

Gaming the Past – Commercial Video Games with historical contexts: Evaluation of Quest of persia Loft Ali Khan Game

Mahdi Gheitasi
Department of geography
Universitat Rovira i Virgili
Vila Seca, Spain
mahdi.gheitasi@urv.cat

Sorin Hermon
STARC
The Cyprus Institute
Nicosia, Cyprus
s.hermon@cyi.ac.cy

Joan Arnedo Moreno
GAME research group
Universitat Oberta de Catalunya
Barcelona, Spain
jarnedo@uoc.edu

Marc Aurel Schnabel
Forum8
Tokyo, Japan
m@aurel.pro

Abstract—Virtual environments have numerous potentials for assisting the general public in experiencing cultural heritage, complementing current tools and practices centered on tangible goods such as museums, exhibitions, books, and visual content. Video games designed for educational purposes, which are becoming increasingly popular, have emerged as a new method of learning cultural content engagingly. The learning experience's specific goal distinguishes the educational use of video games. There is little doubt that we can learn from video games, but the more difficult questions about who, what, where, why, and how quickly we learn are not easily answered. This study examines the role of commercial video games in history learning and aims to enhance their effectiveness by analyzing their potential and limitations, using strategic planning and network analysis models. Through a case study on the Loft Ali Khan game, it identifies strategies for improving history education through commercial video games. In this case study, it can be utilized to establish a conceptual framework for current trends in deployments of the past in historically focused video games, as well as a SWOT-ANP analysis to determine the major ways in which historical video games can aid in learning the subject matter under assessment. The data for this case study includes secondary sources and documents, fieldwork, observations, and semi-structured interviews with fifteen participants, as with other case studies (experts and children). Following the results, successful implementation occurs when a video game fully utilizes the following opportunities: antiquarian, monumental, and critical elements; wish story; composite imagination; borrowed authenticity; historical provenance; and legitimacy.

Keywords— *Video games, Learning games, Commercial historical games, History learning.*

I. INTRODUCTION

History is the study of variation over time, and it includes all aspects of human society. Political, social, economic, scientific, technological, medical, cultural, intellectual, religious, and military developments are part of history. As is usually stated in history curricula in different societies, the official goal of history education is to encourage students to understand their country's history, to some extent, the history of the world, and learn from its past

to improve its way toward the future. Learning history used to be primarily about memorizing essential facts and figures from the (national) past, emphasizing the content[1]. Historically, history education has been centered on the content. Learning history entailed mostly memorizing key facts and statistics from the (national) past[1]. For instance, Recent historical perspectives have emphasized the significance of learning to reason with historical facts and stories, as well as learning to create new coherent stories[2][3][4]. It is vital to evaluate society's cultural practice of reasoning with information from the past. Some countries have incorporated it into their history courses. It is thought to help students better understand the history and social life[1]. Despite the fact that it is now commonly understood that learning history requires more than memorizing facts about the past, various terminology are used to characterize the purpose of history education, including historical literacy, historical thinking, historical consciousness, and historical reasoning[1]. Based on Masterman and Rogers's works, children have difficulties with history learning, particularly when dealing with past events or people from direct experience[5]. Various strategies have been employed to enhance children's chronological thinking skills; a better form of illustration may be possible via the use of Information and Communication Technology (ICT), which has been suggested as a useful medium for history teaching[6].

New technologies and multimedia are transforming how we learn and teach. Using new digital media, students can promote themselves in any field, such as researchers, historians or cultural theorists. Even by constructing their life stories or interpreting others' life stories, the digital format transforms students' capacity to synthesise, analyse, theorise, and create new cultural and historical knowledge[7]. The constant evolution of technology is taking education in new ways, making it much more attractive to students, enabling new tools and enhancing the learning process[8]. A growing number of researchers and scholars acknowledge digital games' cultural impact[9]. In his plenary address at the 2008 ACEI conference, Cowen refers to computer games as a new digital media that has changed cultural economics[10]. Studies that explicitly

refer to video games are uncommon and limited to the video game industry as a whole[11]. Borowiecki and Prieto-Rodriguez use video games to motivate cultural economics and demonstrate economic theory and methodology in video game consumption[11]. Experiments show that gamers aged 63 to 92 have "higher well-being and lower depression rates" than non-gaming peers[11]. In other words, video games, like other forms of cultural participation, appeal to the elderly[12].

Digital gaming has grown to a USD 18 billion global industry. Many media scholars predict that it will become the dominant "living art" in the coming decades. Arts and cultural heritage education have enormous potential for increasing student engagement, innovation, and creativity. The modern era exemplifies today's pervasive information processing. Mobile phones and MP3 players, computers with broadband Internet connections, game consoles, and digital entertainment environments for video games have become ubiquitous in our daily lives. They are the most visible manifestations of a much larger trend toward a networked information society. Film, visual art, theater, toys, and music can frequently express historical characteristics, and when they do, they relate to history[13]. As the video game business expands within the contemporary media environment, commercial video games with historical backgrounds surely qualify as a medium that may make history, communicating aspects of the past[14]. Past versions are designed as entertainment items by big-budget gaming studios, indie developers, social media influencers, and other creative businesses. The emphasis is on making money while having fun.

This study examines commercial video games as a tool for history learning in the Iranian game industry. It contributes to the ongoing debate about the role of commercial video games in history learning by analysing how commercial video games help history learning awareness achieve its development aims. This study examines the potential and limitations of commercial video games, with the goal of providing some answers and ideas for improving their structural composition and history learning potential through the use of commercial video games. The methods for history learning are categorised and prioritized by combining a strategic planning model with a network analysis model based on data from field observations and semi-structured interviews. By evaluating the case study of the Lotf Ali Khan game, this study attempts to provide a knowledge of the most important and relevant tactics for improving history learning.

This article is structured as follows: Section 2 provides a historical definition of commercial video games. The subsequent sections introduce commercial video games with a focus on historical teaching, examine and assess various game types in the global and Iranian game industries, present a framework for deploying history learning (Section 3), discuss the empirical work conducted (Section 4), present descriptive case study findings (Section 5), engage in a discussion (Section 6), and finally, draw broad conclusions based on the research (Section 7).

II. COMMERCIAL VIDEOS GAMES IN THE HISTORICAL GENRE

Since its debut in the 1960s, video games have been around for more than 50 years. Single-player or multiplayer video games can be played on computer networks. Egenfeldt-Nielsen classified electronic video games as conflicted virtual worlds[15]. According to Prensky, playing a game on a computer improves the play experience since the computer handles tedious elements such as regulations that tell the player what they can and cannot do, allowing them to enjoy more experience[16]. They are considered broadly enough; most video game worlds, even entertaining ones, reference real-world history and mythology for enrichment[17]. Even video games that make more direct references to real-world history differ greatly in their presentation. These variances are sometimes determined by the game genre, and game genres are generally tied to game mechanics. Commercial games are oriented to leisure goals and mass-market appeal. Cultural heritage is used here to increase the credibility of the game world. Using cultural heritage can apply to fantastic and realistic virtual worlds[18]. Compared to other traditional media, commercial video games in the historical genre can be very interactive to deepen our awareness and cultural heritage. According to Salen and his colleagues, all video games always somehow reflect human culture because they are "*objects produced and played within the culture at large,*" however, "*not all games mani-fest transformative cultural play actually to transform culture*"[19]. Therefore, we must specify commercial video games in the historical genre when considering video games for cultural heritage and learning history.

Year after year, the discipline of historical game studies expands. Scholarly work in the field varies from issues of historical textual representation to videogames' function as a sort of historical representation in and of itself; archeogaming[20]–[22]; using videogames to teach students about history[23], and research into player reception of historical accuracy and heritage in videogames[24][25]. Individual studies are often carried out on popular franchises such as Assassin's Creed[26]–[28] and Sid Meier's Civilization[20], or the excessive amount of videogames concerned with representing the American West[29], World Wars[20], [30]–[32] or other lesser-represented conflicts(Sterczewski 2016). In contrast, academics are interested in the history of particular games, the industry, and technological or hardware improvements. [33][34].

For video game producers, history and archaeology are fascinating subjects: Many video games are based on historical locales, characters, or concepts[20], and developers have many ways to 'deploy' the past, for instance, to guide the game's narrative or to convey a sense of historical representation, but also to send (knowingly or unknowingly) a political message[35] or to glorify a particular historical era[36].

A. Worldwide

These previous games are divided into several categories, including shooters, strategy games, adventure games, city builders, and management sims. These games represent the past in two ways: realist and conceptual[20].

The term "realism" in video games is thrown around a lot in the industry, and it refers to graphical fidelity, gameplay realism and game engine physics[37][38]. However, conceptual games use the advantages of the games to teach a specific concept. Conceptual signifies Selecting a concrete concept to teach and then designing a game around that concept is how conceptual games are made.

Popular history-based video games include The Assassin's Creed series, the Total War series, Rockstar's LA Noire and Red Dead Redemption. Each contributes to a prospective genre by building historical narratives and establishing historically based game mechanics. *Walden* was also marketed by the University of Southern California as an experimental game. This game explores Henry David Thoreau's adventures at Walden Pond between 1845 and 1847. *Walden* offers an instance of how daily life could be translated into an educational game during a historical moment. However, sometimes some video games related to the past are more challenging to categorise whether they are historical or not? *Wolfenstein*, a violent commercial historical game that imagines a counterfactual scenario in which Nazi Germany conquers the United States in 1948, is a good example of this difficulty. The game first appeared in 1960. The hypothetical United States ruled by Nazis, not the factually proven world of 1960. Though *Wolfenstein* depicts some historical events, such as the Holocaust, it does not perfectly match the concept of the commercial historical game mentioned above[39].

As a historical game, *Total War* draws influence from history for the world, as well as system design, game scripting, and user interface design. Battles and military plans make excellent game mechanics, as centuries of tabletop gaming have demonstrated. The evolution of armour, battles, characters, environments, interactions, maps, laws, settings, and resources is influenced by historical events.

Crusader Kings (2004, 2020) and *Europa Universalis* (2000, 2001, 2007, 2008, 2013) by Paradox Interactive offer cultural and social perspectives on articulating historical conflicts. *Crusader Kings II* (2012) is a feudal dynasty simulator set in the Middle Ages that allows the player to establish and maintain a medieval dynasty[40]. While the game's objective is not historically accurate, it does explore historical strategies for establishing and maintaining a feudal dynasty. Players manage their families and alliances to pursue power over European and Mediterranean feudal states. The game allows players to take on the roles of a variety of historical leaders and features alliance-building, diplomacy, double-crossing, taxation, and strategic marriages as game mechanics[40]. *Crusader Kings III* is the latest version of the *Crusader Kings* franchise, released in 2020, and it follows the success of the previous two installments, *Crusader Kings* (2004) and *Crusader Kings II* (2012). *Crusader Kings III* is a grand strategy game developed by Paradox Interactive, where players lead a dynasty during the Middle Ages, managing the politics, economy, and military of their realm.

Empire-building games *Europa Universalis I-IV* are set in the Renaissance era and allow players to colonize, develop technology, participate in combat, explore, and engage in diplomacy and trade [40]. The *Europa Universalis* series spans the years 1420 to 1820; the game's primary

focus is on expanding European powers to dominate trade and establish colonies throughout the world. Significant strategic concerns in the game include technology development, trade, diplomacy, and the military; colonial expansion must also be managed carefully. The player is invited to choose their country of origin; initially, they have the option of Austria, England, France, the Ottoman Empire, Poland, Portugal, Russia, Spain, or Sweden. However, a significant innovation of the game is that the player may ultimately choose any country. While many nations cannot win, another innovation of this game is its remarkable degree of goal setting flexibility. Appropriate goals can be discussed and shared via Paradox Interactive's dedicated online communities (the designers of *Europa Universalis II*)[41].

One of the most well-known is the top-rated game series *Assassin's Creed* (abbreviated AC). Over the last eight years, Ubisoft's series has seen just as many main instalments, with an additional four targeting handheld systems, each game recreating one or several historical events or spaces; from Aleppo, Tyre, Limassol, Kyrenia, Jerusalem, Acre, and Damascus in the twelfth century, to Florence, Tuscany, Flor, Venice, Rome, and Constantinople in the fifteenth and sixteenth centuries, to Havana, Kingston[42]. The *Assassin's Creed* franchise (2007–2014) by Ubisoft recreates historical settings. It allows players to experience life during the Crusades, the Renaissance, the American and French revolutions, and the pirate-occupied Caribbean. *Diegesis* is used as a user interface in open-world action-adventure games to weave together tales of historically based fiction and real-time historical events. Above all other historical features, the worlds created for these games demonstrate the scholarly game's potential. Open world games, which present the protagonist primarily in the third person, give the protagonists complete freedom to explore historical settings[40].

Assassin's Creed Origins, *Assassin's Creed Odyssey*, and *Assassin's Creed Valhalla* are three games in the *Assassin's Creed* franchise that were released after 2016. *Assassin's Creed Origins*, released in 2017, is set in ancient Egypt during the Ptolemaic period and follows the story of Bayek, a Medjay who becomes the first Assassin. The game features a large open world that includes several cities, deserts, and tombs. It introduces several new gameplay mechanics, such as a revamped combat system and a bird companion that can be used for reconnaissance. *Assassin's Creed Odyssey*, released in 2018, is set in ancient Greece during the Peloponnesian War and follows the story of either Alexios or Kassandra, a Spartan mercenary who becomes embroiled in a conflict between Athens and Sparta. The game features a vast open world that includes several Greek islands and cities. It introduces several new gameplay mechanics, such as a dialogue system that allows players to make choices that affect the storyline and multiple endings. *Assassin's Creed Valhalla*, released in 2020, is set in 9th century England during the Viking invasion and follows the story of Eivor, a Viking raider who leads their clan from Norway to England in search of a new home. The game features a vast open world that includes several English cities and villages. It introduces several new gameplay mechanics, such as raids on enemy settlements, the ability to manage a settlement, and a skill tree system that allows players to tailor their gameplay experience to their

preferences. All three games in the series offer an immersive and historically accurate experience, with a focus on detailed depictions of historical settings and events. Each game builds upon the mechanics of its predecessors while introducing new features that enhance gameplay and immersion.

Red Dead Redemption (2010) and LA Noire (2011) by Rockstar go beyond simply incorporating historical elements into popular games; primary source research informed the game worlds, mechanics, and narratives, thereby forming historical spaces[43]. Rockstar San Diego and Team Bondi designers conducted extensive research for the games and are renowned for faithfully recreating open-world environments. Red Dead Redemption's researchers unearthed new historical insights. At the same time, LA Noire was inspired by true-life crimes and significant main source material. LA Noire was the first video game to be screened at the Tribeca Film Festival, pioneering video game story and acting. Researchers for LA Noire (2011) reviewed over 180,000 photographs, police documents, newspapers, and maps to reconstruct Los Angeles in the 1940s. Based on these discoveries, the gameplay incorporates crime-solving, investigation, hand-to-hand fighting, and gun engagements. Furthermore, the conversation in the game features historically correct colloquialisms and slang. The game environments were created using aerial images taken by Robert Earl Spence between 1918 and 1971 in California and the American West.

Red Dead Redemption (2010) demonstrates how video games can be used to make historical arguments. The western action-adventure, the open-world game, explores the early twentieth-century changes in the United States of America. It generates a debate about the country during this period.

Walden (2007), an experimental game being developed by Tracy Fullerton, the University of Southern California's game director, looks closely at a historical moment. Walden delves into Henry David Thoreau's experiences at Walden Pond between 1845 and 1847[40]. However, this game is not strictly educational, but it is rich with content that makes it a tremendous educational experience. According to its producer website, by using this game and the lessons, the students will give the background to understand *Walden* and maximise what they learn from playing it. Using lessons, they can know more about the character's life, for instance, in which period he lived(Walden game, 2020). Table 1. shows some examples of popular commercial games in the history genre.

TABLE I. POPULAR COMMERCIAL VIDEO GAMES IN THE HISTORY GENRE

Name	Genre	Goals	Developers	Publication dates
Total War	Turn-based strategy	Replicated Rome, Medieval Europe, Post-Enlightenment Europe. Provide users with real-time	Creative Assembly	2000-2020

		tactical warfare controls as they replay historical encounters, as well as menus for selecting tools and strategies.		
Assassin's Creed series	Action-adventure stealth	From the most basic game aspects, the game provides rich historical details about cultures, economy, and communities.	Ubisoft	2007-2020
Walden	Serious game	Walden offers how daily life could be translated into an educational game during a historical moment. Walden gives students the background to better understand Henry David Thoreau's life, the era in which he lived and the environmental legacy that he left behind	USC game	2007
Red Dead Redemption	Single-player	Accurate reconstruct open-world environments	Rockstar San Diego	2010 and 2018
Crusader Kings Series	Grand strategy	This game tells about Medieval Europe's political fragmentation. Players can make choices that significantly impact historical outcomes.	Paradox Development studio	2004, 2012 and 2020
Civilisation series	Turn-based strategy	Create a dynasty that will last the test of time. Conquer the entire world	MicroProse Activision Firaxis games	1991-2016

		by establishing and leading your civilisation from the Stone age to the information age.		
--	--	--	--	--

B. Iranian Game Industry

The first major attempts at local game development date back to 1990. Honafa was the first game studio to create games for governmental organizations such as the Ministry of Islamic Culture and the Iran Drug Control Headquarters. Honafa has a production team as well as an R&D team. In 1996, they released their debut game, *The Tank Hunter*. It was a 2D MS-DOS game in which a man wielding an RPG destroyed the enemy's tanks. This game was dedicated to the Iranian heroes of the Iran-Iraq war from 1980 to 1988. We can count this game as the first commercial game that focused on religious beliefs and the national identity of the Iranian people in Islamic times.

In 2001, the *Tebyan* Cultural Institute was established under the control of Iran's government. In 2006, the *Tebyan* started promoting some video games, including *Afsane Ye Nawruz*, related to Iran's intangible cultural heritage. In 2008, two of the most successful commercial video games in the historical genre were released. They are known as *Lotf Ali Khan* and *Shamshir-e-Nadar*. Regarding the *Lotf Ali Khan* game, we will explain it further in the following sections. *Shamshir-e-Nadar* was released after *Lotf Ali Khan*. It was the continuation of the *Lotf Ali Khan* story. The story of this game happened in Iran's *Afsharid* dynasty, and it is about Iran's conquest by the *Pashtuns*. This game's environment is depicted in Figure 1.



Fig. 1. The *Shamshir-e-Nadar* game, using historic architectural motifs in a game environment to learn about house construction in the past in Iran.

TABLE II. POPULAR HISTORICAL VIDEO GAMES IN THE IRANIAN GAME INDUSTRY

Name	Genre	Goals	Developers	Publication dates
------	-------	-------	------------	-------------------

Lotf Ali Khan	Third-person sword fighting game	Developing history didactics among children through video games. The game reflects the splendour of Persian culture at that time.	Quest of Persia Team	2008
Nader's Blade	Third-person sword fighting game	Developing history didactics among children through video games. The game reflects the splendour of Persian culture at that time.	Quest of Persia Team	2008
Khoramshahr Battle	Third-person sword fighting game	Developing history didactics about the life of a contemporary Iranian hero, especially in the Iran-Iraq war developing history didactics about the life of a contemporary Iranian hero, especially in the Iran-Iraq war.	Gostar Benisi Company	2011
Garshasp	Action-adventure	Developing history didactics among children through video games, especially in the field of ancient Persian mythology	Fanafzar Sharif Co. Dead Mage, Inc.	2010
Mir-Mahna	Action-adventure	Developing history didactics about the life of a	Iran computer and video games foundation	2011

		contemporary Iranian hero.		
Siavash	Action-adventure	Developing history didactics among children through video games, especially in the field of ancient Persian mythology	Sorna Pardazesh Arya	2016
Iran 57	Action-adventure	It Narrates the Islamic revolution in Iran in 1979	Shokouh Kavir Company	2018

III. HISTORICAL DEPLOYMENTS IN VIDEO GAMES: A FRAMEWORK

Like other forms of media, video games do not merely reproduce the past. Video games employ or "deploy" history to advance particular representations, generalisations, or interpretations. Each game creates a historical narrative (often singular, but not always, if replay outcomes vary) through appropriations of the past reflected in the historical content and purposes incorporated in the game. It includes messages about the past, the present, and their relationship. We present a framework for describing and analysing previous deployments, backed up by specific examples from our analysis of sample games. Broader paradigms are then proposed to explain how these historical representations influence player experience by emphasising certain roles or perspectives while marginalising or restricting others. Figure 2 and Table 3 detail the deployment framework and the defining attributes.

TABLE III. DEPLOYMENTS OF THE PAST IN THE HISTORICALLY THEMED VIDEO GAMES BASED ON SA METZGER, RJ PAXTON, 2016[36]

Factor	
Antiquarian	Past positions can be objectively evaluated or recreated as ossified things. The focus is on "realism" (accuracy or authenticity). Characters or game elements can be classified as historically warranted. Representations highlight realism or accuracy in ways that influence (or limit) gameplay. Objects that authentically recreate period scenes, artifacts, or communications.
Monumental	The past is venerated, valorized, or glorified (for example, hero worship), with an emphasis on the empathic relationship to cultural heritage. Game components or characters are easily identifiable (e.g., standard "textbook" historical elements) and located inside the game design-encouraged confines of gameplay. Historical representations elicit positive sensations or a sense of empathy in today's viewers through the tone of gameplay design.
Critical	The Past is positioned as a malleable/counter-narrative that has a significant impact on the gameplay experience.

	The emphasis is on perspective, counterfactual, or a sense of empowerment. Alternatives to popular historical narratives, motifs, or interpretations can be found in game components. Game architectures that require or allow players to switch between numerous historical views or narratives that are influenced by player choices (for example, the capacity to play out historical counterfactuals). Objects or interfaces that highlight or exaggerate the player's control over historical components or narratives.
Wishstory	Various forms of "presentism" obfuscate potentially disappointing contexts and emphasize historical images rather than actual historical settings. Historical qualities that contradict with acceptable social or political features are rejected or avoided by game components. Historical aspects are depicted in ways that are comfortable or agreeable with contemporary cultural expectations, tastes, or values. The gameplay allows the user to create unhistorical (anachronistic, reductionist, factually impossible) outcomes that appeal to current public opinion.
Composite imagination	The past is positioned by combining pieces from several historical settings. The emphasis is on recognizability rather than authenticity and correctness. Historical elements from many historical contexts are widely appropriated by game components, frequently through highly fictionalised or stylised interpretations. Reductionist representations that prioritize today's audiences' quick recognizability (e.g., famous historical names/events applied to imagined or fictional gaming figures/events)
Borrowed authenticity	To generate a sense of verisimilitude, the past is positioned as a selective canvas of historical reality. To differentiate the game setting from pure fantasy, emphasis is placed on apparent believability. Game elements are extracted carefully from historical reality, which otherwise works in gameplay as freely as invented fantasy. Representations/depictions that seek to make game aspects appear not entirely imaginary by relying on notions of historical plausibility.
Historical provenance	A type of "presentism" that situates contemporary articulations of issues in earlier historical settings. The emphasis is on developing a longer temporal basis or genealogy for identification or concern. Present-day perspectives/identities or social/political issues are reflected in game components, either narratively or by juxtaposition with period historical features. Gameplay immerses the player in perspectives, identities, or social and political concerns in manners that maintain historical plausibility while avoiding anachronism.
Legitimation	To validate the game as a historical text, historical disciplinary systems were applied. The emphasis is on disciplinary methods,

	<p>elements, and validity perceptions. References to expert influence on game design (for example, the advice of consulting historians). The game contains elements that are clearly reminiscent of academic history (for example, source attributions or discipline language). The features of the game are intended to incorporate, recreate, or imitate historical informational resources (for example, encyclopedias, documents, or artifacts).</p>
--	--



Fig. 2. Conceptual framework based on SA Metzger, RJ Paxton, 2016[36]

IV. EMPIRICAL WORK

Following a historical overview of commercial video games' objectives, we analyse *Lotf Ali Khan*, an Iranian video game produced by *Pardis Rayane Mehr* in Iran. We chose this game because it was more realistic than others and was simple for our target audience to play. Additionally, no special hardware or software is required to play. It is compatible with the vast majority of computer systems. Our analysis is based on the historical accuracy of several events that occurred between 1769 and 1794 AD. Additionally, we conducted an interview and questionnaire with the players, focusing on children under age fifteen and some experts.

A. Methodology

This paper aims to examine the possibility of learning history through the commercial video game. As with other case studies, this one draws on multiple data sources, including secondary sources/documents, fieldwork and observations, and semi-structured interviews with five experts and fifteen students. Case studies are critical because they provide crucial, representative, revolutionary, unique, or longitudinal examples of specific patterns and issues[44]. Students (of the male gender) and experts from organisations dedicated to improving commercial video games to aid history learning were interviewed. The interviewing process reached a theoretical saturation point. The sample was divided into two distinct groups: video gaming experts and academic scholars (five individuals) and secondary school students (15 people). The participants were chosen using a snowball sampling technique and questioned about the feasibility of improving history learning through a commercial video game. The rationale behind dividing the sample into two groups in the mentioned text is to collect opinions from both experts in the field of commercial video game development and academic scholars, as well as secondary school students who are the potential audience of such games for learning

history. By doing so, the researchers can collect diverse perspectives on the feasibility of using commercial video games as a tool for learning history. This approach allows the researchers to examine the potential strengths, weaknesses, opportunities, and threats of developing such games, and to identify possible research areas to improve history learning through commercial video games. Overall, the division of the sample into two groups allows for a more comprehensive understanding of the potential of commercial video games as a tool for learning history. To identify possible research areas, interviewees' statements were classified and analysed qualitatively for strategic factors such as strengths, weaknesses, opportunities, and threats (SWOT). following are the examples of the semi-structured interview questions which was used by the authors.

1. Can you tell us about your experience with the game "Quest of Persia: Lotf Ali Khan" and how it helped you learn about history?
2. If you could make the game "Quest of Persia: Lotf Ali Khan" even better for learning history, what changes or improvements would you suggest?
3. What do you think is great about using "Quest of Persia: Lotf Ali Khan" to learn history? Are there any parts that you think could be improved?
4. How do you imagine "Quest of Persia: Lotf Ali Khan" being used in classrooms to help kids like you learn about history?
5. What difficulties do you think we might come across, and what can we do to solve them?
6. Based on your experience, what ways have you found that make "Quest of Persia: Lotf Ali Khan" a fun and effective game for learning history? Do you have any tips or ideas to share?
7. Can you think of any specific parts in "Quest of Persia: Lotf Ali Khan" that you really liked and helped you understand history better?
8. When choosing games like "Quest of Persia: Lotf Ali Khan" for history lessons, what things should we consider? What makes a game like this good for learning?
9. How do you think playing "Quest of Persia: Lotf Ali Khan" helps you think more deeply and understand historical events better? Can you give us any examples of what you learned?
10. Lastly, we would love to hear any feedback or stories from you and other kids and experts who have used "Quest of Persia: Lotf Ali Khan" to learn history. How did it make learning more fun or interesting for you?

The next stage was to create a SWOT matrix by organizing the internal and external strategic aspects that drive strategy creation. All comments were acquired via pairwise comparison surveys and analyzed using an Analytic Network Process (ANP) model with the assistance

of Super Decision software to prioritize the options discovered through the SWOT analysis. SWOT analysis was used to frame the data from the interviewees. It sheds light on the diverse characteristics of the challenges and opportunities confronting commercial video games as they consider how to move forward by utilising them as a historical learning tool. Our analysis identified four conceptually distinct strategic groups for developing alternative strategies: strength-opportunity (SO), strength-threats (ST), weaknesses-opportunities (WO), and weaknesses-threats (WT). SO strategies maximise internal strengths to capitalise on external opportunities (the ideal case). WO tactics, on the other hand, maximize internal flaws in order to capitalize on external possibilities.

On the other hand, ST strategies emphasise using strengths to avoid or mitigate the effects of external threats. In contrast, WT strategies emphasise defensive tactics to reduce internal vulnerabilities and external threats. The primary advantage of this approach is that it incorporates the influence of prioritised internal and external factors into alternative urban renewal strategies. The primary disadvantage of the SWOT analysis is that certain combinations, such as SW or OT, are omitted. The ANP is a commonly used multi-criteria decision-making method that performs pairwise comparisons between factors to prioritise them using the eigenvalue calculation approach. The Analytic Hierarchy Process (AHP) is a generalization of the ANP. Prof. Thomas Saaty[45] founded both the and the ANP. A decision-making problem in the AHP has a hierarchical structure, with the decision-making goal at the top and criteria at the second level, which can be decomposed into subcriteria at a lower level. The hierarchical structure is upgraded to a network in the ANP, allowing interactions between hierarchy elements (e.g. a certain leaf could influence other leaves). The ANP network is made up of clusters and elements. From a mathematical standpoint, the ANP is the only method that has been demonstrated to be capable of analyzing connections within a decision system, including consistency checks and eigenvector confirmation[46].

The weighted supermatrix must be calculated after the problem has been structured, according to the ANP steps. The steps are as follows:

- The empty supermatrix is the starting point. The matrix's dimension equals the number of nodes in the problem.
- Then, at the node level, pairwise comparisons must be performed as follows:
 - 1- Comparisons of the criteria with respect to goals. Criteria from different clusters are compared separately
 - 2-Comparisons of criteria with respect to other criteria
 - 3- Pairwise comparisons of the alternatives with respect to each criterion
 - 4- Afterwards, the pairwise comparisons on the cluster level must be done.

There must be a high number of pairwise comparisons performed. As the network comprises a significant number of dependencies between the criteria, the number of pairwise comparisons increases. In general, if m is the number of clusters in the decision-making problem, N_j is the number of elements in the i -th cluster, and $D_j^i(K)$ is the number of dependencies of the i -th element from cluster j taking into account cluster k , then the total number of comparisons required is N , according to Eq. (1). The unit of measurement is a decimal number.

$$N = \sum_{k=1}^m \sum_{j=1}^m \sum_{i=1}^{n_j} \frac{D_j^i(K)(D_j^i(K)-1)}{2} + \frac{m^2(m-1)}{2} \quad (1)$$

The goal of using the ANP within the SWOT framework was to examine SWOT elements and methodically equate their intensities. The benefits of ANP (for example, a methodical approach to decision problems) are important factors in our SWOT analysis.

B. Game story

Lotf Ali Khan was the latest king of the Zand¹ dynasty who lived between 1769 to 1794 AD. The story of the game is related to the life of *Lotf Ali Khan*. The game was produced based on one of the famous stories of Iranian history that took place in the 18th century: the betrayal of *Ibrahim Khan Kalantar* against *Lotf Ali Khan*, the conquering of *Zarghan Castle* by *Lotf Ali Khan*, the *Aqa Mohammed Khan's* attack to *Zarghan* castle, and the escape *Lotf Ali Khan to Kerman*². All steps are followed in *Zarghan* castle and *Kerman* city. The first step is to start outside of the *Zarghan* castle, and we can go inside the court with the help of our soldiers; we should try to conquer *Zarghan* castle in 13 steps. After 13 efforts, we can not defeat the *Qajar*³ soldiers and *Ibrahim Khan Kalantar*, so we must escape to *Kerman*. After that, we should continue fighting with *Qajar* soldiers in *Kerman*. Unfortunately, after nine steps, we are arrested by the *Qajar* Governor. This scenario is authentic; it was based on historical events at the *Zand* dynasty's end. It is about the rise of the *Qajar* dynasty as the kingdom of Iran in the 18th century.

It is a historical action game similar to *Assassin's Creed* in terms of design. Its story is told through pre-rendered cut scenes. The game design system is based on the concept of a history and action game, combining historical knowledge with win steps. Compared to similar games such as *Assassin's Creed*, it is severely limited. This game consists of 22 steps in the *Kerman* region; to complete each step, we must follow instructions related to historical events. Additionally, its game environments are evocative of Iran's 18th century.

C. Game Environment

As we mentioned above, the storytelling of this game happened in the period of the *Zand* dynasty. The game's events take place in two prominent locations: *Zarghan* and *Kerman*. In terms of architectural accuracy at that time, the producer tried to align the city of *Kerman* and *Zarghan* perfectly to the Islamic architectural motifs of this period.

¹ *Karim Khan Zand* founded the *Zand* dynasty, an Iranian dynasty of *Kurdish* or *Lurish* origin

² the capital city of *Kerman* Province, Iran

³The *Qajar* dynasty, which was of Turkic origin, ruled over an Iranian empire known as the *Qajar*

For example, in Figure 3. Islamic architecture can be seen in the cities' urban space. Using these elements, the developer tried to focus on and explain the building's features and materials in the Zand dynasty.

The designer incorporated traditional Iranian clothing for both commoners and royalty. For instance, in Figure 3, one can see everyday clothing from the 17th century in Iran. The use of Iranian architectural effects and the meticulous attention to detail, including the costumes and landscapes of the characters and their indigenesness, cause us to overlook some minor flaws in the game. Numerous Iranian engravings and poems, such as Saadi's, are depicted in multiple locations.

It is worth noting that the game's gameplay and characters are written in Persian. Players can hear numerous original Persian words throughout the game and compare them to the modern Persian language. The designer attempted to incorporate common Persian words into a formal and informal dialogue during the period of the Zand dynasty. The designer tried to depict why these events occurred during the Zand dynasty by utilising these features, such as clothing and architectural motifs. For example, the central part of Iran experiences strong winds for most of the year due to its desert terrain. Thus, in the past, most cities such as Kerman and Zarghan were built with a cul-de-sac transportation network to mitigate the effects of heavy tornadoes. As a result, the game features numerous winding alleys.



Fig. 3. Using architectural motifs in a game environment to learn about architectural science and technology during the Zand and Qajar periods.

V. DESCRIPTIVE CASE STUDY FINDINGS

Identifying challenges and opportunities for the *Lotf Ali Khan* game with the aim of history learning can shed light on the nature of policy-making and executive measures. In what follows, the strengths, weaknesses, opportunities, and threats of the *Lotf Ali Khan* game were identified through observations and interview data (Table 4). After extracting the strengths, weaknesses, opportunities, and threats of the *Lotf Ali Khan* game's potential for history learning, the participants were asked to score the extracted items again. The results are shown in Table 4.

A. Prioritising history learning-driven strategies

Based on the SWOT analysis, strategies for history learning through playing commercial video games were classified into four categories: competitive/pro-action (SO),

diversification (ST), revision (WO), and defence (WT). The strategies noted below were identified and weighted based on the hierarchical analysis in Super Decision software (Tables 4 & 5). The analyse measurement is based on a percentage.

TABLE IV. MATRIX OF INTERNAL AND EXTERNAL FACTORS IN HISTORY LEARNING THROUGH PLAYING THE COMMERCIAL VIDEO GAME

Factor	Strength	Weakness	Opportunity	Threat
Antiquarian	(S1) Coordination with the historical events (S2) Zandieh period Existence of real characters.		(O1) More attention of the companies to the originality of the video game.	(T1) Excessive attention to the originality and repetition of history makes players reluctant to play.
Monumental	(S3) Existence of the historical (S4) Buildings in the game environment.	(W1) Indesign architecture in the game environment.	(O2) Pay more attention to the importance of cultural heritage.	
Critical	(S4) Less attention to radical political aspects.	(W2) Low attention to the flexibility of historical narratives. (W3) Repeat history.	(O3) Try to pay more attention to the flexibility of historical narratives.	(T2) Too much attention makes the game counter-real. It may lead to more attention to radical political aspects.
Wishstory		(W4) The difference between the strength of the characters .	(O4) Possibility to resolve differences between characters to make the game more attractive.	(T3) Too much attention to a wish story leads to unreality and realism.

Composite imagination	(S5) Imagine the historical narratives of the game during the game playing. (S6) Paying attention to the methods of fighting in Zandieh's time.	(W5) Lack of combination of fantasy and reality in this game. (W6) Lack of attention to historical culture in this game.	(O5) Paying attention to the combination of imagination and reality increases the engagement between players.	
Borrowed authenticity	(S7) Use the names of historical places and groups. (S8) The game is independent of historical events in many ways and can be transferred to other quasi-historical environments.		(O6) Pay more attention to originality by using imagination.	
Historical provenance		(W7) Lack of attention to today's issues and concerns in this game.	(O7) Paying attention to the vast issues in the past that are important now Such as paying attention to the spectrum of homosexuals in the Zandieh and Qajar periods in the royal court.	
Legitimation	(S9) Existence of the			(T4) Excessive

	actual characters (S10) The authenticity of the game story in terms of historical documents. (S11) The game playing is close to historical events.			attention to historical documents and functions makes the audience bored.
--	---	--	--	---

TABLE V. PRIORITISATION OF EXTERNAL AND INTERNAL FACTORS THAT MAY AFFECT HISTORY LEARNING THROUGH PLAYING THE COMMERCIAL VIDEO GAME

factor	Swot factor	Sub factors	Priority of factors	Priority of subfactors	Total priority of factors
Antiquarian	Strength	0.060907	S1	0.32675	0.01990136
			S2	0.26607	0.01620553
	Weakness				
	Opportunity	0.052302	O1	0.28438	0.01487364
Monumental	Threat	0.019671	T1	0.12280	0.00241560
	Strength	0.104570	S3	0.48602	0.05082311
	Weakness	0.031670	W1	0.20112	0.00636947
	Opportunity	0.057547	O2	0.31286	0.01800415
Critical	Threat				
	Strength	0.038826	S4	0.39499	0.01533588
	Weakness	0.013113	W2	0.12682	0.00166299
			W3	0.10213	0.00133923
Opportunity	0.027190	O3	0.25922	0.00704819	
Threat	0.012923	T2	0.11684	0.00150992	
Wishstory	Strength				
	Weakness	0.012338	W4	0.31298	0.00386155
	Opportunity	0.037016	O4	0.45922	0.01699849
	Threat	0.012339	T3	0.22780	0.00281082
Composite imagination	Strength	0.039182	S5	0.31305	0.01226593
			S6	0.18099	0.00709155
	Weakness	0.012313	W5	0.10168	0.00125199

			W6	0.14288	0.001759 28
	Opportunity	0.0274 36	O5	0.26140	0.007171 77
	Threat				
Borrowed authenticity	Strength	0.0391 22	S7	0.41241	0.016134 30
			S8	0.23095	0.009035 23
	Weakness				
	Opportunity	0.0195 61	O6	0.35664	0.006976 24
	Threat				
Historical provenance	Strength				
	Weakness	0.0270 56	W7	0.40584	0.010980 41
	Opportunity	0.0811 69	O7	0.59416	0.048227 37
	Threat				
Legitimization	Strength	0.0327 55	S9	0.37926	0.012422 66
			S10	0.20346	0.006664 33
			S11	0.21223	0.006951 59
	Weakness				
	Opportunity				
	Threat	0.0108 44	T4	0.20505	0.002223 56

The following strategies mentioned in the paper were developed by analyzing and interpreting the weights obtained from Table V. These weights serve as a quantitative measure of the significance and impact of different factors or variables considered in the study. By assigning weights to each factor, we were able to prioritize and identify the most influential aspects related to the research objective.

1) Competitive/pro-action (SO)

Competitive/pro-action (SO) is one of the four conceptually distinct strategic groups identified in the SWOT analysis. SO strategies focus on maximizing internal strengths to capitalize on external opportunities. Several strategies were identified as providing a competitive and proactive avenue for *Lotf Ali Khan* Game to compete in the game marketplace and help with history learning. First, the existence of the historic buildings can help improve history learning (S3), particularly regarding the monumental issue. A second action is to enhance the attention to the vast issues in the past that are important now, such as paying attention to the spectrum of homosexuals in the *Zandieh* and *Qajar* periods in the royal court (O7). The third identified technique is to increase coordination with historical events in order to make players feel more rooted and a part of the community (S1). Fifth, pay more attention to the importance of cultural heritage (O2), like some traditions (local assets, music), which may also help improve historical knowledge and assist in understanding the past.

2) Diversification (ST)

Diversification (ST) is a strategy identified through the SWOT analysis, which involves leveraging internal strengths to overcome external threats. Several strategies were also identified to help the *Lotf Ali Khan* game diversify its historical learning. One of the most effective ways is to prepare well-designed architecture in the game environment that will support history learning plans and emphasise the area's cultural products (S9). Secondly, the game might use video games to use historic sites and monuments as materials to help understand the past (T3). Third, improving attention to today's issues and concerns in this game and historical culture can support history learning.

3) Revision (WO)

This strategic group involves minimizing weaknesses and avoiding threats. Revision-related actions include more attention from the companies to the originality of the video game. Paying more attention to the importance of cultural heritage (O2), Try to pay more attention to the flexibility of historical narratives (O3). The increasing combination of fantasy and reality in this game and the attention to historical culture in this game (W5).

4) Defence (WT)

Defence (WT) is one of the four strategic groups identified in the SWOT analysis. This group focuses on minimizing weaknesses and avoiding threats that could negatively impact the organization. Learning from the successes and failures of other historical video games is an essential step for the *Lotf Ali Khan* game. The results also show that too much attention makes the game counter real(T3). It may lead to more attention to radical political aspects (T2). Excessive attention to historical documents and functions makes the audience bored (T4). Finally, the *Lotf Ali Khan* game needs to resolve the conceptual challenges of history learning and establish a balance between audience and historical materials to make people learn history through video games.

VI. DISCUSSION

As commercial historical video games show, a game used as a learning tool does not represent an educational game. Indeed, more sophisticated games and simulations will be created for educational goals. It is easy to imagine the sandbox of a historical epoch, an open-world learning play space for people, nations, and civilisations, or a moment describing each detail of the environment, the material culture, and life's fundamentals. The gameplay should consider all aspects of the social, cultural, economic, and religious society the game is set in. The paper discussed video games in two ways: first, as a modern and highly interactive media with high social penetration that provides excellent opportunities for cultural heritage presentation and popularization, and second, as a component of digital cultural heritage that necessitates special preservation efforts in conjunction with their technological platforms and gaming environments. Commercial games with historical backgrounds were introduced as a group of video games for history learning. Definitions of commercial video games with historical contexts were discussed, as well as whether these video games can be considered learning tools or not. Moreover, after the general overview of the timeline of commercial historical video games in the worldwide and Iranian game industries, one of the Iranian video games was

evaluated as an example of whether the game industry was thriving in producing commercial video games with an emphasis on historical learning.

According to the findings, the following are the research's significant conclusions: The resulting strategies were ranked using an ANP model in the Super Decision software based on the SWOT table. The findings indicate that Competitive/pro-action strategies (SO) should be prioritized in improving historical learning. According to the results of the SWOT analysis, the most important weaknesses include a lack of combination of fantasy and reality in this game (0.00125199), repeating history (0.00133923), and insufficient attention to the flexibility of historical narratives (0.00166299). The essential opportunities include paying attention to the vast issues in the past that are important now, paying more attention to the spectrum of homosexuals in the royal court during the *Zandieh* and *Qajar* periods (0.04822737), paying more attention to the originality of the video game (0.01487364), and paying more attention to the importance of cultural heritage (0.01800415), for example. The most significant threats are that excessive attention to the originality and repetition of history makes players reluctant to play (0.00241560), and too much attention to the story leads to unreality and realism (0.00281082). The most important strengths are coordination with historical events (0.01990136) and the existence of real characters (0.01620553). External opportunities and internal strengths were used to develop strategies, and attempts were made to develop strategies to reduce external threats and internal weaknesses.

However, the results of this work have some limitations. Saaty's scale has some limitations. For instance, This scale has only 9 degrees, which appears to be insufficient at times. Also The ANP is mostly employed in nearly crisp choice applications, and it generates and deals with a very imbalanced judgment scale, does not account for the uncertainty associated with translating one's opinion to a number, and its ranking is rather imprecise." The ANP's general weakness is its high complexity. As a result, ANP implementation requires the participation of an ANP expert in order to be successful. This process can be costly and time-consuming, and it may result in conflicts. The ANP is associated with the stochasticity property of the matrix, which guarantees that the matrix will eventually converge into a matrix with equal columns, making it easier to obtain the final priorities. However, because the matrix does not incorporate the absolute intensities of the influences between the criteria, this technique relativizes the decision-making problem. The answer to this problem is still being researched. Although the constraints had no effect on the study's main finding, future research could include more controls.paper.revisio

VII. CONCLUSION

Based on the findings of the study, it is recommended that educational institutions should consider incorporating competitive/pro-action strategies (SO) through video games into their history curriculum. However, it is essential to keep in mind the limitations of the study, such as the lack of familiarity with the game among some students and limited access to PC and computer facilities at school.

To further explore the potential of video games in promoting learning across various subjects, future research should consider the effectiveness of video games in specific contexts, such as the school context versus adult professional development. Moreover, researchers should examine aspects related to particular game designs and gameplay environments to determine their effectiveness in promoting learning and identify which ones are suitable for specific topics or skills.

Overall, this study highlights the potential of video games in promoting learning and emphasizes the importance of conducting further research in this area to identify effective strategies for incorporating video games into education.

REFERENCES

- [1] J. Van Drie and C. Van Boxtel, "Historical reasoning: Towards a framework for analyzing students' reasoning about the past," *Educ. Psychol. Rev.*, vol. 20, no. 2, pp. 87–110, 2008, doi: <https://doi.org/10.1007/s10648-007-9056-1>.
- [2] K. M. YOUNG and G. LEINHARDT, "Writing from Primary Documents," *Writ. Commun.*, vol. 15, no. 1, pp. 25–68, Jan. 1998, doi: 10.1177/0741088398015001002.
- [3] C. A. Perfetti, M. A. Britt, and M. C. Georgi, *Text-based learning and reasoning: Studies in history*. Routledge, 2012.
- [4] K. O'Reilly, "Informal reasoning in high school history," Routledge, 2012. doi: <https://doi.org/10.4324/9780203052228>.
- [5] E. Masterman and Y. Rogers, "A framework for designing interactive multimedia to scaffold young children's understanding of historical chronology," *Instr. Sci.*, vol. 30, no. 3, pp. 221–241, 2002, doi: 10.1023/A:1015133106888.
- [6] E. Wood, *Teaching early years history*. Chris Kington, 1996.
- [7] T. M. Weis, R. Benmayor, C. O'Leary, and B. Eynon, "Digital technologies and pedagogies," *Soc. Justice*, vol. 29, no. 4 (90), pp. 153–167, 2002, [Online]. Available: <https://www.jstor.org/stable/29768155>
- [8] S. D. Piovesan, L. M. Passerino, and A. S. Pereira, "Virtual Reality as a Tool in the Education.," *Int. Assoc. Dev. Inf. Soc.*, pp. 295–298, 2012, [Online]. Available: <https://eric.ed.gov/?id=ED542830>
- [9] J. P. Gee, *Why video games are good for your soul: Pleasure and learning*. Common Ground, 2005. [Online]. Available: https://books.google.fi/books/about/Why_Video_Games_are_Good_for_Your_Soul.html?id=nG2uugldH3wC&redir_esc=y
- [10] T. Cowen, "Why everything has changed: the recent revolution in cultural economics," *J. Cult. Econ.*, vol. 32, no. 4, pp. 261–273, Dec. 2008, doi: 10.1007/s10824-008-9074-y.
- [11] K. J. Borowiecki and J. Prieto-Rodriguez, "Video games playing: A substitute for cultural consumptions?," *J. Cult. Econ.*, vol. 39, no. 3, pp. 239–258, Aug. 2015, doi: 10.1007/s10824-014-9229-y.
- [12] [Anonymous, 2016]
- [13] J. McCall, "Playing with the past: History and video games (and why it might matter)," *J. Geek Stud.*, vol. 6, no. 1, pp. 29–48, 2019, [Online]. Available: https://www.academia.edu/39273348/Playing_with_the_past_history_and_video_games_and_why_it_might_matter
- [14] J. Shieber, "Video game revenue tops \$43 billion in 2018, an 18% jump from 2017," *Techcrunch.com*, 2019. https://techcrunch.com/2019/01/22/video-game-revenue-tops-43-billion-in-2018-an-18-jump-from-2017/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAALUBDBHRI_xfGcjunFL5hIFmP4x1MZpcfxWeNf-ayArW9jzVBII5kRVsgRM0q7QALcE2J4qmIa2RNHK16CA-A-tTEK04G6b8H1-QF9OFJ18ZvA0Ls0EQgYY4IEWTHU2gIXlxBZnDNzXx4at5XrtIIMf3F9NurRt9WEcL5FTi6ZMu4
- [15] S. Egenfeldt-Nielsen, "What Makes a Good Learning Game?," *eLearn*, vol. 2011, no. 2, p. 1943208.1943210, Feb. 2011, doi: 10.1145/1943208.1943210.

- [16] M. Prensky and S. Thiagarajan, *Digital Game-Based Learning*, Paragon House, St. vol. 17. Paragon House, 2007. [Online]. Available: <https://www.paragonhouse.com/xcart/Digital-Game-Based-Learning.html>
- [17] E. MacCallum-Stewart and J. Parsler, "Controversies: Historicising the Computer Game," *Proc. DIGRA Conf.*, pp. 203–210, 2007.
- [18] J. Majewski, "Cultural heritage in role-playing video games: A map of approaches," *Furnace*, vol. 2, pp. 24–36, 2015, [Online]. Available: https://www.academia.edu/37594294/Playing_with_intangible_heritage_Video_game_technology_and_procedural_re_enactment
- [19] K. Salen, K. S. Tekinbaş, and E. Zimmerman, *Rules of play: Game design fundamentals*. MIT press, 2004. [Online]. Available: <https://mitpress.mit.edu/9780262240451/rules-of-play/>
- [20] A. Chapman, *Digital games as history: How videogames represent the past and offer access to historical practice*. Routledge, 2016. [Online]. Available: https://www.perlego.com/book/1632313/digital-games-as-history-how-videogames-represent-the-past-and-offer-access-to-historical-practice-pdf?utm_source=google&utm_medium=cpc&campaignid=17490270403&adgroupid=140283313320&gclid=CjwKCAjw8-OhBhB5EiwADyoY1YNbb8agw-0ykwrLeNBg46ZPATK17yjcHkYp0codKDL8ry5bPGyOBoCe_YQAvD_BwE
- [21] A. Reinhard, *Archaeogaming: An introduction to archaeology in and of video games*. Berghahn Books, 2018. doi: <https://doi.org/10.1515/9781785338748>.
- [22] A. D. Reinhard, "Archaeology of Digital Environments: Tools, Methods, and Approaches," University of York, 2019. doi: 10.5284/1056111.
- [23] J. McCall, "Teaching History With Digital Historical Games," *Simul. Gaming*, vol. 47, no. 4, pp. 517–542, Aug. 2016, doi: 10.1177/1046878116646693.
- [24] K. O'Neill and B. Feenstra, "Honestly, I Would Stick with the Books': Young Adults' Ideas about a Videogame as a Source of Historical Knowledge," *Game Stud.*, vol. 16, no. 2, 2016, [Online]. Available: <https://gamestudies.org/1602/articles/oneilfeenstra>
- [25] T. J. Copplestone, "But that's not accurate: the differing perceptions of accuracy in cultural-heritage videogames between creators, consumers and critics," *Rethink. Hist.*, vol. 21, no. 3, pp. 415–438, Jul. 2017, doi: 10.1080/13642529.2017.1256615.
- [26] E. L. Hammar, "Counter-hegemonic commemorative play: marginalized pasts and the politics of memory in the digital game Assassin's Creed: Freedom Cry," *Rethink. Hist.*, vol. 21, no. 3, pp. 372–395, Jul. 2017, doi: 10.1080/13642529.2016.1256622.
- [27] A. Shaw, "The Tyranny of Realism: Historical accuracy and politics of representation in Assassin's Creed III," *Loading...*, vol. 9, no. 14, 2015, [Online]. Available: <http://loading.gamestudies.ca>
- [28] S. Murray, "The poetics of form and the politics of identity in Assassin's Creed III: Liberation," *Kinephanos J. Media Stud. Pop. Cult.*, pp. 77–102, 2017, [Online]. Available: <https://www.kinephanos.ca/2017/the-poetics-of-form/>
- [29] J. Wills, "Pixel Cowboys and Silicon Gold Mines: Videogames of the American West," *Pac. Hist. Rev.*, vol. 77, no. 2, pp. 273–303, May 2008, doi: 10.1525/phr.2008.77.2.273.
- [30] H. Pötzsch and V. Šisler, "Playing Cultural Memory: Framing History in Call of Duty: Black Ops and Czechoslovakia 38-89: Assassination," *Games Cult.*, vol. 14, no. 1, pp. 3–25, 2019, doi: DOI: 10.1177/1555412016638603.
- [31] D. Ramsay, "Brutal games:" Call of duty" and the cultural narrative of world war II," *Cine. J.*, pp. 94–113, 2015, [Online]. Available: <https://www.jstor.org/stable/43653093>
- [32] A. Chapman and J. Linderoth, "Exploring the limits of play: A case study of representations of Nazism in games," in *The Dark Side of Game Play*, Routledge, 2015, pp. 137–153. [Online]. Available: <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315738680-9/exploring-limits-play-adam-chapman-jonas-linderoth>
- [33] C. A. Kocurek, *Coin-operated Americans: Rebooting boyhood at the video game arcade*. U of Minnesota Press, 2015. [Online]. Available: https://books.google.fi/books?hl=en&lr=&id=gTB0DwAAQBAJ&oi=fnd&pg=PT5&dq=C.+A.+Kocurek,+Coin-operated+Americans:+Rebooting+boyhood+at+the+video+game+arcade.+U+of+Minnesota+Press,+2015.&ots=obT7nO6bU8&sig=fUeTTS1eUN5OqNay4mJMntbyF-0&redir_esc=y#v=onepage&q=C.A.Kocurek%2C.Coin-operated+Americans%3A.Rebooting+boyhood+at+the+video+game+arcade.+U+of+Minnesota+Press%2C.2015.&f=false
- [34] [Anonymous, 2016]
- [35] A. Chevtchenko, "Gamified Education," *Introd. Game Elem. into Sch. Environ. to Enhanc. Student Motiv. Performance*. Erasmus Univ. Rotterdam, 2013.
- [36] S. A. Metzger and R. J. Paxton, "Gaming History: A Framework for What Video Games Teach About the Past," *Theory Res. Soc. Educ.*, vol. 44, no. 4, pp. 532–564, Oct. 2016, doi: 10.1080/00933104.2016.1208596.
- [37] D. Wilcox-Netepczuk, "Immersion and realism in video games-the confused moniker of video game engrossment," in *Proceedings of CGAMES'2013 USA*, 2013, pp. 92–95. doi: <https://doi.org/10.1109/CGames.2013.6632613>.
- [38] C. Jennett *et al.*, "Measuring and defining the experience of immersion in games," *Int. J. Hum. Comput. Stud.*, vol. 66, no. 9, pp. 641–661, Sep. 2008, doi: 10.1016/j.ijhcs.2008.04.004.
- [39] A. Chapman and J. McCall, "Affording History: Civilization and the Ecological Approach," in *Playing with the Past: Digital games and the simulation of history*, Bloomsbury Academic, 2017, pp. 29–48. doi: 10.5040/9781628928259.ch-004.
- [40] D. Spring, "Gaming history: computer and video games as historical scholarship," *Rethink. Hist.*, vol. 19, no. 2, pp. 207–221, Apr. 2015, doi: 10.1080/13642529.2014.973714.
- [41] T. Apperley, "Modding the Historians' Code: Historical Verisimilitude and the Counterfactual Imagination," in *Playing with the Past: Digital games and the simulation of history*, Bloomsbury Academic, 2014, pp. 185–198. doi: 10.5040/9781628928259.ch-012.
- [42] J. Westin and R. Hedlund, "Polychronia—negotiating the popular representation of a common past in Assassin's Creed," *J. Gaming Virtual Worlds*, vol. 8, no. 1, pp. 3–20, 2016, doi: https://doi.org/10.1386/jgvw.8.1.3_1.
- [43] K. Schut, "Strategic Simulations and Our Past," *Games Cult.*, vol. 2, no. 3, pp. 213–235, Jul. 2007, doi: 10.1177/1555412007306202.
- [44] R. K. Yin, *Case study research: Design and methods*, vol. 5. SAGE Publications Sage CA: Los Angeles, CA, 2009. doi: <http://dx.doi.org/10.3138/cjpe.30.1.108>.
- [45] T. L. Saaty and L. G. Vargas, "The analytic network process," in *Decision making with the analytic network process*, Springer, 2013, pp. 1–40. doi: DOI: 10.1007/978-1-4614-7279-7_1.
- [46] N. Kadoić, "Characteristics of the Analytic Network Process, a Multi-Criteria Decision-Making Method," *Croat. Oper. Res. Rev.*, vol. 9, no. 2, pp. 235–244, Dec. 2018, doi: 10.17535/cro.rr.2018.0018.