

Uses and potential of photographical practices as a game mechanic

Games and Culture - ITU Master in Games, Design Track,
Autumn 2021 class, 16/12/2022 submission

written by Simone Cibrario Nona

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Abstract

The paper seeks to analyze and deconstruct the practice of photography when simulated as part of gameplay. To begin with, the paper looks at the previously existing theory on the remediation of photography in video games¹ in order to shift the focus on the practice rather than the outcome or the act. Then connections between the practice of photography and video games are drawn using simulation theory in games². The research is solely interested in video games where, to quote Möring and de Mutiis, “Simulated photography (is) central to the gameplay condition”³: this excludes any kind of “photo mode” extrinsic to gameplay, artistic screenshots and game modifications. The paper analyzes the most common uses thus far, and it then uses the findings to propose a new typology that aims at giving researchers and developers a practice based perspective on the remediation of photography inside games.

¹ Poremba, C. (2007). Point and shoot

² Frasca, G. (2003). Simulation Versus Narrative - Introduction to Ludology

³ Möring, S., & Mutiis, M. de. (2019). Camera ludica, (p. 75)

Introduction

Video games have been intrinsically linked to the photographic practice: “The need for screen (image) photography has existed since the beginning of projection of illuminated images onto screens”⁴. This implementation has evolved considerably though from the mere screenshot in recent years, becoming its own phenomenon. One example of this is the ever growing number of games that implement a “photo-mode” - an alternative mode of play where taking aesthetically photographic pictures is the only purpose. On this topic Gerling writes in *Photography in the Digital* (2018):

*“The industry has accepted this functionality as an expansion of the game concept; as a result, creators now provide a choice of camera positions and various optics for recording the game. With a virtual camera, players can photograph or record film, and they are not necessarily restricted to the reproduction of the gamer’s perspective.”*⁵

As Möring and de Mutiis point out, this is largely due to advertising, and has been the primary mode that video games have engaged with photography⁶. Poremba however, in her seminal paper on the subject, suggests that “on the other hand, the practice of photography within digital games presents affordances and opportunities for representation and expression unique to the genre”⁷ and that the practice “carves out a space for itself within play”⁸. The key word here is practice: Poremba, as others after her⁹, implies that photography in games is not considered just an action, but an union of cultural, social and technical doings.

This paper will expand and adopt this perspective to tackle the following questions and propose a new typological classification of the phenomenon:

1. How are photographic practices used as game mechanics in contemporary videogames?
2. What affordances and characteristics of the practice of photography are not usually simulated in the videogame medium and why?
3. How has the videogame medium added, in terms of dynamics and affordances, to the practise of photography in a simulated environment?
4. What else could it add in the future considering the latest technological and cultural development?

⁴ Gerling, W. (2018). *Photography in the Digital* (p. 150)

⁵ Gerling, W. (2018). *Photography in the Digital* (p. 156)

⁶ Möring, S., & Mutiis, M. de. (2019). *Camera ludica*.

⁷ Poremba, C. (2007). *Point and shoot* (p.50)

⁸ Poremba, C. (2007). *Point and shoot* (p.57)

⁹ Giddings, S. (2013). *Drawing without light: Simulated photography in Videogames*

Literary and theory review

Photography and remediation

Photography has been defined in several different ways. Etymologically the meaning calls back to the photochemical processes involved, from its origins, in the practice: writing with light (photo + graph)¹⁰. The recording and capturing of light emission becomes then a defining feature of photography, fact that lives on in most of definitions today, such as “the art or process of producing images by the action of radiant energy and especially light on a sensitive surface (such as film or an optical sensor)”¹¹, given by the Merriam-Webster dictionary. Here art is added to the concepts revolving photos, denoting the aesthetic properties and cultural perception of the media. ‘Art’ is put in contrast to ‘process’, as to denote two different perspectives on the subject, a practical and an aesthetical one. The Oxford dictionary maintains these aspects, while using a more significant word to the purposes of this paper: practice¹². This shift allows us to perceive photography not simply by focusing on the outcome or the technical processes, but as a fully formed activity, inclusive of aesthetical, cultural and technical qualities that evolve and change over time, as the passage from analogue to digital cameras has demonstrated.

Having cleared the connotations given to photography in this paper, how does it relate to in-game photography? Can this even be considered photography?

At first it may seem that the two practices are as distant as it gets, especially if we focus on etymology. As Seth Giddings puts it in his article *Drawing Without Light* (1995)¹³:

“From this perspective videogame photography might mark the medium’s final disappearance, as these images remove its defining essence, light itself, the photo- of photography.”

And, more poetically evoking images of digital bird monsters:

“ Rather, it is a rendering of events from a virtual world that is sunless, a dark chamber, a true camera obscura. The sun never shines on Pidgey. “

This seems to seal the deal: the absence of light completely negates core roots of the craft.

The obsession with the materiality of the photo is blind to the previously stated nature of photography as an evolving practice, and the nature of simulations that distinguishes games.

A confirmation of this can be found also in the historical roots of the in-game image, the screenshot. Gerling, writing about the evolution of digital photography and computer images, describes the same archival nature connecting their origins to the one of

¹⁰ Etymonline. *Photograph (n.)*. Etymology.

¹¹ Merriam-Webster. *Photography definition & meaning*. Merriam-Webster

¹² *Oxford languages and google - english*. Oxford Languages

¹³ Giddings, S. (2013). *Drawing without light: Simulated photography in Videogames* (p. 2)

analogue photography - while arguing that screenshots are more akin to cameraless photography.

In *Photography in the Digital* (2018), he states how “The monitor image is just as fleeting as the image of reality outside the computer.”¹⁴

Another key concept in connecting in-game photography to the wider practice comes in remediation, amply discussed both by Poremba¹⁵, Möring and de Mutiis¹⁶.

The concept comes from Bolter and Grusin¹⁷, and it describes media as an interconnected ecosystem of practices and concepts, that influence each other and manifest in one another.

In *Camera Ludica: reflections on photography in videogames* (2019)¹⁸, it's explained also how this is not the only phenomenon that happens in in-game photography, as the media mutates the remediation, but the fact that photography is remediated in games through simulation¹⁹ remains true. To ultimately conclude and legitimize the view of in-game photography as a related to the wider photographic practice i'll quote Poremba, which in a short statement shines lights on the lonely Pidgey:

*“The image itself does not discriminate with regard to the perceived reality of its contents”*²⁰

And, neither does the photographer discriminate against the practice when, for the most part, all we do is trading photons for pixels. Poremba in fact continues:

“If the process and ritual behind this image making is similar, the players themselves are validating the reality of their subjects simply by creating a document of these experiences. In this sense, players are taking real photos, just in virtual spaces.”

¹⁴ Gerling, W. (2018). *Photography in the Digital* (p. 152)

¹⁵ Poremba, C. (2007). *Point and shoot*

¹⁶ Möring, S., & Mutiis, M. de. (2019). *Camera ludica*

¹⁷ Bolter, J. D., & Grusin, R. (2003). *Remediation: Understanding new media*

¹⁸ Möring, S., & Mutiis, M. de. (2019). *Camera ludica*

¹⁹ Möring, S., & Mutiis, M. de. (2019). *Camera ludica*

²⁰ Poremba, C. (2007). *Point and shoot* (p 50)

In-Game photography as a simulational collapse

Having established that in-game photography can be considered part of the wider practice due to the remediations that happen in the simulation, it's wise to delve deeper in what game simulations are. Frasca, combining several treaties on semiotics and simulations, concluded that ""to simulate is to model a (source) system through a different system which maintains (for somebody) some of the behaviors of the original system."²¹ He also continues stating how traditional media, such as photography, are representational, not simulational.

"A photograph of a plane will tell us information about its shape and color, but it will not fly or crash when manipulated."²²

A simulation encompasses a multitude of possibilities, different permutations of space and time, while a picture deals with what has been, it's a memento. This artifact is a distinct object both in and from the simulation. Gerling notes how "This distinction becomes especially clear when a computer user tries to operate within the screenshot as if in an interface, because the two are easily confused"²³. But what happens, more precisely, when we take a screenshot of a simulation? And, going more towards the direction that this paper wants to explore, what when this screenshot is influential to the state of the simulation itself?

Just like in its predecessor, analogue photography, in in-game photography "The virtual camera freezes a dynamic environment and its animated objects, capturing a moment in time... Moreover it organizes the flux of digital data in space"²⁴. It is therefore apparent how time and space are intrinsically linked to both the concept of simulation and to that of photography. The way in-game photography interacts with them has its own peculiarities.

Let's take for example the photo-mode present in many contemporary titles. This feature allows users to pause the simulation and get access to a virtual camera rich with controls, whose sole purpose is to capture a moment of simulated time and space: "Here, gameplay is left behind in favor of the production and sharing of an image."²⁵

This act has an effect both on time and space. Zagal and Mateas²⁶ described how the player's perception of time is influenced by game design, and this is certainly true when both the act and the product behave similarly to a "temporal bubble"²⁷, almost creating paradoxes.

²¹ Frasca, G. (2003). Simulation Versus Narrative - Introduction to Ludology (p 223)

²² Frasca, G. (2003). Simulation Versus Narrative - Introduction to Ludology (p 223)

²³ Gerling, W. (2018). Photography in the Digital (p 157)

²⁴ Giddings, S. (2013). Drawing without light: Simulated photography in Videogames (p 14)

²⁵ Gerling, W. (2018). Photography in the Digital (p 159)

²⁶ Zagal, J. P., & Mateas, M. (2007). Temporal Frames: a unifying framework for the analysis of game temporality

²⁷ Zagal, J. P., & Mateas, M. (2007). Temporal Frames: a unifying framework for the analysis of game temporality

In regards to space instead, described as “the defining element in computer games”²⁸, the result can be utterly confusing if one stops to think about the numerous representational bounces and flips that lead semiotically to an in-game picture. Gerling allude to this when he writes:

*“In-game photography creates an image organized according to perspective from a game’s spaces, and it resembles photography from the physical world with which it can be confused under certain circumstances. The confusion here lies at the level of simulation. It is a double simulation: if photography simulates a view of the world, then in-game photography is simulating a simulation.”*²⁹

Gerling doesn’t consider though the recursive effect that this has if we abandon the concept of the photo-mode and start considering the cases where photography is key to the game state. It is out of the scope of this paper to define exactly how this meta-meta-reality (or meta-hyperreal, to quote Batchen³⁰, which defined hyperreal as a collapse of the real into its simulation) operates, but solely denoting the phenomenon cements in-game photography as something unique, which impacts the game strongly, to the point where it can be considered as a collapse of the simulated space / time. Aarseth states that spatial representations in computer games are reductive operations leading to a representation of space that it’s symbolic and rule based (not really spatial)³¹. When we shoot a picture inside a game, what we are doing is creating a new symbol, present and usable by the simulation itself, of a collapsed game state. It’s a self referential token, making it particularly meaningful due to the numerous possible semantic associations to the game world.

²⁸ Aarseth, E. (2001). Allegories of Space (p 154)

²⁹ Gerling, W. (2018). Photography in the Digital (p 160)

³⁰ Batchen, G. (2006). Burning with desire: The conception of photography

³¹ Aarseth, E. (2001). Allegories of Space.

Play and choices in photography

Examined the bond between the practice of photography and simulation, the next step is going to be framing photography not only as a practice intrinsically and recursively bonded to simulations, but as a playful activity in itself, which makes it a perfect candidate for a game mechanic³².

In *On Ludic Photography* (2018), Buse states that play was only seen in comic pictures, in the subject then, not in the practice³³. But as he later points out, "In other words, the ludic in photography is not just a quality of the object photographed, but of a photographic doing"³⁴. Note how again there is a shift from the object to the act.

As the theory of play and game started to grow, further connections began to appear. A notable one can be highlighted in Flusser, who argues, according to Buse, that "an "apparatus" like a camera is not a machine, but a plaything, because it is not the materials from which it is composed that matter, but the rules of the game, the chess program."³⁵ This statement, with a focus on rules, resonates to what Poremba wrote:

*"Photography is an inherently gamelike practice. Composition is rule based (albeit with rules that can be broken), and the act of photography is a strategic endeavor."*³⁶

As a practice photography is therefore made of rules and choices, and this creates a connection with Caillois' concept of Ludus, structured play³⁷.

Photography can also be pure play, or *Paida*³⁸, and it's in this form that photography expresses itself in phenomena like photo-mode, which is completely detached from the gamestate and rules.

Buse goes further, using Huizinga and in particular Caillois to deconstruct play in photography. He describes how the practice can respond to each one of the four categories of play envisioned by Caillois in *Man, Play, and Games* (1958): Ilinx, Agon, Alea and Mimicry.

Ilinx, or Vertigo, is rooted both in distortion of perception achieved by lenses and mirrors and in the more contemporary technology of the action camera. Interestingly he points out how the technology itself may influence the ludic attitude of the photographer, not the other way around:

*"Common sense tells us that they have been built rugged and waterproof in order to enable the faithful recording of extreme sports. But might it not be the other way around?"*³⁹

³² Hunicke, R., Leblanc, M., & Zubek, R. (2004). MDA: A Formal Approach to Game Design and Game Research.

³³ Buse, P. (2021). On ludic photography

³⁴ Buse, P. (2021). On ludic photography (p 421)

³⁵ Buse, P. (2021). On ludic photography (p 427)

³⁶ Poremba, C. (2007). Point and shoot (p 53)

³⁷ Caillois R. (1967). Les jeux et les hommes: Le masque et le vertige

³⁸ Caillois R. (1967). Les jeux et les hommes: Le masque et le vertige

³⁹ Buse, P. (2021). On ludic photography (p 435)

This quote is significant if we combine it with the line that Gerling traces between the first person view of most games and the action camera⁴⁰, making us wonder how significant the influence of photography has been in shaping the attitude we have towards games. Continuing to Agon, two aspects resonate with this mode of play: photo contents, which manifest themselves in video games in grading systems, and trophy pictures. Poremba talks extensively of the social phenomenon of the trophy picture in *Point and Shoot (2007)*⁴¹, drawing a comparison between them and a receipt, to validate their status as consumers. Regarding contents the relationship to agon is more obvious, if not often hidden by the organizers. Buse states:

*“Organisers of photography contests would have us believe their events are all about the images, but connoisseurs of play will see immediately that they are also about kindling the photographic agon.”*⁴²

Finally the links towards Mimicry and Alea are to be found respectively, always according to Buse, in the make-believe and reality bending of studio photo-sessions and in the long lived rhetoric in photography of “capturing the decisive moment”⁴³.

⁴⁰ Gerling, W. (2018). Photography in the Digital

⁴¹ Poremba, C. (2007). Point and shoot

⁴² Buse, P. (2021). On ludic photography (p 430)

⁴³ Cartier-Bresson, H., & Chéroux Clément. (2018). *The decisive moment*

Categories of in-game photography

Now that the playful nature of photography has been established, I am going to describe Möring and de Mutiis work in categorizing the different expressions of the practice in games⁴⁴, allowing me to delineate the boundaries for the subsequent analysis and discussion. In *Camera Ludica: Reflections on Photography in Video Games (2019)*, the two researches, building on the works of Giddings and Poremba, define the following categories, depending on how photography is remediated in the media:

- Simulated photography central to the gameplay condition
- Additional photo mode
- Artistic screenshotting
- Creative photographic interventions made possible by photo modification

It is to be acknowledged how a game might employ more than one of them - they state: "Accordingly, as with any typology, we should stress that the borderlines between these categories should be understood as semipermeable membranes rather than sealed concrete walls."⁴⁵

To summarize these categories, as first we have a photography as a game mechanic, or "actions, behaviors and control mechanisms afforded to the player within a game context"⁴⁶, that directly impacts the game state. In other words the practice is (or one of) the primary method invoked by the player to interact with the simulation. Poremba call this category "Photo Play"⁴⁷ and it divides it into practice and content-based, which in *Camera Ludica (2019)* is interpreted as game-wide or level wide scope of the mechanic. In these games the practice is remediated through simulation.

Of the second category, the added photo-mode, we already discussed, Möring and de Mutiis state that "video games with photo modes generally suspend the gameplay condition in order to offer the player the time and space needed to produce artistic images"⁴⁸.

In these instances the technical operational aspects of a camera are simulated with great detail, since the objective is obtaining an artifact with a defined photographic aesthetic. Here the practice is remediated through the screenshot, prioritizing the obtained picture. The developers of *Umurangi Generation (2020)* noted how this category often affects and shapes the simulation in a negative way: "we often see that creativity gets bolted down if it could possibly make the game look bad, or in a marketing sense make the game seem unappealing."⁴⁹ Poremba epitomizes this negation stating that "Images without interfaces to some extent deny their origin, instead referencing how an image is supposed to look—like a photo."⁵⁰

⁴⁴ Möring, S., & Mutiis, M. de. (2019). *Camera ludica*

⁴⁵ Möring, S., & Mutiis, M. de. (2019). *Camera ludica* (p 87)

⁴⁶ Hunicke, R., Leblanc, M., & Zubek, R. (2004). *MDA: A Formal Approach to Game Design and Game Research*.

⁴⁷ Poremba, C. (2007). *Point and shoot*

⁴⁸ Möring, S., & Mutiis, M. de. (2019). *Camera ludica* (p 82)

⁴⁹ Couture, J. (2021, July 16). *Using photography to document the end of the world in umurangi gene*. *Game Developer*.

⁵⁰ Poremba, C. (2007). *Point and shoot* (p 51)

Also remediated through the screenshot is the artistic screenshot, which doesn't limit itself to what the simulation has to offer, but uses any means necessary to reach its aesthetic goal, even an external camera.

Finally we have the Photo Modding, where the remediation is through the act of modding, which changes and shapes the game state. This differs from a pre-existent photo mode, since the modders usually do not negate but highlight the existing game condition:

“In contrast to photo mode photography, artistic screenshot photography does not depend on in- game photo modes but rather establishes its own strategies while playing with the gameplay condition. In addition, the resulting photographs do not merely show something which has happened in a particular game, but rather reveal media specifics of video games and their relations to other media and human practices.”⁵¹

Having shown how other theorists have classified and commented on in-game photography, it is possible to define which of these ones will be analyzed further. Being the core interest of the paper exploring the mechanical possibilities of the practice of photography in games, I shall focus on what has been described as “Simulated photography central to the gameplay condition” and, to a minor extent, mods that allow for the same implementations.

This choice has been made since they are the only categories that not only do not negate the game simulation (like photo-mode), but they actively engage and manipulate it.

⁵¹ Möring, S., & Mutiis, M. de. (2019). Camera ludica (p 79)

Methodology

The methodology followed in this paper has been the following:

1. A theoretical based has been compiled to support the subsequent analysis and discussions
2. The analysis explore the uses of the practice in various games, using the theory to highlight relevant findings and supporting it with developers interviews
3. In the discussion the results of the analysis have been compiled into a model to give better insight in the use of photography as a mechanic in contemporary video games
4. Finally any eventual shortcomings, potentials and limitations have been addressed in the conclusion

Analysis

Point and shoot

Poremba already noticed a similarity in dominant game paradigms, such as shooting and collecting, to those of the photographic practice. She even stated how photography can require the “twitch skills” on which many games build their experience upon⁵².

A lot of games decide to channel this frantic component of photography to their advantage, creating something akin to a first person shooter but with a different representational layer. In this way developers managed to channel both the *agon* and the *ilinx* present in photography.

Sometimes the translation can feel one to one. Such is the case for the game *Fatal Frame* (2001), which allows the player to banish evil specters, invisible to the naked eye, by blasting them with film. Here framing the correct, menacing targets is all that the game requires of the player. Another game which employs photography in a similar way, albeit complementing it with other aspects of the practice, is *Pokemon Snap* (1999). The player is tasked with taking pictures of the popular pocket monsters, and they are even rated for their photographic endeavors. But it’s in this rating that the true nature of the mechanic takes form, a nature, Giddings notes, based on hand-eye coordination and centering the subject as precisely as possible⁵³, just like in a shooter game. This approach seems to be the more direct and ambivalent in video-games, as it shares part of the language. This is proven by one of the first games to ever use photography as a game mechanic, *Gekibo: Gekisha Boy* (1992), a side-scrolling game where the player simply points and shoots at various chaotic events happening on the screen.

Developers had to come to terms though that, more often than not, shooting a picture is a static activity, and this clashes with the hi-paced actions of typical shooters.

In an interview with Gamedeveloper, the creators of *Pupperazzi* noted how there is “ A pattern photography games seem to have is that they tend to feel fairly static.”⁵⁴

This tendency can be observed in *Pokemon Snap* (1999) and *James Thrush’s Wild Earth* (2005), a game emulating an african safari experience.

⁵² Poremba, C. (2007). Point and shoot

⁵³ Giddings, S. (2013). Drawing without light: Simulated photography in Videogames

⁵⁴ Kerr, C. (2021, November 2). *Finding the fun in doggo packed photography game, Pupperazzi*. Game Developer

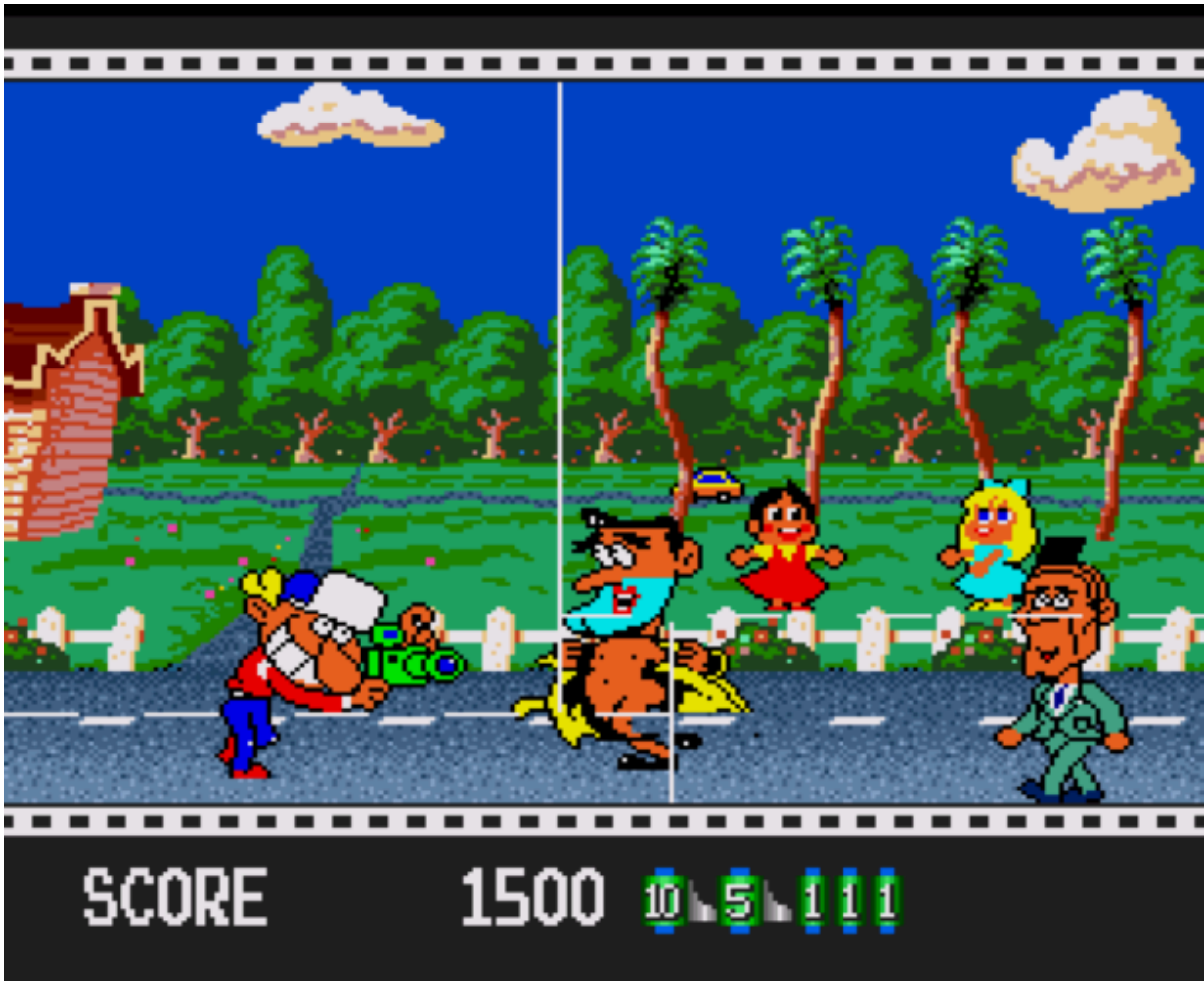


Image 1

Collecting, documenting and wondering

In many of these games are also prevalent aspects of collecting, documenting and archiving.

The obvious example is the previously cited *Pokémon Snap* (1999), where the theme of “Catching Them All” also resonates with the rest of the franchise.

Other games reach the same dynamics through accurate emulation of real photographic practises, or as it is written in *Camera Ludica*⁵⁵:

“... the players often assume the role of a journalist or documentary photographer taking photos in a nature setting.”

Two examples of the maniacal level in which the practise is simulated in every technical component, not necessarily the cultural ones, are the aptly named *Lushfoil Photography Sim* (2023) and *Photography Simulator* (2022?), where every single piece of equipment is reproduced in form and function, allowing the player to experiment in various natural settings.

In these games it is evident also the relatively calm experience compared to those previously analyzed: not putting the pressure on the player to perform with fast reflexes, they encourage them to take their time to explore and discover the simulated nature.

As the developers of *TOEM* (2021) stated:

*“Photos are a nice representation of progress, they act as a time-machine of some sorts, it all ties in quite nicely with the “stop and smell the flowers” approach.”*⁵⁶

Other games and mods lean more towards the journalistic side of photography, shifting the focus from the technical, often still present, to the cultural practice.

One such game is *Umurangi Generation* (2020), where the player is asked to snap pictures of various subjects of a close-to-apocalypse urban scenario. In doing so the player starts to understand and piece together the events weighting on the game world and its inhabitants.

*“Photography, as it turns out, is a perfect way to get players to look and observe the environment. It is very hard to deny the existence of something if you are an actor participant in the story. We wanted players to be able to walk through a space and understand what this space meant to the people inside it.”*⁵⁷

This extract from an interview with the developer highlights how simulation and photographic practice come together, elevating signs on which an implicit narrative can be built.

⁵⁵ Möring, S., & Mutiis, M. de. (2019). *Camera ludica* (p 75)

⁵⁶ Yarwood, J. (2021, April 2). *How some indies are approaching photography mechanics in their games*. Game Developer

⁵⁷ Couture, J. (2021, July 16). *Using photography to document the end of the world in umurangi gene*. Game Developer.

Magical lenses and new perspectives

Finally there are a great deal of games that use the photographic camera to let the player experience a new perspective or unveil a different layer in the simulation. This is usually used to solve perspective puzzles or to evoke aesthetics of the supernatural. An example of the first use is *TOEM (2022)*: the game has a bidimensional isometric perspective, the player simply cannot see details in the games world, they are either too far or obstructed. In the game it is possible though to access a camera which renders in first person.

“Since we have shifts in perspectives we can have things only visible in the camera. Maybe something is visible in the distance or maybe something is hidden behind a corner?”⁵⁸

The player will then snap precise pictures, aligning subjects with the use of other mechanics and finally delivering the pictures to an NPC. The different perspective, experienced through the lens, leans also on the macabre, following the melancholic paradigm, explored in *On Ludic Photography (2021)*⁵⁹ and rooted in the early photography obsession with death and the past.

“Instead, the paradigm always finds in a photograph absence, lack, anxiety.”⁶⁰

It is worth noting how games as simulation can uniquely manifest this absence and anxiety: following the paradigm, the camera in these games reveal monsters and specters, visible only when looking through the lens. Examples of this type of perspective shifts are *Phasmophobia (2020)*, essentially a ghost hunting multiplayer game on the paranormal and the famous *Fatal Frame Series (2001)*. Is evident how these games evoke the mimicry aspect of photography, as optic illusions and ghost photography did for the analogue medium.

In the last years we have started to see more experimental approaches in the way the camera interacts with the game world, chief of these *Viewfinder(202?)*. In this unique game the player can snap a Polaroid of a tridimensional environment, collapsing the simulation into a picture. The player has then the possibility to release in any part of the game world the flattened game view present on the polaroid, generating new meshes that interlock with the existing ones.

⁵⁸ Yarwood, J. (2021, April 2). *How some indies are approaching photography mechanics in their games*. Game Developer

⁵⁹ Buse, P. (2021). *On ludic photography*

⁶⁰ Buse, P. (2021). *On ludic photography* (p 423)

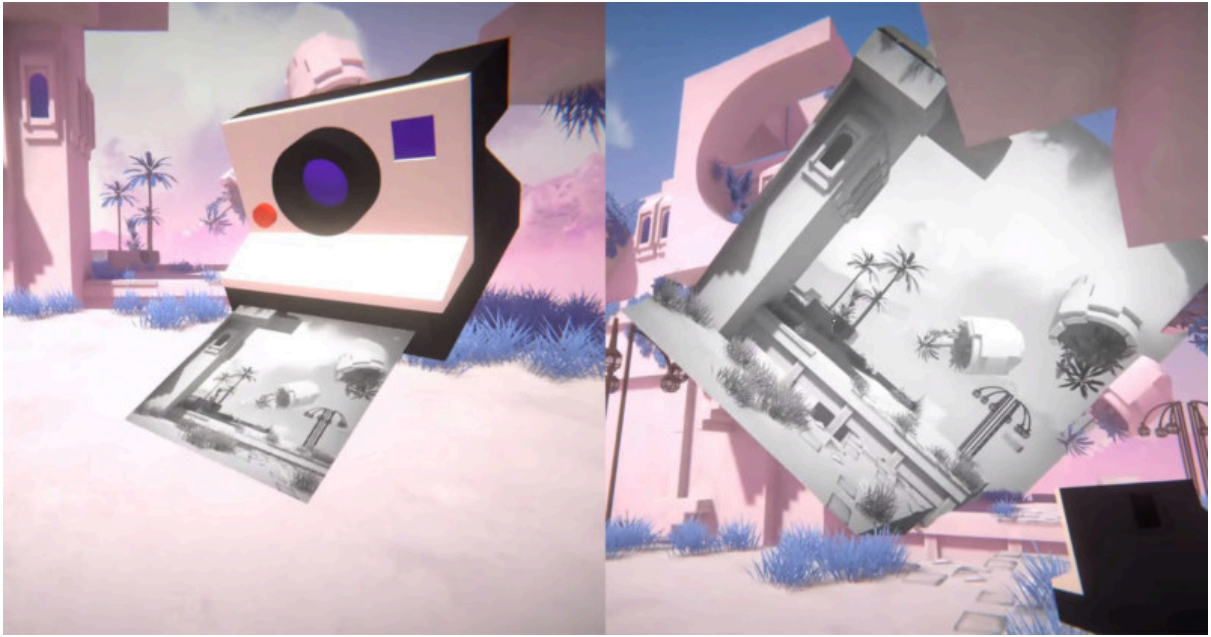


image 2

Discussion

Considering what has been examined in the analysis of games that include photography as a core mechanic, and given the importance of practice emerged from the literary review, I propose and discuss here a typology to classify and understand their implementation. Based on to which extent the practice of photography is harnessed, games can be considered as:

- Action oriented practice
- Document oriented practice
- Extended practice
- Beyond practice

Games tend to focus on one of these aspects, but this typology is fluid and the purpose is not to create strict ontological definition, but to place the attention of developers and researchers on how the practice is implemented.

All of these typologies can then be considered in a spectrum between the performative and the free, depending on how much the game limits player expression with goals, grades and rules.

Action oriented practice

Games that only explore the act of taking a picture can fall under this umbrella. These are games such as *Fatal Frame* (2001) and *Gekibo: Gekisha Boy* (1992), examined previously in this paper. These games take advantage of having a “point of view identical to the point of action”⁶¹, and in doing so they are allowed “to work within the dominant paradigm while integrating an artistic rather than militaristic mode of interaction”⁶². Möring and de Mutiis point out a key different that separates the two mechanics: gunplay requires to point at something, while taking a pictures, if implemented correctly, requires to frame something⁶³. The similarities are however there, and some games, like *Pokemon Snap* (1999), reinforce the analogies by rewarding players who center the subject. Just because games use photography to remove militarism from their shooter, that doesn’t mean, as Poremba pointed out, that the implicit power dynamics of the actions are completely negated.

“... it is important to recognize that even when reframing this context, an underlying power dynamic remains, a way of approaching particular subjects as things to target, capture, and “own.”⁶⁴

⁶¹ Gerling, W. (2018). *Photography in the Digital* (p 158)

⁶² Poremba, C. (2007). *Point and shoot* (p 54)

⁶³ Möring, S., & Mutiis, M. de. (2019). *Camera ludica*

⁶⁴ Poremba, C. (2007). *Point and shoot* (p 54)

In the same way, problems and issues intrinsic to photography have also the opportunity to show up in games that don't acknowledge photography as a full practice⁶⁵. Limiting photography to its action inside a game is not to be considered a universally bad implementation. For example in *What Remains of Edith Finch (2017)*, for a portion of the game the player is asked to take pictures in a nature setting. This action carries little meaning in the simulation from that moment on, the player has limited controls and centering the subject is sufficient to advance the game state. However the aesthetics evoked by the action aligns with the game narrative, and the developers use the requested photo subjects to direct the attention of the player, thus creating tension. Ultimately, the key characteristic defining these games is a focus on the action of taking a picture.

Document oriented practice

If the previous category deals with the action, here the outcome is prominent. Games that ask you to collect photos, bring photographic evidence and create your own albums fall under this type. We have already pointed out how collecting is a paradigm already present in video games⁶⁶, and it shouldn't surprise then how this is the most prevalent form of photography implementation in games - remaining in the context of games with photography as an integral part of the game state. Progression is not based on some subjective criteria but on the objective task of collecting photographs.

This practice has two main hues: the collect and archive approach and the photojournalist approach.

Examples of the first are *Pokémon Snap (1999)* and *Beasts of Maravilla Island (2021)*, a game similar in concept to the first, but that allows the player to move freely in an island populated by creatures to photograph. This latter game does a much better job in acknowledging the power dynamics and controversies of the collectionist approach to photography. In an interview the developers stated:

*"We also really wanted to create a game that felt peaceful and respectful to the environment you're in. Because even though we love Pokémon Snap, it's not good to throw noxious gas balls at wild animals; it's not even good to throw food at wild animals."*⁶⁷

The other approach, the photojournalistic one, asks the player to direct their attention to particular objects in the game world, and through the obtained picture derive meaning. According to Poremba this function is similar to what photos do in the physical environment: they point out events and occurrences⁶⁸. Through them players "deconstruct the process of photojournalism"⁶⁹. The Umurangi developers acknowledge this properties in an interview with Gamedeveloper:

⁶⁵ Poremba, C. (2007). Point and shoot

⁶⁶ Poremba, C. (2007). Point and shoot

⁶⁷ Yarwood, J. (2021, April 2). *How some indies are approaching photography mechanics in their games*. Game Developer

⁶⁸ Poremba, C. (2007). Point and shoot

⁶⁹ Poremba, C. (2007). Point and shoot (p 56)

“With this game game, players have to frame what they see for the objectives. Over time, they will begin to frame outside the objectives and experience the story from a new perspective. Taking their own photos ties them to the world; they have taken an artefact of the world, which is something they will look at and remember how they felt in that space.”⁷⁰

Extended practice

What happens though if the game acknowledges photography as an all encompassing practice, technically and culturally? Few games manage to extend their remediation of photography beyond the action and the outcome, to those elements that Aaron Hertzmann describes as the “choices hidden in photography”⁷¹. The research mostly refers to tone, color and perspective, all aspects that most casual photographers perceive beyond their control, but are in fact products of deliberate decision (by manufacturer and marketers). To those post-production aspects we can add the pre-production one: setting up or hunting for the shot. Social aspects such as sharing and comparing pictures and cultural practices such as photojournalism also may be considered extended practice - even though this latter is better defined by the previous category in the case it focuses solely on the collection of a set of photographic evidence.

In order to be considered a game that makes use of extensive photographic practice, it should engage with at least another aspect other than the action and the simulated physical artifact. *Pokémon Snap* (1999) allows you, to a certain extent, to set up for the perfect shot, in support of the collection practice: the game can be then considered part of this category.

Much better examples are *Pupperazzi* (2022) and *Umurangi Generation* (2020). In the already cited second title, the player has access to a wide range of photographic gadgets and tools, and they are given only vague prompts, allowing them to experience the practice more freely, to the point that in one interview the developers stated how they noticed a level of skill transference in their players⁷². In *Umurangi Generation* (2020) the player can also heavily edit their pictures. *Pupperazzi* (2022) instead it’s all about understanding the behaviors of the critters populating its game world in order to capture the cutest shot possible. The developers had to admit to the limit of a simulation which aims at creating a smooth user experience: they had to fine tune the AI so that it had predictable patterns that lead to pleasant photographs⁷³. While this is understandable in the context of a commercial game, it shows how experiences created in this way create an unrealistic analogy with reality, reinforcing the aforementioned control dynamics intrinsic to both games and photography. To summarize, if a game acknowledges through gameplay

⁷⁰ Couture, J. (2021, July 16). *Using photography to document the end of the world in umurangi gene*. Game Developer.

⁷¹ Hertzmann, A. (2022). *The choices hidden in photography*

⁷² Couture, J. (2021, July 16). *Using photography to document the end of the world in umurangi gene*. Game Developer.

⁷³ Kerr, C. (2021, November 2). *Finding the fun in doggo packed photography game, Pupperazzi*. Game Developer

aspects of the photographic practice other than the action and the result, then I suggest it is a manifestation of the extended practice.

Beyond practice

A few games manage to add to the pre-existing practice, showing new possibilities for the media. While not a lot of games achieve what *Viewfinder* (202?) does, with its superposition of previously snapped space configurations on the game world, the affordances of the game and photography leave a lot of room for experimentation. Hertzmann talks about how the linear perspective is a choice already made in most of photography, but thanks to computation technology new forms of photographic perspective, more compliant to the human eye, are starting to appear⁷⁴. How long until it's possible to control and simulate this different perspective in real time, in a video game? Through games we may experience new forms of the practice: how would the photographic practice change in non-euclidean space? Simulations also allow us to break the melancholic paradigm described in *On Ludic Photography*(2021):

*"In sum, according to the melancholic paradigm, photography is a technology of memory, but one in which the remembered object is never fully there, never meets photography's promise of proof against forgetting."*⁷⁵

Simulations allow us to manifest and recreate the lost, allow us to rewind time and experience something again and again. Simulation may push to the point where the control of the practice surpasses by far its historical counterpart. We can see an hint of this in recent television productions like *The Mandalorian* (2019), which sets are rendered on Unreal Engine in real time⁷⁶.

Another potential barrier might be broken thanks to AI. Pupperazzi (2022) devs have noted how "A deep photography mechanic is very technically challenging, because the human eye is very good at recognizing content of an image, but computers can't do it"⁷⁷, and we already mentioned some of the limits of grading pictures inside of games, but thanks to artificial intelligence, the overshifting aesthetics of the photo may become an accessible parameter for every developer.

⁷⁴ Hertzmann, A. (2022). The choices hidden in photography

⁷⁵ Buse, P. (2021). On ludic photography (p 423)

⁷⁶ Farris, J. (2020, February 16). *Forging new paths for filmmakers on the mandalorian*. Unreal Engine

⁷⁷ Kerr, C. (2021, November 2). *Finding the fun in doggo packed photography game*, Pupperazzi. Game Developer

Conclusion

In this paper, using the supporting theory on simulation, remediation and the previously existing typologies of photography in games, I proposed a new typology for the use of photography as a game mechanic inside games. This typology is rooted in the awareness that photography can't be limited to an action or to an outcome, but it should be regarded as a multifaceted practice. I also acknowledge the intrinsic problematics inherent both in the media of games and in the practice of photography, such as power imposition and objectification. Gerling observes how "The photographers move in a world formed down to its last detail"⁷⁸, creating natural boundaries to what it's possible to experience through photography inside a single game, differentiating the practice from its pre-remediated form. Finally, as Frasca states, "Simulation is only an approximation and even if narrators may feel threatened by it, it does not announce the end of representation: it is an alternative, not a replacement"⁷⁹, as such photography in games shouldn't see itself as a competing practice, but a completely new one, obtained through remediation and shaped by the nature of the video game media.

⁷⁸ Gerling, W. (2018). Photography in the Digital (p158)

⁷⁹ Frasca, G. (2003). Simulation Versus Narrative - Introduction to Ludology (p 233)

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