Negotiated Agency: The Constant Deliberation Between the Player's Abilities and Developer's Permissions

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ABSTRACT

This essay attempts to shed a light on the intricate relationship between player agency – the player's capacity to act and make choices in a videogame –, and that of the developers – the limitations and possibilities creators must navigate in order to release their title. Firstly, we explore the complex concept of agency, drawing upon fields like philosophy and sociology. Then, we turn to the unique position videogames occupy among other mass media by having interactivity as their centre stage.

Keywords: Agency, Videogames, Game design, Authorship

INTRODUCTION

From the dawn of time, humans have been leaving small signs of their own personal existence in places important to them. From handprints in palaeolithic rock and curses of roman graffiti to Warren Robinett coding his name on a secret room in Adventure (1980), there is an appeal in communicating for those who will come after that this particular person was here and did this. If it was left more as an urge to assert their own existence over the world or more as their message for future humans, it is not the place of the researcher to speculate. Our place is to document its occurrences and analyse its ramifications. Nevertheless, the facts remain that, firstly, this message became part of the experience of the place for the ones that come after, inexorably connected to the whole; and secondly, that the shape and medium of such message is limited to the tools available to the author. Romans could not code Atari 2600 games as much as Warren Robinett's handprint would not have the same cultural cache and impact as his addition of a secret room, which would be remembered as the first in-game videogame credits.

Player agency in games is an entanglement of game affordances and player subjectivities. It isn't absolute, and like the handprints or the graffiti, most of the actions players can enact, and their consequences, are limited by what developers allow. However, many outside factors also limit the agency of developers themselves. By examining these externalities and their relationships, we may better denude the nuanced dance between player and developer agencies, even though an exhaustive understanding of these intricate processes may never be complete.

Agency as a Concept

Agency is one of those hard to define terms, a small agglutination of characters and phonemes that gathered different meanings throughout the decades. In its origin, agency meant the capacity of an actor to decide and act in a given environment. Different environments, as well as the actor's own set of attributes, may limit or enhance their decision and action capabilities. For instance, to any human being, environmental factors such as class, status, and the rules of their community will impact in their capability to decide and act, but also personal factors such as their personality, physical attributes and self-image. As well as factors emerging from the confluence of the personal and social spheres, such as gender, race, family and income. For each combination of characteristics, a different set of choices becomes possible to be made and enacted, and thus, one's agency varies in each scenario.

From this general concept, many different fields in the humanities, such as philosophy, economy, psychology and sociology, absorbed and honed agency to their own models. With each new iteration, its meaning branched more complex, while also growing the definitions ever more diffuse, such that a delimitation is in order. Muriel and Crawford (2018) have their own definition of agency regarding videogames, derived mostly from Foucault and Latour, in three parts: agency processes the quality of changing a reality; any part of the system can be understood as an agent; therefore, agency does not reside in any of the agents themselves, but rather is an intrinsic and diffuse characteristic of the system.

Keogh (2023) utilises Bourdieu's concept of fields, which sees agency as a mixture of the agent's accumulation of symbolic, social and economic capital and their habitus. For Bourdieu, there are different fields in which agents interact, each with their own procedures and symbols, and their accumulation of capital defines their positions. Economic capital is the simplest one to understand: the more access to pecuniary attributes the agent has, in the form of actual money or any of its substitutes, the more economic power they have. Social capital relates to social connections, while the symbolic one is unique to each field, relating to the different cultural acolytes that are relevant in it, such as nobility titles or academic degrees. Agency isn't, however, just the sum of different capitals. The habitus is the way the agent's previous experiences shape their outlook and choices and, thus, shape their agency. For instance, an agent that does not have a noble title (and, thus, lacks symbolic capital) but understands the royal court whims, may have a better grasp of their options (and, thus, a clearer course of action) in a court intrigue than someone that does have such capital but lacks in understanding of the situation.

As this essay pertains to agency as related specifically in videogames – and especially to the intersection between what developers allow and incentivize

their players to act on in a game, and what the later actually enact and create –, it is of particular interest to us the relations emerging from the interaction of a system (the game) and a group of individuals (the players). A definition that mixes both approaches is, therefore, more appropriate than either of the classical sociological ones. We will discuss this further in the next sections.

Interaction's Role

Videogames are probably the first mass media in which a discussion about user agency is possible, due to their interactivity. Interacting and communicating differ as the latter only requires one message from one actor (the sender) to reach the other (receiver or receivers); while the former requires the actions from the receiver to actually change the output from the sender (Jensen, 1998). For instance, both a monologue and a conversation communicate, but only the latter is an interaction, as the messages of each speaker (ideally) change what the other may say next.

Communication has been part of human behaviour for as long as our species has existed, but with mass communication we became limited to allow only a few (authors or broadcasters) to reach the many (everyone else). This stiffer structure greatly limits interactivity by its very functioning. Although many classic media allowed limited spaces where audiences could participate, such as letter sections or open calls, that was not the majority of their content (Briggs & Burke, 2009).

The internet is often attributed to change this scenario, being the first interactive mass media in which the many can communicate with the many (Briggs & Burke, 2009; Jenkins, 2008). Though this rings true for human-to-human communication, if we take into consideration human-to-machine interaction, videogames allowed the intricacy of dialoguing to great audiences much earlier. Traditional games were always interactive, but having such personal and localised components they can hardly be considered as mass media – while videogames, with their infinite replicability, allowed by the digital medium, most definitely can¹.

Conversely, separating 'active' and 'passive' media can be fruitless: readers of books or spectators of movies do not passively "absorb" their content uncritically, while players cannot freely manipulate game, all actions must be allowed by game developers (Muriel & Crawford, 2018, p. 60). Yet, agency has a unique scope in videogames, due to "player's capacity to make significant changes" (p. 61) by their own decisions. This is the reason why videogames are considered the first mass media in which agency plays a massive role for their public, the players. One of the first to point this potential out was Murray, to whom agency is the capability of interaction provided by digital media. However, to her interaction itself is not enough:

¹There is a case to be made about mass broadcasted sports and industrially published board games challenging this position as both predate videogames by decades, however, sport events do not offer interactivity to the audience, only to their players, and board games may never have the same social penetration and cultural cache as videogames.

it needs to have meaningful consequences, in particular consequences that meaningfully change the direction of the narrative (Murray, 2017).

Although the extent to which games interactivity can affect their public might have been overestimated and parabolized by media – and in early studies and talks –, it is undeniable this new layer of communication changed the paradigm on how general audiences connect with content. In this article, agency is understood as the agent's capability to act between the options available, concerning both what the system allows and what options are visible to the agent. Thus, to have agency, one must have the capability to act. This means that player agency is directly connected to what the game allows to be enacted, but also that developer agency allows them to provide.

The Player's Agency

When discussing player agency, Nguyen (2020) sees an intersection between two agents: the outer one (the player, with their own beliefs and limitations) and the inner one (the avatar, an entanglement of the outer agent, what the game allows the player to do, and what the player choses to do). As the existence of both agents is a never-ending cycle, each self-constructing and influencing the other, this division may seem arbitrary. Where does the player end and the avatar actions, which are keyed by the player, begin? Yet, this division is useful to player's and researcher's accounts of their game experiences, especially when we inspect the entanglement between both agents in gameplay. In recounting her shared experiences with her World of Warcraft character, Wilde (2023) connects playing as an avatar with performing and enacting, but also with *being* – a process called embodiment.

She correlates this with the posthumanist theory of entanglements: different elements in a network being associated without any sort of hierarchical links between inner and outer agents. Humans being only another link, neither more nor less important than the others; and all links, such as identities and relationships with other entities and creatures, are connected in an unranked manner. These connections do not entail a division between parts, there is no clear separation between body/mind, human/animal, metaphysical/corporeal, software/hardware: everything is entangled, and each piece is part of the whole. Wilde further explains how her avatar has become part of herself, so deeply entangled that she cannot let they "die"; as in, she keeps paying Blizzard so her character is not deleted, even though she no longer plays (Wilde, 2023, pp. 190–194). In her view, an avatar is not a mere character created by the player or the developer as a fictional being, neither is it the player themselves, but rather an amalgamation of both.

This process can be further exemplified by the tendency many players have to refer to actions performed by in-game avatars with "I" (Muriel & Crawford, 2018, p. 90) or a mixture between "I", "she/he/they" and "we" (Wilde, 2023, pp. 87, 93, 202), despite it going much deeper than this. By understanding avatar and player as entities equally entangled, the curated way in which players can interact with the digital world not only sets the boundaries of what is possible or not, but also what players can themselves be in this (virtual) reality. The game becomes an extension of the player's body (Muriel & Crawford, 2018, p. 96), but this existence is limited by what the game affords. Wilde cites choosing items not only for their function but also how they affected her avatar's visual, from her awareness of how they (and, by extension, herself) might be perceived (Wilde, 2023, p. 104).

Such entanglement can be more nuanced when exploring a bigger data pool than Wilde's, nevertheless still implying a link between avatar and player subjectivities in the creation of the inner agent. Ferchaud and Oliver (2019) created a Fallout: New Vegas mod in which player avatars could complete a quest in a moral or immoral way and divided participants in two groups: one would that could choose which way they would resolve the quest and another whose resolution (moral or immoral) was determined by the software. After playing, participants responded a questionnaire about their own values and their experiences playing. Those players who considered morality important and played in the moral way (either by choice or automatically) reported that they identified themselves with the avatar in a much larger frequency than in all other conditions (Ferchaud & Oliver, 2019). Hence, there are countless components mediating players' entanglement with the game and their actions in it. Yet, player agency - or the capability to enact their will in the world, virtual or otherwise -, is one of the most prominent ones. Next, we will better clarify the tools available for the player to make it so.

Agency Reliance on Game Affordances

Regardless of the outer agent's influence, no entanglement would happen without the abilities the inner agent has access to: it is only from these curated abilities that the player's agency emerges in a videogame. The actions that can be performed by the player in a game are known as affordances (Linderoth, 2013; Pinchbeck, 2009). Hence, affordances are the paint strokes with which player agency is constructed in a given game. Through the actions available, players are invited to experience a myriad of sensations, including witnessing events from the perspective of others, or even entirely different realities. In a game, this capability to act is built from all of the elements in a game designer's palette, from mechanics, narrative, systems and progression (Weiller, 2021) – in a concatenation that far exceeds the capability that narrative alone can provide. That's when Murray's agency definition might become too narrow for the present study, as it focuses mostly on narrative aspects, particularly those that engender positive emotions (Bódi, 2022, p. 16). On the other hand, Bódi not only recognises the importance of the narrative dimension of agency in videogames, but also adds to the picture the action, temporal and transformative axes. This richness of dimensions makes her analysis of agency a very useful tool for discussing the affordances given to the inner agent.

According to Bódi, a game's agency is constructed by the affordances given to players in four main dimensions, each with its own spectrum. To her, *narrative* is only one of the possible spectra in which a player can express their agency, in a dimension that also includes the *dramatic* axis. The narrative axis concerns explicit plot and storyline content, such as dialogues or cutscenes, while the dramatic one refers to emergent events that rise dynamically from players interacting with game elements. A game is not specifically positioned in a place between these two extremes; rather, it can present to the player elements that are positioned in different points of the spectrum. Choosing a particular option in a dialogue tree would be a strongly narrative element, while interacting with certain NPCs while they say or animate in ways that reinforce the game contextual narrative is a more dramatic one. Consequentially, a particular game can lean to one or other side of the spectrum, but most games end up mixing both types.

Space is another dimension noted by Bódi, which has a *spatial*, relating to how players interact with the world, and an *explorative* axis, how the game world is built and presented. The spatial one is strongly dependent on game mechanics, since it connects to the affordances allowing movement or traversal. Can they run, can they jump, how this affects their going between point A and B? On the other hand, the explorative axis concerns the ways in which a game conveys such movements. Are cameras stationary, like in point and click games, or do they follow the avatar, such as in FPSs, are there discrete levels or an open world, are there loading screens? Another dimension pointed out by Bódi is time, which has temporal and ergodic axes. The temporal axis relates to how time itself behaves in the game. Is it somehow connected to real world time, has its own internal logic, or is fixed by other elements? For instance, if each section takes place in a specific moment, even if the player takes one minute, or ten hours, to go through it. The ergodic one, however, defines how much control over the passage of time players have. Can they set their avatar to wait to pass the time, or pause a game completely?

The last dimension measures how player's can act upon their environments, with a *configurative* pole, how much they can customize their own avatar, and a *constructive* one, how much the player can change the game world. Most old or retro games do not offer much in terms of configurative affordances, something that became more common in recent titles. But the constructive pole is part of videogame mechanics since their beginnings. It is important to note that game genres can greatly impact on the constructive direction. In certain genres, changes enacted by the player on the game world were not usually saved for longer than their stay in that screen or level – e.g., Doom allowed players to explode barrels and kept them exploded while the avatar remained in that stage. But, as soon as the player left it, this change was erased and the next time they entered the level the barrels would be as new. This contrasts to RPG or simulation games, in which a big part of gameplay is the changes made to the world and their permanence.

All dimensions explored by Bódi emerge from the affordances made available to players, intentionally or not. These affordances, however, are not a natural occurrence that just happen to be present in any given game or are universally granted in any given genre. A player's experience is shaped as much by which affordances are given to them as by the ones which are taken away.

Affordances as a Result of Developer's Doings

Much has been said about player agency in games, analysing the set of affordances available and how this impacts player experience (Harrer, 2013; Muriel & Crawford, 2018; Wilde, 2023), but not enough was discussed of how this capability to act in the game world is the direct result of developer's decisions during development, and in turn, of the latter's own agency. As Muriel and Crawford note, "[p]layers do not freely manipulate video games at their will; they are limited by the game's own restrictions and arc of possibilities" (2018, p. 60). Wilde expands on this by pointing how her decisions while playing "have been influenced by all of the other intra-acting components such that my opinion is just as much of an amalgamation of different factors as anything else" (2023, p. 102).

Thus, most of the player's agency is directly related to the affordances given to them, and such affordances are the direct result of what developers have decided to implement in the game and how well such affordances were assembled – in relation to the action itself but also to other game systems and mechanics. One interesting, if not mundane, example is the effect menu interactions have on gameplay. Historically, most videogames presented menus in very limited situations, such as in the pause screen. Thus, this menu interaction generally halted the gameplay and this is the case in most games until the fifth generation of consoles. This allows the player, when under pressure or lacking enough time to react, to pause the game and take a break from the action. By exerting their agency in an ergodic sense, and controlling the game world's time, they can better contemplate their next moves. In the last couple of decades, however, many games have opted out from pausing the gameplay during menu interactions, and in turn deny the player this much used reprieve.

Minecraft and games from the Souls series, such as Demon Souls or Dark Souls, use this removal of player's agency to great effect. In those games, there is hardly an interaction that pauses what is happening in the game world, even if the player is caught up doing something else. The Souls series games are notorious for not having a pause command: even if the player decides to check their inventory or change their equipment, they are not safe from enemy attacks. In the same vein, Minecraft players partaking in the eponymous crafting interface, even if they are removed from everything else happening, can still be targeted for attacks. Players claim they never feel truly safe in these games' worlds, which greatly enhances the experience of insecurity these titles seem to thrive on. Therefore, by removing players' options in an effort to diminish their agency, developers have as important a choice as when they purposedly expand it to create an experience.

An example of manipulating another of Bódi's dimensions would be limiting the player's moving capability, an aptitude related to the space dimension. Many open world games (and, thus, games with many affordances on the explorative axis) may limit player actions deemed commonplace in other genres, such as jumping. Many of the games in the Zelda franchise follow this logic, building the whole world around the limitation that the inner agent does not possess this affordance. A common trope of game design, especially on the *metroidvania* genre, involves the unavailability of certain affordances until certain parts of the game are reached. A whole area of possible progression may be inaccessible to the player in a certain moment due the lack of an ability they do not possess yet, but once they have it, they can advance. For instance, a door being on top of a platform that requires double jump to reach. Though this is commonly referred to in the industry as gating, due to the similarity of reaching a door or gate to which one doesn't still have the key for, it is used in any context a path is gated by an ability that was not yet acquired but might or will be later.

The Limits of Developer's Agency

It must be visible now how much of the player's agency is built by the abilities, called affordances, that are available or not in a game. This creates a situation in which game developers are themselves agents acting upon a reality, and, therefore, are also imbued of agency. They must decide which affordances to grant the player and, thus, shape the player's very agency in this structure. Conversely, if the player cannot do whatever their heart desires, the developer agency is also not all encompassing. Every action implemented in the game involves a cost in time and money, so that developers are compelled to prioritise certain actions in favour of others. Even games with very high budgets cannot afford to allow players every action. This prioritisation may occur depending on factors that can be related to the game either internally (such as the type of game and composition of the development team) or externally (such as schedules, budgets, and stakeholders decisions). As there is no current de facto nomenclature used to refer to the amalgam of possible actions available to be taken by the developers, we will extend the use of the term affordances to this case and contrast it with constrains.

Ideally, decisions of what affordances and constrains will be developed should be made bearing in mind what would best fit the game in question, balancing internal and external factors against what would best fit the title's important mechanics (purpose) and themes (tone), according to Wang (2023, p. 155). When discussing the design decisions that led to This War of Mine, Paweł Miechowski pointed out how many attributes nudged players in mindspaces that the developers deemed undesirable, and how design changes brought players closer to the desired tone (Alexander, 2015). By renaming the inventory "Our Things" – or not having specific slots for certain objects, such as weapons –, the game invites players to disregard violence as a prerequisite, even if it is an available venue.

Pawel's recounting shows how a deep care with the design iteration is needed to achieve a project's goal. He describes how testing led to more concerns about design aspects, which in turn led to changes and to a better game. Such a process, however, takes time, and more time developing means a later release date and staff's salaries to match. Keogh's research in the Australian game developing scene shines light on this thigh balancing act (Keogh, 2023). Documenting creators in this sphere, his research starkly depicts how outside influences, such as money and time, impact in game development. Despite his focus on how these factors are perceived by actors in the scene, and how they interconnect – not so much on the impact they have on the games –, it is palpable the problematics that can emerge therein.

Keogh describes a process he names *in/formalization*, which is the presentation in the videogame field of the current gig economy (Keogh, 2023). It differs from the more general term because videogames were a relative hobbyist and open field until the late 1970s, but during the 1980s and 1990s the field went through a rapid corporate formalisation and consolidation that all but completely alienated developers from the means of distribution. In the 1990s and early 2000s, monopolies over console publication and distribution networks of physical copies were so pervasive that independent creators, though existent, were muted from bigger audiences. It was only through the popularisation of the internet, and the opening of online platforms such as Steam to these creators, that allowed them to once more become visible to the common player. That's why the videogames field, in Keogh's interpretation, has particularities that set it aside from the bigger gig economy precarization: many of those who sought positions outside the formal games industry did so in search for artistic freedom, and to avoid working on "shovelware² and shelf-fillers".

However creatively fulfilling these positions might be, they introduce extra preoccupations that are not so common occurrences in formal game jobs³: for how long will the money last, and what version of the game we want to make can actually be done in this time? Frequently, thus, the material conditions of the studio and its team have a heavier sway in which features will be implemented and, therefore, which affordances will be granted to players. Even if independent means of production do not offer developers a complete agency to create absolutely any game they wish, they are still much more open creatively than jobs in big studios. Keogh describes the experiences of developers who worked for such companies in Australia, before most of them closed down, and many describe how the work consisted mostly of menial technical labour instead of creativity (2023, p. 59).

Economic factors are not the only ones impacting developer's agency, however. Team dynamics, their knowledge of tools, conditions of the engine documentation and even the contacts they have, and to whom they show their game, can impact how ideas turn (or not) into implemented mechanics. For instance, Silent Hill's fog is anecdotally linked to poor performance on the target console (Polycount, 2010), since using it was supposedly a tool to improve framerate with a lower draw distance. Despite this purely technical argument, when the game's themes and narrative context are considered, the

 $^{^{2}}$ *Shovelware* is the industry derogatory term for games that are released for the purpose of being released and generating some profit with no bigger artistic or cultural value added. It generally is associated with some industry or bigger media trend.

³Most companies isolate post developing positions from the financial dimension of the project and the commercial entity, which makes employees feel like they are more stable. One interesting thing Keogh found, though, is that the reality of the big corporate entities is that their existence is almost as volatile as that of indie companies. This was exposed in his description of the Global Financial Crisis of 2008 and how after it, even positions that commonly would not be informed of the company's financial realities were keenly aware of their company's insolvent status and it rings especially true in our current situation with so many layoffs taking place.

fog greatly increases player's experience, thus becoming as part of the Silent Hill universe as the very characters of the game.

Even the physical location where members of the team occupy can have direct consequences on who joins or not the development process, as demonstrated by Keogh's exploration of the particularities of both Melbourne and Adelaide scenes. The city of Adelaide had a university campus fostering the local "bro gamer" atmosphere before a more structured and organised indie scene emerged – which made this aspect of the Adelaidean scene more prominent than Melbourne's. This, in turn, diminishes the options of creators in Adelaide wishing to test boundaries: the process of game creation is also a dialogue in itself, and the local atmosphere means fewer peers to suggest improvements.

To add to these complications, affordances and constrains tend to not be uniform during the entire development process. Sometimes budgets change, staff quits or is relocated, consumer tastes evolve, and so developers must constantly go back to the drawing board and reevaluate what is still possible, what isn't and how to hone what they have in the best possible game. All these complex dynamics directly and indirectly impact the developer's agency to create and deliver a game, which, in turn, impacts the player's agency. There is such a rich tapestry of affordances and constrains shaping development that it could possibly be a whole area of game studies, let alone its relationship with the resulting games and the player's experiences afterwards. This work, however, is solely an attempt to shine a light in this potentially rich and yet unprobed vein of studies.

CONCLUSION

This essay explored the fickle balance of player agency in games. Tough there is a commonly accepted name for the elements made available for players to exert their agency, affordances, there isn't at the moment, still, a common word used in game studies to refer to the material and social conditions that mould developer agency. Neither there is an ample body of study defining such conditions. If, on the one hand, player agency is strongly correlated with what they can act in a game, on the other hand, all player affordances are dependent on what the developers are capable to competently implementing. Nevertheless, it has not been always highlighted that the developers are also subjected to external and internal limitations that affect their agency in materialising what the game was envisioned to be. This issue is particularly poignant when so many external factors can alter how the game is presented to players, especially economic factors. Even though these factors are hard to gauge by third parties, such as researchers, it seems a promising approach in analysing game development. These constrains can seriously hamper the final product but can also be used in ways that improve player agency.

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REFERENCES

- Alexander, L. (2015, March 2). The secrets behind This War of Mine's emotional impact. Game Developer. https://www.gamedeveloper.com/design/the-secrets-behind-i-this-war-of-mine-i-s-emotional-impact
- Bódi, B. (2022). Videogames and Agency (1st ed.). Routledge. https://doi.org/ 10.4324/9781003298786
- Briggs, A., & Burke, P. (2009). A social history of the media: From Gutenberg to the Internet (3rd ed). Polity.
- Ferchaud, A., & Oliver, M. B. (2019). It's my choice: The effects of moral decisionmaking on narrative game engagement. Journal of Gaming & Virtual Worlds, 11(2), 101–118. https://doi.org/10.1386/jgvw.11.2.101_1
- Harrer, S. (2013). From Losing to Loss: Exploring the Expressive Capacities of Videogames Beyond Death as Failure. Culture Unbound, 5(4), 607–620. https://doi.org/10.3384/cu.2000.1525.135607
- Jenkins, H. (2008). Convergence Culture: Where Old and New Media Collide (1. publ. in paperback 2008, updated with a new afterword [Repr.]). New York University Press.
- Jensen, J. F. (1998). Interactivity: Tracking a New Concept in Media and Communication Studies. Nordicom Review, 19(1), 185–204.
- Keogh, B. (2023). The videogame industry does not exist: Why we should think beyond commercial game production. The MIT Press.
- Linderoth, J. (2013). Beyond the digital divide: An ecological approach to gameplay. Transactions of the Digital Games Research Association, 1(1), Article 1. http://todigra.org/index.php/todigra/article/view/9
- Muriel, D., & Crawford, G. (2018). Video games as culture: Considering the role and importance of video games in contemporary society. Routledge.
- Murray, J. H. (2017). Hamlet on the holodeck: The future of narrative in cyberspace (Updated edition). The MIT Press.
- Nguyen, C. T. (2020). Games: Agency As Art (1st ed.). Oxford University Press, New York. https://doi.org/10.1093/oso/9780190052089.001.0001
- Pinchbeck, D. (2009). An affordance based model for gameplay. Proceedings of DiGRA 2009: Breaking New Ground: Innovation in Games, Play, Practice and Theory.
- Polycount. (2010, December 2). Silent Hill Fog Reference. https://polycount.com/ discussion/78824/silent-hill-fog-reference
- Wang, W. (2023). Structure of Game Design. Springer International PU. https:// doi.org/10.1007/978-3-031-32202-0
- Weiller, T. A. (2021). Teaching People What They Already Know. Designing Game Design Courses. Gamevironments, 15. https://doi.org/10.48783/ gameviron.v15i15.158
- Wilde, P. (2023). Posthuman Gaming: Avatars, Gamers, and Entangled Subjectivities.