

Article

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This item has been published in Issue 06 'Method as Play / Play as Method,'
edited by Anisha Anantpurkar and Pasha Tretyakova.

To cite this item: Smirnov, R. (2026). To play as a historical actor: A case
study in phenomenological research on virtual embodiment in history-
related immersive VR media. *The February Journal*, 06: 88–107.

DOI: 10.60633/tfj.i06.120

To link to this item: <https://doi.org/10.60633/tfj.i06.120>

Published: 13 April 2026

To Play as a Historical Actor: A Case Study in Phenomenological Research on Virtual Embodiment in History-Related Immersive VR Media

Roman Smirnov

This article investigates the methodological implications of playing as historical actors within immersive virtual reality (VR) environments. Drawing on a PhD project examining over 20 history-related VR experiences, it combines phenomenological analysis of embodied gameplay with computational distant viewing techniques. The study foregrounds virtual embodiment as both an epistemic tool and a subject of inquiry, showing how first-person interaction with historical environments—ranging from Renaissance Venice in *Assassin's Creed Nexus VR* to the lunar mission in *Apollo 11 VR*—enables researchers to experience history kinesthetically and cognitively. A systematic selection of VR titles illustrates diverse strategies of perspective, interactivity, and narrative framing, highlighting how iconic figures and 'ordinary' historical actors are mediated through digital simulations. Phenomenological observations reveal the fragility and situatedness of immersion, where bodily action, system constraints, and unanticipated disruptions co-produce historical meaning. The article argues for a methodological pluralism in digital public history: scholars must oscillate between immersion and analytical distance to understand how VR shapes historical consciousness. Ultimately, playing as a historical actor emerges as a productive research practice, revealing the dynamic negotiation of past and present within immersive media.

Keywords: digital public history, historical consciousness, historical culture, immersive media, virtual embodiment, virtual reality

1. Introduction

What does it mean for researchers to assume the roles of historical actors within immersive virtual reality (VR) environments? This question emerges from my PhD project at Ruhr University Bochum, entitled *As It (Virtual) Really Was? The Impact of Immersive VR Technologies on Memory Culture(s) and Collective Perceptions of History* and investigating how immersive simulations shape historical consciousness and collective memory practices. The rapid proliferation of VR-based history-related applications—from educational (re)constructions such as *Apollo 11 VR* (Immersive VR Education, 2019) and *Chernobyl VR Project* (The Farm 51, 2016) to entertainment-oriented titles like *Assassin's Creed Nexus VR* (Ubisoft, 2023) and *Sniper Elite VR* (Rebellion,

2021)—has transformed how the past is represented. This development compels scholars to reconsider not only how VR mediates historical lifeworlds, but also how embodied participation in them influences analytical perception. To address this, the article adopts an ego-perspective: it offers a reflexive account of my dual position as researcher and player, navigating between analytical distance and embodied presence in history-related VR.

Contemporary debates in public history and history didactics increasingly conceptualize history as a mediated construct. Its reception depends on audiences' historical media literacy, understood as the ability to critically interpret mediated representations of the past within broader frameworks of historical culture and historical consciousness (Schwabe, 2021, p. 163). From this viewpoint, those who design media referencing the past effectively produce versions of history—in other words, they engage in an act of doing history—and thereby shape consumers' historical imagination (Thünemann & Wagner, 2024, p. 261). Immersive VR, typically experienced through head-mounted displays (HMDs) integrated into headsets such as the Meta Quest or PICO, intensifies this mediatization by providing spatialized simulations. Such simulations situate users inside historical environments and, through diverse visual, auditory, and interactive elements, evoke a sense of historical authenticity that derives not from the object itself—as in the case of an original museum artifact—but rather from the perceiving subject who experiences the represented environment as more or less plausible (Gundermann et al., 2021, p. 26).

This first-person perspective combined with interactive mechanics enables users to inhabit virtual bodies and engage with history as embodied actors rather than passive observers. The experiential qualities of VR resonate with the concept of historical experience (*Geschichtserfahrung* in German), understood in history didactics as a mode of engagement with the past that emerges through affective, mediated interaction rather than cognitive reflection alone (Lewers, 2025). Immersive VR has often been framed as an 'empathy machine' (Barbot and Kaufman, 2020), a medium that amplifies emotional identification through embodied presence. However, such immediacy also raises ethical concerns. (Re)constructing the perspectives of muted or marginalized groups risks reanimating these experiences in ways that present conjecture as authenticity, implicitly or explicitly suggesting that users can gain 'authentic' access to these groups' lived realities (Nakamura, 2020). Through locomotion systems, tracked head and hand movements, and controller-based interaction, VR applications produce a powerful effect of virtual embodiment (Ahn, 2021, p. 163), in which historical knowledge is not merely represented but enacted. Perspectival design thus becomes decisive: it determines how users navigate space, whether they perform historically coded actions, and to what extent their sensorimotor experience aligns with an avatar's positionality. In this sense, virtual embodiment constitutes an epistemic site—both a methodological tool for phenomenological inquiry and an object of investigation. These simulations do not simply depict the past; they configure affordances for action and invite players to inhabit identities framed by the medium as historical.

At the same time, it is important to acknowledge that history-related VR environments, despite their seemingly immaterial character, rely on a dense and often hidden materiality. This materiality resides in the hardware infrastructure and in the embodied actions of developers and users alike: virtual worlds depend on tangible technological systems and the human bodies that engage with them. As Elena Esposito (1998) argues, the virtual is neither fictitious nor detached from reality. Whereas fictional objects imitate real ones, virtual objects make no such claim but exist autonomously (Esposito, 1998, p. 270). For Esposito, virtuality is therefore neither opposed to reality nor a mere imitation of it. Rather, it constitutes a parallel, self-standing reality—a dynamic which also underpins technocratic notions of extended reality (XR), an umbrella term encompassing virtual reality (VR), augmented reality (AR), and mixed reality (MR) (Harth, 2022, p. 48).

In this article, immersive VR is therefore understood not as a historical source but as a dynamic medium through which cultural memory is negotiated and transformed. Following scholarship in digital public history (Gundermann et al., 2024, p. 7), I conceptualize immersive simulations as performative spaces where historical knowledge, emotions, and embodied actions are tightly interwoven. In such spaces, empirical research becomes a form of play. When researchers inhabit virtual bodies and enact historical roles, they transgress conventional boundaries between observer and participant, producing situated insights into how historical meaning is constructed and experienced. Rather than treating immersive VR as a transparent conduit of historical knowledge, I argue that it should be understood as a site of epistemic instability, where bodily action and historical meaning continuously shape one another. Playing as a partisan sniper, a Renaissance assassin, or an astronaut on the lunar surface, the researcher engages with history not only cognitively but also kinesthetically and emotionally.

Against this background, the article analyzes research practices that arise when one plays as a historical actor in immersive VR. The methodological approach is explicitly autotheoretical: drawing on my own experience of playing and recording gameplay, I examine how virtual embodiment destabilizes established categories of scholarly distance and neutrality. To complement this reflexive stance, I employ a distant-viewing analysis (Arnold & Tilton, 2019) of a gameplay recording that documents my session with *Assassin's Creed Nexus VR* on a *Meta Quest 2* headset. This hybrid method, moving between phenomenological immersion and computational quantification, demonstrates how play can function simultaneously as method and object of analysis. Ultimately, the aim of this article is not to resolve methodological tensions but to engage them productively. Immersive VR compels researchers to negotiate unstable roles: we become players and analysts, participants and observers, embodied subjects and detached scholars. In this in-between position, knowledge emerges through play. The article thus contributes to methodological debates about how scholars might embrace play not merely as an object of study but as a research practice.

2. Sample selection and analytical framework

The methodological approach developed in this article is grounded in the idea of situated play, which treats gameplay not as the consumption of a stable media object but as a contingent, embodied, and context-dependent practice. This orientation becomes especially important in the case of VR, where the user's sensorimotor participation is not an optional layer but a prerequisite for the experience itself. Immersive VR requires the player to lend the game their body—its balance, gestures, and attention, and it is within this reciprocal exchange that historical meaning begins to form. Historical meaning is viewed here as a process by which users interpret temporal difference and relate narratives of the past to their own present context (Rüsen, 2020, p. 76). Rather than striving to filter out these conditions—such as the researcher's embodied perspective, affective responses, and situated interaction with the media object—in pursuit of methodological purity, the present study takes them as constitutive elements that shape how history is encountered within immersive environments.

For the qualitative analysis, I assembled a sample of 23 titles. The selection was guided by seven inductively developed criteria, that is, criteria derived iteratively from an initial survey of available VR applications and progressively refined during the sampling process, rather than imposed from an established theoretical model. This approach addresses the absence of any standardized framework for curating comparable sets of history-related VR content in existing scholarship. The aim was to capture the diversity of such media while ensuring methodological transparency and analytical comparability.

The sampling strategy was deliberately structured to ensure a broad geocultural and thematic representation. The selected titles originate from 14 different countries across four continents, reflecting a wide spectrum of national and regional perspectives on the past. The historical settings span five major periods, covering more than 20 distinct themes, ranging from ancient battles and medieval cultural history to modern conflicts, decolonization, and contemporary disasters. Equal attention was given to spatial variation: the narratives are situated across 15 different countries, highlighting how historical storytelling changes when framed within diverse geographical contexts. To enable a balanced comparison of narrative strategies, the sample includes both highly interactive VR games and non-interactive cinematic experiences based on 360-degree video, allowing for an investigation of how differing levels of agency shape users' historical engagement. Furthermore, the sample encompasses applications produced with a range of intentions, including both didactic projects designed primarily for educational purposes and entertainment-oriented titles targeting broader audiences.

A key focus of the selection process was to reflect the functional variety of history-related immersive VR media. The sampled experiences cover three dominant representational functions. First, some titles prioritize the creation of historical atmosphere through visual design. For example, the

application *VR Battleship YAMATO* (Kanda Technologies, 2017) is primarily concerned with demonstrating how the Japanese battleship appeared both externally and internally, including representations of the crew on board. Second, other projects foreground individual perspectives on historical events. A case in point is the immersive video *Was wollten Sie in Berlin?! (IntoVR & Video, 2017)*, which conveys the experience of life inside the Stasi prison Berlin-Hohenschönhausen in the early 1980s from the perspective of a newly incarcerated West German prisoner whose visual first-person viewpoint the user adopts from the opening seconds. Third, several applications emphasize the simulation of interactions with historical objects. The first-person shooter *Sniper Elite VR*, for instance, places players in the role of a fighter in the Italian anti-fascist resistance during World War II, with its central function being the recreation of combat experience using firearms such as the Gewehr 98 and the Carcano Model 1891.

Finally, practical constraints also informed the construction of the sample. To facilitate an in-depth phenomenological analysis, the total combined runtime of the selected VR experiences was limited to approximately 40 hours. A complete overview of the 23 titles selected for analysis, including their historical settings, interactivity levels, thematic foci, and production studios, is provided in the table below (see Fig. 1).

Title	Period / Associated Countries / Theme	Aim / Interactivity	Studio / Country
Accused #2: Walter Sisulu (ARTE France, 2022)	20th century / South Africa / Apartheid	Education / Non-interactive immersive video	La Générale de Production, ARTE France / France
Al Zubarah (Shiva Games, 2018)	Early Modern, Long 19th century, 20th century / Qatar / Reconstruction of Al Zubarah fort	Education / Semi-interactive VR game	SaPhiR Prod. / Tunisia
Anne Frank House VR (Vertigo Games, 2019)	20th century / Germany, Netherlands / Holocaust, World War II	Education / Interactive VR game	Vertigo Games / Netherlands
Apollo 11 VR (Immersive VR Education, 2019)	20th century / USA / 1969 Moon landing	Education / Interactive VR game	Immersive VR Education / Ireland
Assassin's Creed Nexus VR (Ubisoft, 2023)	Antiquity, Early Modern / Greece, Italy, USA / Peloponnesian War, Republic of Venice, American Revolution	Entertainment / Interactive VR game	Ubisoft, Red Storm, Ubisoft Montreal, Ubisoft Reflections, Blue Byte / France, USA, Canada, UK, Germany
Battle of Red Cliffs VR (FREEFAB, 2017)	Antiquity / China / Three Kingdoms period	Entertainment / Interactive VR game	WISECAT / China
Chernobyl VR Project (The Farm 51, 2016)	20th century / Ukraine / Chernobyl disaster	Education / Semi-interactive VR game	The Farm 51 / Poland

Easter Rising: Voice of a Rebel (BBC, 2017)	20th century / Ireland, UK / 1916 Easter Rising	Education / Non-interactive immersive video	BBC / UK
Eye of the Owl - Hieronymus Bosch VR (VRX, 2016)	Middle Ages / Netherlands / Bosch's art	Education / Interactive VR game	VRX / USA
Gladiatoren im Kolosseum (ZDF, 2017)	Antiquity / Italy / Roman gladiatorial combat	Education / Non-interactive immersive video	ZDF, Faber Courtial / Germany
Gladius (Virtual Age Games, 2020)	Antiquity / Italy / Roman gladiatorial combat	Entertainment / Interactive VR game	Virtual Age / Spain
Historium VR - Relive the history of Bruges (Sevenedge Interactive Media, 2016)	Middle Ages / Belgium / Medieval Bruges reconstruction	Education / Interactive VR game	Sevenedge / Belgium
Meet the Miner - WDR VR Bergwerk (Westdeutscher Rundfunk Koeln, 2018)	20th century / Germany / Mining history	Education / Interactive VR game	Aesir Interactive, WDR / Germany
Peaky Blinders: The King's Ransom (Maze Theory, 2023)	20th century / UK / Underworld in 1920s Britain	Entertainment / Interactive VR game	Maze Theory / UK
Sniper Elite VR (Rebellion, 2021)	20th century / Germany, Italy et al. / World War II	Entertainment / Interactive VR game	Rebellion / UK
Titanic VR (ENGAGE XR, 2025)	20th century / UK, USA et al. / Titanic history	Education / Interactive VR game	Immersive VR Education / Ireland
Traveling While Black (Felix & Paul Studios, 2019)	20th century / USA / Racism in the US	Education / Non-interactive immersive video	Felix & Paul Studios / Canada
Verdammt zu spielen (Irgendwas mit ARTE und Kultur, 2019)	Early Modern / Belgium / Pieter Bruegel the Elder's art	Education / Non-interactive immersive video	Andrés Jarach, ARTE France / France
Visby Archer (Disir Productions, 2019)	Middle Ages / Denmark, Sweden / 1361 Battle of Visby	Entertainment / Interactive VR game	Disir Productions / Sweden
VR Battleship YAMATO (Kanda Technologies, 2017)	20th century / Japan / World War II Navy	Education / Interactive VR game	Kanda Technologies / Japan
Warplanes: Battles over Pacific (Home Net Games, 2022)	20th century / Japan, USA / World War II air combat	Entertainment / Interactive VR game	Home Net Games / Poland
War Remains (MWM Interactive, 2020)	20th century / France, Germany, UK, USA / World War I	Education / Non-interactive immersive video	Flight School / USA
Was wollten Sie in Berlin?! (IntoVR & Video, 2017)	20th century / Germany / GDR repression, Stasi prison	Education / Non-interactive immersive video	IntoVR / Germany

Figure 1. A table providing an overview of the 23 history-related VR applications selected for analysis, including their historical settings, interactivity levels, thematic foci, and production studios. Courtesy of the author.

The qualitative analysis itself was guided by a structured research protocol in the form of a detailed questionnaire completed while engaging with each VR experience. This protocol was designed to capture narrative, technical, affective, and epistemological dimensions simultaneously. At the narrative level, attention was given to the representation of historical actors and events, including personalization strategies centered on iconic figures and personification strategies highlighting 'ordinary' perspectives, as well as to the use of narrative abbreviations (Barricelli, 2011, p. 67), stereotypes (Schwarz, 2020, p. 36), and selective omissions of historical facts. The analysis also examined whether multiperspectivity (Bergmann, 2007, p. 69) was integrated or whether binary 'us—them' framings dominated (Bembeneck, 2013, p. 77).

Perspective and embodiment constituted another central dimension. The analysis considered whether users experienced history through the first-person point of view of a historical actor—fictional or real—or from the vantage point of an external observer, and how avatars were designed and navigated within the virtual environment. Interactivity was evaluated not only in terms of available actions, but also in relation to the degree of agency afforded when inhabiting virtual bodies. Affective resonance was systematically assessed using a modified Differential Affect Scale (Frentzel-Beyme & Krämer, 2023), complemented by an examination of narrative techniques that position certain characters as potential objects of empathy (Herrera et al., 2018). Moreover, the didactic and epistemic dimensions were investigated with a focus on the transmission of declarative and procedural knowledge (Mulders et al., 2022, p. 136) and their relation to broader frameworks of historical consciousness as developed by Hans-Jürgen Pandel (2017, p. 137). Finally, technical and sensory properties were evaluated, including visual realism, soundscape construction (Tang & Wei, 2022, p. 38), and the availability of haptic interactivity. Taken together, these layers provided a comprehensive framework for understanding how immersive VR media construct historical meaning, shape users' emotional and cognitive responses, and contribute to evolving dynamics of cultural memory.

To complement this qualitative framework with a computational counterpoint, I implemented a Python-based distant viewing script tailored to the analysis of my recorded VR session. Although the gameplay recording analyzed here was not part of the empirical corpus of my dissertation, it provides a valuable complement to the conceptual orientation of this article, which reflects on research practices developed within that broader project. Specifically, I applied the script (RSmirnovRUB, 2025) to a recording of *Assassin's Creed Nexus VR*, focusing on the mission *Cult of Hermes Reborn*, where players embody the Renaissance nobleman-assassin Ezio Auditore, who encounters Leonardo da Vinci in early sixteenth-century Venice. The script, originally developed in the context of a separate research project, segments the recording into ten-minute intervals and computes a range of formal features for each chunk. It calculates color and brightness values, applies object detection through the YOLOv8 model, and employs the

DeepFace library for facial and emotion recognition. The output consists of structured datasets and visualizations—histograms, color palettes, and frequency plots—that abstract the subjective act of play into numerical form.

The following section adopts an autotheoretical mode, applying this framework to a subset of titles from the sample that employ first-person embodiment of historical actors. My phenomenological observations are interwoven with the results of the distant viewing analysis of the *Assassin's Creed Nexus VR* recording, together providing a dual perspective on the epistemic affordances of playing as a historical actor.

Lastly, a crucial methodological dimension is the inherent solitude of VR play. Unlike many other history-related media, such as historical films viewed in cinemas or televised documentaries experienced collectively in front of the TV in the living room, immersive VR isolates the user both perceptually and socially. The headset blocks the shared physical environment and removes much of the informal interaction through which interpretive processes ordinarily unfold. In the context of this study, the solitary condition of VR is not treated as a drawback but as an analytic lens: it highlights how historical meaning is produced when communal sense-making is suspended and when the player negotiates historical environments in a state of physical and cognitive isolation. This solitude interacts with the phenomenological demands of VR, reinforcing the impression of a private encounter with history and influencing the degree of critical distance the user is able or willing to maintain. VR can therefore be understood as a technology that both addresses and reproduces solitude: on the one hand, users may temporarily overcome loneliness through interactions with virtual agents; on the other hand, by choosing VR over co-present media practices, they reinforce the individualized, inward-facing mode of engagement. A rare deviation from this pattern appears in *Warplanes: Battles over Pacific*, one of the few history-related immersive VR titles offering a multiplayer mode. Yet such cases remain exceptional. Technical obstacles to implementing multiplayer functionality in VR, together with the comparatively small player base that makes synchronous co-presence difficult to achieve, mean that most history-related VR applications continue to be designed—and experienced—as single-player simulations.

3. Virtual embodiment and historical actor perspective in immersive VR

The existence of a computer-generated virtual environment is inseparable from the material technologies that sustain it. As Stefan Münker (2005, p. 384) notes, the hardware required for immersion is never a neutral background but the very condition of possibility for digital virtuality. Head-mounted displays, controllers, and hand-tracking systems do not merely mediate access to virtual space, they actively shape the quality of presence and embodiment that users experience. In my own gameplay, I was repeatedly reminded of this entanglement when I inadvertently exceeded the safety boundary: the

image would suddenly dissolve into black textures, visually signaling that my physical body had moved beyond the calibrated room-scale perimeter. Such interruptions underscore how virtual and physical realms are co-constituted, collapsing the apparent opposition between the two.

Virtual embodiment thus depends on synchronization between bodily action and system response, a process that is especially pronounced in immersive VR compared to conventional screen-based media (Tang & Wei, 2022, p. 34). Unlike *Assassin's Creed II*, where interactivity is mediated through a controller and restricted to a limited set of inputs, *Assassin's Creed Nexus VR* demands pseudo-climbing, fencing, crouching, and gestural manipulations. This requirement transforms historical play into a kinesthetic practice: inhabiting Ezio Auditore in Venice means inhabiting one's own body more intensely, extending arms to grasp ledges, rotating shoulders to wield weapons, or stooping low to avoid detection. Such gestures, although digitally transposed, remain rooted in the corporeal, making virtual embodiment both a technological and phenomenological event (Breil & Kronberger, 2024, p. 157). Motion sickness, however, complicates the phenomenology of immersive VR (Saredakis et al., 2020). Individual physiology mediates these experiences, yet developers can mitigate discomfort through adjustable movement modes and smoother interaction design. For instance, *Assassin's Creed Nexus VR* offers both standing and seated modes, with the latter reducing kinesthetic intensity and lowering motion sickness risk.

History-related immersive VR media exhibit a wide spectrum of embodiment strategies, reflecting diverse design choices, levels of interactivity, and narrative intentions. At one end of this spectrum are observational, non-avatar perspectives, such as *Traveling While Black*, where users experience historical environments passively and have little or no corporeal presence beyond that of a camera viewpoint. Such titles foreground the historical setting itself, allowing users to witness events without assuming the role of a historical actor. Similarly, *Anne Frank House VR* offers a minimally embodied experience: users inhabit the perspective of an anonymous visitor to the secret annex, with only translucent virtual hands visible, highlighting the tension between presence and narrative interpretation. At the other extreme are highly interactive simulations that demand intense bodily engagement and fine motor coordination. In *Sniper Elite VR*, for example, weapon mechanics are designed to appear authentic and require deliberate, precise action. Likewise, *Visby Archer* immerses players as a medieval Bowman, manifesting their virtual presence through visible hands and constrained rotational movement, while *Warplanes: Battles over Pacific* translates the user's hands into historically coded visual proxies such as pilot gloves. These titles exemplify how embodiment can be both performative and materially grounded: the user's physical actions—gripping, aiming, or manipulating—directly inform the virtual enactment of historical roles, creating a kinesthetic depth that passive observation cannot provide. Some immersive VR media occupy intermediate positions amidst this interactive landscape. *Apollo 11 VR* situates players within the historical narrative of the lunar mission, offering

an egocentric perspective of the astronaut without visually representing the avatar's body. *Titanic VR* employs a hybrid strategy, shifting between phases of passive observation, such as floating on the ship's deck or in a lifeboat, and active exploration as a diver investigating the wreck, thereby blending observational and agentic forms of embodiment.

Building on this spectrum, the first-person perspective of a historical actor in immersive VR can be further understood through several interrelated components. These components do not always appear simultaneously, but together they illuminate how perspective and embodiment are configured and made perceptible. A primary dimension can be called embodied perspective, in which the user not only perceives the world from the viewpoint of a past figure but occupies a body situated within it. Through sensors embedded in VR headsets and controllers, the user's head movements, hand gestures, and even spatial displacements are synchronized with those of the avatar. This bodily frame grounds the possibility of further experiential layers and differentiates interactive VR from observational formats. Embodiment can also be realized through perspective on objects. Users inhabit a historical role by wielding tools or items tied to that role. In *Assassin's Creed Nexus VR*, playing as Ezio Auditore means carrying his ancestral sword. Such historically coded objects extend the player's sense of inhabiting a persona beyond mere bodily perspective. A third component is perspective through effective action. This dimension becomes visible when the user alters the virtual environment in ways that parallel the interventions of historical actors in physical space. For example, in *Assassin's Creed Nexus VR*, when playing as Cassandra, one can pick up a ceramic vessel in an Athenian house and move it elsewhere, leaving a small but persistent alteration in the environment.

Perspective through vision and hearing adds further depth. In the immersive video *Was wollten Sie in Berlin?!*, viewers encounter interrogations and imprisonment at the Stasi prison directly from the vantage point of the detainee, experiencing events through his eyes—a setting that has been critically discussed in the context of history didactics and memorial site pedagogy (Lewers et al., 2022, p. 45). Likewise, in *Sniper Elite VR*, one not only hears gunfire, explosions, and cries of the wounded but perceives them binaurally: a detonation is louder in the ear that is virtually closer to its source. This spatialized soundscape situates the user in an embodied auditory perspective inseparable from the avatar's position. Less common, but highly significant, is perspective through voice: moments when the avatar speaks in the first person. In *Assassin's Creed Nexus VR*, exchanges with Leonardo da Vinci exemplify this effect, producing the uncanny sense that the user is themselves engaged in conversation.

Finally, perspective through others closes the loop of virtual embodiment. Here, non-player characters (NPCs) recognize and respond to the user as a historical actor. In *Sniper Elite VR*, Wehrmacht soldiers react by opening fire, while allied partisans greet the player and provide support. Such reciprocal acknowledgment anchors the user's position in a virtual social field, not just a sensory one, highlighting the extent to which embodied

play depends on recognition from both sides of the virtual encounter. Taken together, these components suggest that the first-person perspective in history-related VR is not a single effect but a composite structure. Developers selectively combine bodily, material, sensory, vocal, and social dimensions, producing diverse forms of immersion that can be analyzed phenomenologically as well as technically.

Assassin's Creed Nexus VR exemplifies the upper bound of embodied interactivity, integrating hands, torsos, and legs into fully realized avatars with individualized historical identities, such as Ezio Auditore, Cassandra, or Connor. The recorded mission *Cult of Hermes Reborn* particularly illustrates the interplay between scripted narrative and spontaneous bodily action. During a prolonged courtyard scene, as Leonardo da Vinci conversed with Seraphina, a member of the Cult of Hermes, my attention occasionally wandered. In a moment of boredom, I absentmindedly formed a small heart by touching the tips of my thumbs and index fingers in virtual space. This off-script gesture—playful, improvised, yet fully situated within the diegetic scene—demonstrates how virtual embodiment frequently exceeds narrative constraints, opening space for micro-performances, digressions, and embodied experimentation. Such moments exemplify Adam Chapman's (2013, p. 62) ecological approach to games: rather than functioning as static narratives, VR simulations operate as dynamic systems where user decisions continually shape the micro-level unfolding of events. In my session, this dynamism was visible not only in intentional actions—solving a clock-based puzzle or defending Leonardo from a band of assailants—but also in accidents and disruptions: tripping over furniture in my room, misinterpreting mission objectives, or even striking a bookshelf with the controller during combat. These intrusions highlight the imperfect, situated character of both play and research, indicating that immersion is never absolute but fragile and easily unsettled.

The distant viewing analysis of this same gameplay recording provides a complementary, computational perspective on these phenomenological observations. Segmenting the 25-minute video into ten-minute intervals, the script revealed an unusually dark average color (#201b19 hex) and low brightness levels. While this could be read as an aesthetic choice—Venice rendered at night—the data also reflects my physical misalignment with the play boundary, producing unintended black textures on screen. Here, a technical artifact of embodied play directly inscribes itself into the visual record, illustrating the inseparability of bodily movement, spatial calibration, and virtual representation. Object detection further underscored the centrality of embodiment and environment. Among the most frequently identified objects were 'person' (NPCs including guards, townspeople, and Leonardo), 'chair' and 'bench' (furniture in Leonardo's workshop and Venetian courtyards), and 'boat' (gondolas on the canals). Notably, the YOLOv8 model also detected 'airplane,' corresponding to the miniature ornithopter Leonardo presents, which I held and rotated in my virtual hands. This instance exemplifies perspective through objects, where interaction with historically

coded artifacts deepens the user's experiential anchoring in a represented historical lifeworld. At the same time, several false positives—with 'suitcase' apparently misclassifying storage chests, or 'dog' probably erroneously labeling defeated enemy bodies—highlight the methodological limitations of automated classification in densely populated, fast-moving VR scenes.

Facial and emotion recognition produced equally ambiguous results. According to DeepFace, the dominant emotions across detected faces were sad (534 instances) and angry (506 instances), corresponding to guards and bandits encountered in combat. Neutral expressions (233 instances) characterized passersby, while happiness (194 instances) was most strongly associated with Leonardo da Vinci during his welcoming interaction. While these outputs resonate with narrative cues—enemy hostility, Leonardo's warmth—they also raise critical questions about algorithmic interpretation. In particular, the predominance of sadness cannot be fully explained by gameplay dramaturgy and may instead reflect the model's bias toward interpreting low-resolution facial textures as downcast. Such findings underscore the need to treat computational abstraction as suggestive rather than definitive, to be interpreted against the grain of lived experience (Binkyte, 2023).

From an autotheoretical perspective, these combined observations illuminate the methodological paradox at the heart of researching history-related VR. On the one hand, immersion demands surrender to the avatar's perspective: climbing on roofs, defending Leonardo, or simply wandering through Venetian courtyards as Ezio Auditore. On the other, research protocols require interruption—pausing to write notes, reflecting in real time, or anticipating future scholarly interpretation. The awareness of observation, even in solitary play, induces a subtle performativity: knowing that this footage will later be analyzed makes one simultaneously a player and a subject of one's own experiment. This meta-awareness resonates with Gregory Bateson's (1979, p. 139) notion of play as a frame for action, where fiction and reality remain in constant tension.

Ultimately, my experience demonstrates that highly interactive immersive VR media do not present history as a finished narrative but as a contingent system co-produced by code, hardware, narrative design, and embodied improvisation. The imperfect nature of play—its interruptions, missteps, playful digressions, and emotional intensities—is not a methodological weakness but a productive site of knowledge. Inhabiting the role of a Renaissance assassin alongside Leonardo da Vinci, I encountered history not as a stable representation but as a shifting interplay between bodily presence and algorithmic mediation. The distant viewing analysis, despite its inaccuracies, accentuates this point by transforming the flux of embodied experience into abstracted data, reminding that both play and its study are practices of translation. Beyond *Assassin's Creed Nexus VR*, other history-related VR titles further reveal the spectrum of embodied engagement available to the player-researcher. Each degree of bodily involvement—from invisible, procedural action to fully realized avatars with hands, torsos, and legs—produces distinct ways of experiencing historical perspective. Across

these modalities, immersion, skill acquisition, and even boredom manifest differently, shaping not only what can be felt and noticed but also what can be analyzed.

4. Conclusion

The proliferation of history-related immersive VR titles, ranging from commercial entertainment games such as *Assassin's Creed Nexus VR* to educational, non-profit projects like *Anne Frank House VR*, has intensified the need to reconsider how humanities scholars, particularly within the field of digital public history, can and should engage with this emerging medium (Lewers, 2024, p. 79). As this article has demonstrated, the study of VR demands methodological pluralism: it cannot be reduced either to distant analytical approaches or to immersive phenomenological engagement alone. Instead, it must be approached as a dynamic field in which these complementary perspectives illuminate different dimensions of the same phenomenon.

At one level, reception-oriented methods provide invaluable insights into how history-related immersive VR media circulate within the broader attention economy. Analyses of user reviews on platforms such as *Steam*, qualitative interviews with players, and ethnographies of online communities reveal how audiences negotiate issues of authenticity and emotional resonance. These approaches foreground the social life of VR titles—the discourses, debates, and collective appropriations that surround them—and show that historical knowledge emerges not only from media producers but also from users as interpretive agents. Such methods are particularly useful in mapping large-scale patterns across dozens or even hundreds of titles, situating immersive VR media within debates about historical culture and collective memory in the postdigital age.

Yet if reception studies emphasize the cultural aftermath of play, phenomenological analysis insists on the immediacy of the gaming event itself. By entering immersive VR environments as an embodied player, the researcher gains access to a register of experience otherwise invisible: the bodily exertion of climbing virtual walls, the kinesthetic rhythm of weapon handling, the emotional ambivalence of defending an AI companion, etc. While playing *Assassin's Creed Nexus VR*, I found myself moving fluidly between analytical detachment and immersive surrender, oscillating between note-taking and playful improvisation. These moments cannot be reconstructed from reviews or interviews alone, since they are inseparable from the corporeal and affective dimensions of presence in VR. However, the phenomenological method is not without its complications. Immersion must be interrupted by research protocols, the pleasures of play are often muted by the awareness of scholarly observation, and external disruptions—from a ringing doorbell to an accidental collision with furniture—intrude on the virtual experience. Phenomenological reflection reveals that immersion per se is powerful but fragile, easily disrupted by hardware constraints or user

boredom. At the same time, as the preceding analysis showed, these very imperfections are revelatory. They demonstrate that VR is not a frictionless conduit of historical representation but a precarious assemblage of hardware, software, and users' engagement.

The combination of phenomenological reflection with computational quantification further enriches this methodological picture. The distant viewing analysis of my gameplay recording, though subject to clear limitations, illustrates how automated metrics can highlight features that might otherwise be overlooked. The unusually dark average color values and low brightness levels, for example, signal not only the nighttime setting of Renaissance Venice but also the embodied fact of my drifting beyond the calibrated play area. Object detection identified a constellation of items—chairs, benches, boats, bottles—that anchored gameplay in specific material environments, while the alleged misclassification of corpses as dogs or chests as suitcases underscores the need for critical interpretation of algorithmic results. These discrepancies caution against naive trust in computational tools but also suggest how the tensions between human perception and machine analysis can become productive sites of inquiry.

Taken together, these reflections converge on the insight that research on VR is itself a form of translation: it converts ostensibly stable historical (re)constructions into dynamic, embodied experiences. Research becomes a kind of play, situated within shifting frames that enable creativity and heterogeneity. The very tensions that complicate the method—pauses, missteps, digressions, emotional intensities—are not failures but constitutive elements of the research process. Acknowledging this complexity also clarifies the complementary relationship between phenomenological and distant analytical approaches. Rather than privileging one pathway over the other, digital public history research benefits most when both are brought together in a layered methodology. As demonstrated by my engagement with the 23 history-related immersive VR titles presented in this article, these media do not simply represent the past—they actively participate in negotiating its cultural meanings. They canonize already iconic figures such as Leonardo da Vinci while simultaneously opening space for alternative, non-celebrity perspectives: from miners, as in *Meet the Miner*, to prisoners, as in *Was wollten Sie in Berlin?!*. In both cases, users encounter the viewpoint of nameless protagonists who nonetheless function—albeit in different ways and to varying degrees—as representatives of historically marginalized social groups. These VR experiences dramatize familiar conflicts but also raise new ethical questions about empathy (Frentzel-Beyme & Krämer, 2020) and historical authenticity (Bunnenberg, 2021). When scholars engage with these media through both reception analysis and phenomenological play, they are better equipped to assess how VR reshapes the contours of historical consciousness.

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