Developing a Game-Based Learning Pedagogy for Teaching History using Napoleon Total War.[1]

Michael Stack

University of the Free State, Bloemfontein, South Africa
Orcid: 0000-0002-9108-4718
StackMDL@ufs.ac.za
DOI: http://dx.doi.org/10.17159/2223-0386/2023/n30a2

Byron Bunt

North-West University, Potchefstroom, South Africa
Orcid: 0000-0002-2102-4381
byron.bunt@nwu.ac.za
DOI: http://dx.doi.org/10.17159/2223-0386/2023/n30a2

Abstract

Current digital game-based learning (DGBL) methods for teaching history require a significant outlay in information and communications technology (ICT). This, in effect, constitutes a significant obstacle in implementing DGBL in the South African and Zimbabwean school context. Most schools do not have the infrastructure to equip entire classes with gaming-capable computers or sufficient access to electricity or the internet. This paper investigates how access to DGBL can be improved in challenged teaching and learning contexts by designing a pedagogy that is more readily adaptable to challenges presented in South African and Zimbabwean classrooms. The research uses a design-based research design where compatibility issues of DGBL are analysed with the aim of developing a more integrated approach that is then tested and evaluated in order to redesign the approach. The primary research question was: "How can Game Based Learning techniques and traditional history pedagogy be integrated to promote the use of Napoleon Total War in Southern African secondary school history classrooms?"

---

1 This paper is drawn in part from M. Stack's Master of Education Research.

Two schools from South Africa and Zimbabwe were selected as research sites for the implementation of the solution. The interventions were specifically designed to operate with a minimum of ICT resources. The solution comprised a teaching approach that combined DGBL based on a single laptop and projector with the more traditional teaching methods that were observed during formal lesson observations prior to designing the intervention. The research concluded that *Napoleon Total War* could be used to successfully teach elements of local and international history curricula. The method demonstrated a positive effect on learner motivation and engagement and demonstrated the potential to support formal assessment through tangential learning and assessment tasks designed from DGBL lessons.

The study is significant in that it presents a methodology that can be more readily grasped by in-service teachers as it does not require significant gaming expertise and can also be used to complement their own teaching styles and approaches. A shortcoming of immersive DGBL in history is that it can risk learners mistaking learning for entertainment. With an integrative approach, it is clear to learners that while the medium can be engaging, learning is the primary aim of a DGBL-enhanced lesson. Furthermore, the research demonstrated that collaboration between researchers and teachers is essential to render DGBL research of practicable value in the classroom.

Introduction and Background

Definitions of key digital game-based learning concepts are needed to ensure vocabulary consistency. Films, music, and games are all considered "digital entertainment" when conveyed through digital media (Gee, 2003:20). A "digital game format" refers to games played on computers, consoles, and mobile devices (Saleme et al., 2021:3). Games, simulations, and interactive media are examples of "digital form" teaching material (Prensky, 2001:11). Castellar et al. (2016:91) defines digital game-based learning (DGBL) as using digital games for educational purposes.

Using digital entertainment to teach history is typically met with scepticism. However, two principles from three to five millennia before today's history teaching underpin the method. History shows that ancient Greeks and Romans used game-based learning to teach (Hellerstedt, Mozelius, 2019:3–4). Literary study suggests the second comparison was employed in ancient and medieval writings (Damon, 1961:261–266; 317–318). The comparison or teaching the strange with the familiar is common in history lessons. Piaget and Vygotsky proposed game-based learning in the 20th century (Plass, Homer & Kinzer 2015:259–260).

Through various gaming mediums, the digital game shapes history learners' context. Even without technology kids understand and play games.

History professors in South Africa and Zimbabwe are apprehensive about digital games, even if students like them. This is despite the fact that educational philosophy and contemporary research have recognised the motivation and engagement potential of digital games. The history classroom has not kept up with the fast digital transformation in the learner setting (Levin & Arafeh, 2003:v).

This research investigates why South African and Zimbabwean history classes employ digital games for DGBL and designs a classroom-tested approach. The study examines how to utilise *Napoleon Total War* to teach Napoleonic history using GBL and history didactics.

The technique is based on film and history school pedagogy and analyses how to adapt the DGBL's ICT requirements to make it relevant and accessible to South African and Zimbabwean teaching and learning.

The gap between history professors and students' digital literacy is a major concern since educators are expected to teach twenty-first century learning abilities (Bagarukayo & Kalema, 2015:171). Most Generation Z students in South African schools are digital natives, whereas many instructors are digital immigrants. Prensky (2001:10) coined "digital natives" and "digital immigrants" to distinguish technology usage and competency

between younger and older generations. Bennett and Maton (2010:322) argue that the digital natives-immigrants divide oversimplifies human-technology interaction. They stress that technology usage and competence vary with age. Students' technology experiences should be better understood. Warschauer and Matuchniak (2010:183) add to this approach by arguing that the socioeconomic digital divide affects technology accessibility, usage, and outcomes. Therefore, digital natives and digital immigrants are employed to distinguish technology usage and ability. There is ongoing debate regarding the accuracy of these categories and the need for a more complete understanding of technology use. Early career teachers are often millennials and digital natives (Tshabalala, 2013:27–28; Bagarukayo & Kalema, 2015:170). Millennial instructors will face a digital gap with Generation Z students.

History instructors in South Africa and Zimbabwe seldom employ DGBL despite a paucity of education theory and research (Mhlanganiso, 2017:75–79; Daramola, 2022:243). This is partly because history instructors encounter several problems in their teaching-learning setting (Chisango & Marongwe, 2021:159). Furthermore, "21st-century talents" are considered essential for success in modern society. These skills include critical thinking, communication, collaboration, and creativity. Game-based learning uses digital games to engage students and make learning easier (Al-Azawi et al., 2016:132). Gamification uses game elements like points, medals, and leaderboards to motivate and engage students (Deterding et al., 2011:9). These methods increase student engagement and motivation according to studies (Poondej & Lerdpornkulrat, 2020:56–66; Dicheva et al., 2015:1–2). This 'pedagogy' requires a history classroom with a projector or whiteboard, a gaming-capable computer, stable and fast internet, constant electricity, and digitally literate students and educators who are acquainted with PC gaming—both general gaming and specialised games (McCall, 2017:533). Even the best-resourced South African and Zimbabwean schools struggle to provide this 'utopian' teaching and learning environment.

This research analyses how DGBL pedagogy may be constructed to use only a computer, a projector, and power, eliminating the need for the rest. This is because the approach would utilise ICT infrastructure available in more teaching and learning contexts, making teaching methods more accessible and widely used in schools (NEIMS, 2021:1–11). Pedagogy would be difficult in teaching and learning situations without ICT infrastructure or energy, which limits this study. This requires further research on an 'unplugged' GBL pedagogy for history classes that is beyond the scope of this paper.

Total War games provide genuine representations and historical models for experiential learning. Total War games are known for their meticulously built internal learning systems

for all skill levels (Sukhov 2018:669). Limited research on DGBL with Total War deepens the gap between educational theory and practice.

DGBL reform is necessary because employing the familiar to educate the unknown affects educators who choose GBL for their schools. DGBL is a new teaching style that demands a lot of time and ICT hardware for educators to learn and apply in a classroom that is not suited for it (Guruli, 2020:7–11; Musingafi, 2014:81).

Thus, emphasising exclusively learner-centered strategies based on what is known to the learner hurts educators who find them too foreign to use in the classroom. ICT-rich DGBL replaces rather than enhances or integrates classroom practice. Observing research on school teaching practice was crucial to build the resource-constrained DGBL so that the new approach could be blended with history department classroom practices. DGBL integrates the orthodox with an adapted version of the less conventional to improve these procedures.

Dewey first examined how games may engage and teach. He advocated learning outside the classroom and opposed separating it from reality (Dewey, 1897:77–80).

Review of Pertinent Literature

GBL research is becoming a recognised academic field, however, the literature is fragmented and distributed across several academic fields (Connolly et al., 2012:662). A GBL study in South Africa and Zimbabwe confirms this: "One difficulty with dispersed literature is that not every study recognises the breadth of the field and range of application, and consequently misses significant academic contributions focusing too narrowly at the literature base." (See Freitas, 2018:74). The many aspects of GBL research have been explored in this paper's extensive literature review. Digital game-based learning (DGBL) and game-based learning (GBL) are related but distinct education concepts. Digital game-based learning focuses on using digital games for educational purposes, whereas game-based learning includes non-digital games and simulations (Wiggins, 2016:19; Sitzmann, 2011:492–493). Sitzmann (2011:514) found that digital game-based learning helps students learn declarative knowledge better than traditional techniques. Its ability to promote procedural knowledge and learning transfer may be restricted. However, game-based learning has been debated for its potential to improve education via digital and non-digital games (Prensky, 2001).

Twenty-first Century Skills

There has been considerable academic interest in the use of digital games in teaching 21st-century skills. While there is a consensus as to the definition of such skills, their implementation has been the subject of scholarly debate. There is a concern that an overt emphasis on 21st-century skills will result in a neglect of core skills. Jim and Velden assert that integrating 21st-century skills in schools would rather facilitate the acquisition of core skills by learners (Jim & Velden, 2012:1). However, it has been considered that such an integration would involve redesigning the curriculum and diminishing valuable teaching time for teaching curriculum content, concepts, and skills, whereas redesigning the pedagogy for teaching 21st-century skills could mitigate the impact on teaching time. Given the digital divide between teaching practice and the digital literacies of 21st-century learners, the suitability of school classrooms for 21st-century learning has been questioned (Levin & Arafeh, 2003:v). Given that the current teaching cohort is not considered in the research to be in a strong position, it has been recommended that a 21st-century pedagogy should comprise a part of teachers' professional development as well as pre-service training (Annetta, 2008:110).

Educational Theory and Digital Game-Based Learning.

Piaget and Vygotsky formalised Game-Based Learning in the 20th century (Plass, Homer & Kinser, 2015:259–260). Research shows that many digital games resemble Vygotsky's zone of proximal development and children's games' scaffolding and near developmental phases (Vygotsky, 1978:86). Digital games promote assimilation and accommodation in learning, following Piaget's cognitive disequilibrium hypothesis (Blake & Pope, 2008:61). Piaget's idea of game-based learning was influenced by his belief that children's cognitive development depends on play (Plass, Homer & Kinser, 2015:259). Lepper and Malone (1987) discovered that digital games may motivate intrinsically, linking them to Dewey's need for experiential and real-world learning (Dewey, 1938:12–22). Cziksemti's flow theory is best promoted via games (Cziksemti, 1990:6; Hamari et al., 2016:172). While multiplayer digital games provide great possibilities for cooperative learning, the literature divides digital game-based learning into two types. The first category is game-based and improved learning. Game-based learning uses games created for learning, whereas augmented games use commercial games meant for amusement to teach. Game-informed (gamification) is the second group. This group brings gaming into the classroom without

utilising digital games.

Since this research used game-based learning, it's vital to understand the difference.

Gamification

Gamification is the practice of applying game aesthetics, mechanics, and attitude to non-game environments to boost engagement and excitement. It has been found to stimulate desirable actions in loyalty programmes, advertisements, and recycling projects. The specific gamification tactics affect basic human impulses including competition, achievement, recognition, and self-expression. Gamification is rapidly becoming popular in the workplace. Gaming methods and game-style rewards are being used to motivate employees and customers (Al-Azawi et al., 2016:132–136).

The process of gamification involves applying game mechanics, design elements, and gamer mindset to non-game contexts to improve user experience.

Bringing gaming principles, design, and mindset to non-game environments to enhance user experience. Gamification's main benefits are: higher engagement, motivation, user interaction, and loyalty (APM Thames Valley, 2014).

Play may teach young people skills and a learning strategy in everyday life, but they will need additional methods to succeed in formal school. Teachers and scholars have used gamification to characterise this behaviour for over five years, however, their observation may be flawed (Erenli, 2012:1–8). Educational gamification uses game mechanics, player experiences, and cultural roles. Educational gamification influences student behaviour via game mechanics, player experiences, and cultural roles. Sandberg et al. (2011:1334–1347) found that many youngsters learnt video games by trying multiple ways. Thus, gamifying a course will substantially benefit primary school learners by harnessing the motivating power of games and applying it to education's motivational challenges so they may achieve (Su & Cheng, 2013:42–50).

Gamification has become more authentic in certain classes that have been turned into video games. ClassCraft and other gamification technologies provide an interactive story to the course design (Al-Azawi et al., 2016:132–136). Students build an avatar, play together, and earn experience and rewards by fulfilling classroom activities. Pupils are rewarded for helping classmates, completing difficult homework, etc. Like instructors, children may suffer consequences for interrupting class (Hamari et al., 2014:3025–3034).

Gamification's popularity is also shown by the rise of scientific publications on it. This suggests that colleges are studying gamification more (Hamari et al., 2014:3025–3034).

The word "gamification" refers to adding incentive affordances to services to create "gamelike" user experiences and behaviour changes (Hamari et al., 2014:3025–3034).

Gamification has three main components (Al-Azawi, et al., 2016:132–136):

- implemented motivational benefits
- mental/cognitive effects
- behavioural effects

Game-based learning

Game-based learning is increasingly being used to engage students in the learning process while also making it enjoyable, which can aid in cognitive development (Chen & Chang, 2020:2; Liang et al., 2017:217–220). GBL has been found to be effective in increasing student motivation and engagement, particularly when students reach a state of "flow" during gameplay (Lee et al., 2021:15593). Beyond simply reviewing or reinforcing material, video games have the potential to be a primary means of instruction for complex or previously inaccessible topics such as people management, software complexity, financial complexities, and nuanced social interactions (Wang et al., 2021:169).

Game-based learning has been used in a variety of contexts, including diverse evaluation and certification challenges, technical content, difficult subject matter, and inaccessible audiences (Oktovianus, 2020:1; Neri et al., 2020:2). It has been found to increase student interest and desire to learn, aid in complex comprehension processes, support what-if analyses, and facilitate strategy formulation and communication (Ebner & Holzinger, 2007:875; Ke et al., 2022:5).

One of the reasons game-based learning is engaging is that it mimics the experience of playing a video game, which is characterised by curiosity and enjoyment (Liu et al., 2021:4). Digital game-based learning can help learners gain fundamental skills and knowledge in subjects that are essential in the digital technology era, as games can create an effective learning environment that is both comfortable and motivating (Hsiao et al., 2022:87). Students who use digital games to learn report being more engaged and retaining information from experience (Al-Azawi et al., 2016:135). STEM (science, technology, engineering, and mathematics) education, as well as history education, may benefit greatly from GBL (Liu et al., 2021). For instance, many students find mathematics challenging and lose motivation due to the monotony of studying it in the classroom. However, students perceive mathematics to be more engaging when taught via digital games, and both instructors and parents believe that their children's mathematical skills will improve if they

use games to study the subject (Chen & Chang, 2020:2; Liang et al., 2017:217).

The Digital Game as Historical Source

Both the written word and the exclusive dominance of the academic word are used by academic historians to criticise popular history (Chapman, 2016:7). Chapman responds that "this approach hinges on two problematic assumptions: first, that the existing practice of written history is the sole method to grasp the link of past to present; and second, that recorded history matches reality" (Chapman, 2016:7). His study significantly cites Rosenstone (1995), White (1988), and Munslow (1988). He suggests investigating the historical game as a historical source to support their claim that a historical film is similar to historical research and writing. Because of historical film's popularity, the validity of popular history for academic inquiry, and their understudied status, they need examination. Chapman's formalist approach follows a framework that spans five categories that cover historical games' main formal structures: "simulation style and epistemology; time; space; narrative; affordances" (Chapman, 2016:20).

Spring and other historians doubt the historical significance of a digital historical game, because, like a film, it sacrifices historical truth to present a narrative or simplify game play. Her study examines how historical research may build popular games (Spring, 2015:207). Commercial games creators have adapted to a historically cognisant customer base according to Fordham (2012:4). Developers investigate and hire history experts to make games more historically realistic. The junction of historical games' counter-factual potential has shaped postmodernist historical study. Uricchio has leveraged Chapman's attention on form to move the conversation from games as representations to the way they mediate. Poststructuralists have moved from the positivist view that records and texts may represent the past to one that captures the past in language (Uricchio, 2005:332).

Digital Game-Based Learning and Teaching History

McCall's work on utilising DGBL to teach history has laid the groundwork for research in DGBL in history education and a digital game-based history pedagogy (McCall, 2017). This article's perspective is dialectical with his work. McGall's methodology assumes a well-equipped classroom with ICT which is a restriction in South Africa and Zimbabwe. While South African and Zimbabwean history curricula have time constraints for historical themes, it assumes plenty of time for digital games in class. McCall provides a good

introduction to tying digital games to history without mentioning a particular curriculum (McCall, 2017:173–177). Yu and other studies agree with McCall that games motivate (Yu et al, 2014:1–10). Cobb believes digital games are better for teaching than the historical film, although Cobb and Welston agree that teacher-guided democratic class play is superior to McCall's class playtime (Cobb, 2012; Welston, 2017:44). Cobb, like this study, believes historical games should be used to educate rather than replace history teachers. (Cobb, 2012).

The South African History curriculum seeks to "foster an awareness for and interest about the past" (Department of Education, 2011:8). This article discusses a history teaching strategy we believe will assist students to reach this aim. The strategy is dictated by Total War: Napoleon.

A local research project compared two grade 10 history textbooks from the curriculum assessment policy statement (CAPS) curriculum to Assassin's Creed Unity using Seixas' (2017:593–605) six second-order historical reasoning ideas. The findings demonstrated that instructors must educate historically literate students if instructional video games are to be used in official pedagogy, in line with South African government and Department of Basic Education (DBE) aims. The findings recommend a deeper study of CAPS-approved history textbooks, particularly the South African Revolution portion (Malkin-Page, 2016:193–197).

Recently, South African educators have shifted the curriculum from rote memorisation to active interaction with original materials , in order to educate pupils to think like historians and utilise sources to support their claims (Bertram, 2006:36). Historiography emphasises process over product. Students must remember that locating, integrating, and interpreting historical sources will make up most of their history grade (Dean, 2004:101).

History relies on original sources (McAleavy, 1998:14). This category includes letters, documents, books, photos, drawings, paintings, speeches, monuments, sculptures, buildings, tables, graphs, maps, poetry, diaries, songs, etc. Documents, interviews, and photos may assist historians in confirming or denying earlier claims.

Any 21st-century history class must measure students' abilities to critically study and evaluate primary sources to assess their comprehension of historical topics. Both primary and secondary sources need historical skills including extrapolation, assessment, synthesis, and bias detection (McAleavy, 1998:14). Primary and secondary materials, such as abridged texts, photographs, photos, political cartoons, video and audio recordings, and tangible artifacts should be used to teach these skills (Dean, 2004:102).

Over many years, the authors have seen that students struggle to identify key elements

and interpretations in such texts (Dean, 2004:102). To solve this difficulty, the authors suggest using a famous video game on colonial history to provide in-game chances for students to exercise source-based analytical and interpretive skills (Department of Education, 2011; McAleavy, 1998:11). The action would attract players, prompting them to research the game's content.

South African and Zimbabwean DGBL Research

DGBL research in South Africa is scattered, focusing on higher education rather than secondary school. No South African study has examined Napoleon Total War in historical education. DGBL approaches are contrasted to conventional ones in military education by Dreyer (Dreyer, 2017:103). Ng'Ambi investigated how GBL may engage health science university students (Ng'ambi, 2014:3–4). According to Roodt and Saunders, there have been limited studies on higher education students' GBL viewpoints (Rood & Saunders, 2017:7777). DGBL research in higher education has focused on teacher training. Warnich investigated how other evaluation methodologies may be used with DGBL (Warnich & Lubbe, 2019:88–118). In Bachelor of Education programme, Bunt has studied how puzzle games may promote critical thinking (Bunt, 2019:398). Malkin's examination of Assassin's Creed Unity and CAPS textbooks have advanced the discussion (Malkin, 2016:193–197).

Zimbabwean research focuses mainly on ICT, higher education, and to a lesser extent on secondary education (Kungeni, 2017:1–4; Tapere & Kujeke, 2019:339–344). However, elementary education studies also exist (Mukandi et al., 2020:126–133). The literature covers ICT and teacher training, school and subject area integration, and ICT integration. The problems of introducing ICT in Zimbabwean classrooms (Kungeni, 2017:1–4) and a large, broad study of GBL in secondary schools are documented. (Mhlanganiso, 2017:1–8).

Challenges Faced in the International Teaching Context

Several studies have examined teachers' views on DGBL in the classroom. Much academic study is focused on educators' views on digital game-based learning (DGBL) in education. Mozelius et al. (2017:30) found that teachers who used digital game-based learning (DGBL) had higher student engagement and motivation. In contrast, Clark et al. (2016:116) found that some instructors were wary about digital game-based learning (DGBL) due to concerns about student behaviour and classroom dynamics. Despite significant challenges,

educators generally see digital game-based learning (DGBL) as a positive tool for student engagement and excitement. Kebritchi et al. (2010:428) found that digital game-based learning (DGBL) improved student test results and critical thinking. However, the study also found that educators struggled to incorporate digital game-based learning into their teaching strategies due to limited technology resources and training.

Papastergiou (2009:3) found that instructors reported increased student interest and engagement after using digital game-based learning. Instructors worried about the time and resources needed to include digital game-based learning into their lessons.

Due to curricular restrictions, instructors feel they don't have enough time to use digital game-based learning or build games. The literature lists inadequate finances; unfavourable impressions of DGBL from senior management, parents, and educators; a restrictive and rigid curriculum; and a lack of learning support tools. Digital games may cause violence, hostility, and addiction according to research (Arias, 2014:58–59). This study is not definitive, since other research examines the limits of similar investigations. Digital game-based learning training has not been fully incorporated into official pre-service teacher training programmes despite ongoing calls for it (Annetta, 2008:229–237).

Challenges Faced in South African and Zimbabwean Teaching and Learning Context

The digital gap which derives from apartheid's education system, is South African history instructors' main hurdle in adopting DGBL. Only 20 percent of South African schools have internet (2021 NEIMS). Without a reliable internet connection, steam-downloaded PC games cannot be installed. Computer labs often have computers. Thievery and vandalism deepen the digital gap. Teachers' attitudes and technophobia due to poor ICT abilities deepen the digital divide (Chisanga & Marongwe, 2021:159). Piped water, libraries, sanitation, and power are lacking in many South African schools (Guruli et al., 2020:7). They also blame inequality and apartheid in education for the digital gap (Guruli et al., 2020:7). The digital literacy gap between educators and learners for digital natives, immigrants, and refugees exacerbates this barrier.

Many Zimbabwean schools have computers, ICT equipment, internet, and projectors, however, energy is inconsistent. Schools that cannot afford backup energy cannot utilise ICT during power outages. With grid supply issues in South Africa, this is not uncommon. Zimbabwe's urban-rural split is reflected in the digital divide according to research. ICT infrastructure is often more accessible to metropolitan state schools than rural schools

(Musafi, 2014:81).

Total War and Gap in the Literature.

Academic interest in teaching secondary and undergraduate history using Total War games has developed throughout the previous decade. Historical studies have examined Total War's depictions of ancient warfare (Waring, 2007:20–28). Research shows these are complex strategic games, therefore McCall warns against assuming that digital literacy equals digital game literacy. According to McCall's DGBL pedagogy, Total War titles require training (McCall, 2017:243–244). South African and Zimbabwean digital literacy skills are too low for extended gameplay-based instruction. Napoleon Total War is not the foundation of digital game-based learning, but Gatzidis believes it may improve history instruction (Gatzidis, 2014:55). Historical digital games are not created for education, thus they cannot replace traditional teaching methods. A methodology that replaces traditional history teaching techniques is unlikely to enhance digital game-based learning attitudes among South African and Zimbabwean history instructors. This study claims that implementing a game-enhanced pedagogy that considers the teaching and learning environment in South Africa and Zimbabwe would better connect digital game-based learning theory and practice in history courses. Minimal ICT usage makes a teaching more accessible than the literature's digital game-based learning. The incorporation of conventional teaching techniques will help history instructors learn digital game-based learning, apply it in schools, and improve its reputation as a history teaching tool.

Methods

The study forms part of a broader design-based research (DBR) project. As such, its focal point is the analysis and exploration stage of DBR where the context of the problem is explored. This study will consider how this will impact design of the solution. However, the solution design, testing, and evaluation stages are beyond the scope of this study. DBR is a cyclical and hermeneutic process in which a researcher identifies and examines a problem, creates an intervention, tests it, evaluates the findings, redesigns the answer, and cycles through the process until it is improved. DBR integrates learning theory with learning environment design. DBR produces "sharable ideas that enable practitioners and other educational designers express significant consequences" Thomas (2003:1). The study approach may provide findings that educators may use to solve teaching and learning issues.

This study approach makes it hard to generalise results beyond the research locations. This work addresses this restriction by addressing a broader teaching and learning environment than the research schools.

DBR differs from participatory action research (PAR), which encourages participants to conduct their own research with researchers' help (Wang & Hannafin 2005:6). DBR begins with the researcher's study and solution design. DBR creates theory and improves theory and practice, whereas PAR focuses on localised improvements (Wang & Hannafin, 2005:6). This work uses qualitative methods, including lesson observations during design and researcher ratings of research lessons or treatments.

Design-based research (DBR) uses iterative cycles of design, implementation, and assessment to improve educational initiatives (Reeves et al., 2005:107). The authors propose using design-based research to construct and evaluate a game-based learning framework for history education in South African and Zimbabwean schools. Design-based research may create an intervention that is grounded in theory, relevant to the context, and adaptable enough to meet the needs of multiple learners (Reeves et al., 2005:107).

Klopfer et al.'s (2009:1–6) design-approaches drove game-based learning methodology. These included aligning pedagogy with curriculum, including historical content, and using gaming aspects to motivate students. This study employed design-based research with several design, implementation, and evaluation iterations.

Design-based research helped the authors develop a game-based learning pedagogy that was relevant to the local context and effective in teaching history in South African and Zimbabwean schools.

The independent South African school and private Zimbabwean school use the Independent Examining Board and Cambridge International Exam curriculum, respectively. They were chosen for their comparable school atmosphere and strong history departments led by skilled Heads of Department. The educational method is designed for a larger South African and Zimbabwean setting to make it implementable in a wider class environment. The research colleges were chosen because they satisfied these standards and could offer a consistent electrical supply to meet research deadlines. A minimal ICT need of computer, projector, and power was addressed while designing the pedagogy. The second step of the design used lesson observations to integrate school history teaching approaches with a restricted game-enhanced DGBL. The solution's lesson material came from CIE AS-Level and CAPS/IEB Napoleonic subjects from the French Revolution. Due to the timing of the research, the lessons had to be altered to a Form 2 module on Napoleon Buonaparte as the AS-Level class had covered the French Revolution subject earlier in the year and the

original lesson plans fit the IEB history learning program.

Findings

Context

This work focused on the effects of ICT infrastructure restrictions in South Africa and Zimbabwe by proposing a DGBL pedagogy that requires only a computer, projector, and power. South African and Zimbabwean schools would struggle to seat 30 to 50 students on gaming-capable computers, but many have a projector and computer for history lessons. Pedagogy also considers learner context within and beyond the classroom. Not many students have access to gaming laptops at home, which hinders DGBL that depends on gaming outside the classroom. This also shows that digital literacy and digital gaming literacy differ within a school. One computer in the classroom, shown on a screen for the whole class, homogenises the gaming experience. Engaging with the game via the projected picture and instructor mediation eliminates the need for students to play the game in class and high digital and digital game literacy.

These schools were picked for their outstanding history departments with seasoned and younger instructors. Working with Stellenbosch University, educators helped design the answer. We chose schools with robust IT infrastructure. Projection, plugs, and speakers were standard in most classrooms, meeting study demands. Although this dissertation does not feature gender-based research, the co-ed school structure allowed for a study on computer gaming classes for boys and girls. Second and third terms in Zimbabwe and South Africa were the research windows. While long, this strategy minimised teacher time and allowed appropriate space for each study component. This gave the history department and research more freedom in coordinating teaching and curricula. This plan avoided upsetting Zimbabwe's third semester and South Africa's fourth term exam preparation. Historical teacher connections improved with the longer study window. Teachers must trust guest researchers and their expertise before letting them teach.

Findings of Lesson Observations

Both departments' history teachers used a range of methods. Many lessons used lecture presentation format, although just a portion of them. Teacher-centered and learner-centered role play were used for experiential learning. Some instructional material is used

in all classes. Each teacher brought their own humour to class. Many ICT resources were used. PowerPoint, YouTube, and iPads are examples. Group and pair work were used in class discussions. Teachers were acquainted with film and other historical materials. Their guided historical film analysis talents were shown. Drama presentations were an informal evaluation option. Teachers studied departmental notes with students and utilised them for explanation and class discussions.

Teachers promoted online research for essays and utilised sources to teach multi-perspectivity. Some educators made more alternative use of technology, such as Two Steps from Hell, as background study music or dance videos as a class management technique. Analogy was used in all history classes to explain unfamiliar historical themes. Teachers used the school, community, national, and worldwide contexts skilfully.

An Integrative lesson design was deemed possible due to the variety of effective teaching methods. The study was able to incorporate classroom approaches seen on-site that history department students would be acquainted with, rather than conceptually including, them. The goal was to teach in a way that students would understand and also enjoy the video game. This would scaffold NTW learning by using common teaching approaches to execute DGBL lessons.

Lesson Observation checklist:

- What is the teacher's approach towards technology in support of teaching and learning?
- What rules seem to be in place regarding the use of personal devices?
- What is the dominant hierarchy in the classroom?
- Describe the educator's teaching style.
- To what degree does the teacher employ a critical pedagogy?
- How are students using technology in the classroom?
- To what degree can the students be perceived as interested and engaged?
- What level of cooperation and interaction is achieved?
- How focused are the students?
- To what extent is the teacher already fulfilling the perceived advantages of video games?

Curriculum Analysis

The Zimbabwean secondary school HOD's Form 2 history curriculum was used to construct intervention lessons for IGCSE history. The curriculum changes often, but at

the time of study it included lessons on Great Generals and the kingdoms they built. The four Napoleon Buonaparte courses were replaced with research lessons. The curriculum emphasised his career and Napoleonic Warfare tactics and methods. Limited game-based learning-enhanced lessons replaced traditional courses for that learning unit. Since Form 2 students are juniors, the teachings focused on historical subjects. Thus, historical skills and source analysis were downplayed.

When South African high school grade 10 classes used the technique, the design was changed. The school's IEB programme follows the National Curriculum and Assessment Policy Statement (CAPS). Due to grade 10's superior historical skills and completion of the French Revolution component, courses may concentrate on NTW analysis. Instead of replacing French Revolution courses, research classes extended them. The goal is to teach source analysis using a familiar medium so students may apply it to traditional sources.

Preliminary Impact on Solution Design

The main instructor approach techniques in this work are largely DGBL with modest game enhancements. They are based upon elements of critical pedagogy according to Freire and combines Vygotsky's Zone of Proximal Development with mediated learning. (Spener, 1990:1; Vygotsky, 1978: 84) This approach to digital literacy for educators and students relies on Bourdian knowledge of digital cultural culture (Rooksby & Hillier, 2005:24). Digital games in history classrooms are the 21st-century version of Freire's utilisation of learner culture and lived experiences to produce teachable knowledge (Spener, 1990:1–5). The digital game is used sparingly to promote research school teaching approaches, in order to develop a teaching method that instructors and students can understand. The method also enables learners to discuss digital gaming with a history education professional. We utilise NTW to motivate students inside and beyond the classroom. Unlike tangential learning, DBGL assessment may be developed by instructors to interest students.

NTW makes a familiar area of play a bridge to teaching academic history. Classroom learning of historical material and skills is scaffolded by NTW. The instructor mediates between the game and the students. Instead of prolonged game play, game elements are chosen to demonstrate and enhance teaching and source analysis. Game components are recorded using the gaming platform or screen capture software. This frees the teacher to concentrate on teaching rather than playing the game.

Since the game is constrained, educators may employ more common film and visual presentation and mediation strategies. Recorded content may be created ahead of time

to support instructional objectives. If game access or playability is a problem, YouTube recordings are available. Removing game-playing and putting it in the hands of the educator improves class management and teaching and learning.

Discussion

NTW may lose relevance to the new South African CAPS history curriculum when further modifications are phased in. This research's educational methods aim to promote DGBL using games that are more relevant to new historical information (History Ministerial Task Team Report, 2018). The Eurocentric character of many historical videogames makes it harder to locate games that overlap subjects. Creating historically compatible MODs for historical video games may solve the problem. Focus will shift from the French Revolution to Haiti (History Ministerial Task Team Report, 2018:91) An Empire Total War Haiti combat MOD has been created, capturing the landscape and military outfits. Haiti is harder to include into the main campaign or build a Haitian stand-alone campaign.

South African digital literacy statistics range and are disputed. While access to the internet, phones, and computers ranges from 10% to 86% (General Household Survey, 2020:47–48), internet and digital device use has expanded significantly in the previous 20 years, ahead of worldwide trends (Kemp, 2020). Limited improved DGBL in history teaching would be harder to implement in South Africa and Zimbabwe, but it would be more relevant than Eurocentric methods. Both nations' digital landscapes are developing swiftly according to reports. As digital access increases, this methodology will become more relevant to teaching and learning. As secondary schools' ICT infrastructure develops, the teaching may be adapted to its basic needs.

A restricted game-enhanced DGBL for history education that can be combined with more traditional teaching methods would maximise the educational potential of DGBL in South African and Zimbabwean history classrooms and encourage equitable access to this teaching and learning method. Due to its smaller digital gaming footprint, this technique is suitable for more South African and Zimbabwean teachers and students. As schools gain access to federal, international, and NGO initiatives, this component will be expanded. This article presents DGBL designs for South Africa and Zimbabwe with restricted scope. To assess its utility in history instruction, a separate article must test the design under actual teaching situations. Western digital games may not fit the South African and Zimbabwean environments. Platforms, genres, and access differ, therefore the classroom should be where all students can access classes rather than at home. The decolonisation of the South African

and Zimbabwean curricula allows MODs to promote Eurocentric game decolonisation and curriculum relevance.

Interpreting historical films as manufactured history is possible using film and history school concepts. Chapman (2016) was inspired by Rosenstone (1995) and White (1988), although the digital games and history school emphasises form over representation in historical games. Film and history are a better fit for school pedagogy and historical analysis since the restricted game-based learning improved history courses in this article employ pre-recorded conflicts and the campaign map. Form analysis is particularly significant for tertiary historical studies. Teachers and students may examine the game's historical validity and creators' historical sacrifices to create a tale and make it fun by analysing it as a depiction of the past, albeit an interactive one. The main difficulty is that current history students are conversant in digital culture to the point where digital historical games are their mother tongue while history is their second. The pedagogical design considers educators' and students' digital fluency in teaching and learning. The pedagogy overlaps with digitally enhanced education and DGBL.

Limitations

This research study is confined to the examination of a single Total War video game, with a special emphasis on Napoleon: Total War in order to facilitate the teaching of subjects outlined in the CAPS/IEB and CIE history curriculum. Nevertheless, despite its limited applicability, the pedagogical approach might be easily extended to other Total War games, although with potential modifications required for other genres. The pedagogical approach is formulated taking into account the limitations in resources that are often encountered in educational settings in Southern Africa. The research has been intentionally created with a narrow focus in order to provide a comprehensive examination of NTW. Nevertheless, this constraint enhances the applicability and practical significance of the study for educators in relation to NTW.

The scope of the study is restricted to a single educational institution in South Africa and another in Zimbabwe. The resource-constrained form of the teaching approach allows for its potential use in teaching situations outside the scope of the two schools. Notwithstanding the limited availability of resources in the design, the implementation of this technique would pose significant challenges in educational institutions without power or any kind of information and communication technology (ICT) infrastructure.

Conclusion

Due to the digital literacy gap between older instructors and students, reports and literature imply that education institutions and educators are unprepared to apply DGBL and other digital techniques in the classroom. This research argues that instructors' digital literacy skills are suitable for integrating the history curriculum with students' digital socio-cultural milieu. A second-language speaker is often the finest language teacher. Historical materials and artifacts are used in secondary history classrooms to teach and study history. This contrasts from how historians analyse the past using historical materials. Historians may choose sources with broader availability than in a history course. Teachers use a small number of well-chosen instructional materials. These are usually chosen by textbook editors and writers. Using these materials in the classroom requires mediation, guided analysis, and integration into teaching methods, activities, and evaluations. We propose using a digital historical game. Instead of playing the complete game in class, a history educator should mediate it to improve historical content and skill learning. The game should be included into history department teaching methods, class activities, and evaluations. This translation is necessary to utilise a digital game as an instructional tool, considering its main objective of amusement. This method would recognise in-service teachers' skills and experience and enable them to merge their existing practices with scaffolded DGBL strategies for professional development. Digital immigration lecturers who want to use DGBL in history teaching for pre-service teachers will find the method easier to understand and teach. The strategy would suit senior tertiary lecturers. While more digital natives are becoming teachers and academics, this strategy is required to introduce DGBL to schools. This technique must adapt to the setting, establishing the groundwork for future DGBL history teaching research.

References

Al-Azawi, R, Al-Faliti, F & Al-Blushi, M 2016. Educational gamification vs. game-based learning: Comparative study. *International Journal of Innovation*, Management and Technology, 7(4):132-136. DOI: 10.18178/ijimt.2016.7.4.637

All, A, Castellar, EPN & Van Looy, J, 2016. Assessing the effectiveness of digital game-based learning: Best practices. *Computers & Education*, 92:90-103.

An, YJ & Bonk, CJ 2009. Designing digital game-based learning environments. T*echTrends: Linking Research and Practice to Improve Learning*, 53(3):43-8. DOI: 10.1007/s11528-009-0263-4

Annetta, L 2008. Video games in education: Why they should be used and how they are being used. *Theory into Practice*, 47(3):229-239. DOI: 10.1080/00405840802153940

APM Thames Valley 2014. *Introduction to gamification*. Buckinghamshire: Association for Project Management.

Arias, M 2014. Using video games in education. *Innovations in Education*, 1(2):58-59.

Baek, Y, Choi, J & Kim, J 2012. A structural model of teachers' attitudes toward game-based learning: Confirmatory factor analysis and path analysis. *Educational Technology & Society*, 15(3):292-308.

Bagarukayo, E & Kalema, B 2015. Evaluation of eLearning usage in South African universities: A critical review. *International Journal of Education and Development using Information and Communication Technology*, 11(2):168-183.

Bennett, S & Maton, K 2010. Beyond the 'digital natives' debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning*, 26(5):321-331.

Bertram, C 2006. Knowledge, pedagogy and assessment in the old and new Further education and training history curriculum documents. *Education as Change,* 10(2):33-51.

Blake, B & Pope, T 2008. Developmental Psychology: Incorporating Piaget's and Vygotsky's Theories in classrooms. *Journal of Cross-Disciplinary Perspectives in Education*, 1:59-67.

Chapman, A 2016. It's hard to play in the trenches: World War I, collective memory and videogames. *Game Studies*, 16(2):21.

Chen, SY & Chang, YM, 2020. The impacts of real competition and virtual competition in digital game-based learning. *Computers in Human Behavior*, 104:106171.

Chisango, G & Marongwe N 2021. The digital divide at three disadvantaged secondary schools in Gauteng, South Africa. *Journal of Education*, 82:149-165.

Clark, DB, Tanner-Smith, EE, & Killingsworth, SS 2016. Digital games, design, and learning: A systematic review and meta-analysis. *Review of Educational Research*, 86(1):79-122.

Cobb, J 2012. Using computer games to teach history. Available at: http://grogheads.com/hist-cobb.html. Accessed on 18 November 2022.

Connolly, TM, Boyle, EA, MacArthur, E, Hainey, T & Boyle, JM 2012. A systematic literature review of empirical evidence on computer games and serious games. *Computers & Education*, 59(2):661-686.

Damon, P 2021 (1st ed. 1961). *Modes of analogy in ancient and medieval verse*. Los Angeles: University of California Press.

Dean, J 2004. Doing History: theory, practice and pedagogy. In: Jeppie, S. (ed.) *Toward new histories for South Africa: on the place of the past in our present*. Cape Town: Juta Gariep: 99–116.

Department of Basic Education 2021. National Education Infrastructure Management System Report, Department of Basic Education, South Africa.

Deterding, S, Dixon, D, Khaled, R & Nacke, L 2011. From Game Design Elements to Gamefulness: Defining Gamification. *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, MindTrek 2011*. 9-15. 10.1145/2181037.2181040.

Dicheva, D, Dichev, C, Agre, G & Angelova, G 2015. Gamification in Education: A Systematic Mapping Study. *Educational Technology & Society*, 18. 75-88.

Ebner, M & Holzinger, A 2007. Successful implementation of user-centered game-based learning in higher education: An example from civil engineering. *Computers & Education*, 49(3):873-890.

Erenli, K 2012. The impact of gamification: A recommendation of scenarios for education. In: *2012 15th International Conference on Interactive Collaborative Learning (ICL)*. pp.1-8. IEEE.

Fordham, J 2012. Leaving in the past: The role history plays in video games (Electronic thesis or dissertation). Retrieved from https://digitalcommons.georgiasouthern.edu/etd/4. Accessed: 18 October 2022.

Freitas, S de April 2018: Are games effective learning tools? A review of educational games. *Journal of Educational Technology & Society*, 21(2):74-84.

Gatzidis, C 2011. History lessons via gaming; A review of current approaches and the design of a case study using Rome Total War (pp.45-62). In: M Poulsen & E Køber (eds.). *THE GAMEiT.Handbook*.

Gee, JP 2003. What video games have to teach us about learning and literacy. *Computers in entertainment (CIE)*, 1(1):20-24.

Guruli, N. et al. 2020. Access Denied: Internet Access and the Right to Education in South Africa. *University of Chicago Law School - Global Human Rights Clinic.*

Hamari, J, Koivisto, J & Sarsa, H 2014. Does gamification work?— A literature review of empirical studies on gamification. *47th Hawaii International Conference on System Sciences*. pp. 3025-3034. IEEE. DOI: 10.1109/HICSS.2014.377

Hellersedt, A & Mozelius, P 2019. Game-based learning - a long history. In: *Irish Conference on Game-based Learning*. At: Cork, Ireland.

Hsiao, HC 2007. A brief review of digital games and learning. In: *2007 First IEEE International workshop on digital game and intelligent toy enhanced learning* (DIGITEL'07:124-129). IEEE. DOI: 10.1109/DIGITEL.2007.34

Hsiao, HS, Lin, YW, Lin, KY, Lin, CY, Chen, JH & Chen, JC 2022. Using robot-based practices to develop an activity that incorporated the 6E model to improve elementary school students' learning performances. *Interactive Learning Environments*, 30(1):85-99.

Jim, A. & van der Velden, R 2012. Skills for the 21st century: Implications for education. *ROA-Research Memorandum*, (11):1-58.

Kalloo, V & Mohan, P 2010. Personalized game-based mobile learning to assist high school students with mathematics. In: *2010 10th IEEE International Conference on Advanced Learning Technologies*, pp. 485-487. IEEE. DOI: 10.1109/ICALT.2010.143

Ke, F 2008. Alternative goal structures for computer game-based learning. *International Journal of Computer-Supported Collaborative Learning*, 3(4):429-445. DOI: 10.1007/s11412-008-9048-6

Ke, F, Moon, J & Sokolikj, Z 2022. Designing and deploying a virtual social sandbox for autistic children. *Disability and Rehabilitation: Assistive Technology*, pp.1-32.

Kebritchi, M, Hirumi, A, & Bai, H 2010. The effects of modern mathematics computer games on mathematics achievement and class motivation. *Computers & Education*, 55(2):427-443. DOI: 10.1016/j.compedu.2010.02.007

Kemp, S 2020. Digital 2020: South Africa. Hootsuite & We Are Social. Available at: https://datareportal.com/reports/digital-2020-south-africa. Accessed on 19 October 2023.

Klopfer, E, Osterweil, S, Groff, J & Haas, J 2009. Using the technology of today, in the classroom today: The instructional power of digital games, social networking, simulations and how teachers can leverage them. Available at: http://education.mit.edu/papers/GamesSimsSocNets_EdArcade.pdf.

Kungeni, P 2017. An investigation into the challenges that are being faced in the use and

teaching of computers in schools: A case of six secondary schools in Chihota district Mashonaland East province, for the period (2012-2017). Unpublished Bachelor's dissertation. Gweru, Midlands State University.

Lee, S, Mott, B, Ottenbreit-Leftwich, A, Scribner, A, Taylor, S, Park, K, Rowe, J, Glazewski, K, Hmelo-Silver, CE & Lester, J 2021. AI-infused collaborative inquiry in upper elementary school: A game-based learning approach. In: *Proceedings of the AAAI conference on artificial intelligence*. 35(17):15591-15599.

Levin, D & Arafeh, S 2003. *The digital disconnect: The widening gap between internet-savvy students and their schools*, Pew Internet & American Life Project, American Institutes for Research, Washington.

Liang, YC, Huang, YM, Shiue, YM & Sheng, MH 2017. Game-based idioms learning system implementation research. In: 2017 *International Conference on Applied System Innovation* (ICASI) IEEE:217-220.

Lin, WC, Ho, JY, Lai, CH & Jong, BS 2014. Mobile game-based learning to inspire students' learning motivation. In: 2014 *International Conference on Information Science, Electronics and Electrical Engineering*, 2: 810-81. IEEE.

Liu, YC, Wang, WT & Lee, TL 2021. An integrated view of information feedback, game quality, and autonomous motivation for evaluating game-based learning effectiveness. *Journal of Educational Computing Research*, 59(1):3-40.

Malkin-Page, K 2016. Textbook vs Assassin's Creed Unity: Comparing their engagement with second-order historical thinking concepts with reference to the French Revolution (Doctoral dissertation).

Malone, TW & Lepper, MR 1987. Making learning fun: A taxonomy of intrinsic motivations for learning. In: RE Snow & MJ Farr (eds.). *Aptitude, learning, and instruction volume 3: Conative and affective process analyses* (pp. 223-253). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Mamotheti, M & Daramola, O 2022. Preferences of Grade R-12 learners in South Africa for Digital Game-based Learning. *European Conference on e-Learning*, (21), (1):240–249.

McAleavy, T 1998. The use of sources in school History 1910-1998: A critical perspective. *Teaching History*, 91:10-16.

Mhlanganiso, T 2017. An assessment of digital game-based learning in secondary schools (Master of Science dissertation). Unpublished master's dissertation. National University of Science and Technology.

Mozelius, P, Hernandez, W, Sällström, J & Hellerstedt, A 2017. Teacher attitudes toward game-based learning in history education. *International Journal of Information and*

Communication Technologies in Education. 5(2):29-50.

Mukandi, C & Pisirai, C & Winnet, C 2020. The Role of Instructional Media and Technology in the Zimbabwean Primary School Curriculum. *International Journal of Research and Innovation in Social Science (IJRISS)*, 4(6):126–133.

Musingafi, MCC 2014. Information and Communication Technology in classroom situations in rural and urban areas in Zimbabwe: A comparative study on the use of digital and projected media in teaching and learning at six secondary schools in Masvingo. Masvingo: Zimbabwe Open University. Neri, L, Robledo-Rella, V, García-Castelán, RMG, Gonzalez-Nucamendi, A, Escobar-Castillejos, D & Noguez, J 2020. Visuo-Haptic Simulations to Understand the Dependence of Electric Forces on Distance. *Applied Sciences*, 10(20):1-23.

Oktavianus, J 2020, August. Battling the Invisible: Migrant Domestic Workers' Connections to Storytelling Networks During Public Health Crises. In: *Association for Education in Journalism and Mass Communication 103rd Annual Conference* (AEJMC 2020: "Saving the Planet through Better Media and Communication".

Papastergiou, M 2009. Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & Education*, 52(1):1-12.

Plass, J L, Homer, BD & Kinzer, CK 2015. Foundations of game-based learning. *Educational Psychologist*, 50(4):258–274.

Poondej, C & Lerdpornkulrat, T 2020. Gamification in e-learning: A Moodle implementation and its effect on student engagement and performance. *Interactive Technology and Smart Education*, 17(1):56-66.

Prensky, M 2003. Digital game-based learning. *Computers in Entertainment* (CIE), 1(1):20-21.

Prensky, M 2001a. Digital game-based learning. *Computers in Entertainment* (CIE), 1(1):21.

Prensky, M 2001b. Digital natives, digital immigrants part 1. *On the Horizon*, 9(5):1-6.

Prensky, M 2001. The games generations: How learners have changed. *digital game-based learning*, 1(1):1-26.

Reeves, TC, Herrington, J & Oliver, R 2005. Design research: A socially responsible approach to instructional technology research in higher education. *Journal of Computing in Higher Education*, 16(2):97-116.

Roodt, S & Saunders, B 2016. Digital Game-Based Learning For The Net Generation: Perceptions Of University Students," *Proceedings Of Edulearn17 Conference (3rd-5th July 2017.)*, Barcelona , Spain.

Rooksby, E & Hillier, J 2005. *Habitus: A Sense of Place*. London: Routledge.

Rosenstone, R A 1988. History in images/history in words: reflections on the possibility of really putting history onto film. *The American Historical Review*, 93(5):1173-1185.

Rosenstone, RA 1995. The historical film as real history. *Filmhistoria online*, 5(1):5-23.

Saleme, P, Dietrich, T, Pang, B & Parkinson, J 2021. Design of a digital game intervention to promote socio-emotional skills and prosocial behavior in children. *Multimodal technologies and interaction*, 5(10):58.

Sandberg, J, Maris, M & De Geus, K 2011. Mobile English learning: An evidence-based study with fifth graders. *Computers & Education*, 57(1):1334-1347.

Seixas, P 2017. A model of historical thinking. *Educational Philosophy and Theory,* 49(6):593-605.

Sitzmann, T 2011. A meta-analytic examination of the instructional effectiveness of computer-based simulation games. *Personnel Psychology*, 64(2):489-528.

South Africa. Department of Basic Education 2011. Curriculum and Assessment Policy Statement. Pretoria: Government Printer.

Spener, D 1990. *The Freirean Approach to Adult Literacy Education*. Washington: ERIC, National Clearinghouse for ESL Literacy Education .

Spring, D 2015. Gaming history: computer and video games as historical scholarship, *Rethinking History*, 19(2):207-221.

Squire, K 2003. Video games in education. *International Journal of Intelligent Simulations and Gaming*, 2(1):49-62.

Ştiinţifice, L Maria & M Brezuleanu, C 2020. Digital natives and immigrants: Finding the gap. *Seria Agronomie*, 63(2).

Su, CH & Cheng, CH 2013. A mobile game-based insect learning system for improving the learning achievements. *Procedia-Social and Behavioral Sciences*, 103:42-50.

Sukhov, A 2018. Educational Dimension of "Total War: Medieval II". *European Conference on Games Based Learning*,:669–676.

Tapera, M & Kujeke EC 2019. Evaluation of information and communication technology (Ict) challenges. In: *Teaching chemistry, A case of Zimbabwean polytechnics*. IJARIIE, (5), (1).

Thomas, RM 2003a Blending qualitative and quantitative research methods. In: *Theses and Dissertations*. California: Corwin Press.

Titus, S & Ng'ambi D 2014. Exploring the use of digital gaming to improve student engagement at a resource poor institution in South Africa. *Proceedings of the European Conference on Games-based Learning*.

Tshabalala, DT 2013. Exploring the mediating of Grade 12 History teaching and learning through the use of the internet-based resources. A public high school in Kwazulu-Natal: A case study of a high school in Ethekwini South. Unpublished Master of Education Dissertation. Durban: University of KwaZulu-Natal.

Uricchio, W 2005. Simulation, History, and Computer Games. In: Raessens, J & Goldstein (eds.). *Handbook of Computer Games Studies.* Massachusetts: MIT Press Cambridge Massachusetts. pp.327–338.

Vygotsky, LS 1978. *Mind in Society: The Development of Higher Psychological Processes.* Cambridge Massachusetts: Harvard University Press.

Wang, M & Zheng, X 2021. Using game-based learning to support learning science: A study with middle school students. *The Asia-Pacific Education Researcher*, 30:167-176.

Waring P 2007. Representation of Ancient Warfare in Modern Video Games. Unpublished MA Dissertation. Manchester: University of Manchester.

Warschauer, M & Matuchniak, T 2010. New technology and digital worlds: Analyzing evidence of equity in access, use, and outcomes. *Review of Research in Education*, 34(1):179-225.

Welsem, H 2017 How can we use commercial off-the-shelf video games as educational tools? Unpublished MA Thesis. Ancient History Leiden: Leiden University.

Wiggins, BE 2016. An overview and study on the use of games, simulations, and gamification in higher education. *International Journal of Game-Based Learning* (IJGBL), 6(1):18-29.

Yu, Z, Yu, WH, Fan, X & Wang, X 2014 An Exploration of computer game-based instruction in the "World History" Class. In: *Secondary Education: A Comparative Study in China PLoS ONE* 9(5):1-10.