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THE PAST THROUGH STEREOSCOPIC LENSES. VIDEO GAMES NOSTALGIA IN VIRTUAL REALITY*

Abstract: The paper examines the phenomenon of retrogaming in the context of virtual reality. Author begins by introducing two categories of gaming nostalgia (homo- and hetero-medial) and argues that almost none of the existing VR experiences belong to the former category. In the next part of the paper, he applies two distinctions used by scholars to analyze nostalgia and discuss four case studies illustrating each of them. Author argues that in all of these cases the main focus of the developers concerns the external circumstances that the games of the past were played and not the games themselves (a factor that Mark P. Wolf called a “mode of exhibition”). He finishes the paper by discussing two problematic cases of retro VR experiences that do not fit the classification used previously. He argues that both of these cases simulate the mode of exhibition of contemporary retro practices.

Keywords: virtual reality, retrogaming, nostalgia

1. Nostalgia and Video Games

It is safe to say that nostalgia remains to be one of the important driving forces of the contemporary gaming industry. It fuels the popularity of sequels, remakes and remasters, which are more numerous than they have been in previous decades. Some of the games that were long requested by their vocal fan community have finally been released (*Shenmue III*, *Final Fantasy VII Remake*, *Half-Life Alyx*). Sequels to highly acclaimed classic games, which seemed dormant have been announced (*Baldur's Gate 3*). Retro game packages are being released almost every month. One of the main reasons for this tendency to rework, repackage and re-sell the past can be attributed to the success of crowdfunding campaigns. The narrative of the seminal Kickstarter campaign organized by the company Double Fine in 2012 appealed to nostalgia directly as it tried to revive the whole genre of games perceived as non-fea-

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sible commercially (adventure games).¹ Since this tactic proved to be very successful, it has been emulated by a significant number of similar projects.

What is more, many contemporary independent games reinterpret and remix the past of the medium. This trend became so dominant that independent (or as they are more often called “indie”)² games are often recognized and classified as “independent” because of their vintage look. As observed by Jesper Juul, the choice of retro aesthetics (or an independent style as the author calls it) is typically a necessity determined by the economic circumstances of independent game production.³ It is simply much cheaper than any of the competing solutions, especially those that employ 3D graphics. Still, as Juul points out, this choice has been elevated from the status of a necessary compromise to a preferred aesthetic style. In a paper entitled *Nostalgia in Retro Game Design*⁴ Maria Garda suggested to apply the classification of nostalgia proposed originally by Svetlana Boym⁵ to video games and identified two types of gaming nostalgia: restorative and reflective.⁶ Restorative nostalgia refers to efforts of preserving or invoking the past in its original form. What is characteristic of this approach to nostalgia is the focus put on the authenticity of the experience. Needless to say, this focus may often be misguided or unrealistic⁷ but the sheer appeal to authenticity can be used as an identifying feature of restorative nostalgia. Since nostalgia can be defined as a combination of memory of the past with a feeling of longing and sentimentality⁸ restorative nostalgia can be often identified with nostalgia *per se*.

Reflective nostalgia does not aim to restore the past but rather re-examine it critically. It is a form of a dialogue with the past. An example of restorative nostalgia in games can be seen in retro games which try to preserve many technical features of past platforms, for example, their original color palette or resolution, even though it

¹ This case study has been described in: A.S. Gilbert, *Crowdfunding Nostalgia: Kickstarter and the Revival of Classic PC Game Genres*, “The Computer Games Journal” 2017, issue 6(1–2), pp. 17–32. A more general description of the crowdfunded games phenomenon can be found in B. Harris, *Kickstarter as a Source of Funds for Computer Games*, “Journal of Computing Sciences in Colleges” 2013, issue 29(2), pp. 41–48.

² For a discussion on the difference between both terms see M.B. Garda, P. Grabarczyk, *Is Every Indie Game Independent? Towards the Concept of Independent Game*, “Game Studies” 2016, issue 16(1).

³ J. Juul, *The Counterfactual Nostalgia of Indie Games*, “Proceedings of DiGRA 2015: Diversity of Play” 2015, May.

⁴ M.B. Garda, *Nostalgia in Retro Game Design*, “Proceedings of DiGRA 2013: DeFragging Game Studies” 2013, August.

⁵ S. Boym, *The Future of Nostalgia*, Basic Books, New York 2001.

⁶ A similar distinction can be found in F. Davis, *Yearning for Yesterday: A Sociology of Nostalgia*, The Free Press, New York 1979. Davis differentiates between *simple*, *reflective* and *interpretative* nostalgia. The first and the second category can be directly related to Boyd’s distinction while the third category represents an analytic approach that seeks to uncover the causes and reasons of nostalgia. Since my paper follows Garda’s classification, I focus on Boyd’s distinction.

⁷ M. Swalwell, *Moving on from the Original Experience: Games History, Preservation and Presentation*, “In DiGRA Conference” 2013, August.

⁸ E.S. Casey, *Remembering: A Phenomenological Study*, Indiana University Press, Bloomington 2000.

is not necessary for the current platform that they run on. An example of reflective nostalgia can be found in those retro games which combine features and aesthetic tropes of different platforms to create new, previously unseen aesthetics, that cannot be easily identified with any of the previous generations of hardware. Using Garda's term, they should be classified rather as neo-retro than simply retro. Neo-retro games are not games as we remember them, but they do not belong to the present either. They feel like games from an alternative past.

Gaming nostalgia can be also seen in the popularity of retro gaming. The current culture of retro gaming is a complex phenomenon. Even though it has already been studied in the literature,⁹ there are no doubts that its richness has not been exhausted. Using the distinction introduced by Henry Lowood¹⁰ retrogaming practices can be divided into three groups. Some community members employ the role of *historians* and enjoy telling stories about previous generations of hardware and software;¹¹ others choose the role of *media archivists* – they prefer to collect games and to care for their preservation; the third group wishes to *re-enact* the experience of playing these games in the past.

Retrogaming covers efforts made by companies that hold the rights to some of the classic intellectual properties (such as Nintendo, Sega or Atari) as well as grass-roots projects nurtured by the amateur creators of emulation software. This split can be explained using the distinction between *official* and *vernacular* expressions of histories of games. Following on the work of Kent A. Ono and John M. Sloop,¹² Barry Schwartz¹³ as well as John E. Bodnar,¹⁴ David S. Heineman explains this difference in the following way:

“official” discourses are created by and benefit social institutions (e.g. the state, the church, the press, or capitalism), whereas “vernacular” discourses are created by small collectives and individuals to create distinctions within and between groups.¹⁵

⁹ Examples can be found in: J. Suominen, *The Past as the Future? Nostalgia and Retrogaming in Digital Culture*, “Proceedings of perthDAC2007. The 7th International Digital Arts and Cultures Conference. The Future of Digital Media Culture” 2008, vol. 15; *idem*, *Mario's Legacy and Sonic's Heritage: Replays and Refunds of Console Gaming History*, “Proceedings of Nordic DiGRA 2012”; D.S. Heineman, *Public Memory and Gamer Identity: Retrogaming as Nostalgia*, “Journal of Games Criticism” 2014, issue 1(1), pp. 1–24; T. Wulf, N.D. Bowman, D. Rieger, J.A. Velez, J. Breuer, *Running Head: Video Game Nostalgia and Retro Gaming*, “Media and Communication” 2018, issue 6(2), pp. 60–68.

¹⁰ H. Lowood, *It Is What It Is, Not What It Was*, “Refractory” 2016, vol. 27.

¹¹ Examples of this can be found on websites, such as *Hardcoregaming101.net*.

¹² K.A. Ono, J.M. Sloop, *The Critique of Vernacular Discourse*, “Communication Monographs” 1995, vol. 62.1, pp. 19–46.

¹³ B. Schwartz, *Abraham Lincoln and the Forge of National Memory*, University of Chicago Press, Chicago 2000.

¹⁴ J.E. Bodnar, *Remaking America: Public Memory, Commemoration, and Patriotism in the Twentieth Century*, Princeton University Press, Princeton 1992.

¹⁵ D.S. Heineman, *op. cit.*, pp. 1–24.

The division between official and vernacular exhibitions of the history of games is crucial to understanding the phenomenon of retro-gaming because of the tension between both forms of invoking the past. The biggest bone of contention between both communities comes from the difference in the attitude towards piracy. Albeit many vernacular retro communities create some forms of moral code,¹⁶ it is typically much more liberal than the policies championed by official publishers. As pointed out by Nathan Altice the relation between official publishers and retro-gaming community can even sometimes turn into a competition. One example of this can be found in Nintendo's *NES Remix* which replicates the style of community made modifications of classic NES games.¹⁷

Even though Garda mentions emulation only in passing, her distinction between restorative and reflective nostalgia can be also found in the efforts of the retro gaming community. As I already mentioned, some of the community members focus mostly on the accuracy of emulation, preservation of original files and artifacts. Others prefer to add new features that were impossible on the original hardware or even alter the original files, creating so-called “mods” and “ROM hacks”.¹⁸

2. Nostalgia and VR

As I already argued elsewhere,¹⁹ one specific sector of current technology where nostalgia seems to be out of place is virtual reality technology. To make this claim more precise let me introduce a conceptual opposition between two types of nostalgia: *homo-medial* and *hetero-medial*. Emulation and neo-retro games that I referred to in the previous section invoke the memory of past games. This makes them a case of homo-medial nostalgia. On the other hand, a game such as *Grim Fandango* invokes the memory of film noir. This would be the case of hetero-medial nostalgia as the game invokes the memory of an old genre from a different medium. This difference (which I assume to be fairly easy to grasp) may not be especially important in the context of other technologies but is quite useful in the case of VR because it helps us to realize that in the case of this specific technology, homo-medial nostalgia seems to be practically non-existent. The main reason for this is the turbulent history of VR.

It might be easy to forget, but virtual reality is only ten years younger than video games. The first video game is often identified as *Tennis for Two* and was created in

¹⁶ S. Downing, *Retro Gaming Subculture and the Social Construction of a Piracy Ethic*, “International Journal of Cyber Criminology” 2011, issue 5(1), pp. 750–772.

¹⁷ N. Altice, *I Am Error: The Nintendo Family Computer / Entertainment System Platform*, The MIT Press, Cambridge 2015.

¹⁸ H. Postigo, *Of Mods and Modders: Chasing Down the Value of Fan-based Digital Game Modifications*, “Games and Culture” 2007, issue 2(4), pp. 300–313; E. Champion, *Game Mods: Design, Theory and Criticism*, Lulu.com, 2013.

¹⁹ Anonymized.

1958²⁰. The first depiction of VR in the form we know from contemporary solutions can be found in Stanisław Lem's *Summa Technologiae* published in 1964²¹. The first prototype that is recognizably similar to today's VR is Ian Sutherland's *Sword of Damocles* created in 1968 and described in 1965²². Still, the histories of both media could not be more dissimilar. The history of video games is a story of success and constant technological progress. The history of virtual reality is a story of expensive failures, shattered hopes, and constant restarts. It can be argued that only with the current wave of VR, beginning with 2012's Oculus Rift Kickstarter campaign, virtual reality technology entered a trajectory of progress similar to other successful inventions. It is still too early to say, but it looks as if, for the first time in history, VR is here to stay.

The result of this is that there is practically no shared collective memory of virtual reality. Only a very small fraction of the population was able to experience the early prototypes or commercial headsets of the past. Those who did may have had very different experiences as the market of early VR solutions was always very fragmented. Moreover, even the most popular headsets, such as Forte VFX-1²³ were simply expensive accessories which enabled the owner to use it with existing games, such as *Doom*, *Quake*, *Descent* or *Magic Carpet*. In other words, the helmets did not function as a separate platform with exclusive software produced specifically to make use of its features. The aesthetic experience of the users of VFX-1 was thus very similar to the experience of the players of the original games in low resolution. Unlike in the case of computer games, there are no specific titles or aesthetic styles that can invoke the nostalgia for early VR. The result of this is that the early prototypes have never been romanticized in the gaming press (including VR-specialized outlets). This detail is important because, as pointed out by Jaakko Suominen, Markku Reunanen and Sami Remes, the gaming press played a formative role for retrogaming.²⁴ The upshot of this is that, despite its long history, VR did not inspire its own homo-nostalgic retrogaming community.

For most people, the only shared memory of VR is the memory of *descriptions* of VR presented in popular books and movies, such as *Neuromancer* or *The Lawnmower Man*. The vision depicted in fiction carried over to the editorials in popular gaming press published in the 1990s that heralded the imminent arrival of the technology.²⁵ This makes virtual reality somewhat unique from the historical perspective as what

²⁰ M.J.P. Wolf, *The Video Game Explosion: A History from PONG to PlayStation and Beyond*, Greenwood Press, Westport 2008.

²¹ S. Lem, *Summa Technologiae*, Wydawnictwo Literackie, Kraków 1964.

²² I.E. Sutherland, *The Ultimate Display*, "Multimedia: From Wagner to Virtual Reality" 1965, issue 1.

²³ At least in terms of the amount of compatible games as the sales numbers are not available.

²⁴ J. Suominen, M. Reunanen, S. Remes, *Return in Play: The Emergence of Retrogaming in Finnish Computer Hobbyist and Game Magazines from the 1980s to the 2000s*, "Kinephanos – Canadian Journal of Media Studies" 2005.

²⁵ A good example of this can be found in the third issue of the British magazine *Edge* (p. 14).

is collectively shared is rather a promise or an imagination of future technology than any actual memories of the technology itself.

One of the best exemplifications of this uneasy relation between VR and nostalgia can be found in *Oculus First Contact* – the introductory software created by the company Oculus to accompany their *Touch* controllers. This short sequence aims to familiarize the users with the controls and present some of the possibilities of the hardware. It is designed as the first experience the user is supposed to go through. The sequence presents a small, cluttered room filled with strange objects and a small robot similar to Pixar's *WALL-E* with whom the user interacts. The aesthetics of this sequence is strikingly inconsistent. On the one hand, the user encounters artifacts that signify the future or a highly advanced contemporary technology: the robot, laser pistols, and a 3D printer. On the other hand, the design of most of the objects reminds of the 1980s design aesthetics. The 3D printer uses console-like cartridges, the shelves are full of magnetic tape media and the gun looks suspiciously close to the *Zapper* – a lightgun used for the classic Nintendo Entertainment System console popular in the mid-1980s. Moreover – whenever new objects are invoked to the scene, they materialize as wire-frame objects similar to 1970s arcade games and glow with a strong neon glare – the unmistakable contemporary signifier of nostalgia.

Taken as a whole the room is very reminiscent of the vision known from *Ready Player One* – a popular book that juxtaposes a futuristic vision of ever-present virtual reality with 1980s nostalgia.

An introduction of virtual reality technology through a nostalgia-tinted tutorial software might initially seem out of place, but in hindsight, it seems to be a perfect initiation for a technology that feels new and old at the same time. In a way VR is intrinsically nostalgic – it is a long-awaited guest that everybody talked about for a long time. At the same time, the lack of shared experiences of the early prototypes constraints the possibilities of the creators – If they want to tap into any shared memory, they have to refer to the 1980s and 1990s visions of VR and not to the actual headsets.

At the same time, there are no doubts that VR is very useful when it comes to nostalgic representation of physical reality – places, objects or events from the past. Many existing VR projects let you experience simulations of the past. From the exploration of historical spacecraft (*Apollo II VR*), and sunken ships (*Titanic VR*) to homes of historical figures (*Anne Frank House*) and even deceased family members²⁶. From this point of view, virtual reality could even be treated as a technology with the biggest nostalgic potential. After all, VR promises to transport us to different places and enables us to be present in simulated environments. This seems like a perfect fit for nostalgia (especially restorative) as it is very often associated with the

²⁶ M. Park, *South Korean Mother Given Tearful VR Reunion with Deceased Daughter*, 2020, Reuters.com, <https://www.reuters.com/article/us-southkorea-virtualreality-reunion/south-korean-mother-given-tearful-vr-reunion-with-deceased-daughter-idUSKBN2081D6> (accessed: 26.02.2020).

memory of specific places.²⁷ As we are going to see in section 4, this is exactly what the developers of VR retro gaming software exploit – they focus mostly on simulating spaces, circumstances, and objects associated with the past and to a lesser extent on the games themselves.

3. Remediation or Simulation?

Even though, as I argued in the previous section, contemporary VR retro experiences are not homo-medial – they do not address actual previous instances of the technology²⁸ – a number of them revisit the past of non-VR video games. On the face of it, this means that they could be understood as a form of remediation. Despite this, in my analyses presented in section 4, I prefer to refrain from this notion. There are two reasons for this decision.

Firstly, all of the case studies I analyze in section 4 embed the retro games in virtual environments, leaving the games practically intact. The novel part is typically relegated to the simulation of physical places that the retro games were played in. Because of this, the notion of remediation turns out to be less useful than it may appear.

Second of all, the idea that VR retro should be seen as a form of remediation hinges on an assumption that virtual reality is a different medium than video games. Even though I believe that this claim can be justified, it is important to point out that it is not self-evident and that there are some strong arguments against it.

Although the classic paper on remediation by Bolter and Grusin²⁹ discusses virtual reality at length and even seems to be inspired by the hyperboles of VR enthusiasts³⁰ it conflates computer games with virtual reality, calling non-VR games, such as *Doom* or *Myst* “desktop virtual reality”. On the other hand, the more fleshed-out version of the argumentation presented in the book *Remediation. Understanding New Media* clearly classifies VR as a separate medium.³¹ What complicates things even more virtual reality, experiences can be very different: apart from virtual reality games, people can engage with 360 degrees movies, virtual tours and live concerts in VR. Are they all parts of the overarching “VR medium” or should they be treated separately as “VR game medium”, “VR film medium” etc.? This classificatory problem

²⁷ E.S. Casey, *op. cit.*

²⁸ One exception to this pattern is a fan created tribute to 1991 VR game *Dactyl Nightmare* described by Alex Beyman on a blogpost. A. Beyman, *Somebody Remade the 1990s VR Classic 'Dactyl Nightmare' for Oculus!*, <https://medium.com/@alexbeyman/somebody-remade-the-1990s-vr-classic-dactyl-nightmare-for-oculus-n-o-s-t-a-l-g-i-a-b-o-m-b-a3ffdc2ac636> (accessed: 22.04.2020).

²⁹ J.D. Bolter, R.A. Grusin, *Remediation*, “Configurations” 1996, issue 4(3), pp. 311–358.

³⁰ It seems that the authors were especially dissatisfied with the idea that VR gives its users unmediated access to content.

³¹ J.D. Bolter, R.A. Grusin, *Remediation. Understanding New Media*, The MIT Press, Cambridge 2003.

can be likened to the question as to whether television constitutes a separate medium just because it delivers the same content in a new way.³²

Video games have always been played in a variety of ways and some researchers may choose to classify VR rather as a new accessory than a new medium. One more layer of complexity that is specific to video games is the phenomenon of porting.³³ Should making a VR port of an existing game (and there are plenty of examples of such ports) count as remediation? This depends on whether we treat VR as a separate medium or simply a different platform. Platforms are not typically treated as separate media – for example, we do not talk about mobile games as a separate medium. And what about games that let you switch between VR and non-VR modes³⁴ – are they some kind of media hybrids?

This problem is complex enough to be treated in a separate paper, so to move forward I suggest using a different notion that should be sufficient for our purposes and leave the remediation debate for another time.

In the titular essay from the book *The Medium of the Video Game* Mark P. Wolf³⁵ acknowledges the problem of classifying games played on different displays (VR included) and introduces the notion of a “mode of exhibition”. The idea is that the same game can be played in different environmental conditions, depending on the technology used and the space it is played in. Arcades, living rooms, computer desks, and beds are examples of different modes of exhibition. I believe that this notion fits the case of retro virtual reality better than the notion of remediation. As we are going to see, retro VR experiences transform the mode of exhibition of games of the past on two levels. Firstly, they transform it on the physical level, as they demand us to use a new accessory and different physical space. Secondly, they transform the experience on the virtual level, as they simulate spaces in which the retro games are played.

4. VR Retro – Four Case Studies

Even though the existing retro VR experiences are not numerous, there are still too many of them to be included in this paper. Because of that, I decided to use the distinctions provided by Garda and Heineman to choose four case studies that are representative of the phenomenon of retro VR. I do this by combining both distinctions. The result is a two-dimensional categorization consisting of four categories of nostalgic VR experiences: (1) vernacular restorative, (2) official restorative, (3) official reflective and (4) vernacular reflective.

³² S. Cardwell, *Television amongst Friends: Medium, Art, Media*, “Critical Studies in Television” 2014, issue 9(3), pp. 6–21.

³³ P. Grabarczyk, E. Aarseth, *Port or Conversion? An Ontological Framework for Classifying Game Versions*, “Proceedings of DiGRA 2019: Game, Play and the Emerging Ludo-Mix” 2019.

³⁴ See *Polybius* or *Bound* for good examples of this.

³⁵ M.J. Wolf, *The Medium of the Video Game*, University of Texas Press, Austin 2001.

Case 1. Vernacular restorative nostalgia: *VBjin*. A Virtual Boy emulator

Virtual Boy was a curious experiment released by Nintendo in 1995 and discontinued shortly thereafter in 1996. Even though it was marketed as a form of virtual reality, it can be classified as such only in a very broad sense of the term. In reality, it was simply a stereoscopic 3D console that was accessed by the players via a stationary headset that the users had to look into. Since the Virtual Boy did not employ any form of head or eye tracking, it was reminiscent of early virtual reality attempts such as *Sensorama* or kaiserpanoramas. The device's case blocked the external visual stimuli, creating a focused feeling of being alone with the game. This makes the mode of exhibition of Virtual Boy games quite special as there was no prototypical place or environment that was associated with them. They were played in a black void, so it was, in fact, the absence of the environment that was characteristic of the experience.



Fig. 1. Top: Virtual Boy³⁶. Bottom: Virtual Boy game played in *VBjin*³⁷

It is not easy to play the Virtual Boy today. Due to the low sales of the hardware and the software (only 22 titles produced), the console is nowadays an expensive

³⁶ Photography by Evan-Amos. CC BY-SA 3.0 license.

³⁷ Screenshot from the game taken by the author.

collector's item. Additionally, since most of the display screens used by consumers today do not have 3D capabilities, Virtual Boy is difficult to emulate on modern hardware. Even though in 2011 Nintendo released the 3DS, a 3D capable handheld system, the company did not release any of Virtual Boy games to the new system. This reluctance to acknowledge the failed virtual reality project was often criticized by fans who recognized the missed opportunity. As nicely summarized by one of the users on the Nintendo Reddit subforum:

Why has this never happened? Some of the games for the Virtual Boy are actually quite good and it seems like most of the headache issues were likely due to the system's formfactor or people having the headset not properly adjusted. Does Nintendo really not want to acknowledge the Virtual Boy except by making subtle jokes about it? It just seems like these games and their 3D experience will never be seen by modern gamers.³⁸

This created a typical niche for vernacular expression of history. Amateur programmers tried to rectify the situation producing homebrew emulators of the system for the Nintendo 3DS, but the technological difference in how both systems implemented the 3D effect and the addition of the disparity in their respective control methods made these efforts imperfect. The rise of readily available virtual reality headsets inspired the creators to develop a more accurate emulator of the Virtual boy. The restoration of the original mode of exhibition of the virtual boy is not ideal as the user is still able to move her head – something that was not possible with the original machine, but the illusion of depth and the feeling of playing in a black void makes this emulator the most effective way to emulate the system today.

Counting the Virtual Boy as an example of an early VR device makes *VBjin* a rare case of homo-medial nostalgia in VR. This should not come as a surprise as even though unsuccessful in terms of console sales, Virtual Boy was still probably the best-selling VR device of its time (according to Peter Main³⁹ it was originally selling better than a non-VR console of Nintendo's competitor, Sega). For this reason, it is the only VR (or VR-like) system that could have created a shared collective memory. What is more, the system was capable of displaying only monochrome graphics in different shades of red which is a highly unusual solution. This resulted in a unique aesthetics that can be invoked today.

Case 2. Official restorative nostalgia – Sega's *Mega Drive & Genesis Classics Collection*

On the face of it, Sega's *Mega Drive & Genesis Classics Collection* is a fairly typical retro collection of emulated software. It is, in fact, a continuation of compilations the company released for various platforms earlier. What makes it interesting is that in

³⁸ https://www.reddit.com/r/nintendo/comments/73f0r2/virtual_boy_on_3ds/ (accessed: 27.02.2020).

³⁹ D. Sheff, A. Eddy, *Game Over Press Start to Continue*, Cyberactive Media Group, Wilton 1999.



Fig. 2. Sega's *Mega Drive & Genesis Classics Collection* in VR⁴⁰

2018 Sega enhanced this collection with VR support. The application focuses mostly on the simulation of the original mode of exhibition of MegaDrive games as the only thing that the VR support adds is the recreation of a fully rendered 3D representation of the player's room. The room is not explorable but allows the player to turn their head, lean and duck. What is interesting from our point of view is that the way the interior is designed mimics a stereotypical American room of a Sega fan from the early 1990s. The space is full of recognizable objects of the past – It is a stereotypical kid's room consisting of a desk, a bed, a shelf with a vinyl player and a hi-fi set. Some VHS tapes are laying on the floor. The room is mostly decorated with generic objects, such as a landscape, some non-descript Sci-Fi postcards, and Sega merchandise: Sonic comic books, Sonic carpet, and a few MegaDrive posters. This is an expected result of the official status of the emulator suite as the company did not have an incentive to recreate objects associated with any other existing brands.

The central object is the console and a rather small television set. On the shelf, there is a cartridge collection representing the MegaDrive games that the player bought.

The whole room functions as a form of the main menu. Most of the existing objects are contextualized: a notepad on the desk allows the player to browse additional original materials, such as game manuals. The hi-fi set enables her to change sound settings, virtual representations of the controllers are connected to control settings, etc. Some of the contextualizations are less intuitive. Online multiplayer is connected to a music speaker, which is surprising as connecting it to a phone laying on the floor seems like a more obvious idea. The room is not customizable and barely interactive.

⁴⁰ Screenshot from the game taken by the author.

This is most probably dictated by the controls – to maintain parity with original controllers the game cannot make use of VR specific peripherals and forces the user to access all of the options through a modern non-VR controller.

The reason this collection should be classified as being restorative is that the VR part clearly prioritizes accuracy of representation over the possibilities virtual reality gives to the developers. Nowhere is this aspect more visible than in the case of how the display of the emulated games is handled. The default mode for playing games is a 2D full-screen display presented as a borderless screen in a void, similar to the one used in the Virtual Boy emulator, but hardly reminiscent of the original mode of exhibition of a home console game. From the perspective of the VR user, it can be likened to playing games in a dark cinema. This form of display preserves the games in their original aspect ratio and lets the user see them in a completely unmodified form, compromising the authenticity of the mode of exhibition for the authenticity of emulation. The other possibility that the user has is playing the games directly on the virtual television set. The placement of the TV (it is positioned rather low), as well as its small size,⁴¹ forces the player to physically sit on the floor close to the screen. The resolution of the contemporary VR headsets makes this mode more of a novelty than a realistic way to play the games. This mode clearly prioritizes the authenticity of the original mode of exhibition over emulation and convenience.

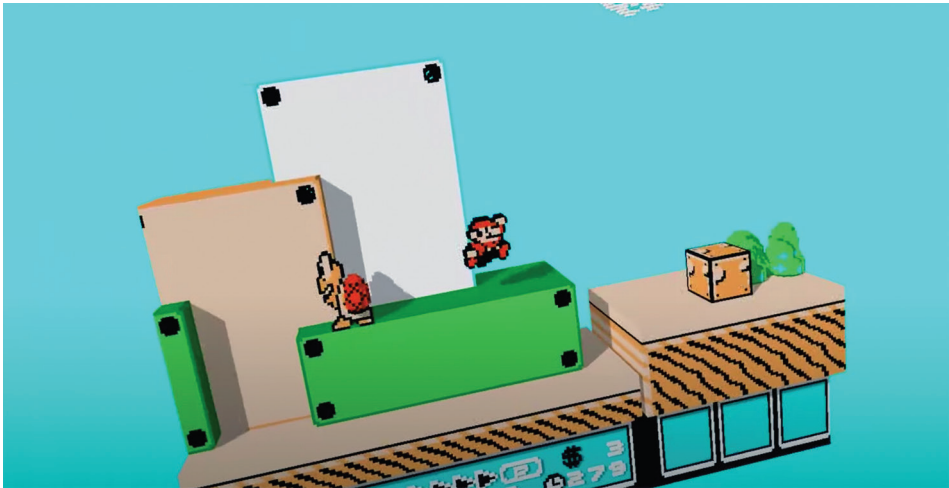


Fig. 3. 3DSEN. *Super Mario Bros.* played in VR⁴²

⁴¹ It is impossible to measure the TV size but it looks like a typical, non-expensive 14" display from the 1990s.

⁴² Screenshot from the game taken by the author.

Case 3. Vernacular reflective nostalgia – *3DSEN*. Nintendo Entertainment System emulator

As mentioned in section 1, the competing aims of restorative and reflective nostalgia can be easily identified within the emulation community. Some of the emulators attempt to simulate the original hardware perfectly and chase the elusive goal of the “original experience” of past users.⁴³ For example, they enable the user to display the games using special graphical effects simulating CRT scanlines on contemporary LCD screens. On the other side of the spectrum, emulators can add features that were impossible on the original hardware, such as instantaneous save states, high-res rendering or achievements. They may even remove some of the signature hardware limitations of the original hardware, such as sprite flickering, texture warping or extreme stereo separation. These software modifications extend to the changes in player practices. Some retrogamers study games to find shortcuts that enable them to finish the games in the most efficient and quick way (speed runs). Others modify the games in such a way so they can use a single controller to play multiple games at the same time.⁴⁴ Arguably, the most impressive effort at reflective emulation can be found in *3DSEN* – a Nintendo Entertainment System emulator with virtual reality support. As almost all emulators, *3DSEN* has been developed within the homebrew community and is in no way endorsed by the producer of the hardware it reproduces. It does not come with preinstalled games – the users have to procure them themselves copying the ROMs of the original cartridges they own or by finding them illegally on the web. The emulator transforms a selected number of original NES games by adding depth – effectively turning them into playable dioramas.⁴⁵ The way the games play remains the same – for example, in the *Super Mario Bros* the player still moves on a strictly 2D plane but leaning towards it she can now look into the world of Mario and see the depth that was never present in the original. This compromise lets the players realize a long-standing dream of peaking inside the games from their childhood but it preserves their integrity at the same time. They can be literally experienced from a fresh perspective and gain a completely new mode of exhibition, while still being “original” in a recognizable way.

Case 4. Official reflective nostalgia – *Pixel Ripped 1989*

The last example is a VR exclusive game *Pixel Ripped 1989*, released in 2018. The game was sold via all major VR store platforms (Steam, Oculus Store, PlayStation Network) and reviewed on popular gaming websites, such as Gamespot or IGN.⁴⁶ For

⁴³ M. Swalwell, *op. cit.*

⁴⁴ S. Boluk, P. LeMieux, *Metagaming: Playing, Competing, Spectating, Cheating, Trading, Making, and Breaking Videogames*, University of Minnesota Press, Minneapolis 2017.

⁴⁵ Although it uses original roms, a special patch has to be created for every each game. At the moment of writing it supports 61 games.

⁴⁶ Which, as I point out in (Anonymized) is not typical for most of the VR releases.

this reason, I classify it as “official”, even though it comes from a small independent developer. The title, digital cover and the trailers do not leave any doubts as to that the game is filled with “concentrated nostalgia”.⁴⁷



Fig. 4. *Pixel Ripped 1989*⁴⁸

At the very beginning, the game puts the player in a paradoxical space of a fully realized 3D room that is textured using the resolution and the color palette of Nintendo Gameboy. This can be seen as a natural next step from the idea found in *3DSEN* since the player is literally transported into an 8-bit game. After a short non-interactive sequence introducing the main game villain, the player teleports to the body of a young schoolgirl who plays a handheld system at school. This introduces the main and the most original idea of *Pixel Ripped*, one that can be represented only in VR – the ability to play a virtual representation of a handheld system. The player’s task is to navigate a fairly standard 2D side-scrolling game reminiscent of the *Mega Man* series without being caught by the school teacher. The handheld system is a fictitious machine – a non-existing intermediate stage between 8 and 16-bit hardware generations. The resolution and the aspect ratio of the system belong to the 16-bit era, while the sound and the monochrome color palette is much closer to the 8-bit. In this sense *Pixel Ripped* fits Garda’s category of reflexive nostalgia perfectly. Since the game turns the physical controller into a virtual handheld system, the player has to physically hold it close to her face, the same way a real handheld would

⁴⁷ To use the expression suggested by one of the reviewers. D. Jagneaux, *Pixel Ripped 1989 Review: Highly-Concentrated Nostalgia Meets VR*, “Upload”, <https://uploadvr.com/pixel-ripped-1989-review/> (accessed: 27.02.2020).

⁴⁸ Screenshot from the game taken by the author.

have been held. At the same time, the player can freely observe the 3D environment that is rendered in a fairly realistic manner. Using her head the player has to activate various parts of the environment causing distractions. The distractions allow her to focus on the handheld without being caught as she is then able to hold the handheld closer to the face and focus on the action without the need to pay attention to the surroundings.

This may sound like a convoluted set-up for a game, but what it achieves is that it recreates the mode of exhibition of handheld games in a believable way. There is no singular space that is typical for handheld gaming but, unlike in the example of the Virtual Boy emulator, it is neither the absence of the environment that is characteristic of this mode of exhibition of games. The game opts for creating the feeling of being constantly distracted by the surroundings – the phenomenological part of the original experience of playing a handheld game in a public space. Needless to say, the school setting has not been chosen randomly. It is there to recreate the thrill of being able to play games at the least expected place – the experience that was very new in 1989 when the first GameBoy was released. The class (and later the playground) contains many nostalgia triggers – from a big foil projector, through boom boxes to gaming magazines stacked at the student’s desk. The distractions the player causes are hyperbolic and verge on surrealism. At one point, the player triggers soccer players who break into the class, at another time she transforms the whole class into a 1980s arcade salon. Even though the sequence is very short it is presented in surprising detail. Instead of holding the handheld, the player can now stand in front of a virtual arcade machine and continue the game on a CRT monitor. The game graphics transforms to match the difference between handheld gaming and arcades (which were always much more advanced technologically). The transformation is very dramatic and it conveys the difference between the focused experience of playing an arcade machine and the distracting nature of playing a handheld. The ability to play the same game in two different environments embellishes the influence of mode of exhibition on the overall experience of the player.

What is more, almost from the beginning the reality of the game and the external world overlap. For example, the moment the teacher notices that the player is not paying attention to the lesson, the handheld game warns the player, displaying a pixel art version of the educator’s face on the smaller screen. This might be seen as a simple crutch used to help the player react in time but it might be also interpreted as a commentary of how the artificial split between gaming and everyday life has been muddied by the invention of portable gaming. *Pixel Ripped 1989* tracks the evolution of this mode of exhibition of games by pointing out its contemporary conclusion. In one of the later sequences, it forces the player to hold the handheld just in front of her face and observe the environment through its screen – transforming the pseudo-retro machine into a contemporary augmented reality system. At this moment, the reality becomes the ultimate distraction as it can be only seen and interpreted through the screen of the device.

5. Incongruous Retro Spaces

Lastly, I wish to analyze two cases of retro VR experiences that may seem to be perfectly suited for my purpose, but that ends up being difficult to categorize after a more detailed analysis.

The first example is *New Retro Arcade: Neon* – an application that enables the user to play their retro games in a virtual arcade setting. The second is *EmuVR*, a similar package that enables the user to import their retro collection and enjoy it in a recreation of a room located in an American suburban house.

Both examples can be described as vernacular exhibitions of history. *New Retro Arcade* can be purchased on Steam digital store but because it is not associated with any company holding the rights to original retro games, it comes only with one preinstalled game (a homebrew *Flappy Bird* clone). Everything else is left to the user. Using a robust editor, the user can build her own arcade and populate it with retro games from her collection. Alternatively, the user can download one of the illegal packages of prebuilt arcades, that can be found on the Internet. From the distribution point of view, *New Retro Arcade: Neon* is very similar to the Virtual Boy emulator described in section 4. The second example – *EmuVR* has even fewer ties to any official channels of distribution. It can be downloaded free of charge from the Discord channel of the developer and the channel is not accessible without an invitation (which is admittedly very easy to obtain). Like *New Retro Arcade* it does not contain any games. Using a simple editor the program enables the user to import games of their own.

Even though both projects represent very different modes of exhibition of games, I decided to analyze them together, because they lead to similar difficulties in categorization. On the face of it, both of them should be described as restorative nostalgia projects. They use original games in an unaltered state (unlike *3DSEN*) and recreate spaces these games were originally played in using virtual props. *New Retro Arcade* uses typical arcade cabinets found in American and European arcades in the 1980s and 1990s. The player can listen to background music using cassettes and a 1980s boom box as well as watch videos using a VHS player. A small section of the arcade contains CRT TVs and a SNES console. They have to be turned on using original cartridges, similar to Sega's collection described in the previous section. Amongst 1980s paraphernalia laying on a small coffee table GameBoy consoles can be found and picked up. They are fully functional and emulate GameBoy games added by the user.

The room found in *EmuVR* is somewhat similar to Sega's collection described in section 4. It contains CRT television sets and once the user provides her games for the supported platforms, the room gets filled with realistically rendered representations of original consoles. The machines have to be operated manually. For example, in the case of Sony PlayStation, the user has to manually open the CD tray, insert a CD and close the tray.



Fig. 5. *New Retro Arcade: Neon*⁴⁹



Fig. 6. *EmuVR*⁵⁰

⁴⁹ Screenshot from the game taken by the author.

⁵⁰ Screenshot from the game taken by the author.

More importantly – both emulation packages enable their users to play lightgun games in a way they were played originally. This is especially important because this experience is notoriously hard to capture using standard emulation techniques. The fundamental difference between how LCD and CRT screens operate made the lightgun accessory completely unusable in the contemporary living room. Virtual reality representation of the lightgun is currently the easiest and the most universal method of emulating the original games (including a realistic representation of the accessory itself). From this point of view, both packages seem to be clear cases of restorative nostalgia.

And yet, once you start to analyze the represented spaces with more scrutiny, some surprising inconsistencies become apparent. First of all both representations of space are unusually saturated with equipment. This is visible in the case of *EmuVR*. Albeit the room is small, it comes pre-equipped with several television sets. Some of them are much bigger and more modern than the one featured in Sega's collection but others look as if they came from the early 1980s. What is especially striking is the sheer number of them. Moreover – apart from some minor decorative elements the room contains only functional, emulation-related equipment. Even the shelves are empty, waiting to be filled with CDs and cartridges supplied by the user. On top of this *EmuVR* enables the user to simultaneously play several lightgun games at the same time (using the same accessory) which is very similar to modern retro gaming practices described by Boluk and LeMieux.⁵¹ Unlike in the case of Sega's collection this space does not simulate the original environment old games have been played in. Whatever this room is, it definitely isn't a room from most player's childhood memories. It is clear that the developers prioritized the usefulness and versatility of the environment over authenticity.

In *New Retro Arcade's* case, the situation is similar because of the addition of the console and the VHS corner. They make very little sense in the context of a real arcade of the era. Cartridges, controllers, and handhelds would have been quickly stolen, consoles would have been destroyed. The idea of watching VHS movies in an arcade is very unrealistic as they would have not been audible in the surrounding noise. The most surreal part of the experience is an additional cinema room which enables the user to watch VHS tapes projected on a cinema screen – a juxtaposition of technologies rarely seen anywhere, let alone in the arcades. The closer we look at the places simulated in both emulation packages, the less obvious it is, what kind of memories do they really try to evoke.

I believe that the explanation of all of these incongruencies is actually quite simple. Despite first impressions, both VR experiences do not try to replicate gaming spaces from the past. What they really simulate is the contemporary space typical for retro gaming. *EmuVR* represents a contemporary room of a retro collector. Unlike the lived spaces of the players of the past, retro collectors' rooms are often dedicated

⁵¹ S. Boluk, P. LeMieux, *op. cit.*

spaces filled with TV sets from different eras connected to retro consoles. The space of *New Retro Arcade: Neon* is only superficially similar to real arcades from the 1980s and 1990s. It is much more reminiscent of contemporary arcade bars which often use a mixture of arcade cabinets and retro consoles. Both packages are hybrids of nostalgia for games of the past and the contemporary modes of exhibition of retro gaming. In a way, they simulate the present and not the past.

6. Conclusion

As I tried to show in this paper video game nostalgia in VR is a fairly peculiar phenomenon. In contrast to regular video game nostalgia, VR experiences are not typically homo-medial. As we saw, the closest analogy to a homo-medial nostalgia in VR can be found in the case of the *VBjin* – an emulator of a console that is classified as VR only in a broad sense of the expression. The most characteristic aspect of retro virtual reality games is that the games of the past that they invoke are practically unaltered. Fictitious retro games, such as the one found in *Pixel Ripped 1989* are still played the same way original handheld games were played. Even if they are modified (as in the example of *3DSEN*), they still could not be treated as fully realized VR games.

Instead of modifying the games, VR developers focus mostly on what Mark P. Wolf calls “modes of exhibition” of games – on the external context of the experience. VR provides a nostalgic simulation of the physical circumstances of playing games from the past. It simulates spaces, objects, accessories and even the phenomenology associated with the previous generations of hardware. In this sense, VR retro experiences can be likened to contemporary real-life recreations of retro spaces, such as arcade bars, museum exhibitions, and private collectors’ dedicated rooms. As shown on the examples of *New Retro Arcade: Neon* and *EmuVR*, this comparison already found its natural conclusion in some of the existing VR emulation suites.

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