers and photos. This happens at the beginning of the mission when the player is given the mission file, and then every time a puzzle is solved, when players get extra information in their file.

Environmental: the game includes a main area that can be used to explore 4 sub-areas relevant to Bath (Quarry, Colliery, Health, and Prehistory). The main area includes a map of the city of Bath, to which details are added as the puzzles are solved, and four photos, each representing a sub-area. Each area has different visual clues (background and objects) that support the story. Each sub-area includes three puzzles, with a total of 12 puzzles classified as follows:

- Intellect: 1 puzzle (memory);
- Dexterity: 2 puzzles (push a button at a specific time);
- Exploration: 0 puzzles;
- Observation: 2 puzzles (spot the difference);
- Creation: 4 puzzles (sliding or swapping tiles);
- Narrative: 3 puzzles (drag and drop item).

The game was developed by Echo Games CIC, a community interest company specialising in the design of serious games, in collaboration with five museums. The development followed an integrative design process, which is collaborative and iterative. The integrative design process follows 3 stages:

1. Co-discover to set the purpose of the game together with the stakeholders, in this case, five partner museums.
2. Co-design where you implement the theme and narrative together with stakeholders. In this phase, the game company – Echo Games CIC – co-designed the narrative with museum professionals, deciding together which stories to tell and with which objects. The game was then developed by a team of five, a mix of developers, artists/creative directors and researchers/writers.
3. Co-evaluate to ensure that the theme and narrative match the game's purpose. The content and the narrative were evaluated by the museum professionals. Museum professionals read an overview of the narrative and the game content and shared their written feedback via email. This was to ensure that the narrative was authentic but also represented each museum's voice. The players' experiences with the game have not been evaluated yet.

Tracking Ida

This is a multiple-player alternate reality game (mixed) created in 2017, where players interact with tangible items and with their mobile devices ("Tracking Ida", n.d.). The theme is historical and the game is based on Ida B. Wells' investigative journalism in the 1890s. Players study to learn about Ida B. Wells's journalistic work in favour of civil rights and her investigative method. They then apply this method to investigate contemporary killings (Amde, 2017).

Through the game, players solve puzzles to unlock Wells' truck and uncover her story. The main purpose of the game is both to broadcast a message and train. Firstly, the game wishes to make (difficult) history more accessible to the youth (broadcast). Most of Wells's work was destroyed, so this project also aims to reclaim this lost history based on surviving archives and fill the gaps with historically plausible information. Secondly, the game wishes to train young people to be inquisitive like Wells.

The game also has a well-defined target audience as it was created for black youth (i.e. young). While there are some digital components, the game is mostly physical and hands-on, including historical artefacts and primary documents. Players are high-school students who collaborate to explore historical archives using a phonograph but also role-play as journalists who interview members of their community and raise awareness about specific issues affecting their community through social media.

The puzzles are presented in a sequential/linear order and divided into three phases. In the first phase, players are at their high school and need to solve a series of puzzles to unlock the compartments of a trunk full of Wells' belongings. Players need to search the trunk for hidden compartments and a variety of items (mostly letters). Students also need to find an item, a phonograph, to be able to get clues from those letters. These puzzles can be mostly classified as exploration.

However, the game also includes role-playing, as in the second phase players are invited to apply the investigative skills they learned in the first phase to go into their community and interview people connected with youth who had recently been killed by the LAPD. This phase involved a school trip to a non-profit (community-based) social services organization. Since this also requires players to explore an environment to find new information, we also classify this second phase as exploration.

In the third and last phase, players return to the trunk at the high school. After they type the headlines for their interviews on a typewriter, a key falls out. The key opens a locked compartment where they find a vinyl record with a message from Wells. This last puzzle is strongly connected with the narrative and requires students to find data (interviews) and an item (a key) to complete the story. We can classify this last puzzle as narrative.

The narrative was supported by explicit or exposition storytelling, through the letters found by players. In some way, there was also NPC interaction as when players placed a letter in the phonograph, they would hear Wells' voice, but also when they interviewed members of the communities.

The design process was iterative and involved a team of 6 designers and the story was written in collaboration with a historian. The main designer – a university researcher – had an initial concept and a purpose ("Tracking Ida", n.d.). The narrative and the puzzles were then refined through the iterative process. There was also a post-evaluation using an ethnographic method to evaluate whether Tracking Ida was educational but also increased civic engagement.

One Leaves

One Leaves (Wahoo Studios, 2019) is a single-player digital game developed for Xbox and PC platforms using the Unreal Engine. Players can interact using either a keyboard/mouse or a game console. This is a horror-themed game where players are trapped in a hellish maze with 3 other NPCs. They need to solve a series of puzzles to be the first one to exit. If one of the other NPCs leaves first, the player loses. The purpose of the game is to broadcast a message and a very clear one: smoking is bad! The game tries to raise awareness of the fact that smoking harms your health and is difficult to stop. Indeed, the game is inspired by the fact that only 1 out of 4 teens who start smoking can stop.

The main target is teenagers (i.e. young). The game is set in a building with different floors. Each floor is a different environment: a school with a library, a hospital with a morgue, and a sewer. Players can move between floors using an elevator.

The puzzles are presented in sequential/linear order. The main puzzle is a maze, represented by red cables on the floor that players need to follow (exploration puzzle). Players also need to explore where 4 morgue doors lead to find the exit (exploration puzzle). In the library, players need to move bookshelves around to find a path out, much like a Rubik's cube (creation puzzle). The game then includes a flashlight puzzle, which is located in the Hospital. Players need to turn on a series of lights in a specific sequence to gain access to a flashlight. This flashlight will then help them navigate the rest of the game and find items like an iron lung machine. This puzzle is a mix of intellect and observation.

Storytelling is delivered through NPC interactions and environmental visual clues. An unseen narrator describes the scenario to players and provides additional information, while visual clues such as blood support the narrative that smoking is unhealthy as well as the horror theme.

The game was developed by the game company Wahoo Studios in collaboration with the FDA's Centre for Tobacco Products. No information was shared about the design process itself or its evaluation. No papers or reports were published to share findings about the impact of the game.

Discussion and Conclusion

In this paper, we explored the design of escape rooms with a purpose, which we defined as: *games developed with a purpose beyond entertainment where players solve puzzles within a themed environment to achieve a goal*. After providing an overview of the history and evolution of escape rooms, we delved into their potential purposes. We identified three broad categories: broadcast a message, train, and exchange data. Subsequently, we conducted a literature review spanning the fields of serious games, escape rooms, and puzzle design to explore how escape rooms are designed. This review allowed us to pinpoint a series of relevant design elements, which collectively formed a framework for designing escape rooms with a purpose.

To test this framework in practice, we analysed three case studies: *Unlock Bath*, *Tracking Ida*, and *One Leaves*. Our analysis involved comparing the design elements of each escape room and examining their design processes (Table 4). Based on this analysis, we finalized a list of design elements. Some elements were confirmed, such as purpose, goal/winning condition, theme, and narrative. Additionally, we refined or even added other design elements. The resulting list now constitutes our proposed framework for designing escape rooms with a purpose. This same framework can be also employed to conduct content analyses of such games, as demonstrated in our examination of *Unlock Bath*, *Tracking Ida*, and *One Leaves*.

Table 4: Summary content analysis of three escape rooms with a purpose

	Unlock Bath	Tracking Ida	One Leaves
Purpose	Broadcast a message (history is about telling different sides of a story)	Broadcast a message (important to reclaim difficult history); Train (investigative journalists)	Broadcast a message (smoking is bad)
Goal	Solve a mystery (why is the brick blue?)	Accomplish a task (unlock all the compartments of Well's trunk)	Escape from a locked environment (exit the building)
Target	General public; Single-player	Teens (black youth); Multiple-player	Teens; Single-player
Equipment	Digital Computer	Mixed Tangible and mobile	Digital Computer or controllers
Theme	Historical	Historical	Horror
Puzzle organisation	Path-based	Sequential/linear	Sequential/linear
Storytelling	Explicit/Exposition, Environmental	Explicit or Exposition, NPC interaction	NPC Interactions, Environmental
Puzzles	Intellect, Dexterity, Observation, Creation and Narrative	Exploration and Narrative	Exploration, Creation, Intellect/Observation
Evaluation	Qualitative evaluation of the narrative with stakeholders	Ethnographic study to evaluate the impact on learning and civic engagement	NA
Process	Iterative and collaborative (museum professionals)	Iterative and collaborative (historian)	NA

Source: own processing

a) New Design Elements: 'Concept/idea' and 'Stakeholders'

All the three escape rooms started with a clear concept or idea, but not necessarily with a clear purpose. This suggests that defining a purpose is not necessarily the first step in designing an escape room with a purpose. For example, the purpose of *Unlock Bath* was finalised through a collaborative process, involving *stakeholders* in the full design of the escape room. A stakeholder is a person that would be directly impacted by the escape room. Hence, stakeholders may include not only the target players but also the game developers and the museums sharing their stories. In Tracking Ida, an expert in history was engaged during the design process, also emphasizing the importance of involving relevant stakeholders.

b) Additional Notes on 'Narrative'

Once the purpose is set, a key design challenge will be to align the *puzzle design and organisation* with this purpose. We previously argued that puzzles can be organized in four ways: open, sequential/linear, path-based, and hybrid.

Unlock Bath organised the puzzles in multiple paths. A structure where multiple puzzles can be solved in parallel is beneficial for players (Schell, 2014). If players cannot solve a specific puzzle and get stuck, they may get tired and lose interest in the game. A parallel organisation (e.g. path-based or hybrid) would allow players to choose between different puzzles, increasing engagement and extending interest (Schell, 2014). However, such puzzle organisation can also be difficult to plan, especially when you have a clear idea of what the players should experience and when. If developers have a very clear goal and purpose in mind, they may want players to follow a pre-set narrative. This may be the

reason why a Sequential/linear structure was preferred by *Tracking Ida* and *One Leaves*. If an escape room has limited or no storytelling, the focus primarily rests on puzzle organization. Designers need to carefully plan the puzzle flow. However, when storytelling is a significant component, designers can enhance the narrative using suggested methods: explicit or exposition, NPC interactions, environmental (Table 2). *Unlock Bath*, *Tracking Ida*, and *One Leaves* each employed two of these three methods.

In summary, the interplay between narrative and puzzle organization significantly impacts the escape room experience. Designers must strike a balance to create escape rooms that are engaging while achieving their purpose.

c) Revised Elements: 'Puzzle Design' and 'Equipment'

Once the organisation of the puzzles and the storytelling methods are finalised, it is time to design the puzzles. This can be a challenging task as there are many types of puzzles. We identified six main categories of puzzles: intellect, dexterity, exploration, observation, creation, and narrative. Selecting the right puzzles depends on the *narrative*, *purpose*, and *goal* of the game:

- *Tracking Ida*: This escape room includes exploration and narrative puzzles. Given that the narrative revolves around an investigative journalist training young people to be inquisitive, exploration puzzles align perfectly. Solving a mystery requires exploration to uncover clues.
- *One Leaves*: It primarily features exploration puzzles. The game's goal is for players to exit a building, and exploration puzzles enhance players' understanding of the environment. The simple purpose of broadcasting an anti-smoking message does not require an elaborate narrative, which may be why there are no narrative-based puzzles.
- *Unlock Bath*: Developed in collaboration with museum professionals, it emphasizes storytelling and historical artifacts. The purpose – to convey that history involves multiple perspectives – led to a majority of creation and narrative puzzles. These puzzles allow players to engage with key artifacts and characters, reconstructing specific elements of history.

Once developers decide which puzzles to design, another challenge would be how to balance these puzzles based on the targeted players. One solution to balance the game, especially with a diverse target audience, could be to set *play modes*. Nicholson (2015) suggests three modes or *difficulty levels*:

- casual, which may provide more hints or even solutions;
- standard, which may provide clues but not solutions;
- hardcore, which provides only a limited amount of support. This mode may also include harder puzzles and red herrings.

By adjusting the play mode, designers can tailor the escape room experience to different audiences. Here's how these modes can impact the game:

- *Timing*: The mode could set different time limits for completing the escape room.
- *Puzzle Variety*: Each mode might present different puzzles or alter existing ones.
- *Clues and Hints*: The level of assistance provided (hints, clues, or solutions) can vary based on the chosen mode.

Hints, in particular, appear to be more important than we initially thought, as they can help players both progress and maintain interest (Schell, 2014). Based on our analysis, we agree with Krekhov et al. (2021) that a *hint system* should be included in the design

of escape room, especially when puzzles lack easy instructions or introductions to mechanics. For example, in physical escape rooms, there is usually someone to monitor players and provide hints when needed, while in digital games, hints could be provided via NPC interaction or a help button.

The choice of *equipment* (platform and interaction modality) will also depend on previous choices, especially on the purpose of the game and its target audience. For example, *Unlock Bath* was developed as a digital game to reach a wider audience. Instead, mixed versions could help physically and virtually engage with the members of a local community. This was the case with Tracking Ida, where players could post their findings on social media. Mixing digital and analogue elements may also help improve the social experience, which is often a limitation of fully digital games (Nicholson, 2015). But while physical/mixed games can be more collaborative, they can also trigger issues of privacy and safety, especially if strangers may be watching as we play (De Angeli, 2022). The game experience always happens in a *place or location* (Schell, 2014), whether it is on our sofa at home or in a public space like a museum or an arcade hall. Each location comes with its opportunities and challenges. For instance, digital escape rooms may be less collaborative but can be played at home, and this can provide the safety and privacy needed to fully immerse ourselves (De Angeli, 2022). Thus, developers should carefully think about the place in which their games will be played, whether it is private or public, and this decision should be influenced by both the purpose and the stakeholders. In turn, the location may influence the platform and interaction modality. For example, Tracking Ida was designed to engage with shared history and interact with the local community. Hence, public locations are chosen for this game (i.e. a high school and a community organization). This translated into an experience that is mostly physical, with some digital elements (i.e. engaging with the community through social media).

d) Final Framework

A framework for the design (and analysis) of escape rooms with a purpose was developed based on literature review and case study analysis. While individual elements may not be entirely new – since they were extracted from various studies related to escape rooms, serious games, and puzzle design – their combination into the proposed framework represents a novel contribution. Designers can use this framework to explain the creation of *Escape Rooms with a Purpose* or guide the content analysis of existing ones (Appendix A).

e) Limitations and Future Studies

The three analysed escape rooms were either fully digital or with a digital component (Table 4). Digital versions are easier to find and play online, which may explain why we could not identify any physical escape rooms with a purpose. Nevertheless, in the future, we wish to use our framework to analyse more escape rooms with a purpose, including physical ones.

While the framework can already be used for content analysis of existing escape rooms, it could be also expanded to include other qualitative methods, such as analysing players' comments in online forums. For example, while there was no official evaluation of *One Leaves*, there were some interesting comments in gamers' forums such as Metacritic, TrueAchievements, and Garage Band Gamers. From those comments, it is clear that players enjoyed the theme, the music, and the general design of the game. However, players often commented how they did not realise there was an anti-smoking message, and when they did, they felt it was more as an advertisement against smoking than a game. This suggests that better communication of the game's purpose would have been beneficial.

Further studies could explore how developers of escape rooms with a purpose could effectively convey their game's purpose to manage expectations, maintain trust, engage players, and ultimately achieve their intended goals.

Finally, through this paper we identified two interesting gaps concerning the design of escape rooms with a purpose. Firstly, while there have been some successful examples of game designed with the purpose of exchanging data (Schrier, 2016), we could not find any examples of escape rooms specifically designed to process and analyse data. For example, through the computer game *Foldit* (University of Washington, 2008) players can contribute to research in the field of protein folding while the mobile game *Sea Hero Quest* (Glitchers, 2016) provides data for Alzheimer's research. The goal of the first game is to find the best solutions to fold the structures of given proteins. These solutions are then investigated by scientists, for example to cure diseases. In the second game, players control a boat in the sea, thus helping scientists to better understand human navigational abilities. Similarly, escape rooms could be designed and evaluated to collect data about a variety of human skills, including problem-solving, communication, memory and other cognitive skills. This could feed into research into, for instance, health (e.g. dementia), creativity and teamwork. While escape rooms have been already used to explore teamwork (Cohen et al., 2020), research and development in the field is still rare and limited, for example, to players sharing data but not processing it.

Secondly, none of the three analysed escape rooms included an official debriefing. However, debriefing is key to supporting game objectives such as learning (Buchner et al., 2022) or even critical reflection (De Angeli et al., 2021). For example, Nicholson (2015) highlights that debriefing is – or should be – a key element of escape rooms. Debriefing techniques are used, for example, to help participants return to the 'real world, both mentally and emotionally' (Nicholson, 2015). Debriefing may also help avoid overwhelming players. Thus, future work could explore the use of different debriefing methods in escape rooms with a purpose as well as their impact on players.

BIBLIOGRAPHY

Aarseth, E. (2012). A narrative theory of games. In M. Consalvo, & S. Feiner (Eds.), *Foundations of Digital Games 2012* (pp. 129-133). ACM. https://doi.org/10.1145/2282338.2282365

About SCRAP. (n.d.). Real Escape Game. Retrieved June 4, 2024, from https://realescapegame.com/about/

Abt, C. C. (1987). *Serious games*. University Press of America.

Adams, V., Burger, S., Crawford, K., & Setter, R. (2018). Can you escape? Creating an escape room to facilitate active learning. *Journal for Nurses in Professional Development*, *34*(2), 1-5. https://doi.org/10.1097/NND.0000000000000433

Alsop, T. (2022, June 1). *Video game console penetration 2020*. Statista. https://www.statista.com/statistics/1107871/access-to-video-game-console-in-households-worldwide/

Alsop, T. (2023, November 6). *Share of households with a computer worldwide 2005-2019*. Statista. https://www.statista.com/statistics/748551/worldwide-households-with-computer/

Amde, L. (2017). *Tracking Ida*. [Master's thesis]. University of Southern California. Retrieved June 18, 2024, from https://impa.usc.edu/asset-management/2A3BF1681U_2?FR_=1&W=1728&H=883

Anderson, M., Lioce, L., Robertson, J. M., Lopreiato, J. O., & Díaz, D. A. (2020). Toward defining healthcare simulation escape rooms. *Simulation & Gaming*, *52*(1), 7-17. https://doi.org/10.1177/1046878120958745

Ang, J. W. J., Ng, Y. N. A., & Liew, R. S. (2020). Physical and digital educational escape room for teaching chemical bonding. *Journal of Chemical Education*, *97*(9), 2849-2856. https://doi.org/10.1021/acs.jchemed.0c00612

Antle, A. N., Tanenbaum, T. J., Macaranas, A., Robinson, J. (2014). Games for change: Looking at models of persuasion through the lens of design. In A. Nijholt (Ed.), *Playful user interfaces. Gaming media and social effects* (pp. 163-184). Springer. https://doi.org/10.1007/978-981-4560-96-2_8

Ascalon, A. (2021, April 1). *The history of escape rooms*. The Escape Game. https://theescapegame.com/blog/the-history-of-escape-rooms/

Azenkot, S., & Lee, N. B. (2013). Exploring the use of speech input by blind people on mobile devices. In R. E. Ladner (Ed.), *Proceedings of the 15th International ACM SIGACCESS Conference on Computers and Accessibility* (pp. 1-8). ACM. https://doi.org/10.1145/2513383.2513440

Backe, H. J. (2012). Narrative rules? Story logic and the structures of games. *Literary and Linguistic Computing*, *27*(3), 243-260. https://doi.org/10.1093/LLC/FQS035

Bezençon, V., De Santo, A., Holzer, A., & Lanz, B. (2023). Escape Addict: A digital escape room for the prevention of addictions and risky behaviors in schools. *Computers & Education*, *200*(1), 1-16. https://doi.org/10.1016/J.COMPEDU.2023.104798

Bogost, I. (2007). *Persuasive games: The expressive power of videogames*. MIT Press. https://doi.org/10.7551/mitpress/5334.001.0001

Botturi, L., & Babazadeh, M. (2020). Designing educational escape rooms: Validating the Star Model. *International Journal of Serious Games*, *7*(3), 41-57. https://doi.org/10.17083/IJSG.V7I3.367

Brathwaite, B., & Schreiber, I. (2008). *Challenges for game designers*. Delmar Publishing.

Brown, N., Darby, W., & Coronel, H. (2019). An Escape room as a simulation teaching strategy. *Clinical Simulation in Nursing*, *30*(1), 1-6. https://doi.org/10.1016/j.ecns.2019.02.002

Browne, C. (2015). The nature of puzzles. *Games & Puzzle Design*, *1*(1), 23-34.

Buchner, J., Rüter, M., & Kerres, M. (2022). Learning with a digital escape room game: Before or after instruction?. *Research and Practice in Technology Enhanced Learning*, *17*(1), 1-16. https://doi.org/10.1186/S41039-022-00187-X

Cairns, P., Li, J., Wang, W., & Nordin, A. I. (2014). The influence of controllers on immersion in mobile games. In A. Schmidt, & T. Grossman (Eds.), *CHI '14: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 371-380). ACM. https://doi.org/10.1145/2556288.2557345

Clarke, S. J., Peel, D. J., Arnab, S., Morini, L., Keegan, H., & Wood, O. (2017). EscapED: A framework for creating educational escape rooms and interactive games to for higher/further education. *International Journal of Serious Games*, *4*(3), 73-86. https://doi.org/10.17083/IJSG.V4I3.180

Cohen, T. N., Griggs, A. C., Keebler, J. R., Lazzara, E. H., Doherty, S. M., Kanji, F. F., & Gewertz, B. L. (2020). Using escape rooms for conducting team research: Understanding development, considerations, and challenges. *Simulation and Gaming*, *51*(4), 443-460. https://doi.org/10.1177/1046878120907943

Consalvo, M., & Dutton, N. (2006). Game analysis: Developing a methodological toolkit for the qualitative study of games. *Game Studies*, *6*(1). http://gamestudies.org/06010601/articles/consalvo_dutton

Corkill, E. (2009, December 9). Real escape game brings its creator's wonderment to life 2009. *The Japan Times*. https://www.japantimes.co.jp/life/2009/12/20/general/real-escape-game-brings-its-creators-wonderment-to-life/

Davanzo, R. (2021). *Adapting puzzle types to player preferences in videogames* [Master's thesis]. University of Milan. Retrieved June 18, 2024, from https://ivipro.it/wp-content/uploads/2023/11/tesi_RiccardoDavanzo.pdf

De Angeli, D. (2022, December 1). *Games are location, location, location*. Historical Games Network. https://www.historicalgames.net/games-are-location-location-location/

De Angeli, D., Finnegan, D. J., Scott, L., & O'Neill, E. (2021). Unsettling play: Perceptions of agonistic games. *Journal on Computing and Cultural Heritage (JOCCH)*, *14*(2), 1-25. https://doi.org/10.1145/3431925

De Angeli, D., Frangoudes, F., Avraam, S., Neokleous, K., & O'Neill, E. (2022). Towards engaging intangible holographic public displays. In S. von Mammen, H.-N. Liang, & K. Debattista (Eds.), *2022 International Conference on Interactive Media, Smart Systems and Emerging Technologies* (pp. 1-8). IEEE. https://doi.org/10.1109/IMET54801.2022.9929788

De Angeli, D., & O'Neill, E. (2020). A review of game research methodologies. In G. N. Yannakakis, A. Liapis, P. Kyburz, V. Volz, F. Khosmood, & P. Lopes (Eds.), *FDG '20: Proceedings of the 15th International Conference on the Foundations of Digital Games* (pp. 1-4). ACM. https://doi.org/10.1145/3402942.3402970

De Kegel, B., & Haahr, M. (2019). Towards procedural generation of narrative puzzles for adventure games. In R. E. Cardona-Rivera, A. Sullivan, & R. M. Young (Eds.), *Interactive Storytelling* (pp. 241-249). Springer. https://doi.org/10.1007/978-3-030-33894-7_25

De Kegel, B., & Haahr, M. (2020). Procedural puzzle generation: A survey. *IEEE Transactions on Games*, *12*(1), 21-40. https://doi.org/10.1109/TG.2019.2917792

De Souza, R. T. M. P., & Kasseboehmer, A. C. (2022). The Thalidomide Mystery: A digital escape room using genially and WhatsApp for high school students. *Journal of Chemical Education*, *99*(2), 1132-1139. https://doi.org/10.1021/acs.jchemed.1c00955

Djaouti, D., Alvarez, J., & Jessel, J.-P. (2011a). Classifying serious games: The G/P/S Model. In P. Felicia (Ed.), *Handbook of research on improving learning and motivation through educational games: Multidisciplinary approaches* (pp. 118-136). IGI Global. https://doi.org/10.4018/978-1-60960-495-0.ch006

Djaouti, D., Alvarez, J., Jessel, J.-P., & Rampnoux, O. (2011b). Origins of serious games. In M. Ma, A. Oikonomou, & L. C. Jain (Eds.), *Serious Games and Edutainment Applications* (pp. 25-43). Springer. https://doi.org/10.1007/978-1-4471-2161-9_3

Doherty, S. M., Griggs, A. C., Lazzara, E. H., Keebler, J. R., Gewertz, B. L., & Cohen, T. N. (2023). Planning an escape: Considerations for the development of applied escape rooms. *Simulation & Gaming, 54*(2), 150-166. https://doi.org/10.1177/10468781231154596

Dowling, P. & Oliver, I. (Producers). (1980-1986). *The Adventure Game* [Game show]. BBC.

Eukel, H., & Morrell, B. (2020). Ensuring educational escape-room success: The process of designing, piloting, evaluating, redesigning, and re-evaluating educational escape rooms. *Simulation & Gaming*, *52*(1), 18-23. https://doi.org/10.1177/1046878120953453

Game directory. (n.d.). Games for Change. Retrieved June 4, 2024, from https://www.gamesforchange.org/games/

Glitchers. (2016). *Sea Hero Quest* [Digital game]. Glitchers; Alzheimer's Research UK.

Heyworth, M., Breheny, A., Croft, D. G., & Lore, C. (Producers). (1990-2020). *The Crystal Maze* [Game show]. Chatsworth Television; Fizz; Little Lion Entertainment; RDF West.

Ho, A. M. (2018). Unlocking ideas: Using escape room puzzles in a cryptography classroom. *PRIMUS*, *28*(9), 835-847. https://doi.org/10.1080/10511970.2018.1453568

Huang, S. Y., Kuo, Y. H., & Chen, H. C. (2020). Applying digital escape rooms infused with science teaching in elementary school: Learning performance, learning motivation, and problem-solving ability. *Thinking Skills and Creativity*, *37*(1), 1-17. https://doi.org/10.1016/J.TSC.2020.100681

Ip, B. (2011). Narrative structures in computer and video games: Part 1: Context, definitions, and initial findings. *Games and Culture*, *6*(2), 103-134. https://doi.org/10.1177/1555412010364982

Jarvin, L. (2015). Edutainment, games, and the future of education in a digital world. *New Directions for Child and Adolescent Development*, *147*(1), 33-40. https://doi.org/10.1002/cad.20082

Krekhov, A., Emmerich, K., Rotthaler, R., & Krueger, J. (2021). Puzzles unpuzzled. *Proceedings of the ACM on Human-Computer Interaction*, *5*(CHI PLAY), 1-24. https://doi.org/10.1145/3474696

Kuhn, D., & Pease, M. (2006). Do children and adults learn differently?. *Journal of Cognition and Development*, *7*(3), 279-293. https://doi.org/10.1207/S15327647JCD0703_1

Laamarti, F., Eid, M., & El Saddik, A. (2014). An overview of serious games. *International Journal of Computer Games Technology*, *7*(1), 1-15. https://doi.org/10.1155/2014/358152

Li, P. Y., Chou, Y. K., Chen, Y. J., & Chiu, R. Sen. (2018). Problem-based learning (PBL) in interactive design: A case study of escape the room puzzle design. In T.-H. Meen (Ed.), *2018 1st IEEE International Conference on Knowledge Innovation and Invention* (pp. 250-253). IEEE. https://doi.org/10.1109/ICKII.2018.8569131

Lindley, A. C. (2005). Story and narrative structures in computer games. In B. Bushoff (Ed.). *Developing interactive narrative content* (pp. 153-209). High Text Verlag.

Lindley, E. H. (1897). A study of puzzles with special reference to the psychology of mental adaptation. *The American Journal of Psychology*, *8*(4), 431-493. https://doi.org/10.2307/1411772

Makri, A., Vlachopoulos, D., & Martina, R. A. (2021). Digital escape rooms as innovative pedagogical tools in education: A systematic literature review. *Sustainability, 13*(8), 1-29. https://doi.org/10.3390/SU13084587

Marsh, T. (2011). Serious games continuum: Between games for purpose and experiential environments for purpose. *Entertainment Computing*, *2*(2), 61-68. https://doi.org/10.1016/j.entcom.2010.12.004

MEMORI: Live Action Escape Room. (2014, November 11). State Library of Western Australia Blog. https://slwa.wordpress.com/2014/11/11/memori-live-action-escape-room/

Murphree, Ch., & Vafa, S. (2020). Use of escape rooms in education. In D. Schmidt-Crawford (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1837-1842). AACE. https://www.learntechlib.org/primary/p/215961/

Murphy, S. C., & Lefloïc-Lebel, A. (2023). Controllers. In M. J. P. Wolf, & B. Perron (Eds.), *The Routledge companion to video game studies* (pp. 17-24). Routledge. https://doi.org/10.4324/9781003214977-4

Naul, E., & Liu, M. (2020). Why story matters: A review of narrative in serious games. *Journal of Educational Computing Research*, *58*(3), 687-707. https://doi.org/10.1177/0735633119859904

Nicholson, S. (2015, May 24). *Peeking behind the locked door: A survey of escape room facilities*. https://scottnicholson.com/pubs/erfacwhite.pdf

Pai Raikar, S. (2022, September 20). *Puzzle*. Encyclopedia Britannica. https://www.britannica.com/topic/puzzle

Ravyse, W. S., Seugnet Blignaut, A., Leendertz, V., & Woolner, A. (2017). Success factors for serious games to enhance learning: a systematic review. *Virtual Reality*, *21*(1), 31-58. https://doi.org/10.1007/S10055-016-0298-4

Ratan, R. A. & Ritterfeld, U. (2009). Classifying serious games. In U. Ritterfeld, M. Cody, & P. Vorderer (Eds.), *Serious games: Mechanisms and effects* (pp. 10-22). Routledge. https://doi.org/10.4324/9780203891650

Roig, P. J., Alcaraz, S., Gilly, K., Bernad, C., & Juiz, C. (2023). Using escape rooms as evaluation tool in active learning contexts. *Education Sciences*, *13*(6), 1-22. https://doi.org/10.3390/educsci13060535

Salen, K., & Zimmerman, E. (2004). *Rules of play: Game design fundamentals*. MIT Press.

Sinclair, B. (2023, June 2023). *Study: 47% of gamers play on multiple platforms*. GamesIndustry.biz. https://www.gamesindustry.biz/study-47-of-gamers-play-on-multiple-platforms

Schell, J. (2014). *The art of game design: A book of lenses*. CRC Press.

Schrier, K. (2016). *Knowledge games: How playing games can solve problems, create insight, and make change*. Johns Hopkins Press.

Skalski, P., Tamborini, R., Shelton, A., Buncher, M., & Lindmark, P. (2010). Mapping the road to fun: Natural video game controllers, presence, and game enjoyment. *New Media & Society, 13*(2), 224-242. https://doi.org/10.1177/1461444810370949

Suleski, D. (2024). *What is an escape room?*. The Escape Effect. Retrieved June 18, 2024, from https://theescapeeffect.com/blog/a-brief-history-of-escape-rooms

Takagi, T. (2004). *Crimson Room* [Digital game]. T. Takagi.

Torok, L., Pelegrino, M., Trevisan, D., Montenegro, A., & Clua, E. (2017). Designing game controllers in a mobile device. In A. Marcus, & W. Wang (Eds.), *Design, user experience, and usability: Designing pleasurable experiences* (pp. 456-468). https://doi.org/10.1007/978-3-319-58637-3_36

Tracking Ida. (n.d.). Retrieved June 3, 2024, from http://trackingida.com/

True Dungeon. (n.d.). Retrieved June 4, 2024, from https://www.truedungeon.com/

University of Washington. (2008). *Foldit* [Digital game]. University of Washington.

Unlock Bath: Built From Beneath. (n.d.). Echo Games CIC. Retrieved June 18, 2024, from https://echogames.co.uk/unlock-bath/

Veldkamp, A., van de Grint, L., Knippels, M. C. P. J., & van Joolingen, W. R. (2020). Escape education: A systematic review on escape rooms in education. *Educational Research Review*, *31*(1), 1-18. https://doi.org/10.1016/j.edurev.2020.100364

Vidergor, H. E. (2021). Effects of digital escape room on gameful experience, collaboration, and motivation of elementary school students. *Computers & Education*, *166*(1), 1-14. https://doi.org/10.1016/j.compedu.2021.104156

von Kotzebue, L., Zumbach, J., & Brandlmayr, A. (2022). Digital escape rooms as game-based learning environments: A study in sex education. *Multimodal Technologies and Interaction, 6*(2), 1-13. https://doi.org/10.3390/mti6020008

Wahoo Studios. (2019). *One Leaves* [Digital game]. Oath.

Wiemker, M., Elumir, A., & Clare, A. (2015). Escape room games: "Can you transform an unpleasant situation into a pleasant one?". In J. Haag, J. Weißenböck, W. Gruber, & Ch. F. Freisleben-Teutscher (Eds.), *Game based learning* (pp. 55-68). Ikon VerlagsGesmbH.

Zenobi Software. (1988). *Behind Closed Doors* [Digital game]. Zenobi Software.

Zubek, R. (2020). *Elements of game design*. MIT Press.

APPENDIX A: CHECKLIST

Concept/idea:
_____

Stakeholders
Who are the Players?
    o Preschool _____
    o Schoolchildren _____
    o Teens _____
    o College/University students _____
    o Professionals _____
    o General public

Other stakeholders?
    o Experts/consultants
    o Museum professionals
    o Teachers
    o Healthcare professionals
    o Policymakers
    o Other: _____

Purpose
    o Broadcast a message. Message: _____
    o Train. Field/Topic: _____
    o Exchange data. Data: _____

Goal/Winning Condition
    o Escape from a locked environment. Environment: _____
    o Solve a mystery. Mystery: _____
    o Accomplish a task. Task: _____

Equipment
Location:
    o Public: _____
    o Private: _____

Platform:
    o Physical
    o Digital
    o Mixed. Physical: _____ Digital: _____

Interaction modality:
    o Keyboard/mouse
    o Gaming controllers: _____
    o Mobile interface: _____
    o Tangible: _____

Theme
- o No Theme/Abstract
- o Historical
- o Futuristic
- o Fantasy
- o Horror
- o Scientific
- o Military
- o Everyday life
- o Steampunk
- o Seasonal
- o Pop culture,
- o Other: _____

Narrative

Puzzle organisation:
- o Open
- o Sequential/linear
- o Path-based
- o Hybrid

Storytelling methods:
- o No Storytelling
- o Explicit or Exposition
- o NPC Interactions
- o Environmental

Puzzle Design

Puzzle types:
- o Intellect _____
- o Dexterity _____
- o Exploration _____
- o Observation _____
- o Creation _____
- o Narrative _____

Difficulty mode:
- o None
- o Timing: _____
- o Different puzzles: _____
- o Hint system. E.g. social interaction, help button, other: _____

Evaluation
- o Interviews
- o Ethnography
- o Focus groups/participatory workshops
- o Analysis of players' comments from: _____
- o In-game data: _____
- o Survey. Which survey: _____
- o Other: _____

Understanding Auditory Space in Digital Games for Visually Impaired People

Tomáš Farkaš

Mgr. Tomáš Farkaš, PhD.
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
tomas.farkas@ucm.sk

Tomáš Farkaš has been employed as an assistant professor for over fifteen years. His primary research interests lie in the fields of sound design, music creation for digital games, and sound implementation in the context of game engines (mainly Unity 3D, Unreal, and FMOD). He is currently engaged in several game projects as a sound designer, including the creation of two audio games for the visually impaired. His work also encompasses educational games. In addition to his academic pursuits, he is engaged in the recording of audio short stories and podcasts, field recording, and, when time permits, gaming. During his doctoral studies, he also undertook research into the horror genre and its auditory elements.

ABSTRACT:

The article seeks to establish a foundational framework for comprehending crucial definitions and concepts related to auditory space in digital gaming, particularly focusing on audio games designed for visually impaired individuals (VI), often devoid of graphical interfaces. While existing studies often emphasize players' interactions with interfaces and the acquisition of real-life skills, this text explores audio games through the lens of entertainment and immersion. Numerous studies indicate a demand among visually impaired players for more intricate and challenging games, incorporating elements usually used in standard digital gaming experiences. By combining definitions from both audio and traditional digital games, this article broadens the scope of sound design considerations, encompassing various aspects and classifications. It presents several auditory dimensions, consolidating them into a comprehensive dimension called attenuation, putting their roles within a game's context. The author is a sound designer currently working on an audio game; therefore, many of the presented definitions are also a guide that will represent some of his own considerations while working on this game. These include not only the use of binaural or ambisonic sound but also understanding the ways and means of how to work with (3D) space in the context of audio and its possible functions.

Introduction

Audio games have been produced for many years. In fact, the first audio games[1] appeared not that long after the first popular digital games started to emerge in the 70s and 80s. However, many of these used very basic interfaces and were playable mostly only with accessibility software (or, more specifically, text-to-speech software). Since then, a whole genre has started to form, taken different shapes, used different technologies, and focused on different goals. Online platform AudioGames.net describes them simply as games, the main output of which is sound rather than graphics ("Welcome at", n.d.). The primary focus of this article, however, is not the definition and categorization of audio games (although a brief discussion of some of the genres is going to be needed), but rather the definitions of their aspects regarding auditive space and issues that may appear, depending on the type of game and – as we will see later – the players themselves. Whenever audio games are discussed (especially when discussing games created for VI[2]), a very narrow and specific scope is usually utilized, considering the limitations of what can

---

1   Remark by the author: In this case we mean games that were not primarily created as audio games but could fall under this genre from a current point of view. Many of these include so called *MUDs* – Multi-User Dungeons, since they provide information via text and therefore allow options for access for visually impaired people.

2   Remark by the author: Legally blind or partially impaired.

be done without a graphical interface or more traditional ways of controlling and navigating the game. In this text, we try to expand the definitions, and a more 'general' approach is used, embracing the definitions typical for conventional digital games from the perspective of current sound design theory and practice, as well as because many problems regarding accessibility are irregularly and randomly spread across different players. We believe this approach could bring a new point of view on audio games and extend how they are created. Another goal of this article is to highlight that there is no definitive and unequivocal way to create audio games that can satisfy all visually impaired players. This is due to the same reasons why players without visual disabilities do not play all games but usually enjoy specific genres and choose not to play others.

Among many of the studies, few try to use a similar approach. For example, Andrade et al. (2019) aim to understand the 'lived experience' and practices of players with visual impairment in their interactions with games and play. Their approach presents a more practical look at how VI individuals perceive digital games and their preferences and criticisms. One of the details from their article points to the fact that there is no consistent set of rules or audio cues (a notion we define later) that would be used in different games across all the different audio games, and that players usually must learn a new set of 'auditive language' from the beginning with each new game they play (Andrade et al., 2019). A similar idea was presented by White et al. (2008), stating that the development of a standard for using audio to communicate 3D data in an operationally deterministic manner remains a goal of future work. Although this article was written in 2008, this issue is still relevant. This notion could be contextualized by Bălan et al. (2015b). In their research, they found that information from the central and the peripheral regions of space is processed differently by the auditory system of the VI – in one of the experiments, VI participants and sighted (blindfolded) participants were required to locate the target sound and to specify if there was any difference in its spectral content (the presented sound was 555 Hz pure tone frequency) when more sounds were played consecutively. This study showed that VI were more efficient in detecting and localizing sound targets[3] but less efficient in discriminating the spectral content. Simply put, VI were better at defining *where* the sound is coming from but worse at *what* the sound is or how its spectral character changes.

It should be pointed out, however, that many of the experiments like this are performed while using 'sterile' and somewhat artificial sounds. We do not usually hear pure frequencies in real-life situations. It is widely known among sound designers that many individuals, regardless of their visual ability, may struggle to distinguish between different pure tone frequencies or accurately describe changes in pitch. Some researchers (and game developers) work with white and pink noise. Coincidentally, another piece of research from Bălan et al. (2015a) used a combination of white and pink noise in varying proportions to create a sense of space, more precisely – front and back sound localization. While the choice of sounds like this is understandable from a research perspective, it contrasts with what some of the 'different approach' studies present.

Many of the interviewed VI players expressed a desire for more immersive experiences with the use of 3D audio in games, and even some of the features we know from conventional games like RPGs – for example, different types of armour in the game that would have distinctive sounds according to the material (Andrade et al., 2019).

Urbanek and Güldenpfennig (2019) take a similar approach in their research as outlined in the paragraphs above. They talked with several 'game veterans' of sound-based

---

3   Remark by the author: Which was a logical assumption, since it's been proven by many studies in the past that visually impaired people usually develop other senses (like hearing, smell, tactile skills etc.) more.

gaming and conducted 14 interviews, creating a set of their own experiences, revolving mainly around creativity, play, and social exchange. The results of these interviews closely resemble what was also found by Andrade et. al., involving the desire to play digital games in general, but also limitations of known audio games and main-stream games as well (in this context, video games, in general, are referred to as main-stream games). Michael Urbanek's body of work focuses on audio games from several different perspectives, for example rethinking prototyping for audio games (Urbanek & Güldenpfennig, 2017), understanding audio games online (Urbanek et al., 2019), or even working towards an online audio game editor (Urbanek et al., 2018b) and creating a set of 'anti rules' for audio game design (Urbanek et al., 2018a).

Some researchers directed their focus at audio games more than 20 years ago. Sánchez and Lumbreras (1999) studied the potential of audio games in the context of supporting learning and mental map generation in visually impaired children. They produced and utilised the game *AudioDoom* (a simplified audio-only version of a popular shooter) to test how well children would be able to reconstruct the map from this game using Lego bricks (Lumbreras & Sánchez, 1999; Sánchez & Lumbreras, 1999).

One of the points of this article is to talk about audio games as 'games' – that means considering more traditional notions like immersion. This notion would not hold against simplistic sounds, strictly using clean sound waves or types of noise. In the following chapters, we will present a combination of definitions that could be applied to audio games for VI, the same as for traditional players, as well as point out some potential problems that might be related. Even though there are currently hundreds of audio games for VI, many of these are still very simple in nature, and although there have been a lot of 'we-live-in-the-golden-era-of-sound' statements in recent years, the industry is still leaning heavily towards visual perfection, VR/AR experiences, leaving sound somewhat behind.

Another significant area that our article only slightly touches upon is that of accessibility. Accessibility options are slowly being introduced in the mainstream consoles. Microsoft and Sony, with their recent models of consoles, began to implement ways for people with different disabilities to be able to interact with the consoles themselves, and in a limited fashion with the games. Visually impaired users (both legally blind and partially impaired) now have the option to use text readers in the menus and some of the games, as well as zooming the screen, using high contrast modes and colourblind mode, along with other functions, which was not so common just a few years ago. For example, Xbox launched the Microsoft Game Accessibility Testing Service in February 2021, a program developed for publishers and developers to validate the accessibility of their games (Mortaloni, 2023), following their release of the Xbox Adaptive Controller, released in September 2018 (Wilson, 2019). Sony followed this with their version of an adaptive and customizable controller called Access, with the release of Project Leonardo in January 2023 (Nishino, 2023). It might seem unrelated to the audio games topic, however, many VI players expressed issues with actual controls – for most players, WASD keys as keys for movement are standard, but VI players expressed the need for regular arrow keys, as well as problems with navigating games with a keyboard and mouse, which could be an interesting idea for separate research.

The previous paragraph suggests an increasing trend in taking more prominent steps toward players with disabilities. However, this also means that more time must be spent studying how to implement different kinds of sounds in different games. In the next chapter, we discuss some of the most important definitions regarding audio games and put them in the context of traditional sound design.

How to Talk about Auditory Space

We can approach audio in digital games from several points of view. Some are more technical, and some bear an aesthetic element, making them more ambiguous. All of them, however, can be applied to audio games in one of their forms and functions. Functions will also be discussed since they are essential to any digital game development. Some of the definitions will also be put in the context of sound design decisions, because the fact that something *can* be used does not necessarily mean it *should* be used – and vice versa.

Before we begin to discuss the various auditory dimensions in more detail, it is necessary to define the concept of auditory space, which we have already mentioned several times in our text. This notion does not exist as a dictionary term expressing specific features. Rather, it represents a set of different elements, properties and ways in which space in digital games can be thought of in the context of their genre and type, but also more broadly in a technological and therefore historical context. Auditory elements in such conjunction then represent the way in which sound designers respond to the specific situations and needs of a particular game. However, it is important to be aware of the functions of sound and their possible uses. Murphy and Neff (2011) say that no matter what approach is employed in creating sound design, the primary objective is always the enhancement of the virtual scene and the enrichment of the user experience, which correlates with the opinions of the majority of other authors involved in sound design theory and practice.

Based on this rough definition, we can then approach auditory space from several possible angles. Very simplistically, we can think about what (and if) the player hears, in what part of the game (or from where), how they hear it, and most importantly, why they hear it. When we construct the definition of auditory space in this way, it becomes clear that the genre and type of a particular digital game are very relevant. The way auditory elements are perceived in a 2D game (whether designed in a top-down style or a platformer we watch from a side-view) is different in a 3D game. In the latter case, for example, it is essential to consider the positioning of the so-called 'listener', as the response of sound to player actions differs between games that use first-person view and third-person view.

The historical and technological context is then defined by the possibilities of auditory space itself, as the potential possibilities of working with and implementing sound evolve with each passing year.

The Definitions of Auditive Elements in the Context of Audio Games

The easiest way to begin the definitional part of this text is probably defining so-called *auditory dimensions*. This term is usually used to describe three general characteristics of sound – loudness, pitch, and timbre. We will expand these since audio games are an interactive medium requiring an extended approach. Bălan et al. (2014) add directionality, distance, and externalization to the previous three. In another research (Wang et al., 2022), auditory dimensions are defined as pitch, volume, panning, length, tapping, and timbre.

Although this research did not focus on audio games, but on the sonification of different data types, the 'tapping' dimension is a very interesting concept for our topic. For our purposes, we will combine the presented auditory dimensions and talk about *volume* (or *loudness*),[4] *pitch*, *timbre*, *directionality* (which can be understood as a synonym for panning and positioning), *length* and *repetition* (again a synonym for tapping, but more suitable for us). We add one more category, however – *attenuation*, which is technically a combination of more elements. However, in the context of sound design theory and practice, it is one of the elements of the 'mix', a fourth category of sound as defined by Bridgett (2021).

Volume (or loudness) can be understood as one of the most fundamental concepts in audio in general. In the context of audio games, however, it can be one of the most effective ways to communicate distance (whether from any object, objective, or location). It also can carry the meaning of 'amount' in general. Suppose there is a game in which the important information for the player cannot be conveyed by a voice or any other means. In that case, the volume of specific sounds can represent a level of anything that needs to be understood – remaining life with the increasing sound of a heartbeat, the height of our position on the map with the increasing sound of the wind, and many other things. Volume can also be understood from the perspective of silence. If something dramatically lowers in volume or completely stops playing, it is usually a sign to the player that she or he should start paying attention. Volume in connection with music can also bring some surprising effects – Kellaris et al. (1996) suggest that very loud music can make time feel perceived more slowly by its listeners.

The *pitch* of the sound is more complex than the volume. It can be simply explained as a way to perceive sound frequency. It is usually measured in Hz, and most people can distinguish between 20 Hz to 18 Hz.[5] Some studies (e.g. Wang et al., 2022) proved that pitch is one of the most effective ways to communicate information. From the sound perspective, it can be easily explained: when the pitch of the sound is changing, our ears usually perceive it quite significantly. The pitch can be translated to 'tones' from the musical perspective. When we imagine a piano, lower tones represent a lower pitch, and the higher we go, the higher the pitch. This example can also demonstrate how complicated using different pitches can be. The tones (or the frequency) of the sounds can be easily distinguishable when placed a little further apart. However, if we were to play two keys that are only one semitone apart, many people without any musical training would have problems identifying 'what' is happening with the sound and would not be able to describe whether tones are played 'higher' or 'lower'. The same applies to two similar frequencies of pure tones. Pitch as a concept or a game mechanic can be assigned to different things. Some audio games use changes in pitch precisely to tell the player whether a sound is located at the front or the back – which is, by the way, one of the most common problems in this genre since a 100% realistic representation of sound localization is not possible, even with the use of the most advanced binaural or ambisonic microphones, partly because individual HRTFs (Head Related Transfer Functions) demand complicated measuring techniques (see Farkaš, 2018). To complicate things further, the pitch is a feature all sounds have. That means if we change the pitch of the voice, we will get completely different effects than if we change the pitch to, say, the sound of an elevator. We can create a chipmunk or a Darth Vader voice, but when we gradually raise the pitch of an elevator sound, suddenly, we have created a charging intergalactic laser beam.

---

4   Remark by the author: However, it should be mentioned that loudness in this regard does not represent subjective temporal perception of sound pressure in contrast with volume, which is measured a little differently – as defined by acoustics, mixing or mastering process. We use volume and loudness as synonyms here to simplify the definitions.

5   Remark by the author: This is a very approximate and general definition. Younger people are able to hear more frequencies and as we get older, our ability to hear higher frequencies (above 16 Hz and more) usually decreases. On the other end, we tend to 'feel' lower frequencies (under 20 Hz) more than 'hear' them.

Timbre can be understood as the quality of the sound, defined by its overtones, varying in their frequencies related to fundamental tone, volume, and waveform patterns (Savage, 2014). Simply put, timbre represents a 'colour' perception of the sound. In connection with pitch (and volume), for example, we can see how complex the sound can get – two different people singing in the same pitch and volume can sound drastically different only because their vocal cords grew differently. The same applies to musical instruments – timbre distinguishes all musical instruments from each other. We can usually tell if we hear a Spanish acoustic guitar, a dulcimer, or a harp (all three use strings), and most people would probably be able to distinguish between a trumpet, a flute, and a trombone.[6] The problems start to occur when we want to use atonal sounds[7] – or *Foley*. Foley represents many things and depends on the viewpoint from which we define it. From the traditional movie perspective, Foley is the art form that adds believable sound effects to on-screen character movements (Marks, 2017). In sound design theory and practice, Foley may represent many more things than just character movement. Some sound designers instead use the term 'sound effects' (although this could cause a little confusion as well),[8] representing all the sounds made by objects around – the sound of a door, table, water, simply all the things that make sounds in one way or another. The element of timbre can be problematic when we put it in relation to the 'where vs. what' idea. The sound of some objects or sound effects would be recognized easily by VI and sighted people (e.g. car engine, plane, singing of birds, typing on a keyboard, or breaking glass), but many other sounds could cause problems. For example, a creaking wood sound could represent a rocking chair, a wooden window shutter, or an old dry tree. Without any visual representation or any other 'help', some sounds are simply too difficult to refer to a single thing, even for sighted people. That means timbre as an auditory dimension can be a mighty but double-edged sword and should be considered carefully, mainly in connection with sound functions, discussed later.

Directionality, or panning/positioning as an auditory dimension, represents sound elements that rely heavily on implementation decisions. The implementation process constitutes the methods of how the different sounds are put into a game. In the context of directionality, several points of view should be considered if we want to stay within this article. The most basic approach is the concept of stereo panning. In a traditional stereo field, we can place and move the sound to the left or right. If combined with a volume dimension, this is probably the easiest way to create a perception of space in an audio game. This, however, is effective only if our gaming space is 180 degrees in front of the player. Another step would be combining the previous two dimensions with the pitch – all the sounds 'behind' the player could be gradually turned down a pitch to signal the change of position, making the player able to perceive a 360-degree area around them. Again – this works in theory but should be carefully tested before implementing in a real game. Nevertheless, directionality can also mean more specific things. When, for example, implementing sound created to be played constantly (loop), we can 'place' it anywhere in the location of our gaming space. Game engines like Unreal or Unity usually have several options that can be tweaked to change how the sound is perceived. Several parameters should capture our attention if we want to implement the sound in 3D space. Every sound can have an inner and outer circle of volume falloff, and – what is more important – other

---

6   Remark by the author: Of course, just as with the example with pitch, some people would have difficulties distinguishing viola, violin or maybe even high tones played by cello.

7   Remark by the author: In this regard, we do not mean atonal music as compositions written in the early 20th century, but more broadly sounds without clearly distinguishable tones or pitches.

8   Remark by the author: In the context of DAW (Digital Audio Workstations), sound effects could be mistaken for audio-effects, which refer to different ways of how to change/manipulate sound quality (like equalization, compression, flanging, chorus, pitch modulation etc.).

spatialization parameters change how this sound reacts if we go closer to it and pan our camera (or listener) left/right. The audio listener allows us to hear the audio in the game and represents the auditory perspective rendered when playing spatial audio. Usually, this component is added to a game camera (Sinclair, 2020) – in the environment of an audio game, the audio listener is probably one of the most complex terms, simply because there is usually no camera involved, and our listening experience is solely based on the game type. This can mean anything from a fully 3D environment to a 2D top-down view. Spatialization settings can quite significantly change our hearing experience and immersion. If we set this parameter too low, sounds can quickly and abruptly 'jump' from the left to the right channel, which might break the immersion and confuse the player in the case of an audio game. If we set the parameter too high, left vs. right information can only be perceived from a greater distance since when we are closer to the source, we will simply hear it in both channels. In middleware like FMOD or Wwise, built-in parameters can help us with the directionality of a sound. The elevation parameter is useful if we want to change our audio source on the vertical distance between the source and a listener, and can create a simple vertical occlusion effect, respectively, the impression that something is up or down. There is also an event cone parameter in FMOD, tracking the position and direction of an audio source relative to the audio listener – this way, we can, for example, simulate a situation when we face a talking NPC whose voice gets quieter or muffled when we go around or behind it.

Length of a sound is a self-explanatory term, but it can also contain more information than it might seem. Short sounds can be used differently than longer sounds, and there is also an 'infinite' length if we use looping sounds. In combination with simple sound effects,[9] short duration can catch our attention if used carefully, and with correctly set directional settings, volume, and pitch, this kind of sound can (and usually is) be used as a navigational beacon for a player with visual impairment.[10] Some of these are used as so-called attractors – they can actively draw player's attention for different reasons. Loops are usually used as a wider texture, describing the location or mood of a certain game area. The shorter the sound, the more obvious it can be, but even a 5-6-second-long sound can be considered short in this manner. A few other terms should be defined in connection with the length of sounds and beforementioned attractors. First, so-called *auditory icons* represent short, icon-like sound events that have semantic connections to the physical events they represent (Csapó & Wersényi, 2013). They are easy to interpret and learn, and in the context of an audio game, they can represent short sounds associated with specific objects, helping the players to identify what is happening around them, what kind of material they are walking on, and similar details. Second, there are so-called 'earcons', which can be understood as message-like sounds (for example, consecutive short notes) that gain meaning through abstract relationships between signifier and signified. Users (or players in our context) are required to explicitly learn how earcons are linked with different events (Csapó & Wersényi, 2013). The third term to consider is the so-called 'spearcon'. This is an interesting concept because, according to past research (see Jeon & Walker, 2009), spearcons were found to be superior to auditory icons or earcons when tested in different applications. They represent sounds obtained by speeding up speech, usually to the point that they are no longer recognizable as speech but preserving their original

---

9 Remark by the author: And here we can talk literally about synthesized beeps and bloops, as well as about more realistic sounds.
10 Remark by the author: Although these kinds of sounds are also used in traditional games for sighted players.

pitch[11] (Csapó & Wersényi, 2013). According to Juan and Walker, they resemble finger-prints since the acoustic relation between these and the original speech phrases is still present.

Repetition is a concept that is not a literal auditive dimension, but which might paradoxically be one of the most important. Similar to volume and pitch, the repetition of sound can easily convey many types of information, especially in combination with short sounds. If we correctly use it and teach the player at the very beginning (and of course, again, if we combine it with, say, the changes in the pitch), we can use different numbers of repetitions to bear information concerning things like correct/wrong, open/close, go/stop, attack/run, the worth of a treasure, durability of a weapon/armour, or virtually any other thing that can be assigned with short consecutive sounds. In an extreme case, we could navigate the map without any graphical interface using just one short sound representing the north/south/ /east/west direction and one sound that would play if we walked into the wall. One 'beep' could be north, two beeps west, etc. Another thing to consider is something we briefly mentioned previously – VI usually develop other senses more, which means they can distinguish shorter consecutive sounds better, even if played very quickly. This can be demonstrated by the fact that text-to-speech generators implemented into some audio games usually read the text extremely quickly, sometimes making it problematic for sighted people to understand. Regarding the length, repetition should be considered when assigning sounds to important objects like enemies. If there is a longer pause between enemies' 'barks'[12], it can be problematic for a player to localize them successfully.

Attenuation is our own way of combining most of the auditive dimensions into one complex entity, and can be understood as a governing element over all the above. We have already slightly touched on some of the methods attenuation presents when describing pitch or directionality. However, this term can refer to more ways to process sound and can become very complex. Bridgett (2021) defines attenuation as setting up the amount of volume, low pass, or high pass filtering that occurs on a 3D object's sound as the listener in the game gets further away from the sound source. Usually, attenuation is created using so-called *attenuation curves* – these can be assigned to any parameter or audio effect we can imagine. Curves can have different shapes, and given parameters react accordingly. The linear curve would probably be used in different scenarios than logarithmic, and the game engines also offer custom shapes. Attenuation can include most of the auditory dimensions in one complex combination. For example, suppose we want to create a sense of space for an object in a room. In that case, we can set up curves like this: one curve is going to affect volume according to the distance from the sound source, a second curve is going to represent the amount of reverb added to the sound (this has to be applied in reverse because we want to hear more reverb the further away from the object we are), the third is going to cut off high frequencies if we leave a certain distance or a room itself and if we want to add details, we can add another layer of sound, audible only if we move very close to the object. All of this will be created with the set of multiple attenuation curves, but – this method allows us to process all of these elements with just one adaptive parameter linked to distance. If we have a capable programmer in a team, we can create a simple attenuation that makes all the sounds 'behind' us sound slightly more pitched

---

11   Remark by the author: This technique is easily accessible in most standard DAWs as so-called time-stretching, which can have different results when using different algorithms. If we speed-up (or slow down) the time in which the sound is played, we have an option to either preserve its pitch, or to produce more natural sound, that would create a chipmunk-like effect or completely slowed-down low-frequency heavy sound, similar to if we slowed down a playing vinyl record.
12   Remark by the author: Some sound designers use this term for short sounds or one-liners of NPCs or enemies, functioning as their sound 'identity', strengthening immersion and sometimes even offering information.

down, filtered, or with reduced mid-content.[13] Attenuation should be considered carefully when dealing with important parts of a sound design in any game. If a story is an important element of our concept and is conveyed by a voice, we want to hear it from a greater distance. That means that the attenuation curve of the volume of this voice is probably going to be longer than that of other, less critical sounds, and its shape is not going to be linear but rather convex.

As we can see, all the auditory dimensions (including attenuation) create a sophisticated and complex system of variables. This perspective makes sound design a wildly extensive area in which the most straightforward solution using just a few sounds can resolve in functional gameplay and intelligible game navigation. Likewise, we can create complex and immersive soundscapes that communicate information effectively. There are other dimensions that we could analyze in this manner next to volume, pitch, or directionality. One such could be *movement*. So far, we have been talking about sounds that do not move, but that is not always the case in games (it is, rather, the opposite). Again, this dimension could be viewed from the perspective of understanding vital information in any digital game. If a short, simple sound travels from the left to right channel, it may have a different meaning than if it travels in the opposite direction. If a sound is added to a moving game object as a component, a player can perceive the changes in its location, distance, etc. This means that movement as a dimension of sound could be used in many categories, whether it represents the sounds of a user interface, game objects, or enemy location.

Auditory Dimensions in the Context of Functions

The functions of sounds in digital games are a vast and expansive topic, complicated by the fact that every game is different. Even more so if we want to discuss audio games without visuals. Functions as such could be defined in many ways, and some authors offer a simple list of these, from which we can 'bounce' further in defining more specific terms. Zdanowicz and Bambrick (2019) offer six primary functions of sound: providing sonic feedback to the player, communicating emotion/setting the mood, providing a sense of space, defining realism through literal and non-literal sounds, establishing a sonic identity or brand, and establishing structure, narrative, and pacing. However, they further claim that this is not an exhaustive list but rather a framework of important notions that overlap in many ways. Bridgett (2021) does not define the functions at all – but instead offers a large number of examples from which we can easily read all the various functions and methods of working with sound. Sinclair (2020) creates three broad function categories – inform, entertain, and immerse, discussing them from the perspective of the purpose of audio in games in general, further dividing these into smaller, more detailed categories (like, e.g. how to inform and what to inform about). From our perspective, it is easier to ask several simple questions. For example, what game genre are we dealing with, and how and why can a sound communicate it? What types of sound do we need in this game? Where, when, and why are they played? Do we need these sounds to navigate the game, or are they just creating a more immersive experience?

---

13   Remark by the author: Mid content means a part of an audio that is not different between left and right channels and is basically a mono content in the 'middle'.

The most crucial thing in this context is understanding audio from the perspective of all the different dimensions we discussed before, and asking one specific question all the time: What does the game really need? This question is probably the most important idea that many sound designers and authors proposed and can be extended to *what a player really needs to hear* to successfully play and navigate the game. Of course, the audio game genre complicates this a bit further because many sound functions in digital games are linked to visuals. Considering all the obstacles VI players can face, we can get around this by incorporating other methods that would function similarly. A synergy effect usually occurs when we combine more than one way the sound exists within the game. One area we have not discussed so far in this text is *haptic feedback*. Regarding console controllers, and even more so with smartphone devices, haptic feedback can be efficiently executed by the vibration capabilities of these devices. Regarding some of the basic functions of sound, vibration can be performed as an extension. An information category can be an interesting example of how sound can be enhanced with vibration to provide further details and guidance for a player. Suppose a game needs to communicate to a player that there is a monster behind her or him, in addition to attenuated sounds of footsteps (which could still confuse localization if not appropriately filtered). In that case, a vibration can be added to these steps – but only when the monster is behind (e.g. anywhere else than in the 180-degree field in front of the player). Steps treated like this also provide feedback and can even increase the level of emotions the player feels at that moment since the level of excitement or fear rises. It should be pointed out, however, that the topic of haptic feedback covers a large area of its own and its examination is not the primary goal of this article.

The whole point of sound functions in any (audio) game is simple – they should increase immersion and provide a player with enough information to successfully play, navigate, understand, and finish the game. The way we understand this is solely based on the specific game and after asking two questions stated in a previous paragraph. If we 'teach' a player at the very beginning of the game that when harp sounds are played, she or he is in a safe zone/merchant area, she or he will remember it until the end of the game. Likewise, associating the sound of drums with enemies will make her or him more aware of the surroundings later in the game when the sound of drumming starts (we can even divide enemy strength by types of drum if we want). Many more examples like this could be mentioned. If we wanted to inform the player about her or his armour status, several versions of armour hit (or a movement, if not in a battle) could indicate serious injuries or near death (one with the prominent sounds of metal clinging could represent full health and safety, one with more 'broken metal' elements and more low frequencies could stand for medium injuries, and the sounds with elements of a human voice, saying different versions of 'ouch!' or 'aah!' would signify danger of dying). A similar approach could be used in a puzzle or an adventure game. Sound (and music as well) can tell a player if she or he is progressing towards a successful finish of a puzzle or, on the contrary, whether they 'messed up' and need to take a few steps back.

Another vital question to be asked is whether (or, more precisely, 'why' and 'how') we should talk about space in audio games. For sighted people, the perception of so-called 3D space is natural. For VI, three-dimensional space means something completely different. If we want to create an immersive '3D' audio experience, a 2D map navigated from a top-down view can be generated, with all the sounds implemented as positional 3D audio with different directionality, spatialization, and falloff settings – and this kind of game design is still perceived with 3D depth. Elevation elements could still be 'baked'[14]

---

14   Remark by the author: This term refers to rendering or exporting of the sound. Even if we export audio file as a linear audio or loop, we can use different plugins in our DAW of choice to render some of the sound elements or layers positioned 'up' or 'down'. There is a plenty of free and paid plugins that are able to create a perception of elevation like Sennheiser DearVR MICRO (or DearVR PRO respectively), Soundfield by Rode, or standalone software like SPAT Revolution.

into positional sounds, and even without the possibility of looking up or down, the illusion of space would be constructed. In addition, the 'proper' elevation can still be created only with advanced sound systems like Dolby Atmos with some of the speakers placed above the audience/player, which, of course, is hard, if not impossible to achieve with most audio games played on headphones. Different methods of creating an illusion of sounds being localized in 3D space (especially at the back, up, and down) will be the subject of our following research. We will test the sound perception of this kind produced with the help of binaural/ambisonic VST plugins using standard stereo/mono audio files, as well as with an ambisonic microphone.

Examples of the Application of Different Attenuation Methods in Real Projects and Potential Drawbacks

As previously mentioned, the author of this article is also a lead sound designer and works on several projects related to audio games. One of these games (*Via Echo*, scheduled for release on Google Play in the first half of 2024, developed by Blind Octopus Studio) utilizes several of the attenuation methods mentioned earlier. The main mechanics of the game are based on camera rotation while the player remains static. The primary goal is searching specific (sound) objects in 360-degree field around the player, which use a very narrow sound directionality making them difficult to find. After correctly locating the sound, the player taps the screen, triggering another mechanic associated with 'catching' or 'shooting' sound. The primary issue that required resolution was the communication of the front versus back sounds location. We used several attenuation curves filtering different aspects of sound. The main difference between default processing and our game was switching FMOD's default audio listener for a third-party plugin called Resonance Audio. This listener allows for easier and more precise adjustment of sound's stereo spread, as well as its directionality. One of the benefits of this plugin is its built-in ability to filter sounds more realistically even on default settings, allowing the player to locate sounds (or distinguish their direction) more precisely (see Farkaš & Schwarz, 2023).

To achieve a complete auditory immersion, we have created four distinct ambient atmospheres for each level. These atmospheres are looped and randomized and are placed around the player. We have ensured that the spread of these atmospheres is wide enough to create an immersive experience but not too wide that the player loses the ability to perceive their movement in headphones or stereo field. We have also applied specific filtering and attenuation to aid the player in locating sounds, thus avoiding any difficulties. Each ambient atmosphere has therefore attenuation curves linked to 'direction' parameter in FMOD. When the camera is rotated, sounds are not only panned from left to right, but they also change volume attenuation (up to -5 dB when behind the player), low-pass filtering (reducing frequencies to 6kHz when behind the player), simple reverb (gradually increasing when the camera moves away from a specific atmosphere), and a gain of low frequencies in the reverb (gradually increasing when the camera moves away), adding another layer of depth to the sound. As each level contains four sounds of this type, a simple camera rotation affects 4x4 attenuation curves at any given moment. This is combined with

the 'whole' sound rotating 'around the head' of the player. This kind of attenuation makes it easier to navigate the level and communicate front versus back information to players. The result is an immersive auditory experience for the player while still retaining the ability to communicate the direction of the camera. Another detail to consider is the use of 'snapshots' in FMOD. These are set up so that every time the player interacts with the 'catching' or 'shooting' mechanics, all ambient sounds are lowered by several decibels (a technique known as 'ducking' in sound design). This highlights the interactive sound and makes it more audible. It is worth noting that the camera is locked in a horizontal position. *Via Echo* is currently in the testing and polishing phase, and feedback is being provided by both sighted and visually impaired players.

The same studio is currently developing *Via Memories*, a digital audio game that serves as the logical sequel (not in the sense of narrative aspects) to *Via Echo*. While it will utilize some of the mechanics from its predecessor, there is one major difference: players will be able to move freely in certain areas. This will introduce new challenges, as controlling a static camera in relation to attenuation is less problematic than free movement. A potential solution to this issue is to utilize a technique employed in a previous game. In *Via Echo*, all sound objects located around the player are programmed to spawn facing the player. This is crucial in the context of Resonance Audio's listener, which is always linked to a specific axis in the Unity3D engine. Implementing this method could aid in navigating the game with free movement, as most of the attenuation curves should function similarly, regardless of whether the object is stationary or in motion.[15] Setting the correct attenuation settings should be relatively accurate even if the object is moving while still facing the player. Additionally, communication of the borders or edges of free-movement areas will be an important topic in the upcoming game. However, this requires further discussion and research.

Conclusion

What does the audio game need? This article presents a simple framework of ideas to be understood before developing a space-oriented game for visually impaired (VI) players. It is important to recognize the auditory dimensions and sound functions that can immensely change how a game is played and perceived. As we have shown in our article, it is crucial to understand auditory space in digital games in general. Genre and type of game heavily affect this field and create a complex body of different elements that need to be understood in all possible combinations, resulting in the need to ask very specific questions in the process of creating any given game. The genre of audio games complicates this notion even more. The lack of standard visual elements and the sole reliance on auditory elements makes this process complicated and unpredictable, even after several decades of audio game history, as some of the recent studies (specifically those working with VI players) suggest.

Our own projects utilize many of the methods discussed in this article. In the coming months, we will be developing a story-based audio game with immersive sound design. Our initial prototype has already undergone testing with visually impaired players. The results of these tests will be the subject of future research. However, we plan to conduct further testing using various methods in the coming months. It is crucial to collaborate

---

15   Remark by the author: With that said, we are still talking about a horizontally locked camera. The ability to move camera up or down brings a new set of issues.

with visually impaired players and listen to their needs. The perception of auditory space for VI individuals differs significantly from that of sighted individuals. Using a blindfold alone is insufficient.

Additionally, it is important to consider whether control methods designed by sighted individuals, such as tapping, swiping, or specific finger movements, will be equally effective for visually impaired players. An immersive experience can be created without a complicated 3D environment. By considering key game design elements, their combination, and methods of implementing sounds and navigation, surprising results can be achieved. This is especially true when we consider the possibilities of modern game engines and the increasing power of smartphones, computers, and other devices. Audio games can introduce visually impaired individuals to the expanding world of virtual worlds and social experiences, an opportunity that is still alarmingly dormant.

BIBLIOGRAPHY

Andrade, R., Rogerson, M. J., Waycott, J., Baker, S., & Vetere, F. (2019). Playing blind: Revealing the world of gamers with visual impairment. In S. Brewster, & G. Fitzpatrick (Eds.), *CHI'19: Proceedings of the 2019 CHI Conference on human factors in computing systems* (pp. 1-14). ACM. https://doi.org/10.1145/3290605.3300346

Bălan, O., Moldoveanu, A., & Moldoveanu, F. (2015a). Binaural sound analysis and spatial localisation for the visually impaired people. In K. Blashki, & Y. Xiao (Eds.), *9th Multi conference on computer science and information systems 2015 – interfaces and human computer interaction* (pp. 331-335). International Association for Development of the Information Society.

Bălan, O., Moldoveanu, A., & Moldoveanu, F. (2015b). Spatial auditory representation in the case of visually impaired people. *Romanian economic business Review, 9*(1), 1-11.

Bălan, O., Moldoveanu, A., Moldoveanu, F., & Dascalu, M. (2014). Navigational 3D audio-based game-training towards rich auditory spatial representation of the environment. In R. Lozano (Ed.), *2014 18th International conference on system theory, control and computing (ICSTCC)* (pp. 682-687). IEEE. https://doi.org/10.1109/ICSTCC.2014.6982496

Bridgett, R. (2021). *Leading with sound: Proactive sound practices in video game development.* Focal Press. https://doi.org/10.4324/9781003082521

Csapó, A., & Wersényi, G. (2013). Overview of auditory representations in human-machine interfaces. *ACM Computing Surveys (CSUR)*, *46*(2), 1-23. https://doi.org/10.1145/2543581.2543586

Farkaš, T. (2018). Binaural and ambisonic sound as the future standard of digital games. *Acta Ludologica*, *1*(2), 34-47.

Farkaš, T., & Schwarz, M. (2023). Using A. I. for the generation of visual references in digital audio games from the perspective of sound design. In M. Hossová Prostináková, M. Martovič, & M. Solík (Eds.), *Marketing Identity: AI the future of today* (pp. 61-79). UCM. https://doi.org/10.34135/mmidentity-2023-06

Jeon, M., & Walker, B. N. (2009). "Spindex": Accelerated initial speech sounds improve navigation performance in auditory menus. *Proceedings of the human factors and ergonomics society annual meeting*, *53*(17), 1081-1085. https://doi.org/10.1177/154193120905301708

Kellaris, J. J., Mantel, S. P., & Altsech, M. B. (1996). Decibels, disposition, and duration: The impact of musical loudness and internal states on time perceptions. In K. P. Corfman, & J. G. Lynch (Eds.), *Advances in consumer research* (pp. 498-503). Association for Consumer Research.

Lumbreras, M., & Sánchez, J. (1999). 3D aural interactive hyperstories for blind children. *International Journal of Virtual Reality*, *4*(1), 18-26. https://doi.org/10.20870/IJVR.1999.4.1.2661

Marks, A. (2017). *Complete guide to game audio. For composers, sound designers, musicians and game developers*. CRC Press. https://doi.org/10.1201/9781315758442

Mortaloni, A. (2023, May 18). *Xbox celebrates commitment to accessibility on global accessibility awareness day 2023*. Xbox News. https://news.xbox.com/en-us/2023/05/18/xbox-celebrates-commitment-to-accessibility/

Murphy, D. & Neff, F. (2011). Spatial sound for computer games and virtual reality. In M. Grimshaw (Ed.), *Game sound technology and player interaction: Concepts and developments* (pp. 287-312). IGI Global. https://doi.org/10.4018/978-1-61692-828-5.ch014

Nishino, H. (2023, January 4). *Introducing project Leonardo for PlayStation 5, a highly customizable accessibility controller kit*. PlayStation Blog. https://blog.playstation.com/2023/01/04/introducing-project-leonardo-for-playstation-5-a-highly-customizable-accessibility-controller-kit/

Savage, S. (2014). *Mixing and mastering in the box. The guide to making great mixes & final masters on your computer*. Oxford University Press.

Sánchez, J., & Lumbreras, M. (1999). Virtual environment interaction through 3D audio by blind children. *CyberPsychology & Behavior*, *2*(2), 101-111. https://doi.org/10.1089/cpb.1999.2.101

Sinclair, J.L. (2020). *Principles of game audio and sound design. Sound design and audio implementation for interactive and immersive media*. Routledge. https://doi.org/10.4324/9781315184432

Urbanek, M., Fikar, P., & Güldenpfennig, F. (2018a). About the sound of bananas – Anti rules for audio game design. In J. L. Vilaça, T. Grechenig, D. Duque, N. Rodrigues, & N. Dias (Eds.), *2018 IEEE 6th international conference on serious games and applications for health* (pp. 1-7). IEEE. https://doi.org/10.1109/SeGAH.2018.8401361

Urbanek, M., & Güldenpfennig, F. (2017). Rethinking prototyping for audio games: On different modalities in the prototyping process. In L. Hall, T. Flint, S. O'Hara, & P. Turner (Eds.), *Proceedings of the 31st international BCS human computer interaction conference (HCI 2017)* (pp. 1-5). ScienceOpen. https://doi.org/10.14236/ewic/HCI2017.18

Urbanek, M., & Güldenpfennig, F. (2019). Unpacking the audio game experience: Lessons learned from game veterans. In J. Arnedo, L. E. Nacke, V. Vanden Abeele, & P. O. Toups Dugas (Eds.), *Proceedings of the annual symposium on computer-human interaction in play* (pp. 253-264). ACM. https://doi.org/10.1145/3311350.3347182

Urbanek, M., Güldenpfennig, F., & Schrempf, T. M. (2018b). Building a community of audio game designers – Towards an online audio game editor. In I. Koskinen, & Y. Lim (Eds.), *DIS'18 Companion: Proceedings of the 2018 ACM conference companion publication on designing interactive systems* (pp. 171-175). ACM. https://doi.org/10.1145/3197391.3205431

Urbanek, M., Habiger, M., & Güldenpfennig, F. (2019). Drag'n'Hear: Creating, playing, and understanding audio games online. In J. Arnedo, & L. E. Nacke (Eds.), *CHI PLAY'19 Extended abstracts: Extended abstracts of the annual symposium on computer-human interaction in play companion* (pp. 125-130). ACM. https://doi.org/10.1145/3341215.3356986

Wang, R., Jung, C., & Kim, Y. (2022). Seeing through sounds: Mapping auditory dimensions to data and charts for people with visual impairments. *Computer Graphics Forum*, *41*(3), 71-83. https://doi.org/10.1111/cgf.14523

Welcome at AudioGames.net. (n.d.). AudioGames.net. Retrieved June 7, 2024, from https://audiogames.net/

White, G. R., Fitzpatrick, G., & McAllister, G. (2008). Toward accessible 3D virtual environments for the blind and visually impaired. In S. Tsekeridou, & A. D. Cheok (Eds.), *DIMEA '08: Proceedings of the 3rd international conference on digital interactive media in entertainment and arts* (pp. 134-141). ACM. https://doi.org/10.1145/1413634.1413663

Wilson, M. (2019, September 16). *Microsoft's trickiest product might be its most important*. Fast Company. https://www.fastcompany.com/90400552/microsofts-trickiest-product-might-be-its-most-important

Zdanowicz, G., & Bambrick, S. (2019). *The game audio strategy guide. A practical course*. Routledge. https://doi.org/10.4324/9781351016438

Preserving Play: Archiving Digital Games in the Czech Republic and Slovakia

Interview with Jan KREMER

Jan Kremer
Národní filmový archiv
Závišova 502/5
140 00 Prague 4 – Nusle
CZECH REPUBLIC
jan.kremer@nfa.cz

Jan Kremer is head of Pixelarchiv.cz, a joint project of the Národní filmový archiv, Department of Game Design at FAMU and Institute of Intermedia at the Czech Technical University in Prague. The project aims to design, implement, and verify processes for the preservation of Czechoslovak and Czech digital games and to develop technical solutions reflecting the needs of Czech memory institutions. His research interests are further focused on the method and theory of public history. He is particularly interested in the representations of the past in digital games and the construction and perception of historical authenticity. He is an external lecturer in historical game studies at the Faculty of Arts, Charles University in Prague and a co-founder of the Central and Eastern European Historical Games Collective.

Mgr. Adam Kysler
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
kysler1@ucm.sk

Adam Kysler is a PhD candidate at the Department of Digital Games at the Faculty of Mass Media Communication, University of Ss. Cyril and Methodius in Trnava, Slovakia. His field of interest includes the local history of the digital games industry, game development and level design. He is currently working on a dissertation thesis focused on the systematic research of the history of local digital games.

Adam Kysler (A. K.): Pixelarchiv.cz is a project of the Národní filmový archiv [National Film Archive] in Prague, Czech Republic. What is the main goal of the project?

Jan Kremer: First of all, it has to be mentioned that digital games are one of the most endangered types of cultural heritage on an international scale. According to recent surveys the majority of historical games are not available today, e.g. they might be scattered around different archives or museums, but they are not accessible to players, not even researchers. In many cases we have even lost their code and thus we are not able to create their long-term preservation copy properly. The same can be said about important para-texts, i.e. all media artifacts connected to the game titles like design documents, packaging or marketing materials, but also all types of online content like reviews, fan pages or playthroughs. Paradoxically, we know more about some early 20th century institutions than about recent digital games. The reason for this desperate state of affairs is the lack of institutional games preservation. Existing archives and libraries are only slowly orienting themselves towards interactive media. Without proper state, industry and community support they often face fundamental legal, technological and economic obstacles. Therefore it is essential that Central European societies follow the example of Scandinavian and other Western countries and engage in the preservation of their interactive cultural heritage. The goal of our project is explained in its official title: "Complex care for cultural heritage in the field of gaming applications". We aim to design, implement, and describe processes for the protection of cultural heritage in the form of digital games and to develop corresponding solutions reflecting the needs of Czech memory institutions like archives, museums or galleries.

A. K.: Do your preservation efforts extend to Slovak games post-1993, or are they primarily focused on Czechoslovak and Czech titles?

Jan Kremer: Based on the rules of our funding programme set by the Ministry of Culture we should be primarily concerned with Czech and Czechoslovak digital games since the beginning of their production in the early 1980s. Still, our definition of a 'Czech game' is not always rigorous and there are also many development companies existing in Czechia that we can consider Czechoslovak based on the nationality or the origin of their members.

A. K.: Some film archives (e.g. NFSA in Australia) have expanded their scope to include preservation efforts for digital games. What are the reasons for establishing this project under the Národní filmový archiv?

Jan Kremer: Thanks to its long-time treatment of audio-visual materials, the Národní filmový archiv has both the most suitable facilities and the most experienced personnel for such a task. Still, the goal is to propose tools and methods usable at other memory institutions in the Czech Republic. Unfortunately, most of them have avoided or ignored digital games so far. It is important to add that the Film and TV School of the Academy of Performing Arts (FAMU) and the Institute of Intermedia at the Czech Technical University are also members of the project team. The former provides the necessary scholarly and the latter the technological know-how.

A. K.: What are the specifics of archiving digital games compared to film, for example?

Jan Kremer: The answer to this question would take one whole section of an average library. In short, it can be said that games as digital interactive and multimedia programs require specific technological and archival approaches. For example, since the game is only created by playing, we must pay close attention to the play itself, the player's reception and the contemporary context in general. Moreover, long-time preservation demands suitable hardware equipment. As the archive is not able to maintain a large collection of historical computers and consoles we depend on emulation methods. This also brings many specific challenges.

A. K.: The first Czechoslovak digital games are now over 40 years old. Why is the discussion about their unified and systematic archiving only starting now?

Jan Kremer: Attempts to create a central and unified game archiving system appeared after the turn of the millennium and were associated with people like Luděk Janda from Brno or Petr Hyťha from Plzeň. Unfortunately, these true visionaries did not find suitable institutional support. In this field we are still way behind progressive countries such as Finland, Denmark, Germany or Great Britain.

A. K.: According to a Video Game History Foundation study, nearly 90 percent of the game industry's historical output is inaccessible. Is this applicable to our local industry as well?

Jan Kremer: That's a tough question because we're still mapping the landscape. However, the loyal fans of some hardware platforms have done a huge amount of work in this regard. This applies for example to the Czechoslovak 8-bit scene, especially initiatives focused on the most popular computers back then – the Sinclair ZX Spectrum and its Didaktik clones. Members of Česko-Slovenský *Speccy Archiv* systematically search for and preserve games on these platforms. In other cases, however, the situation is much worse.

A. K.: There are a lot of community efforts on video game preservation in the Czech Republic and Slovakia nowadays. How do you want to build on these efforts?

Jan Kremer: As I have already mentioned, the initiatives of contemporaries but also the projects of younger game archivists from both countries play a vital role for our project. In the first year, we approached both Slovak and Czech game historians, community projects, media platforms and collectors, whom we invited to participate in the first meeting called *beSÍŤka* at the Ponrepo cinema in Prague. We have also published individual presentations on YouTube. We further plan to develop our networking efforts, inform the community about our plans and hopefully we will also establish closer cooperation on specific topics. Moreover, we are working closely with both Czech and Slovak Game Developers Associations. Leading scholars in the field of game history like Jaroslav Švelch are also members of our team.

A. K.: What do you consider to be the main challenges of digital game preservation in our countries?

Jan Kremer: Firstly, we need to build trust in our relationships with the game industry, community projects and the media. Game preservation is a collective effort. In the wise words of game archivist Henry Lowood, all stakeholders bring a different set of capabilities, strengths and methods to the table. A weakness in one of the stakeholders is often countered by a strength in another. Then there are lots of different challenges concerning technology, legal issues and sustainability. We need to find common unified methods to create long-term preservation versions of games; we must strive to change legal norms so that digital games can be treated as cultural heritage like books or movies and not just software; we need to receive long-term financial and political support from the ministry of culture and the government so that our project continues beyond 2027.

A. K.: How important is our digital game history preservation for local game studies?

Jan Kremer: Both past and present digital games are crucial study material not only for local game studies but also for other disciplines in humanities and social sciences. Thanks to the unprecedented popularity and influence of digital games, we can no longer study any society without studying its games.
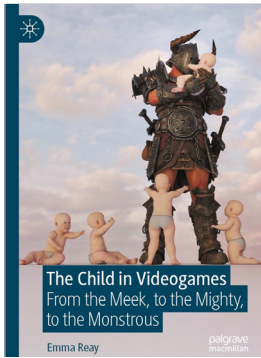
THE CHILD IN VIDEOGAMES:
FROM THE MEEK, TO THE MIGHTY, TO THE MONSTROUS

Reay, E. (2023). *The child in video games: From the meek, to the mighty, to the monstrous*. Palgrave Macmillan.

Zsófia Orosz-Réti

The medium of digital games, once dismissed as mere child's play, has matured alongside the academic discipline of game studies. This newfound maturity allows for a deeper look at the medium's own role in conceptualizing childhood and childness, as explored in Emma Reay's recent book, *Children in video games: From the meek, to the mighty, to the monstrous.* Reay, a senior lecturer at the University of Southampton, UK, distills years of her research in the volume, highlighting the potential of in-game child characters to reflect on how we generally theorise children, but also to comment upon the medium's fantasies, mechanics and affordances, in addition to underlying assumptions of gender, heroism or affect in playing. For the author, the analysis of child characters bears a similarly subversive potential to playing for play's sake – which is often associated with childhood.

The general approach that the book undertakes is one of continuous destabilization: that of rigid taxonomies (even the author's own), fatigued narrative arches, or conceptualizations of the terms that the volume works with: "the medium poses a real threat to the age-based organisation of society. Viewed this way, it seems the reactionaries are right: videogames are ruining childhood – and, by extension, they are destroying its conceptual foil, adulthood" (p. 14). In addition, the book also destabilizes disciplinary borders as Reay consciously positions her work within the interdisciplinary nexus of game studies and children's literature studies.

Following the introductory first part, the second chapter of the book establishes the robust research that constitutes the basis of the argument: Reay conducted a content analysis of almost 600 digital games from 2009 to 2019 and surveyed all the child characters present in them. The way she enters a dialogue with her data is nothing short of fascinating, as she manages to draw meaningful conclusions even from the tiniest observations pertaining to quantitative data. This is where the author presents her taxonomy of seven archetypes, some of which are then explored at length in the analytical chapters: the Inner Child defined by a "nostalgic appeal" (p. 44), the Mighty Child advocating a new kind of unheroic heroism, the Side Kid – the typical sidekick doubling as a moral compass, the Human Becoming of flashback scenes, the Child Sacrifice whose death justifies the player character's actions, the Waif – an ambiguous, eerie childlike character, and finally the Little Monster, a grotesque and repulsive antagonist who needs to be banished.

Additionally, the author introduces her mix of methodologies including the aforementioned content analysis, which is paired with insightful close readings and her unique method of *critical ekphrasis,* an autoethnographical approach to playing, where she would, after playing, "immediately write a short prose anecdote detailing [her] experience of this playthrough, using figurative language that attempts to capture both the sense of my visceral, kinaesthetic, embodied reactions to the text and the expressive eloquence of the

game's non-verbal signifiers" (p. 50). And indeed, these short, personal accounts are used as points of focus and interventions, or as tools for the elegant conceits and analogies that structure the argumentation. Such research and writing method not only renders the text "vulnerable, passionate, hesitant and human" (p. 215), but also accounts for the situated, contextual, unique experience of play – matching the non-hegemonic identity constructions that child characters tend to enact. The writing, along with being rigorous in exploring its academic sources and working on a *mighty*, even *monstrous* corpus, never ceases to be playful in making use of creative puns and unconventional logical juxtapositions – or an overarching structure that is always open to diversions that will ultimately still contribute to the big picture.

Chapter 3, with the comparative analysis of *Inside* (Playdead, 2016) and *Detroit: Become Human* (Quantic Dream, 2018), taps into the cultural history of childhood and offers one of the major contributions of the book: "My intention is to suggest that although 'the child' seems fixed in its contemporary mould – solidified by medical, legal, educational, and commercial pressures – the immateriality of videogames offers us opportunities to remix the meanings of the physical signifiers of age and experiment with new assemblages of childhood" (p. 63). While *Detroit: Become Human*, Reay argues, conceptualizes 'the child' by its neediness and "capacity for suffering" (p. 82), *Inside* relies on the immateriality of the medium to "create space for question" (p. 85).

The following four chapters map out the four main fields of inquiries that tend to arise whenever it comes to children – all paired up with the relevant archetypes from Reay's initial taxonomy. In chapter 4, "Child-killers and killer children", children's agency is discussed in relation to two categories, that of the Little Monster and the Waif. The author suggests that the ambiguous Waif, loiters "between 'helpless' and 'harmful', troubling the adult world with its baleful, mournful vacillation" (p. 94). Based on Fisher's (2016) take on eeriness as excess agency, Reay contends that the reason why child characters falling into these categories may be perceived as unsettling is precisely because of their agentic nature. The last part of the chapter offers an inspired parallel close reading of two very similar games, *Little Nightmares* (Tarsier Studios, 2017) and, once again, *Limbo* (Playdead, 2010). It ultimately tackles questions that any player of these games might find uncomfortable, such as the suspicious interchangeability of loving and controlling someone.

Another trope that defines discourse about children is how they are the hopes for the future, resonating with the archetype of the Mighty Child. Although the child characters that fall into this category do things that shape the world, for Reay, there is "something fundamentally *unheroic* about these children" (p. 124) – that being their capacity for vulnerability, connectedness, interrelational identity, and for cooperation. The chapter offers alternative routes to becoming a hero instead of Campbell's (1949) traditional 'hero's journey' template, which is rooted in the practice of sorting the world into binary oppositions and single-handedly saving/colonizing those on the other side of the dichotomies. According to Reay, in some examples from her corpus, "rather than experiencing the world from the perspective of an exceptional individual whose heroism is an innate, essential quality, players experience 'being a hero' as a relational force that exists between agents and is a product of these agents' need for one another" (p. 131).

In addition to the questions of children with agency and their being capable of shaping the future, children are generally framed in a discourse of cuteness. Hence, chapter 6, informed partly by cute studies, turns towards the archetype of the Inner Child and virtual performances of childhood and nostalgia. The chapter engages with two of the most significant implicit theoretical underpinnings of the entire book, namely, the relationship between the adult player and the child player character and the materiality, even tactility

of play in a digital playground. By extension, the argument also has a more philosophical dimension pertaining to nostalgic play and the fantasy of childhood that is often akin to that of play. Reay here suggests looking at childly perspective as "a poetic device that reawakens players both to the beauty of the subject matter and to the artistry of its technical composition" (p. 170) and combines the perceived sanctity of the magic circle – "the idea that play takes place within a separate, symbolic realm that exists outside of ordinary experience" (p. 181) with the spatiality of childhood.

The final analytical chapter, "The kid in the fridge", draws on one final recurring theme about childhood, that of the vulnerability of the child by looking at the archetype of the Sacrificial Child – one whose death is transformative for the hero. The chapter expands the trope of the fridged wife, a character deliberately written for the sole purpose of being violently murdered early on in the narrative, to that of the fridged kid. Reay maintains that "the central function of the sacrificial child is to resolve ludonarrative dissonance by framing the hero's homicidal actions as morally defensible" (p. 193). Deeply rooted in a gender studies perspective, the concluding part of the chapter explores the potential of the sacrificial child to set forth a sort of female heroism, but Reay ultimately suggests that while there might be female heroes like Kassandra of *Assassin's Creed: Odyssey* (Ubisoft Quebec, 2018), *feminine* heroism, one that does not build on traits of conquest and violence, is nowhere to be seen.

The volume, while drawing an appealing and empowering arch in terms of agentic and even mighty children, nevertheless concludes with 'the child' and childhood both being dead. Surprisingly, the now iconic Kid in the Fridge, that of *Fallout 4* (Bethesda Game Studios, 2015), is absent from Reay's corpus, nevertheless, we would like to close our review with this image. Originally an easter egg that nods to a wild idea in *Indiana Jones and the Kingdom of the Crystal Skull* (Spielberg, 2008), *Fallout 4* has a side-quest where the player character can save Billie, a child who, ghoulified, manages to survive the atomic bomb and a further two hundred years stashed away in a fridge. Falling into many potential categories based on Reay's taxonomy (most notably the Waif or the Side Kid), Billie, despite his repulsive, skull-like appearance, does exhibit characteristic traits of childliness: needing help, protection and love. Interestingly, Reay suggests looking at certain Side Kid characters, like Ellie from *The Last of Us* (Naughty Dog, 2013) as 'anti-zombies' – reminding players and player characters to remain humans: "without a child, winning is outperforming and outlasting one's enemies; with a child, winning is safeguarding the child long enough and effectively enough for it to outlast you" (p. 35). Even as the child and by proxy, childhood is twisted and distorted, its potential to humanize, challenge, destabilize and innovate – the myth of childhood and the inherent promise of playing – still remains.

BIBLIOGRAPHY

Bethesda Game Studios. (2015). *Fallout 4* [Digital game]. Bethesda Softworks.

Campbell, J. (1949). *The hero with a thousand faces*. Princeton University Press.

Fisher, M. (2016). *The weird and the eerie*. Repeater Books.

Naughty Dog. (2013). *The Last of Us* [Digital game]. Sony Computer Entertainment.

Playdead. (2010). *Limbo* [Digital game]. Microsoft Game Studios; Playdead.

Playdead. (2016). *Inside* [Digital game]. Playdead.

Quantic Dream. (2018). *Detroit: Become Human* [Digital game]. Sony Interactive Entertainment.

Spielberg, S. (Director). (2008). *Indiana Jones and the Kingdom of the Crystal Skull* [Film]. Lucasfilm.

Tarsier Studios. (2017). *Little Nightmares* [Digital game]. Bandai Namco Entertainment.

Ubisoft Quebec. (2018). *Assassin's Creed: Odyssey* [Digital game]. Ubisoft.

Author of the review

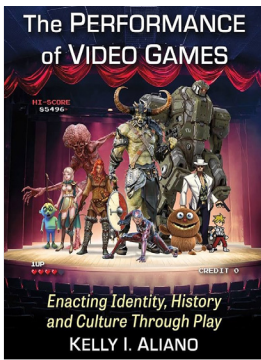**Zsófia Orosz-Réti, Ph.D.**
University of Debrecen
Faculty of Humanities
Egyetem Square 1
H-4032 Debrecen
HUNGARY
reti.zsofia@arts.unideb.hu

THE PERFORMANCE OF VIDEO GAMES: ENACTING IDENTITY, HISTORY AND CULTURE THROUGH PLAY

Aliano, K. I. (2022). *The performance of video games: Enacting identity, history and culture through play.* McFarland & Company.

Veronika Šašalová

The book explores digital games through the lens of theatre and performance theories. The author approaches the problematic from the perspective that digital technologies allow the building of virtual bodies not only for entertainment but to enable alternative ways of communication and self-expression. This comes from posthumanism theories where our bodies are mere extensions of objective bodies, which enables gamers to undergo embodied experiences as actors on the stage.

The book is divided into seven chapters, each of which promises to analyze an independent segment – building the identity of the hero (legend); approaches to building identity through games; a posthumanist approach to games; the functioning of memories and the genre of alternative history through the construction of prequels within game series; exploring history through games, and in the last two chapters the author returns to performance, but through fandom. All these starting points are also the basis for confirming the digital game as a postmodern text.

The topic in and of itself is very beneficial. The ways in which we identify with the avatar, how the players are involved in the story, how it shapes them – culturally and mentally – all this is applicable to many scientific branches connected to digital games. Feminism deals with this topic from the perspective of gender and identity development through avatars and empathic reading possibilities, thus promoting understanding between genders. At the same time, it is essential in order to advance the breaking down of gender stereotypes. The theme of cultural, historical, and personal development through games should equally be a priority for the creators themselves – whether in terms of story or design, as it is confirmed that games have an impact outside the closed world of the game. In the same way, play as a postmodern text is already an established idea in scientific circles. However, the specifics that arise due to the rapid development of this medium must be constantly reviewed.

Nevertheless, it should be noted that in this respect the book puts games on a pedestal and underrates other media in terms of immersion, narrative and how they work with the recipient. On the one hand, the author works with theatre theories, on the other hand, she does not perceive the effect of film and literature on the recipient as strongly as that of digital games. The text defends this claim through the large number of decisions the player must make during gameplay. Chapter two highlights that the story is not pre-created but is created while playing the game. From this point of view, the personality of the character is not defined in advance but is created and changed during the entire gameplay – through cutscenes and player actions. Despite the author's point of view, which thus supports the uniqueness of games, it is difficult to see the difference from that which new cognitive literary sciences claim. Literary theory has moved away from authorship and is more inclined to the fact that the story is created only in the reader's mind. The text itself, just like in games, is not clearly defined, its versions are created during

the reading of the book, the reader's interpretation, through their identification with the character and deduction of the plot. Caracciolo's and Kukkonen's works on comics realize how reading comics involves three layers of reading and interpretation – text, visual and one which takes place at the level of the body (characters' body language as well as readers own biological reactions to the text through accelerated heart rate, sweating and chills, memories, experiences) (Caracciolo & Kukkonen, 2021; Kukkonen, 2013). It must be remembered that Cortázar's (2018) postmodern experiments, or poetic experiments of other postmodern authors where the reader must write sentences, skip passages and read the text according to certain keys have brought literature and games together. The work of the authors of OuLiPo and literary and games scholars such as Aarseth (1997), opened the doors to why it is even possible to study plays through the methodologies of theatre and literature.

From the established point of view, we could ask what impact the game would have if it was watched only in the form of a video recording? What happens to the game when it is mediated by a streamer in the form of let's play or playthrough on social platforms? If we were to define it from the perspective of the author of the book under review, this effect might be lost. "But the game word, we can imagine, continues on without us; to experience it, then we must play on" (p. 32). On the other hand, the author highlights the enjoyment that arises only when watching theatre. Another contradiction is in the author's praising the ability of games to provide meaningful choices, yet at the same time she argues that "in a first-person shooter, a player does not usually view the fight in order to determine which side is right and which is wrong. … The gamer does not [necessarily] ask any question about what they are doing" (p. 52). While highlighting the ability of games to help with self-identifying and difficult decision-making, the paragraph questions the players ability to think critically.

Similar contradictions make the arguments in the book unclear. This is best seen with the choice of research material. The author states in the introduction that she wants to focus on FPS games because these games serve as the best example, among other things, of what audiences are built around them. At the same time, the FPS genre is demanding enough that the player must go through experience growth: "Failure is part of the experience of video games, as the confusion and frustration at game mechanics" (p. 47). So, fear, frustration and failure are part of the experience through which identity is built and new memories are made. This selection should stand in opposition to the emerging canon, without specifying exactly what to imagine under said *canon*. This also raises another question, whether something like a game canon will ever exist. However, the selection of game titles ultimately does not correspond to one particular genre. Throughout the text we can find examples from the aforementioned FPS, through RPGS and action-adventure games all the way to independent games that in many ways defy any clear genre classification. As the author states:

I will analyze key titles from the past two decades (to move away from previously established 'classics' of the form and privilege gaming of more recent years). I recognized that this may mean that some of the case studies may seem arbitrary an organized principle was 'games that I have enjoyed,' as a consumer of media. (p. 4)

This subjective selection is later reflected in the division of the chapters. Although they are clearly formally separated, they overlap in presented ideas. As an example, we can point out the section on alternative history and the ways in which alternative history stories work, where the way the player's identity is formed is also discussed using the example of *Ghost of Tsushima* (Sucker Punch Productions, 2020). It might seem that the overlapping of individual topics that the book wants to grasp is intentional, because they are inseparable from each other. That, however, results in the text seeming unclear until

the conclusion at the end of each chapter. However, the research chapters only indicate a certain issue, and the readers must often find out the results themselves.

In conclusion, each chapter has the potential to be extended into a separate book through case studies – with more examples and theoretical groundwork. In its current form the book is more suitable for people whose focus may cross over to/from digital games and would like to broaden their horizons. If the author will return to the plethora of topics started in the book and expand on them further, the text could serve as the basis for a series of beneficial research.

BIBLIOGRAPHY

Aarseth, E. (1997). *Cybertext: Perspectives on ergodic literature*. Johns Hopkins University Press.

Caracciolo, M. & Kukkonen, K. (2021). *With bodies: Narrative theory and embodied cognition*. The Ohio State University. https://doi.org/10.26818/9780814214800

Cortázar, J. (2018). *Alguien que anda por ahí* [Someone out there]. Alfaguara.

Kukkonen, K. (2013). *Studying comics and graphic novels*. Wiley-Blackwell.

Sucker Punch Productions. (2020). *Ghost of Tsushima* [Digital game]. Sony Interactive Entertainment.

Author of the review

Mgr. Veronika Šašalová
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
sasalova2@ucm.sk
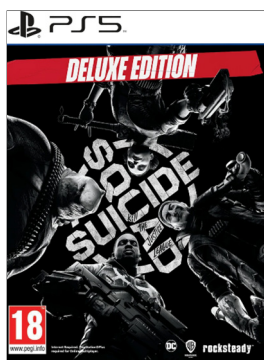
SUICIDE SQUAD:
KILL THE JUSTICE LEAGUE

Rocksteady Studios. (2024). *Suicide Squad: Kill the Justice League* (Deluxe Edition, PS5 version) [Digital game]. Warner Bros. Games.

Zdenko Mago

> Batman: Are we done with your bad standup routine?
> Harley Quinn: Almost! But you always gotta end on your BEST joke.
> –Batman & Harley Quinn, *Suicide Squad: Kill the Justice League*

Few games in history have managed to literally live up to their name, but *Suicide Squad: Kill the Justice League* unfortunately did… and quite quickly. This digital game based on the DC Comics' *Suicide Squad*, a mocking nickname for the involuntary team of DC supervillains, was announced back in 2010, but the project did not take a more specific direction until the in-credit scene of *Batman: Arkham Origins* (WB Games Montréal, 2013), when Amanda Waller offered Slade Willon, aka Deathstroke, the opportunity to join the unofficial black-ops unit in order to get out of prison. The contract presented contained the colloquial name Suicide Squad, instead of Task Force X, the official name of the unit, presumably for clarity of reference. Indeed, this suggested that the game would be part of the *Batman: Arkham* (Rocksteady Studios et al., 2009-2024) series, or the *Arkhamverse*, which in many ways has come to define modern digital game adaptations of superhero comics (see Mago, 2021), and which of course aroused great expectations from the series' fans.

Over the years of the game's development, the already high expectations have been boosted by the popularisation of antiheroes (see Radošinská & Magálová, 2022) and supervillain team-ups in contemporary popular culture,[1] and even by the development of a new genre, superhero horror.[2] In addition, the two *Suicide Squad* (Ayer, 2016; Gunn, 2021) films released within the DC Extended Universe have created fan bases around some of the supervillain characters, such as Harley Quinn. On the other hand, the creators had to face the challenge of overcoming so-called *superhero fatigue*, a syndrome that manifests itself in the reduced interest of viewers and players in media products of the superhero genre, due to the long-term oversaturation of the market with them (see Brown, 2016). This effect seems to have contributed to the commercial failure of the recently released *Gotham Knights* (WB Games Montréal, 2022), another game inspired by the Batman comics – one might add, cleverly set after Batman's death, thus ending (for now) the main storyline of the *Batman: Arkham* series – and *Marvel's Midnight Suns* (Firaxis Games, 2022), despite the fact that the latter was well received by both critics and players.

---

1   Remark by the author: Beyond the cinematic realm, where the formation of a supervillain team-up has been hinted at in the unfinished DC Extended Universe, Disney has announced *Thunderbolts* within its Marvel Cinematic Universe, and Sony is slowly (and uncertainly) moving towards a team-up of Spider-Man supervillains featured in standalone films (such as Venom, Morbius and the upcoming Kraven the Hunter); another award-winning digital superhero game, *Marvel's Spider-Man* (Insomniac Games, 2018), has presented the formation of the Sinister Six.

2   Remark by the author: A representative example is the film *Brightburn* (Yarovesky, 2019), or the television series *The Boys* (Kripke et al., 2019-2024).

Suicide Squad: Kill the Justice League was released on January 30, 2024, as a spin-off of the Arkhamverse. The gameplay and story are set in Metropolis, five years after the supposed death of Batman in *Batman: Arkham Knight* (Rocksteady Studios, 2015). With the Earth threatened by Brainiac, who has managed to corrupt members of the Justice League, the only hope is Amanda Waller and her secret unit, Task Force X, featuring four playable characters – Harley Quinn, Deadshot, Captain Boomerang and King Shark (a combination of the main characters from the live-action films). However, the main story only ends with the defeat of Brainiac from Earth and the vision of having to defeat the other twelve of his iterations across the multiverse, which should be available in future episodes, along with new seasonally added playable characters. In this way, the creators planned to ensure years of play and additional monetisation motivated by new content, but the problem was that shortly after its release, the game was rumoured to be a flop, as particularly its live service elements and repetitive action failed to appeal to players. By the end of February, Steam reported only a few hundred daily active players, and even adding two episodes and the launch of Season 1, with the possibility of getting the Joker from an alternate Earth as a playable character, has not changed the situation.

Despite the fact that *Suicide Squad: Kill the Justice League* seems to be a victim of the times (current audience preferences) and risky design-marketing decisions, the game itself has not received the worst critical reviews and has several strengths. Alongside the open, colourful, sun-drenched and often vertical world of Metropolis (as opposed to the gothic Gotham), which is full of references to the DC universe, the heroes are undoubtedly the focus of the game. They have very different personalities, but an excellent chemistry that allows for many comic situations, often within the bounds of very dark humour (as expected and desired). Unlike *Gotham Knights*, players can play the characters solo or cooperatively, taking on the role of one of them but also as a part of a four-member team, so the other members become supporting sidekicks in singleplayer. The opponents are definitely worth mentioning as well, but although Warner Bros. had a solid foundation with their *Injustice* (NetherRealm Studios, 2013-2018) series, resulting in a truly evil portrayal of the brainwashed members of the Justice League, Batman was given the most expansive and elaborate space, evidently due to the experience of Rocksteady Studios.

Worth mentioning are the nostalgic atmosphere of the characters' reactions to the artefacts in the Batman Experience interactive exhibition (referencing previous events in the Arkhamverse), the devilish encounter with the evil Batman in the same place, the demonisation of Batman as "the most dangerous man alive", and his strategy of using Scarecrow's fear toxin in complete darkness. The boss fight with Batman is particularly noteworthy, as it even involves some unusual work with metatext. As the members of the Suicide Squad were falling one by one to Batman's traps in the 'Batcave', regardless of the character currently played by the player, Harley Quinn was able to un-fail and thus reverse a common notification of player failure in an ongoing mission as part of Scarecrow's fear toxin-induced hallucinations, partially breaking the fourth wall (Picture 1). Players' reactions to this take on the iconic character have also been mixed, partly influenced by the fact that Kevin Conroy, the long-time voice actor who voiced Batman in many pop-cultural works (a commemorative plaque can be found as an Easter egg in the Hall of Justice), died a few months before the game's release, and fans want to give him a better farewell.
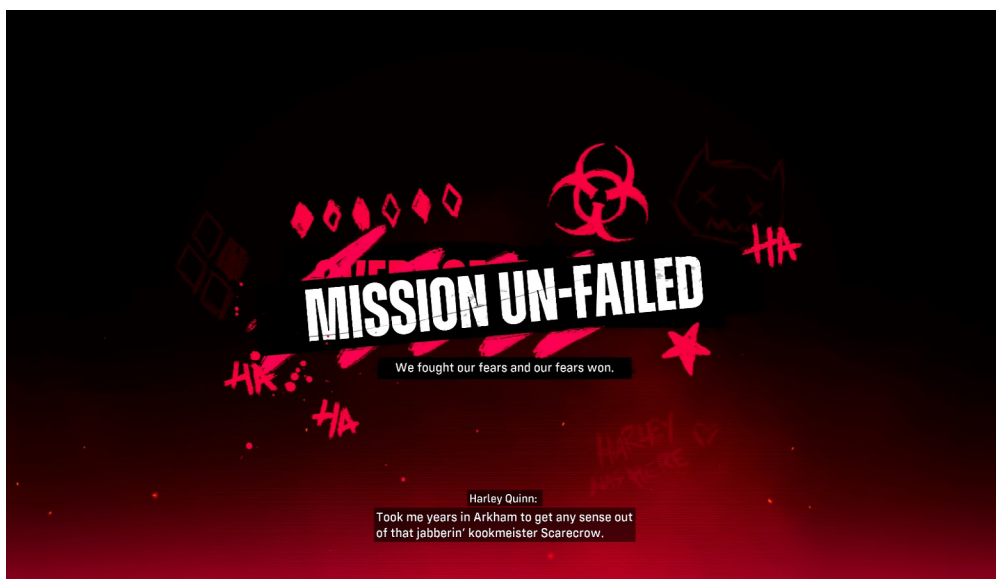
Picture 1: A metatextual representation of Harley Quinn's reversal of the mission failure during the Batman boss fight
Source: author's screenshot from the game Suicide Squad: Kill the Justice League (Rocksteady Studios, 2024)

At the moment, optimising the frequency of new episodes and seasons release, and the attractiveness of added playable characters (DC's iconic villains), are the only levers Warner Bros. has to mitigate this flop. Already rumoured characters include Victoria Fries as Mrs Freeze, Deadshot's daughter Zoe Lawton, Katana, Killer Croc, and it seems fans will finally get Deathstroke after all. However, the unfavourable statistics may also be affected by the release of another prequel to the *Batman: Arkham* series, titled *Batman: Arkham Shadow*, scheduled for autumn 2024, although (so far) exclusively for the Meta Quest 3 platform.

BIBLIOGRAPHY

Ayer, D. (Director). (2016). *Suicide Squad* [Film]. Warner Bros. Pictures; RatPac-Dune Entertainment; DC Films; Atlas Entertainment.

Brown, J. A. (2016). *The modern superhero in film and television: Popular genre and American culture*. Routledge.

Firaxis Games. (2022). *Marvel's Midnight Suns* [Digital game]. 2K.

Gunn, J. (Director). (2021). *The Suicide Squad* [Film]. DC Films; Atlas Entertainment; The Safran Company.

Insomniac Games. (2018). *Marvel's Spider-Man* [Digital game]. Sony Interactive Entertainment.

Kripke, E., Rogen, S., Goldberg, E., Weaver, J., Moritz, N. H., Shetty, P., Marmur, O., Trachtenberg, D., Levin, K. F., Netter, J., Rosenberg, C., Sgriccia, P., Sonnenshine, R., Grellong, P., Reed, D., Glynn, M., Ennis, G., Robertson, D., Starr, M., & Neira, J. (Executive producers). (2022-2024). *The Boys* [TV series]. Kripke Enterprises; Point Grey Pictures; Original Film; Kickstart Entertainment; KFL Nightsky Productions; Amazon MGM Studios; Sony Pictures Television.

Mago, Z. (2021). Reflection of Marvel's Spider-man games in the context of current and upcoming media trends. In M. Prostináková Hossová, J. Radošinská, & M. Solík (Eds.), *Megatrends and Media: Home Officetainment* (pp. 551-562). UCM.

NetherRealm Studios. (2013-2018). *Injustice* (Series) [Digital game]. Warner Bros. Interactive Entertainment.

Radošinská, J., & Magálová, L. (2022). Supes, Inc.: Episodic television drama The Boys, antiheroism and society of performance. *Media Literacy and Academic Research*, *5*(1), 28-52. https://www.mlar.sk/wp-content/uploads/2022/05/2_Jana-Radosinska-Lucia-Magalova.pdf

Rocksteady Studios. (2015). *Batman: Arkham Knight* [Digital game]. Warner Bros. Interactive Entertainment.

Rocksteady Studios. (2024). *Suicide Squad: Kill the Justice League* (Deluxe Edition, PS5 version) [Digital game]. Warner Bros. Games.

Rocksteady Studios, WB Games Montréal, Splash Damage, Human Head Studios, NetherRealm Studios, Armature Studio, Turbine, Turn Me Up, & Camouflaj. (2009-2024). *Batman: Arkham* (Series) [Digital game]. Eidos Interactive; Warner Bros. Interactive Entertainment; Warner Bros. Games.

WB Games Montréal. (2013). *Batman: Arkham Origins* [Digital game]. Warner Bros. Interactive Entertainment.

WB Games Montréal. (2022). *Gotham Knights* [Digital game]. Warner Bros. Games.

Yarovesky, D. (Director). (2019). *Brightburn* [Film]. Screen Gems; Stage 6 Films; The H Collective; Troll Court Entertainment.

Author of the review

assoc. prof. Mgr. Zdenko Mago, PhD.
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
zdenko.mago@ucm.sk

Are You Living in a Computer (Game)?

Walter Barta

Walter Barta, M.A.
University of Houston
Digital Research Commons (Room 266-C), MD Anderson
Library
University Drive 4333
772 04 Houston, TX
wjbarta2@uh.edu

Walter Barta is a graduate student at the University of Houston where he is also a principal investigator for the Digital Research Commons at the M. D. Anderson Library. He has published on various topics related to digital humanities, philosophy, science fiction, and literature & science. He is a contributing author for the *Popular culture & philosophy* book series, and his most recent contributions are chapters in *The Witcher and philosophy* on moral dilemmas, artistic representations, and games as postmodern art.

First, we can reconstruct the simulation argument from Bostrom's "Are you living in a computer simulation?" (2003, p. 243), more recently and lengthily defended by Chalmers (2022). As the argument goes, at least one of the following must be true:

- S1. 100% of civilizations go extinct before making computer simulations.
- S2. 100% of civilizations will never make computer simulations of ancestors.
- S3. We are probably living in such an ancestor simulation.

To simplify, we can assume that S1 is probably false, since even if 99% of civilizations are doomed to extinction, it seems probable that *at least some* survive to make simulations. To complicate though, we can attempt to show that S2 is probably false if we accept *at least one* of many possible reasons (a disjunctive list: A, B, C, etc.) for some civilizations to make simulations of ancestors. In order to conclude that we are probably a computer simulation, we only need to find *at least one* reason for civilizations to simulate ancestors, so we will propose gaming as one. Ancestor game hypothesis: *Civilizations will make ancestor simulations for gaming*.

This hypothesis can come in a strong form if *all* civilizations do it and a weak form if just *some* do it. Either way, the ancestor game hypothesis is enough to reject S2 and thus implies S3. So, can we think of any reasons to believe that *all* or *some* future civilizations will make ancestor games?

In the strong version of the hypothesis, *all* future civilizations have reasons to make ancestor games. At least one reason for this can be found in Suits' *The grasshopper: Games, life and utopia* (2005) and more recently in Nguyen's *Games: Agency as art* (2020). According to Suits (and to a lesser degree Nguyen), in a Utopia, a world in which all instrumental goals are accomplished without difficulty, the Utopians would intentionally make things difficult (though not dangerous) for themselves, in order to have something to accomplish. These intentional 'unnecessary obstacles' are necessary to what Suits dubs a 'game' (Suits, 2005). Because games are what people would do if they could do anything at all, games are the ultimate intrinsic good (i.e., the meaning of life). And, because this would be true even in Utopia, not just some but all civilizations that can make simulations on computers will make them – for the sake of games. Furthermore, because games featuring the ancestral conditions of players will offer a substantial level of difficulty and because computer simulations of such conditions will not be dangerous to their players, many of these games will be ancestor simulation computer games.

In the weaker version of the hypothesis, *some* future civilizations have reasons to make ancestor games. As Hurka (2005) argues, although gaming may be *a good*, positing it as *the good* is perhaps overstating the case, as there are other competing candidates for intrinsic good. So, *all* civilizations may not simulate ancestor computer games; though, *some* civilizations still may – as long as they can manage to do so while accommodating other intrinsic good (e.g., safety).

So, what might be some reasonable objections, and are there credible responses?

- *Objection 1:* Would we not remember starting the game?
- *Response 1:* Not necessarily, since, if the difficulty of the game is increased by the players' amnesia or if game requires conscious non-player characters, then no one in the game may remember starting the game (Nguyen, 2020).
- *Objection 2:* Might civilizations reject ancestor gaming since the good of gaming is often outweighed by other good? (Hurka, 2005).
- *Response 2:* Perhaps, but we cannot be sure that other good *always* outweighs the good of gaming (Suits, 2005).

- *Objection 3:* From the panoply of possible simulations for gaming, ancestor simulations may not be ideal gaming simulations, so might future civilizations avoid running them? (Gleiser, 2017).
- *Response 3:* Perhaps, but ancestral conditions would probably be optimally difficult and interesting games for Utopian players since their ancestors would have evolved from (and for) surviving precisely under such conditions – unless we stipulate that players' minds are substantially modified and unlike their ancestors' minds (Abramson, 2020).

So, we have argued that the ancestor game hypothesis is one plausible way to resolve Bostrom's simulation argument. Furthermore, there are some reasons to believe that *at least some* and *perhaps all* civilizations will make such computer games. Therefore, if we accept all this, we may have reason to believe we are living in a computer game.

BIBLIOGRAPHY

Abramson, A. (2020, February 25). *Our brains are stuck in the Stone Age.* Medium. https://elemental.medium.com/our-brains-are-stuck-in-the-stone-age-13bb5d2aea36

Bostrom, N. (2003). Are you living in a computer simulation?. *Philosophical Quarterly*, *53*(211), 243-255. https://doi.org/10.1111/1467-9213.00309

Gleiser, M. (2017, March 9). *Why reality is not a video game — And why it matters*. NPR. https://www.npr.org/sections/13.7/2017/03/09/519376356/why-reality-is-not-a-video-game-and-why-it-matters

Hurka, T. (2005). Introduction. In B. Suits (Ed.), *The grasshopper: Games, life and utopia* (pp. 7-20). Broadview Press.

Chalmers, D. J. (2022). *Reality+: Virtual worlds and the problems of philosophy*. W. W. Norton.

Nguyen, C. T. (2020). *Games: Agency as art*. Oxford University Press.

Suits, B. (2005). *The grasshopper: Games, life and utopia*. Broadview Press.

Editorial Policy

Acta Ludologica is dedicated to provide a forum for the publication of theoretical and research articles dealing with professional scientific reflections and academic discourses in the field of digital games and games studies. The journal's Editorial Board and Scientific Committee dedicate their work to offer a high quality open access, double-blind peer-reviewed interdisciplinary journal useful for the exchange of knowledge and experience between domestic and foreign academics and researchers. The editors of Acta Ludologica consistently respect the principles of securing content and formal relevance of the published texts via set criteria. They actively participate in domestic and foreign academic cooperation in the name of scientific-research progress and the expansion of existing sets of knowledge in the fields of digital games and game studies and related topics and issues.

The authors and co-authors of the published texts are presumed to be skilled academics, scholars and professionals who are able to work with various information sources and technologies to apply corresponding theoretical-methodological approaches, originality and innovation in relation to the elaborated themes and issues. The Editorial Board of the journal expects from the authors that the final texts to be published become subject to consistent spelling, stylistics and formalities in accordance with the citation rules of the journal and the current content arrangement of the articles (see Guidelines for Authors). The pre-set templates are available in electronic form at: *http://actaludologica.com/*

If a published text (or a manuscript intended for future publication) in any way violated the principles of ethical or professional approach to academic writing, e.g. by inappropriate use of works published by other authors, eventually if the entire texts or their parts are proven to be plagiarisms or the authors' own texts already published in the past (or simultaneously in other specialised publications), the authors and co-authors would take full responsibility. After accepting the final versions of manuscripts, the editors of Acta Ludologica pay special attention to ensure that all professional procedures and standards set for publishing scientific texts and the ethical principles associated with citing and paraphrasing works of other authors have been fully preserved and respected.

The editors are committed to inform individual authors of the progress and results of the peer-review process. Also, they retain the right to assess the scientific, technical and stylistic-grammatical levels of the proposed articles, as well as the relevance of their thematic specification before the actual beginning of review processes. If necessary, the Editorial Board notifies the authors of possible content and formal deficiencies in order to correct them before publishing the article.

Any fundamental changes to authorship of already submitted final texts (e.g. amendment of co-authors, change in the order of authors, copyright interests in the text) are liable to the prior consent of the Editorial Board. The authors or co-authors who have submitted the text for publication must ask for a change in the copyright data or modification of their order by sending a formal, written request to the following e-mail address: actaludologica@fmk.sk

The complete version of Acta Ludologica's Editorial Policy is available online at: *http://actaludologica.com/editorial-policy/*

Guidelines

Acta Ludologica accepts various kinds of academic writings – theoretical articles, theoretical articles combined with presentations of research results or research results including their implementation into practice as well as reviews of monographs or other publications, shorter news articles, essays and interviews with renowned game theorists, scholars and professionals., which have not been publicly published yet. Each received study will undergo a double-blind peer review process and the editorial board will decide whether to accept or reject the text for publication on the basis of the elaborated reviews. The Editorial Board may accept the text conditionally and require correction of the text by the author(s) according to the remarks or suggestions of the reviewers. All manuscripts must be written in **English**. The journal consists of the following sections:

- **Game Studies:** theoretical articles in the extent of 21,600-54,000 characters (12-30 author pages); research results and their practical implementation in the extent of 12,600-54,000 characters (7-30 author pages);
- **Interview:** interviews with people, whose contribution is important to the development of game studies and the digital game sector (scholars and scientists of games studies and related fields, game developers, professionals of the gaming sector, game events organizers, etc.), to the extent of 5,400-18,000 characters (3-10 author pages);
- **Reviews:** reviews of monographs and textbooks from the fields of digital games and game studies, which are not older than one year, in the extent of 5,400-9,000 characters (3-5 author pages); reviews of digital games based on specific context of theoretical or research framework, in the extent of 5,400-9,000 characters (3-5 author pages);
- **Add-ons:** short-ranged scientific, philosophical and artistic reflections on phenomenona of the comprehensive game world in the extent of 3,600 characters (1-2 author pages).

**Text format** (unless specified otherwise in brackets below):
- Microsoft Word text editor;
- Font type: Times New Roman;
- Font size: 12 pt;
- Alignment: justified;
- Spacing: 1;
- All margins: 2.5 cm;
- Do not divide words;
- Quotations and referenced passages: use numbered footnotes on the relevant page (not at the end of the manuscript).

Content arrangement of the manuscript:
- Title of the text in English (16 pt, **bold**, align centre);
- Name(s) and surname(s) of the author(s) (14 pt, align centre);
- Abstract in English – from 150 to 200 words (10 pt);
- Key words in English (10 pt);
- Titles of individual chapters (14 pt, **bold**);
- For Bibliography format, see the citation rules on the journal's web page;
- Contact data (name(s) and surname(s) of the author(s) with full academic degrees, full address of the affiliated institution, e-mail, short bio and portrait photo of the author(s).

Submission: e-mail your article to: **actaludologica@fmk.sk**

www.actaludologica.com
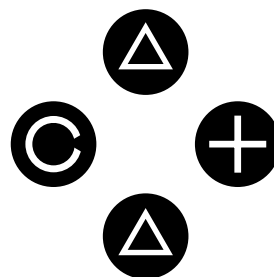
Acta Ludologica

Faculty of Mass Media Communication
University of Ss. Cyril and Methodius in Trnava

2024, Vol. 7, No. 1