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Digital construction

Redefine history in historical games

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Abstract

The traditional linear narrative of historical concepts is currently facing significant challenges and is being partially supplanted by digital media. Historical games hold immense educational potential, offering a unique digital space that compensates for the shortcomings of traditional history education. Their value lies in open narratives, situational immersion, experiential learning, and the ability to contextualize historical events through avatars. Moreover, well-designed games align with principles of effective learning, enabling seamless integration with classroom education.

Keywords

Keywords: historical thinking, history, education, video games, game literacy

Introduction: Challenges of traditional history education

> A historical phenomenon, purely and completely known and resolved into an object of knowledge, is, for the person who has recognized it, dead. (Nietzsche, 2010, p. 12)

Since the outbreak of the COVID-19 pandemic, accompanied by wars and inflation, the world seems to have entered a new phase of disorder. The crisis lies in the rise of nationalism and populism, with different factions intentionally strengthening their legitimacy as communities. At any tumultuous moment, history inevitably functions as a tool for political propaganda, as the past represents the choice of both current identity and future value (or interest). Therefore, the question we must address today is, what kind of historical education do we need to adapt to the genuine process of globalization?

History has evolved into a specialized discipline. Academic research's focus on specific details has made it increasingly challenging to consider grand themes. This trend toward specialization and compartmentalization has been institutionalized in intellectual circles since the nineteenth century (Wallerstein, 1996). In the realm of education, students often encounter the compulsion to grasp intricate historical concepts, and their understanding of history tends to become abstract and nebulous, entangled within the webs of semantics spun by various theories. Hence, the central challenge confronting the field of history lies in dismantling the academic barriers

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that often confine it within the ivory tower. Due to this confinement, history wields an unjustifiable authority in determining the veracity of the past, with underlying pressures stemming from the prevailing social ideologies to which the discipline is affiliated.

However, the primary objective of history education should not be the arbitrary creation of historical consciousness but rather the cultivation of students' capacity to engage with past phenomena, interpret them within a historical framework, and apply these interpretative skills in practical, real-world scenarios (Kenneth et al., 2015). There is an increasing consensus that the aim of history education is not merely to transmit historical facts or traditional knowledge but to engage with epistemological issues arising from the perception of the past. In this process, the exploration of historical thinking plays a crucial role. Some scholars associate historical thinking and reasoning with historical consciousness or cultural literacy. Historical reasoning is informed not only by specific domain knowledge and particular epistemological beliefs but also implicitly involves the application of historical heuristics or thinking strategies related to historical meta-concepts. It relies on critical skills in dealing with texts and endeavors to organize evidence and construct arguments (van Drie & van Boxtel, 2008).

In the Western world, this field predominantly revolves around three main directions: British empiricism, the German "historical consciousness" of the philosophical category, and the "historical literacy" of the disciplinary approach in the United States (Seixas, 2017). These approaches to studying history are increasingly being challenged, criticized for their excessive emphasis on disciplinary forms of knowledge aligned with academic education, rather than considering broader educational backgrounds and societal contexts (Lévesque & Clark, 2018). In the reality of Asian nations, the issue of historical study may be even more complex. For example, in the Japanese education system, the cultivation of historical thinking has surpassed textbooks and become a careful consideration for a portion of post-war Japanese national life (Fukuoka, 2011). Therefore, in a broader sense, the aim of history education should not be confined to whether students can apply a prescribed set of concepts or ideas to solve historical (or epistemological) problems, but rather whether they can perceive history and their own approaches as contingent factors of culture and context. This entails realizing that all individuals construct meaning and approach history within cultural paradigms (Thorp & Persson, 2020). This article, also grounded in the theoretical perspective of constructivism, acknowledges that the essence of historical thinking lies not in the specific knowledge of the past, but in the constituent elements that emerge during the construction of this knowledge. These elements include foundational concepts, utilized resources, experiential modes, and more. The distinction here is in emphasizing that the construction of history is not solely the work of historians or history teachers; it encourages ordinary individuals to question history themselves. This means that we must approach history not only from a constructivist perspective — whether it be social constructivism or otherwise — but also actively participate in the construction of history. This is a reflexive form of learning, requiring learners to actively engage in historical discourse and debates, much like playing games.

Gaming involves principles such as voluntariness, personal participation, and understanding of rule application (Caillois, 2001), which constitutes the process of construction. As psychologist Jean Piaget observed, play is not a purposeless activity; it facilitates learning in children's cognitive development. From an educational standpoint, Piaget was one of the first to propose a constructivist perspective, asserting that children construct their understanding of the world through active interaction with their environment (Piaget, 1954). Specifically, games not only create technology-based learning environments but also shape learning characteristics. Given this, the second part of the article will further explain the uniqueness of game space as a historical context for exploration, and the third part will discuss the connection between games and learning and their positive impact on history education.

Historical exploration in game spaces

Over the past two decades, online games have facilitated extensive global collaboration and interaction among players, resulting in numerous virtual communities with hundreds of millions of participants. A notable example is "World of Warcraft" which has collectively consumed over 50 billion hours of players' time worldwide — equivalent to approximately 6 million years, spanning the entire period since the inception of upright-walking humans (McGonigal, 2021). However, this is just the tip of the iceberg. With the proliferation of smartphones, mobile games have steadi-

ly become the primary driving force behind the expansion of the global gaming market, now claiming over half of the market share. Statistics show that the number of players in the gaming community has surpassed 3 billion during the COVID-19 pandemic, and this figure is expected to continue approaching the total global population. Furthermore, more than 200 million copies of games tagged as "historical" have been sold on Steam, the largest digital game distribution platform (Boom et al., 2020). This underscores the significant role historical-themed games play in contemporary gaming culture and their potential for historical education and exploration. Specifically, it encompasses open narrative, experiential learning, a focus on personal immersion, and the ability to contextualize historical events through the use of avatars.

Open narrative

Although narrative is not a core element of conventional games, often serving as secondary background to guide players through different levels, it undeniably exerts a growing influence in certain role-playing or strategy games. The establishment of player self-identity is intricately linked with the setting and development of the story. Players need an expansive narrative backdrop to give meaning and depth to their actions, thereby enhancing the gaming experience. The narrative in games can be categorized into three types (Fouad, 2019):

- *Embedded Narrative*: The narrative content is pre-generated before the player interacts with the game, and the story serves as a means to motivate players to take specific actions and develop the storyline.
- *Emergent narrative*: This form of narrative occurs in open-world simulation games, often referred to as sandbox games. Artificial intelligence analyzes the behaviors of each user and NPC agent, adjusting the entire world based on player actions. Games with multiple endings or non-linear storylines commonly employ this narrative approach.
- *Mixed narrative*: A combination of the two aforementioned narrative approaches, typically beginning with a simple background story and then, during the interactive process, establishing connections between plot points for the player.

These varied narrative structures afford players an open or semi-open gaming environment, expanding the imaginative scope for games with historical themes. For instance, "Disco Elysium", a recently popular role-playing game designed by an Estonian developer, features an open world and extensive dialogues. Based on an embedded narrative, it introduces a function called the Thought Cabinet. As players engage in dialogues with their brain or corresponding NPCs throughout the game, they acquire new thoughts interwoven to shape different modes of thinking, ultimately influencing the player's skills and affiliations. Despite being grounded in a fictional detective narrative, this game effectively portrays the backdrop of the former Soviet Union and the era of Eastern European socialism in the last century. It immerses players in a vanished historical milieu, prompting contemplation of the communist world through an exploration of its open narrative. Another striking example is "Crusader Kings II", which covers the historical period from 769 AD to 1453 AD, centered on feudal political dynamics and religious conflicts. As a grand strategy game, it simulates intricate political, military, and economic systems, skillfully crafting an engaging interactive story. "Crusader Kings II" extensively relies on emergent narrative, and due to the emotional complexity of independently driven agents, it deploys a layered, hybrid storytelling technique. This attribute significantly contributes to the game's success and popularity (Lucat & Haahr, 2015).

Criticism faced by game narratives revolves around the inconsistency between their content and historical records, potentially leading to the spread of misinformation and contributing to misconceptions among learners. It is essential to note that games prioritize entertaining experiences rather than strict adherence to reality. Therefore, we should perceive them as tools for divergent thinking, harnessing the value derived from the richness of possibilities they offer. Philosopher Paul Feyerabend has noted that activities deviating from reality, such as games, can serve as unconventional sources of inspiration for addressing practical problems, thereby enhancing the diversity of ideas necessary to navigate the complexities of an ever-changing world (Feyerabend, 1993). This approach has the potential to facilitate educational de-standardization, encouraging a more engaging and dynamic learning experience.

Situational immersion

Games distinguish themselves from traditional media primarily through their capacity to endow players with an intuitive role, facilitating their active engagement with informational content conveyed through situational events. This inherent process fosters empathy as players, assuming the perspective of avatars within a virtual environment, encounter stimuli that transcend their real-world attributes, thereby fostering novel cognitive perspectives. This feature is particularly helpful in cultivating historical empathy, defined as "attempting to understand the past on its own terms, and appreciate the perspectives, motivations, and desires of people in the past" (Hartman et al., 2021). Theoretically, players can assume the role of any historical figure or immerse themselves in any historical setting. Consequently, a more profound understanding of historical details becomes essential for players to enrich their operational experiences within the game.

In "God of War", players are intimately immersed in scenarios of the "Epic Mode", while in games such as "Rome: Total War" and "Imperium Romanum", players engage in negotiations with colonized lands. Furthermore, games like "Eleusis" and "Salammbo" offer players the opportunity to delve into mixed narratives steeped in ancient traditions (Clare, 2021). In the field of gaming, historians have assumed a new role — determining how they intend for players to experience pivotal historical moments, while also ensuring the enjoyment of the game for the players themselves (Spring, 2015).

Fogu argues that video games are evidently contributing to a transformative process involving the spatialization and virtualization of historical semantics. Specifically, they are replacing traditional modes of representation with sophisticated simulations and shifting the focus from physical presence to virtual experiences. Through gaming, we increasingly identify with the past through "places" rather than time, as the temporal experience itself is becoming detached from historical representations. On the other hand, we are also growing accustomed to experiencing the virtual sense of the past in reality. Thus, history is no longer presented but virtual (Fogu, 2009).

Additionally, some historians have observed that historical video games serve as a crucial link between the past and the present, significantly influencing historical memory and contributing to contemporary political discourse. Denning conducted research on how digital games with Nazi themes shape public understanding of the Third Reich. He found that games like the "Wolfenstein" series, through their immersive audio-visual worldbuilding, transcend the narrative itself, making them particularly rich texts. These games deeply integrate images and aesthetics of National Socialism, encompassing propaganda posters and German music, within environments rich in visual and auditory details. The informational content conveyed by such games far surpasses that of traditional historical monographs or feature films. However, these games adhere to established narrative and character conventions prevalent in contemporary popular culture while simplifying the crucial historical transformations in complex political processes. For the sake of immersive gamification, designers tend to highlight the bizarre aspects of the Third Reich and exploit public curiosity about Nazi leaders. It is noteworthy that players, while engaging in these games, unwittingly become part of an unconscious political discussion. Games reference past history, filter through previous representations, and reflect contemporary concerns. In other words, electronic games are not reproducing history but conveying our current cultural psychology and political inclinations (Denning, 2021).

Experiential learning

Game designer Tynan Sylveste perceives games as a special kind of machine. "Physical machines are made to propel vehicles, heat houses, or assemble widgets. Games are made to provoke emotion" (Sylvester, 2013). The paramount role of games lies in their capacity to stimulate human emotions, with emotional engagement being of particular significance in contemporary specialized education. The word "education" originates from the Latin root "educare", which signifies "to lead out or bring forth". Effective education is fundamentally guided by the spontaneous evocation of emotions. While we may not possess direct access to the exact events of the past, games and simulations offer a means to reconstruct the actions and experiences of people in specific historical eras, thereby fostering inspiration through immersive interaction. This approach is often referred to as "experiential learning", a process defined as the generation of knowledge through the transformation of direct experience (Kolb, 1984). It signifies that learning involves the interaction between individuals and their environment with experiential

transformation, and simultaneously, it is a holistic process of the ongoing creation of knowledge as individuals adapt to the external world.

Based on existing research, games align with the expectations of experiential learning in three key aspects. Firstly, games promote learning motivation. In a project involving history major students in designing game scenarios, researchers found that this approach significantly mobilized positive emotions among students and promoted enthusiasm for interdisciplinary collaboration compared to traditional learning tasks (Molins-Ruano et al., 2014). Secondly, games create aesthetic spaces. Anderson, analyzing the game "Valiant Hearts: The Great War", highlighted its potential as a teaching tool for imparting the history of war. He draws attention to how games, through emotional design aesthetics, create a learning experience that is closer to visiting a museum than reading a textbook (Anderson, 2019). Thirdly, games foster self-directed learning. It typically occurs in natural, secular environments, where individuals derive experiential meaning from perceiving and interacting with their surroundings (Watkins & Marsick, 1992). Zap and Code studied the regulatory mechanisms of self-directed learning, discussing the design characteristics of game environments that support self-directed learning. This includes features of a realistic learning environment, where students can make decisions in a safe space without real-world consequences (Zap & Code, 2009). Therefore, the crucial points for introducing games into the educational environment should focus on enhancing students' proactivity, critical thinking, and creativity in design (Toh & Kirschner, 2020).

Game literacy for history learning

Beyond serving as an external environmental stimulus for learning, the intrinsic mechanisms of games themselves also exhibit a diverse array of learning characteristics. Play itself is a learning process. Good games engage players willingly, prompting them to invest time and attention in overcoming difficulties, teaching them to adapt to the challenges presented by different tasks. From a design perspective, "games are inherently systematic, and all games can be understood as systems" (Salen & Zimmerman, 2003). A system can be defined as a collection of elements that engage in interactions within a specific environment, resulting in the emergence of larger patterns or behaviors that are not inherent in any individual part. Games exemplify such systems with the notable characteristic of emergence. This gaming system is typically composed of three essential components:

- *Rules*: the logical and mathematical structure governing algorithms.
- *Gameplay*: the pattern of interaction between players, shaping the overall experience derived from these rules.
- *Culture*: the cultural context embedded within the system.

The systemic characteristics of games, capable of carrying a wealth of historical information, hold immense potential for crafting expansive realms of possibility. This observation has been duly recognized within the field of archaeology. The game project "Ancestors: Stories of Atapuerca", which aimed to showcase the most recent archaeological findings from the UNESCO World Heritage site of Atapuerca, was released for free on both Google Play and the Apple Store in 2018. Impressively, it garnered over 25,000 downloads within six months (Rubio-Campillo, 2020). This impact may surpass the display of neglected artifacts in archaeological museums.

Besides systemic interaction, another characteristic of games is multimodal text learning. In our contemporary context, visual symbols, images, symbols, graphs, diagrams, artifacts, and various other non-verbal forms of communication play a significant role, arguably even more so than in the past (Gee, 2007). Linguistic scholar J. P. Gee has aptly defined game playing as a form of acquiring a new competence, one that encompasses the comprehension and use of multimodal texts, which he refers to as "game literacy." More importantly, excellent game design aligns closely with some principles observed in the process of human learning. These characteristics can be summarized in the table below (Gee, 2005, pp. 6-14).

Table 1: Summary of learning principles and game characteristics according to Gee (2005)

Feature	Principle	Games
Co-design	Act as active participants rather than passive recipients.	Players feel that their actions and decisions collectively create the world and experience they inhabit.
Customize	Effective learning requires adjustment according to personal styles.	Gameplay can be customized according to personal situations.
Identity	Long-term investment.	Good games provide players with identities worth deeply investing in.
Manipulation	Human perception and behavior are closely associated.	Games provide players with virtual space to manipulate complex objects.
Cycles of expertise	Expertise stems from repetitive, cyclical practice.	Games support the continual expansion and testing of in-system knowledge in new tasks.
Information ‘on demand‘ and ‘just in time‘	Humans apply information ‘just in time‘ and ‘on demand‘ with a given context.	Games provide abundant verbal information, which players learn and apply during manipulation.
Fish tanks	Simplified ecosystems are more likely to explain how critical variables work.	The tutorial or beginner mode in games serves as a fish tank demonstration.
Sandboxes	An environment that tolerates failure and provides a sense of authenticity can incentive learning.	Games encourage players to explore through sandbox.
Skills as strategies	Skills are best learned and practiced when used strategically to achieve goals.	Games encourage players to use strategies rather than isolated skills to achieve goals.
System thinking	Experience is enhanced when we understand how it integrate into a larger system.	Good games enable players to understand how each element integrates into the game‘s system.
Meaning as action image	Humans think through experiences and imaginative reconstructions on it.	Games convey through inviting experiences, not preaching.

These characteristics of games that align with learning principles can also be selectively applied to the design of history instruction, providing support for students' self-construction, thereby encouraging them to practice and utilize historical thinking. This can be achieved, for instance, through the use of virtual personas and personalized scenarios that amplify their sense of historical immersion. Besides traditional study like reading historical texts, it is crucial to introduce interactive modes of learning that enable students to augment their comprehensions through practical engagement. Research indicates that students exhibit higher emotional engagement and greater motivation when involved in game design activities. The use of video games has led to a shift from traditional teacher-centered learning environments to student-centered learning environments, with students being noticeably more active and engaged in the learning process (Watson et al., 2011).

In the field of education, games are further expanding their potential as supplementary teaching tools. A high school in Quebec, Canada, has introduced the game "Assassin's Creed" into history classrooms, aiming to evoke students' enthusiasm for history learning in a captivating and immersive way. Due to the rich historical information embedded in the game, cinematic clips can be extracted and used similarly to films in the classroom. As a simulation game, especially one with realistic reconstruction, "Assassin's Creed" presents past events with high-quality visual fidelity, capturing the players' attention and engaging them. Although this type of simulation may not handle ambiguity or uncertainty well and, in some aspects, deviates from professional historical facts, it sparks imagination and enhances players' overall understanding of ancient lifestyles (Karsenti & Parent, 2020). Another typical example is the use of the historical simulation game "Civilization" in online university history courses. It serves not only as a valuable supplement to traditional texts and lectures, assisting second-language speakers, but also fosters a sense of community in online courses (Martin, 2008).

Moreover, the influence of games on education extends beyond the realm of history to a broader exploration of effective educational practices. There is a burgeoning trend of integrating innovative educational concepts into game design, aiming to create experiences that resonate with learners by seamlessly blending educational content with gameplay. For example, the Education Arcade, an educational game research lab at MIT, has developed several science education games targeting young learners. These games are based on the principles of "resonance design," with the aim of connecting with learners' lives, passions, and the systems they embed. These design principles include honoring the whole learner, the learning context, the sociality of learning and play, and establishing a deep connection between the content and the game (Klopfer et al., 2018, pp. 2-10). For instance, "Vanished" is a game designed to cultivate STEM skills, where students investigate the environments of Earth-like planets as scientists. "Vanished" was funded through the Informal Science Education division of the National Science Foundation, combining online gaming, museum interactions, and multidisciplinary, cross-domain collaborative learning models. "Vanished" has not only been enthusiastically received by middle school students but has also led to the formation of clubs that host competitions. Similarly, in the math puzzle game "Lure of the Labyrinth", students are invited to navigate a labyrinth to rescue lost pets from underground monsters. These math problems are designed according to the standards of the National Council of Teachers of Mathematics and align with the core curriculum, allowing teachers to directly connect in-game tasks with classroom math concepts. In this game, students have used their math skills to rescue over 30 million pets!

In summary, games, through their inherent learning features and the exploratory space they provide, support a unique construction of the past, thereby influencing the student-centered learning concept in the field of education. However, while history-based games are a valuable avenue for connecting with the past, they should not be seen as flawless, nor should they constitute the only interpretation within the classroom setting. Whether used as an auxiliary teaching tool in formal education or as a complementary resource in informal education, game models should be effectively juxtaposed with other sources of evidence. This comparison will aid students in the process of corroboration and enable them to compare and contrast diverse sources, thereby enhancing their research skills in history and fostering a more comprehensive understanding of the topic being studied (McCall, 2016). Notably, the more boundaries are delineated between mass media and formal education, the greater the rift that may emerge between students' experiences in the classroom and their real-life situations. The role of games, perhaps, lies in serving as a buffer of digital technology, aiding traditional disciplines like history in better achieving knowledge and information sharing.

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