VIDEO GAMES AND HISTORY LEARNING

by

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ABSTRACT

Research in areas such as Bandura's social learning theory and cognitive learning, suggest that humans learn and gain knowledge in many aspects of life. This principle may be extended to the learning of historical information from playing video games. Therefore, people could tend to learn about history from playing games with historical content. To collect the useful data for future research on using video games to teach history, this research aimed to explore which genre, ESRB rating, and the type of video game platform has the most historical content. A content analysis was done to analyze the data collected from the top 10 video games of all time from each genre listed in three video game websites, namely: www.ign.com,www.gamefaqs.com, and www.gametrailers.com in October 2013. The result of the study showed that the sports video game genre had the most historical content. The ESRB rating that had the most historical content was E for Everyone. Finally, games on the computer platform had the most historical content. With this information, researchers and instructors who study history, learning, or video games may be better able to find video games that suit their needs.

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Introduction

Some might wonder why we need to study history. Why is it important for us? According to the American Historical Association (2013), "historical knowledge is no more and no less than carefully and critically constructed collective memory," (American Historical Association, 2013). However, if a person lost his memory, he would forget who he was as well as connections with others. He would lose his way to live and cope with others. This is the reason why remembering one's own history is essential. Knowledge of history is important, and this justifies teaching and learning of the subject. What happened in the past and the effects of historical events can be useful guides to managing and overcoming obstacles that people face in the present.

Some people find traditional methods of learning, even when applied to important topics like history, to be boring or otherwise ineffective. In the modern world various types of content and media that may entertain these individuals more than reading a history book, for example, are available. Playing video games is one such entertaining activity. Players sometimes find that they have learned something along with the enjoyment they receive from gameplay. Thus, it might be possible to use video games as a medium to attract people's attention and encourage them to learn about history through play.

Research on using video games in education, may provide information about video game effects and their effectiveness to learners. Video games could be an optional tool for history teachers. Games may draw more attention from learners who otherwise lack interest in history and may encourage them to study history of their own accord. Students who might otherwise be disengaged might enjoy such an activity, with the added benefit of learning material that they would not have under other circumstances.

However, it is not easy for history teachers and researchers to create a video game on their own. Few individuals in general have the knowledge, skills, and talent necessary to design and create a successful, entertaining, engaging, and educational video game themselves, and it seems safe to assume that these assets are rare among history teachers and researchers as well. Finding and hiring a game designer to develop a video game for classes and experiments is an option, but this would be cost prohibitive for most history teachers and researchers. Using video games that are already released in the market would be easier and more practical for researchers and teachers who want to try using video games in history education contexts. But with the many different genres, intended audiences, and platforms for video game that exist, teachers and researchers might encounter a problem finding video games with historical content, or not even know where to start looking for them.

This paper will complement previous research on the influence of video games on people and the use of video games in education, especially for teaching history. Then it will examine which genres, ESRB ratings, and platforms have the most video games that include historical content. The result will create a frame of reference for future researchers and history teachers who need to employ such games in their research.

Literature Review

The world we are living now has changed a lot form the past that people were passive consumers who just absorbed information given by media producers. We are now living in *participatory culture.* Jenkins (2012) discusses participatory culture, which is “a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one’s creations, and some type of informal mentorship

whereby what is known by the most experienced is passed along to novices." (Jenkins, 2012, pp. 3) In another words, it's a culture that a person does not act as consumers only, but also as contributors. Participatory culture requires membership affiliations, their expressions, collaborative problem-solving and circulation, which provide opportunities for learning, creative expression, civic engagement and economic achievement. It offers informal learning cultures or *affinity spaces* as the ideal learning environments for learners by ignoring differences in people's backgrounds, allowing people to participate in various ways, letting them be experts in their niche areas, and encouraging experimentation. Affinity spaces refer to places which can be the virtual world on the internet or physical places in the real world (Gee & Hayes, 2009). According to Gee and Hayes, "people in affinity space primarily relate to each other in terms of common interests, endeavors, goals, or practices." Since people's backgrounds such as race, gender, social class, and even experience do not important in affinity spaces, everyone can is encouraged to gain new knowledge, spread what they already know, and generate material for others. Perhaps, the best benefits from a participatory culture are that it increases people's motivation to learn.

Motivation plays an important role in human lives since it drives us to act, to achieve what we desire, and has bearing on how we live our everyday lives. Petkov and Rogers (2011), state that motivation explains the behavior of orienting toward a specific goal and the learning process happens when learners are motivated. In education, building motivation for learners is an important task for instructors, since motivation drives learners to discover new knowledge and practice their skills. Therefore, to make the learning process effective, activities that raise learner motivation should be included in the education system.

However, it is not always easy to interest learners in educational content or motivate them to learn new knowledge. According to Buckingham (2000), young people tend to pay more of their attention to popular fiction, such as soap operas, dramas, comedies, and cartoons, than non-fictional information, such as news and other current affairs. Younger individuals tend to perceive this non-fictional information, including history, as boring and irrelevant to their everyday lives. They are likely to lose interest in the subject if they do not obtain entertainment from the content. So we should balance between "informing" and "entertaining" in the teaching process in order to attract a learner's attention and motivate them to learn.

Clark (2009) argued that *public media 2.0* might give us new tools that can provide learners both information and entertainment at the same time. *Media 2.0* is a term that refers to media technologies, which allow people from a variety of perspectives to become media producers sharing their stories, asking questions and shaping a judgment. People born after 1980, and some before 1980, are *digital natives*. They have lived most or all of their lives in a multimedia-saturated environment that offers interactive mobile and gaming devices, and social networks. Users are willing to use them to get new information, to be connected with other people, and to entertain themselves. The core of these technologies is that they require participation from users in order to work. One technology that has been developed for many years, in the era of public media 2.0, and has high popularity among users of all ages, is video games.

Video games have become a focus for educators exploring in what ways games can assist in learning outcomes for several broad areas. Some studies investigated on the impact of video games on language acquisition (Ryu, 2013; Chen, Yang, 2013; Vahdat, Rasti

Behbahani, 2013). Playing video games and participating in activities beyond playing such as discussing game-related issues and writing fan-fictions helped non-native English speaking learn English. Educators also tested the effectiveness of video games in Math and science teaching (Stansbury, Munro, 2013; O'Rourke, Main, Ellis, 2013; Barko, Sadler, 2013; Sadler, Romine, Stuart, Merle-Johnson, 2013). Students developed mathematics skills and gained knowledge in biology while having fun in classes. Video games have been used to examine the improvement of general academic success such as problem solving skills and persistence (Adachi, Willoughby, 2013; Ventura, Shute, Zhao, 2013; Squire, 2013; Hess, Gunter, 2013). Students felt that they were challenged and motived to learn and solve problems. Moreover, researchers have been studied the effects of video games that required players' physical actions on physical fitness (Oh, 2012; Ballester, Pheatt, 2012). The game systems like Kinect of Xbox 360 encouraged players to exercise and socialize with others.

Video Games as Learning Tools

There are many previous studies about video games focused on what influence games might have on human behaviors. Many examine hypothesized effects of playing games with violent content on violent and aggressive thoughts, feelings, and behaviors among players. From previous experiments, playing violent video games leaded to bias in players' perception of what counted as aggressive and could cause hostile expectations, aggressive thoughts and feelings (Greitemeyer,2013; Ivory, Kaestle, 2013).

Though many studies and much of popular discourse about the psychological effects of video games focus on the effect of violent games; games may also be a source of more normatively positive learning for people. From previous studies, how humans learn from

playing video games can be explained by two main theories including *social learning theory and cognitive learning*.

Bandura (2009) developed *social learning theory*, which deals with how people learn in a social context and how learning is facilitated through methods such as modeling and observational learning. “Human self-development, adaptation, and change are embedded in social systems so personal agency operates within a broad network of sociostructural influences,” (Bandura, 2009, p.95). Cognitive factors partly determine which environmental event, meaning, emotion, and motivations are acknowledged by the human brain. Therefore, people understand casual relationships and gain more knowledge by operating symbolically on a wealth of information derived from personal and vicarious experiences. Four major subfunctions governing observational learning and influential factors indicated by Bandura (2009) are attention, retention, reproduction, and motivation. From this theory, people tend to learn from both personal and observed experiences. The mediated events portrayed and experienced when one plays a video game motivated by entertainment, an activity that demands attention and engagement, may facilitate retention of information, including historical content. Thus, Bandura’s theory it suggests that humans can learn about history by playing videogames.

Kraiger et al (1993) and Wilson et al (2009), indicate that cognition refers to a class of variables related to the quantity and type of knowledge and the relationship among knowledge elements. They explained that there are three steps in the process of cognitive learning. The first step is that learners must gain knowledge which can be divided into three types: declarative knowledge, procedural knowledge, and strategic or tacit knowledge. The second step is that learners must organize that knowledge by grouping meaningful pieces of

information into mental models, which are installed in long-term memory for learners to recall at any time. The last step is using the knowledge previously gained and organized.

Sherry and his colleagues (2006) mentioned Bandura's theory in their research on video game uses and gratification. They referred the importance of understanding the mechanisms of how video games affect users. They stated that when audiences received media message, social learning happened as they imitated a role model that was portrayed in the media (Bandura, 1994).

Thomson et.al. (2010) studied video games dealing with health that were designed to both entertain players and modify their health behavior. They cite Bandura's (1986) social-cognitive theory of was one of the theories that provided mediators for entertainment-based media. "Social cognitive theory specified goal setting, modeling, and skill development as behavior change activities. It also emphasized the importance of feedback to guide and shape behavior during the change process," (Thomson et.al., 2010, pp. 589). According to Thomson et. al. (2010), while playing the video games used in the study, players received messages from characters in the game which had an effect on players' perceptions of the characters' persuasiveness, trustworthiness, attractiveness, and likeability. Since humans learn how to perform a behavior from watching others acting out that behavior and receiving internal and external rewards, as they played video games, players observed how characters in the game performed and learned how to perform the same behaviors or, in another words, used video games characters as role models.

Ritterfeld and Weber (2006) examined how playing a video game could result in an educational outcome. From an educational perspective, when players play video games, they may enhance cognitive and metacognitive skills. "Cognitive skills included, for instance,

spatial abilities, linguistic competence, knowledge acquisition, decision making, and problem solving. Metacognition referred to the fact that humans are conscious about their thinking and be able to select, evaluate, and modify strategies for knowledge acquisition, problem solving or other learning processes" (Ritterfeld & Weber, 2006, pp. 403). Metacognitive skills helped human learn how to learn and the more we developed metacognitive skills, the more the learning increased.

Pillay and his colleagues (1999) studied the use of recreational computer games to facilitate cognitive process. As players engaged with the computer game and received complex graphical and textual information, they could interpret information presented in the game and could make meaningful inferences from what they experienced. While playing and exploring the game, players needed to gather information, make connection between that information, and maintain it in memory in order to complete the game's task. "The recognition could be a purely visual object level or a more complex understanding of rules and principles implicit in giving information," (Pillay, Brownlee & Wilss, 1999, pp. 204).

Pillay et.al. (1999) further explained that this cognitive learning could be developed over time if players kept playing the game. "Playing recreational computer games involves encoding explicit information presented in the game and constructing internal representations. Initially, novice players would be reliant on surface features in their knowledge construction that, over time, would presumably become organized knowledge structures when prompted with certain precursors (Pillay, Brownlee & Wilss, 1999, pp. 205)."

In other research, Pillay (2002) tried to investigate the cognitive processes engaged by computer game players. He conducted the experiment testing the influence of two

recreational computer games on children's subsequent performance on computer-based instructional tasks. Participants were divided into three groups. Two groups played respective recreational computer games and one group was a control group. Then Pillay (2002) had all groups work on a set of educational tasks via environmental education software before comparing performance (speed and correctness of solutions) between groups. Pillay (2002) also examined the cognitive maneuvers engaged in to accomplish the tasks. The results showed that playing recreational computer games may positively influence children's performance on subsequent computer-based educational tasks, but the influence depended on how closely the game type matched the task in the educational assessment software.

Chuang and Chen (2009) also investigated computer-based video games' ability to facilitate children's cognitive learning compared to more conventional computer-assisted instruction. Children's learning achievement might differ depending on types of instructional delivery strategies. They conducted the experiment on third-grade students by dividing them into two groups. Each participant in the control group was given a computer-assisted instruction with a text-based format on a web page. The content of the computer assisted instruction was about fire-fighting including elements of fire, fire-fighting technique, and fire safety information. Participants in the experimental group, however, were asked to play a real-time-strategy-computer game called Fire Captain which provided similar instructional content about fire-fighting and fire safety. Players' objectives were to learn during a tutorial mission and put out a fire at the end of the mission. After participants from both groups finished their tasks, they were asked to take a quiz to test their learning achievements. The results of the test showed that participants who played the computer

game tended to achieve higher scores than participants who learned from computer-assisted instruction. Playing computer-based video games tended to improve players' problem-solving skills and recall processes because they encouraged players to memorize concepts and recognize those concepts when facing a problem, providing motivation to learn in an entertaining setting.

There are many reasons that support the use of video games in the teaching process. First of all, while playing video games, players engage themselves with the games, paying attention to the gameplay and enjoying the process at the same time. Video games motivate players to think, to solve problems and complete specific tasks in order to achieve the goals of each game. Since video games can raise players' motivation to engage with and attend to information, they could be used as a tool to fulfill the needs for informing, entertaining, and educating.

The use of video games in education can motivate students to learn and bring enjoyment to the learning process. Pive (2007) states that video games can be used to reach a new generation of learners since they are a medium that people in younger generations have used to interact since they were young. Instructors can provide a game to introduce a new learning topic, raise learners' interest in a specific topic and motivate them to achieve specific goals. For example, Raiff and Rapoza (2012) demonstrated that a video game could be used to motivate smokers on smoking cessation. They tried to determine whether video game-based contingency management (CM) could motivate smokers to quit smoking. Raiff and Rapoza (2012, pp.1453) described that "contingency management is an intervention that involves delivering incentives, usually money, to smokers based on objective verification of smoking abstinence." Through the use of surveys, they found that the video

game-based CM would likely motivate smokers to quit. Respondents also said they would recommend the game to a smoker who seeks treatment.

Video games not only motivate people, but also affect people in many other ways. According to Jenkins (2012), the key that shapes children's relationships with their bodies, tools, communities, surroundings, and knowledge is *play*. Most children learn new things from their environment while playing. They get the chance to experiment and explore their world with fun as the motivation. As they grow up, play can motivate other forms of learning. While they are playing games, the playful activities demand certain skills and practices that require players' engagement. Moreover, in the context of problem-solving and learning, play reduces the emotional stakes of failing. Players are encouraged to take risks and learn through mistakes, trials, and errors. After they discover new things by themselves, they learn to apply those discoveries in new contexts.

Video games offer simulation training which enhances the learning experience for learners. Jenkins (2012) explained that simulation is an ability to interpret and construct dynamic models of real world processes. Simulation expands people's cognitive capacity letting them deal with a large amount of information, experiment with more complex configurations of data, form hypotheses and test them against various variables in real time. Lean and his colleagues (2006, p.228) described that "simulation based-learning approaches aim to imitate a system, entity, phenomenon, or process." Simulations try to represent or predict the behavior of a specific issue or problem. McCall (2012) also did a study on simulation games and explained that "a simulation is a simplified working model of one or more aspects of the real world, especially systems and processes" (p.9). He defined the

meaning of a simulation game as a rule-based, artificial conflict or competition that simulates dynamically one or more real-world systems.

Parks (2008) compares simulation games to other game genres. Unlike other types of games, simulation games require players to engage in serious issues that involve relationships and responsibility. This leads to consequences based on the players' decisions. When people engage in simulations, they are put into an environment where the cycling of assimilation and accommodation occurred which involves a cognitive process. Therefore, simulations can be teaching tools because they initiate cognition. McCann (2009) stated that simulation games allow players to duplicate everything from the construction and management of cities and play the "god" role with the lives of virtual denizens which include pet games and vehicle simulation games such as The Sims, Nintendogs, and Grand Prix Legends. The simulation system can be used to teach humans to perform real-world tasks.

Because simulations are dynamic and are governed by systematic applications of grounding assumptions, they can be good tools for researchers to observe the properties of virtual worlds. Simulations also work through trial and error for users to try out various possible ways to reach the goals. Jenkins (2012) mentioned Colin's idea about the important aspects of simulation for learning that students find simulations more compelling than traditional ways of presenting knowledge and they can learn new things through their own discoveries.

Much research has been done to test the use of simulation games on various branches of education. Panoutsopoulos and Sampson (2012) studied the use of games in mathematics teaching. The objectives of the study were to provide the evidence for the

effect of a general-purpose commercial digital game on the achievement of standard curriculum mathematics education. *Sims 2- Open for Business* was chosen as a tool for this experiment. *Sim 2- Open for Business* is a commercial business simulation game. It requires data monitoring, strategic thinking, decision making and planning. The game allows players to set the price of products, hire employees and assign tasks to them based on their talents and interests.

In the experiment, participants were divided into an experimental group and a control group. Each group was asked to select a virtual enterprise and investigate the effects of actions in the game. They formulated hypotheses, tested them in the game, confirmed or rejected their hypotheses, explained the results, and proposed final solutions to solve the problem. There are two differences between the two groups. First, the experimental group was familiarized with the game before they were presented with the problem. Second, the experimental group was assigned a problem related to the management of an enterprise issue. On the other hand, the control group was assigned the role of a computer store's sale manager. The results indicated that participants from the experimental group outperformed participants from the control group in the achievement of general educational objectives.

Another interesting study on the use of simulation games in the learning process is in military education and training. Coleman (2001) states that the Navy and Marine Corps discovered the value of using commercial personal computer gaming technology to meet tactical training and concept analysis requirements. Many advantages of the use of commercial simulation games in military training were identified. PC simulation games offer accurate, realistic virtual operating environments. They make training efficient when the performance and appearance of military platforms, weapon systems, and sensors are

accurately and well modeled. PC simulation games provide selectable levels of game play. This function allows users to set the level of difficulty, and turn training into play. Multi-player modes in PC simulation games help players from different locations, such as players from a local area network, wide area network, or a home Internet connection, play together. Another crucial advantage from using PC simulation games in military training is that doing so minimizes maintenance and infrastructure costs compared to traditional training approaches. Moreover, tactical scenarios of PC simulation games can be developed, changed, and replayed, which support tactics instruction or operations rehearsal.

According to Jenkins (2012), video games can offer performance as an ability to adopt alternative identities for the purpose of improvisation and discovery. Game play encourages players to experience the virtual worlds with fictional identities and develop better understanding of their real identities, such as social roles. Gee (2003) writes about learning and identity from video games. “Video games recruit identities and encourage identity work and reflection on identities in clear and powerful ways,” (Gee, 2003, p.51). Players could project themselves into characters that they created giving them bits of their own personality and learning more about themselves. In some games, players get a chance to create their own characters. They can customize characters’ appearances, traits and backgrounds. These characteristics of players’ characters will affect how their characters interact with the world in the games and how the world responds to the characters. At the end of the game, after playing through levels and the development of the game’s story, each character becomes unique from characters built by other players showing their unique identities.

Players also inherited some traits and personality from strongly formed characters appealed to them (Gee, 2003). When playing video games, players often need to familiarize themselves with the characters that they are playing and to learn about the characters' personalities and their stories. This offered an opportunity for players to role-play other identities and learn more about other identities and develop their own. Jenkins (2012) stated that role playing allowed role players to envision and theorize about manipulating another world offering them the opportunity to understand the problem from multiple viewpoints, letting them find ways to solve problems, and be creative.

In short, the players project their identities onto virtual characters based on their own values and what they learn from the game about what would be the consequences of their characters' behaviors. With these senses of video games, people who play them are willing to see themselves in a new identity. They can learn about what kind of person they might turn out to be with the new identity. Moreover, these identities can act as a goal to drive people's motivation and effort to achieve them.

Multi-tasking is another skill that video games may help develop (Jenkins, 2012). Multi-tasking is an ability to scan the environment and shift the focus or attention to the salient detail at the moment. Jenkins explained that with digital media today, people respond to their environment by multi-tasking. They need to filter out other information surrounding them and sharpen their focus on the most salient details. While playing video games, players are bombarded with a lot of information, such as pictures, animation, soundtracks, and sound effects in the games. To reach the goal in a game, players need to maintain a mental picture of the information's complex relationships and adjust quickly to shifts in perceptual cues.

Gros (2007) also mentioned that while playing video games, players need to divide their attention to keep tracks of different things at the same time. For example, a video game named Space Fortress required players' attention on multiple demanding and overlapping component tasks (Maclin et.al, 2011). In the same time, players needed to control a flying ship, destroy an enemy's fortress, and identify nearby mines whether they were enemies or not by using radar monitor. Chiappe and his colleagues (2013) conducted an experiment to test whether playing action video games could improve multitasking ability. They compared the results of the pre-test and post-test from a control group that did not play action video games and experimental group that played them. Multi-Attribute Task Battery (MATB) was used for both tests. MATB consisted of the primary task focusing on tracking and fuel management and the secondary task focusing on systems monitoring and communication. Chiappe and his colleagues found that the experimental group got better score than the control group indicating that playing action video games enhanced participants' multitask ability.

From Jenkins's work (2012), video games can help players distribute their cognition which is an ability to interact meaningfully with tools that expand mental capacities. Cognitive factors partly determine, which environmental event, meaning, emotion, and motivating power can be acknowledged by the human brain. As they play video games, players form a mental map of what happened in the games caused by the player and non-player characters.

From all these opportunities and advantages they offer, video games have been considered as additional tools in various branches of education. History is one branch of knowledge that is difficult and unattractive to some people for various reasons (Glennw,

2011.) First, some think that everything about history is memorization. They do not get a chance to interact with the content of the subject and instead simply attempt to memorize everything they are told. Second, they do not get to learn about history from multiple sources of information. Some history classes just stick to a textbook and do not have other media such as educational videos about the subject matter. Third, the teaching methods used in a particular class might not be engaging or effective, and may even be disengaging and boring from some students' perspectives.

As it has been discussed above, using only traditional methods of teaching such as lectures and writing assignments might not be enough to engage students living in a participatory culture. Technology integration, such as the use of video games, should be brought into classes to motivate and inspire students to learn history.

Possible Barriers

There are many video games in the market, that give players the sense of historical atmosphere, but not every video game that has historical content can be used to teach history. The genre of video games, the game play, the length of time players play in a particular session, narratives, the accuracy of historical knowledge, the amount of historical content contained in the games, the image of using video games as teaching tools in instructors' eyes, and other elements can make it hard to use games as educational tools. Barriers found by previous researchers, who have studied the use of video games as a tool in learning and teaching history, are explored here.

Godfrey and Waddingham (2013), mentioned earlier, also encountered a problem with the game *Pharaoh.* They found that the knowledge development was less controlled

than conventional teaching, which made it hard to determine whether playing *Pharaoh* would extend historical knowledge. In conventional teaching, instructors have near total control over the topic from history that they want students to learn. However, since Godfrey and Waddingham used a video game that was already made for the market, which was not originally built to support players in an educational context, they had less control over the content that study participants were presented with than teachers in a traditional classroom setting would have over the content taught.

McCall (2012) identified problems of video games, especially the simulation genre, as a tool to teach history. First, simulation games found in the market are mostly made to entertain players and make a profit from sales. The primary goal of most games is not education, it is entertainment and, in a larger sense, making a profit for the companies that produce and sell the games. Therefore, historical content in video games might not go into details of history and might be intentionally inaccurate in order to make the game play more engaging or entertaining. Even game designers that intend to teach history through their games need to consider playability and comprehensibility as well, which may adversely affect educational value.

To make the game play engaging and entertaining, McCall (2012) said that video games often oversimplify historical content and leave out complexity and complicating factors. For example, *Civilization IV* focuses on building cities and leaves out city-level social dynamics and how each city fits together in the civilization. Sometimes video games offer many potential outcomes of historical events that did not happen in reality.

McCall (2012) illustrated the inaccurate elements in the game by giving an example from the game *Rome: Total War.* In the game, players took roles of one of three Roman

aristocratic families with their military units and tried to become emperor by conquering 50 provinces. In this case, players might perceive the story different from what actually happened in the history if they play as the other two families that did not actually won the war. With the game's misinterpretation of strengths and flaws, it could inspire students to ask questions about actual history. McCall (2012) added that the characters themselves have more power, roles, and responsibilities than their real, historical counterparts had. For example, in the game a military general has a 360° view over the battlefields and can zoom in and out whenever the character wants, something that would have been impossible for military leaders of the time.

The difference in narratives of the story in video games affects the process of history learning as well. Kee (2011) looked at three main genres of video games including action, simulation, and adventure as narratives in the game stories. The story of action games are marked by defined endings. This narrative has a clear goal, which is changing characters and events into something totally different. For simulation games, their narrative can be called ideological, which offers "variations of a single situation or parallel applications of the same rule" (Kee, 2011, p. 432). Simulation games let players explore multiple possibilities in a situation and give them more freedom to determine their goals. Lastly, in adventure games, the goal is to gain knowledge about the game world. This narrative involves a transition from ignorance towards knowledge, which is achievement of information and realization of meaning.

McCall (2012) states that we should see simulation games with historical content as interpretations of the past. Since each person's interpretation is shaped differently by one's sense of what are important or trivial motivating factors. Biases can be found in simulation

games containing historical content. Historians and game developers often pick only one aspect of history according to their personal interests, sense of importance, and access to historical evidence.

There is a narrative bias as well. Game developers may overemphasize the clarity of goals, choices and preferences for historical individuals based on the time they lived and their biographies. Šisler (2009) explores how Palestine and Israel were envisioned, represented, and constructed in video games. He found that representations of Palestine and Israel in mainstream video games often exploit cultural schematizations and clichés lacking of media critique and academic coverage. Particularly, video games produced in the United States and Europe represents the Middle East as an exotic, timeless and ahistorical entity. For example, Šisler (2009) mentions that in *Assassin's Creed* (2007), Arabs and Muslims are seen as the cultural *other* and embody cultural stereotypes. Moreover, Arabs and Muslims are often shown in video games as computer-controlled enemies, such as terrorists. Players usually do not get a chance to choose these characters at all. Mostly, the narrative and storyline do not depict civilians and do not explain the background behind the conflicts.

The amount of time players spend on the game is also one of the barriers. Video games today are quite complex and players often need to spend 10 – 200 hours to finish a game (Squire, 2008.) It takes quite a long time for players to absorb historical elements, receive a significant amount of historical knowledge, and finish a game.

Finally, instructors' perspectives on the use of video games as a tool to teach history might also be a barrier. Some instructors have not considered the potential of video games as a teaching tool at all (Godfrey & Waddingham, 2013.) In order to motivate learners to

learn history and enjoy the learning experience, instructors need to think about using new media like video games in teaching. In addition, instructors need to take an important role to guide and provide in-detailed historical knowledge, and lead discussion in class to help learning through video games yield the most effective results.

Genres of Video Games

From studies mentioned earlier, despite some barriers, there is still the possibility of using video games as an additional tool for learning history. However, as we know, there are a lot of video games out there. How many types or genres are there? Which genre has the most historical contents? And what genre of video games can be used to teach history? McCann (2009) stated that there was no standard for defining game genres, that there was no official list, and some genres are crossovers. He broadly grouped videogames into 9 genres based on gameplay interaction.

The first genre is *action games*, which require quick reflexes, timing, and decision-making skills including fighting games, platform games and shooting games such as Super Mario Bros, Street Fighter, and Call of Duty. Next, *action-adventure* games are games that contain quick actions and combat with puzzle solving and storytelling. It can be divided into two subgenres: stealth, which focuses on subterfuge and carefully timed attacks and survivor horror which is full of frightening, bloody, and gory environments.

McCann (2009) continued with *adventure games*. This genre is known as text-based computer games similar to choose-your-own-adventure-type books such as King's Quest. Next are *massively multiplayer online role playing games* (MMORPG). This genre involves a large amount of players and takes place in real time. McCann (2009) also identifies *role-*

playing games (RPG) as a distinct genre. RPG games are games in which a player leads a character through a story and enhance the character's abilities, skills, gear, and strength. This genre tends to take place in fantasy settings.

McCann (2009) next mentions the *music* genre. It contains rhythm- based, pitch-based, and memory-based elements. Some video games from music genre might require devices such as a dance pad to a replica guitar controller. According to McCann, the next genre is *simulation* games. This genre allows players to control aspects of a world, such as the construction and management of cities. Moreover, simulation games allow player to play a god-like role with the lives of virtual denizens. The genre also includes vehicle-based games. The *sports* genre reflects the real world of professional sports with varying degrees of realism. The last genre that McCann described in his work is *strategy* games. Video games from the strategy genre require careful thought and planning which can be turn-based or played in real time like board games.

ESRB Ratings

Usually, not only the gameplay attracts player to each video game, its content also keeps players entertained and continue playing the game. The content and story could be anything from saving a princess captured in the castle to surviving through zombie apocalypse, but not every element of the content suits for children of all ages. For example, an intense military- shooting game with the history of World War II would have blood and gore which was not appropriate for young children. To use video games as additional tools in class, teachers need to carefully choose video games that do not contain inappropriate content for learners according to their ages. The content such as violence, drug use, sexual theme, and strong language could affect the social and emotional development of children.

In this case, teachers need to consider the game rating systems that were created for parents to use as a guide to choose video games for their children and restrict sales of video games limiting children's access to age-inappropriate games. Among many rating system, ESRB rating is the rating systems used in the United States.

"The Entertainment Software Rating Board (ESRB) is the non-profit, self-regulatory body that assigns ratings for video games and apps so parents can make informed choices. The ESRB rating system encompasses guidance about age-appropriateness, content, and interactive elements. As part of its self-regulatory role for the video game industry the ESRB also enforces industry-adopted advertising guidelines and helps ensure responsible web and mobile privacy practices under its Privacy Online program," (About ESRB, 2014). This rating system was created in 1944 after researching and consulting with academic experts and parents. ESRB ratings include three parts. Each one consists of rating categories suggesting appropriate ages for each category, content description briefing the content of the video game, and interactive elements indicating interactive aspects of a product.

ESRB ratings are divided into seven categories consisting of Early Childhood, Everyone, Everyone 10+, Teen, Mature, Adults Only, and Rating Pending (About ESRB, 2014). Video games that get Early Childhood rating has the content that suits for young children. Everyone rating goes for games with content that is suitable for all ages. Everyone 10+ rating is similar to Everyone rating, but the content has more violence and suggestive themes. It suits for ages 10 and up. Teen rating is given to video games suits for ages 13 and up. The content of the game involves violence, suggestive theme, crude humor, minimal blood, stimulated gambling, and strong language. Mature rated games suits for ages 17 and up. The games include more intense elements than Teen rating such as blood and gore and

sexual content. Adult Only rating is for adults ages 18 and up. The content may have prolonged scenes of intense violence, graphic sexual content, and gambling with real currency. Lastly, Rating Pending rating is used for video games that have not yet assigned a final ESRB rating.

The ESRB rating sign is usually displayed on the front cover of the video-game package and the detail of the content is presented on the back cover (About ESRB, 2014). For the digital copy of the video game that players can download directly to the game systems, the ESRB rating is presented prior to download.

Video Game Platforms

Video game platform is one of the important aspects to consider for instructors who want to use video games in teaching history. Ether using video game created for educational purpose or general video games in the market, instructors need to know what kind of video game platforms that are available out there so that they can decide which one is proper for them. Nowadays there are many video game systems in the market. They have been developed over time to create better experiences in gaming and increasing the sales.

Video game systems have been developed up to eighth generation. Babb and Terry (2013) said that the first generation started with the success of the Magnavox system. A market for video games that could play at home started to boom with Atari, the 8-bit-graphic console in the lead. Video games in this generation were mostly similar to or replicate the popular games in video game arcades. In the second generation, video games started to develop genre categorizations in the same manner as books and movies. There

was the growth of home personal computer which turned into an important medium for video game play. This generation was also the birth of hand-held LED and LCD consoles.

In the third generation, the Famicon/Nintendo Entertainment System (NES) and GameBoy were released (Babb & Terry, 2013). These 8-bit consoles changed the trend from arcade-style games to the physical and interface characteristics. Nintendo still dominated the video game market in the fourth generation with its Super NES, Sega, and Genesis. The quality of graphics and sound in most CPU processors were increased up to 16-bit. Sony fought back by releasing PlayStation console in the fifth generation. Nintendo responded with the release of Nintendo 64. 3D-accelerated graphics became common in both PC and console gaming in this generation. In the sixth generation, many well-known consoles was released including Sega's Dreamcast, Sony's PlayStation 2, Nintendo's GameCube, and Microsoft's Xbox. Consoles from this generation developed an online component for online playing with internet connection. Alternative controllers such as steering-wheels and stepping pads were introduced in this generation as well.

In the seventh generation of video game consoles, there were developments in many aspects (Babb & Terry, 2013). Some game interface required body motion and movements from players to interact with the games such as Nintendo Wii's controller, Xbox 360's Kinect, and PlayStation 3's Move. Game consoles also became the centerpiece of home entertainment and theater systems with their abilities to interact with other multi-media devices, access online network, and even be a disc player such as PlayStation 3's ability to play a Blue-Ray disc. On hand-held side, PlayStation Portable (PSP) and Nintendo' DS became a hit and was further developed into PlayStation Vita and Nintendo 3DS. With the advance improvement of 3D technologies, it allowed players to experienced 3D graphic

from 3D television by wearing glasses and even play the game in 3D directly from the Nintendo 3DS screen. Alongside with hand-held consoles, mobile devices such as Smart Phones, Android, IPad, Tablets were also used as game devices in this generation.

Lastly, in the eight generation that just has begun, game consoles even further focus on integration with other media, online playing, presenting high graphic and offering new interfaces (Ohannessian, K, 2014). With the “Share” button of PlayStation 4, players can share the gameplay video that they are playing. Xbox One offers multitasking ability allowing players to video chat, connect to people through social network, and play video games in the same time. Wii U has the gamepad with built-in screen to continue playing the game without using television.

Researches in Video Games and History Learning

Previous researchers have studied the possibility of using video games to teach history. Rejack (2007) explored the relationship between history and video games by discussing a first-person- shooting game as a form of reenactment. He cites Agnew’s (2004) statement that reenactment potentially offered a kind of historical knowledge distinct from the knowledge learned from traditional historical studies. The difference between reenactment and reading was that the former offers a physical or, in the case of video games, simulated physical experience from which one may gain historical insight, whereas history writing offers an intellectual engagement which is not physically rooted.

The experience of reenactment furthers historical understanding of a body-based testimony, which told the audience more about the present self than the collective past. Rejack (2007) further said that because of the continuing development of gaming

technology, the experience of playing a video game became increasingly similar to reenactment. Then he focused his study on a game that recreated battlefields in World War II Normandy in 1944 which embeds a player in historical events. He found that the game had a complex negotiation between the conventions of gaming and attention to historical detail. Trying too much to follow the historical authenticity, the game might fail to induce players through its own narrative and characters.

Godfrey and Waddingham (2013) explored the effectiveness of computer games, especially strategy games, to develop understanding, enjoyment, and teaching history. They apply Piaget's (1967) finding that concrete experience is important for children in order to assimilate information into their existing schema. Computer or video games can offer this experience to them since they ask for players' full attention, concentration, engagement and energy. They force players to invest in the learning experience. In addition, children are challenged to take responsibility for their own learning making them less passive learners.

In their experiment, participants, who were students in an urban lower school who already learned about Ancient Egypt, were divided into two classes, A and B. Participants from both classes were asked to complete pre-test and post-tests to examine and test how much factorial historical knowledge they have at the beginning and at the end of the experiment. In class A after finishing the pretest, participants in pairs played a strategy game based on Ancient Egypt, called Pharaoh (1998). On the other hand, participants in pairs from class B completed a research project incorporating presentation about ancient Egypt. Other than the pre-test and post-test, Godfrey and Waddingham also interviewed the sample of children both before and after the experimental session.

The result showed that participants from class B enjoyed the activity significantly less than participants from class A, which meant that participants preferred the strategy game than the conventional learning. On the knowledge aspect, participants in both classes embedded most of acquired historical knowledge. However, with the short period, they could not improve or extend their historical knowledge from the pre-test. Even though the post-test score indicated little improvement, most participants agreed in the interview that their knowledge has been developed. Teachers assisting in the experiment suggested that the developed knowledge might be wider than the topics covered in the post test. Godfrey and Waddingham suggest that participants had historical imagination to fill the gap of a narrative and the game allowed them to explore historical situations from the inside.

Another interesting experiment was conducted by Squire, DeVane, and Durga (2008). They examined the use of a simulation game as an alternative tool to study history. They stated that video games immerse learners in representations of the world and might provide interpretive information to understand history. Simulation games contained historical content and ideologies or ideas of how the world worked. They generated new social configurations, which showed decentralized, distributed, and informal natures of network communities. Their features include open- access, meritocracy, distribution, flexibility in time tables, and little or no limitation on players' activities.

The game in Squire et. al.'s (2008) study let players explore the relationship between geography, politics, economics, and history. It had a potential to help students develop fluency in world history and advance problem-solving skills. The participants were 5th and 6th graders and mostly African-Americans and some others from lower socioeconomic backgrounds. They were asked to participate in a year-long program, which bridged

learners' identities in and out of school through the game within a community of game experts.

By the end of the year, investigators found that participants developed both academic skills and productive identities as learners and producers as they tried to modify and create their own custom games. For example, some participants created a scenario based on ancient Rome, ancient Greece, the American Revolution, and the Iraq War. To do this modification, participants devoted their time researching and referencing historical information from different sources to build a detailed geopolitical model.

The practice of re-creating participants' versions of historical scenarios can be seen as *remediation* from Bolter and Grusin's research (1999.) Remediation is a representation of one medium in another medium. In other words, the content of the medium is borrowed and used in another medium, which sometimes have some changes from the original, or making a new version in a different way. Deuze (2006) added that *distantiation*, which is a manipulation of the dominant way to understand things inspired by the individual's private interests in order to deal with the main stream, should also be considered as well. From the study of Squire, DeVane, and Durga (2008), it seemed that the practice of remediation helps participants to extend and improve their historical knowledge since they needed to gather and learn about those historical details from many sources of information before re-creating their own versions of historical scenarios.

Rationale and Research Questions

Previous research on how people learn from playing video games and the use of video games for educational purposes has shown that people tend to learn and gain

knowledge from playing video games. Video games tend to motivate players to engage and have positive thoughts while playing and learning. Therefore, it is reasonable to assume that people may learn new knowledge, in this case history, from playing vieo games that contain historical content. However, there are various genres of video games, such as action, simulation, and sports games. For future instructors and researchers who want to use video games with historical content that already released in the market as tools in their studies, it would be better for them to know more about video games that contain historical content. Exploring ESRB rating of video games with history content would help both instructors and researcher find out whether the content of those video games appropriate for learners' age. Finally, studying on video game platform would suggest instructors and researchers which platforms that they might need to consider using in their projects. This study will explore the top ten video games of all time from each genre in three video game sites: www.ign.com, www.gamefaqs.com, and www.gametrailers.com in October 2013. It focused on genres of video games, the Entertainment Software Rating Board rating (ESRB rating), and types of video game platforms.

RQ 1: Does historical content differ among game genres?

RQ 2: Does historical content differ among ESRB ratings?

RQ 3: Does historical content differ among platforms?

Research Method

Dependent and Independent Variable Measurement

Dependent variable. Historical content was the dependent variable. Whether a video game contained historical content was determined by researcher's judgment on the video

games' trailers and reviews provided on IGN, Gametralier, Gamefaqs, and Youtube websites. Video games that had characters or events from the history of any country and any historical period of time were counted as games that had historical content. In addition, video games which had warriors such as knights, samurais, ninjas, magicians in general or any other elements that seem to come from a past time by which were not based on actual history were not counted as video games that had legitimate historical content since they were not involved with real events or persons.

*Independent Variables***.** Game genre was the first independent variable. With the nature and differences of how each game site divided genres of video games, for this dataset, the researcher divided video games into nine genres: Action, Adventure, Action-Adventure, RPG, Action-RPG, Simulation, Strategy, Music, and Sport. Action games emphasize physical challenges. Players needed to use hand–eye coordination and reaction-time. This genre includes Fighting, Platform, and Shooting games. Adventure games focus on an interactive story. As the protagonist of the story, the player explores the world inside the game and solves puzzles. Action-Adventure (including stealth and survival horror) has elements from both action and adventure games. Role-Playing Games or RPGs (including strategy-RPG) let players take the roles of characters in the game and narrate the character through a process of structured decision-making or character development. RPG games mostly have turn-based or menu-based combat. Action-Role Playing Games or Action-RPGs still keeps the elements from RPG games, but turn-based or menu-based combat is replaced with the direct control over the character instead. Simulation games lets players experience various activities copied from activities in real life (including racing games). Strategy games

focus on the decision-making skills of players. Music games require players to rhythmically interact with music. Lastly, Sports games provide simulation of traditional sports.

ESRB rating was the second independent variable. Researcher followed the ESRB rating which divided video games into seven categories: Early Childhood, Everyone, Everyone 10+, Teen, Mature, Adults Only, and Rating Pending. The video games that were not rated by ESRB or unable to identify were verified missing.

The type of video-game platform was the third independent variable. Video games were divided into six types regarding their platforms: console, handheld, phone, computer, multiple platforms, and unknown platform. Console games are played on game devices, such as PlayStation, Wii, and XBOX, that output signal from video games to display on a separate television. Handheld are played on lightweight and portable game devices with built-in screen, speakers, and controllers such as Nintendo 3DS, Gameboy Advance and PlayStation Portable. Phone games are played on mobile phones that offered game function to users such as IPhone and Android device. Computer games referred to video games played on a general-purpose computer. Multiple platforms referred to same video games that were released on multiple platforms. Lastly, unknown platform indicated the video games that their platforms were unidentified.

Sampling and Procedures

For this study, a content analysis was used to answer the research questions. The data of 270 video games (N=270) were collected from three game websites, which were www.IGN.com, www.gametralier.com, and www.gamefaqs.com during the month of October 2013 by the researcher. The researcher collected the data of top-ten-rated video

games from nine genres composed of action (including fighting, platform, and shooting games), adventure, action-adventure (including stealth and survival horror), action-role playing game or action-RPG, role-playing game or RPG (including strategy-RPG), simulation, strategy, music, and sports. The total number of video games of each genre was 30. For each video game, names, ranks, the Entertainment Software Rating Board (ESRB rating), platforms, trailers, and reviews of each video game were collected.

During the data collection process, there were some video games that appeared multiple times in the data set since more than one website rated the same video games to be one of the top ten video games in the genre. The video game that had multiple records could double the influence to the statistical analysis compared the effect of a video game that appeared in the dataset only once.

In order to prevent this problem, the researcher kept the video games data collected from IGN website and eliminated the duplicate video games that appeared again when collecting the data from Gamefaqs website. The data of video game ranked next after the top ten were collected from Gamefaqs instead. Then the researcher repeated the elimination process with the data collected from Gametrailers. Duplicate video games were eliminated and the video games ranked after the top ten were collected as necessary.

The researcher decided to keep the data collected from IGN websites and took off duplicate video games from Gamefaqs followed by Gametrailers based on the ratings systems and popularity of each website. IGN (2014) clearly stated in their website that their ranking and review went through a stringent editing process in order to maintain fairness, transparency, and accuracy before releasing on the website. Gamefaqs got its ranking from Metacritic.com which determines ratings by a large group of the world's most respected

critics, however, Metacritic does not state their methods as explicitly as IGN does. The researcher could not find an explanation of Gametrailers rating system on the website.

The researcher also found that there was a difference in rating scale among three websites. Both IGN and Gametrailers had the rating scale of 1-10 unlike Gamefaqs which had the rating scale of 1-100. To solve this issue, rating collected from Gamefaqs was divided by ten conforming from the scale of 1-100 to be in the scale of 1-10 so that the rating from Gamefaqs would be in the same rating scale as IGN and Gametrailers.

Reviews and trailers of sampled video games were used to determine whether they contain historical content or not by the researcher. Video games that had characters or events from the history from any country and any historical period of time were counted as video games that had historical contents. Chi-square was used as the statistical method to test the relationship between independent and dependent variables.

Results

The researcher used chi-square tests as the statistical method to answer research questions. For the first research question, chi-square test was performed to examine the relationship between genre of video games and historical content. The result indicated that there was a significant relationship between genre of video games and historical content[1] ($\chi^2 = 112.669$, $df = 8$, $p < .05$).

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[1] Since Sport games seemed to have the most influence to the result, the researcher tested the relationship between genres of video game and historical content again without including Sport games in the calculation. After chi-square test was performed, there was still a significant relationship between genres of video games and historical content ($p < .05$).

Among 270 sampled video games, 15.6% were video games that contained historical content. The genre of video games that had the most historical content was Sport (70%) followed by Strategy (43.3%), Simulation (16.7%), Action-Adventure (6.7%), and Action (3.3%). There was no video game that contained historical content from Adventure, RPG, Action-RPG, and Music genres.

For the second research question, a chi-square test was performed to examine the relationship between ESRB rating and historical content. The result showed that there was a significant relationship between ESRB rating and historical content ($\chi^2 = 24.573$, $df = 3$, $p < .05$). The ESRB rating that had the most historical content video games was Everyone (34.9%) followed by Everyone 10+ (22.2%), Mature (8.5%), and Teen (7%). Among sampled video games, there was no video game that received other ESRB ratings[2].

Lastly, for the third research question, chi-square test was performed to examine the relationship between the type of platform of video game and historical content. The result revealed that there was a significant relationship between the type of platform and historical content ($\chi^2 = 10.672$, $df = 4$, $p < .05$)**.** The type of platform that had the most historical content was computer (33.3%) followed by multiple platforms (15.5%), console (13.1%), and handheld (6.7%). There was no video game that contained historical content from phone platform.

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[2]For the standard chi-square test, each expected count value in the table should be greater than 1 and no more than 20 percent of the expected counts in the table should be less than 5. However, some of the crosstabulation analyses produced expected value less than 5. There are methods that can deal with low expected cell counts such as Fisher's Exact Test and Tree analysis. The researcher decided to test the relationship between genres of video game and historical content and the relationship between ESRB rating and historical content again by using a quick answer Tree analysis. For the first research question, genres were grouped into three sets: (Adventure/ Music RPG/Action-RPG), (Simulation/Action-Adventure/ Action), and (Strategy/ Sport). The result came out that Strategy/ Sport still had the most historical content ($p < .05$). For the second research question, ESRB ratings were grouped into two sets: (Mature/ Teen) and

Discussion

The study's results revealed answers of three research questions. Answering the first research question, the genre of video game that contained historical content most was Sport. When thinking about history, one might assume that Strategy or Simulation genre with the story about warfare or civilization would be the genre that had games with historical content the most. Surprisingly, sport games had more historical content games than other genres since many sport games had characters and sport teams based on famous athletes and teams in real life. For instance, from the data set, a soccer game called *FIFA 14* offered a game mode named the FIFA Ultimate Team, which allowed game players to choose classic characters from different eras of soccer such as Dennis Bergkamp to build their own ultimate team. With this soccer games, players would learn more about soccer clubs and players in history. As players played the game, they might memorize this information and then recognize it when they encountered this information again in other contexts.

On the second research question, the result indicated that ERSB rating that had the video games with the most historical content was Everyone. This outcome may be viewed as encouraging for instructors and researchers if they decided to choose a video game released in the market to use in their teaching and experiments. Since participants in classes and experiments could be younger children, it would be better to use video games with a rating

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(Everyone/Everyone 10+). The result still came out that Everyone rating still had the most historical content ($p < .05$).

suited for any age group. Games rated Everyone do not include adult content or themes, such as graphic sex, violence, or gore.

As for the last research question, the result revealed that the platform that had video game with historical content most was the computer. This information would be useful for instructors and researchers. It would be more convenient to use a computer game to conduct experiments and teach history in class since computers are more familiar to the general public than specific video game consoles or handhelds. Most research facilities and schools already have computers or even entire computer labs so it there would be computers available for doing a research or teach the class. Using video games from other types of platform would also require more funding for instructors and researchers to obtain game devices.

With the information obtained from this study should be useful for future research on using video games and history learning. The genre that had video games with history content the most was sport, however, this genre might not be the best genre to enhance learners' academic performance. Some other genres might be able to provide players more historical content than other genres of video games through the uniqueness in the stories and gameplay while providing enjoyment through the playing process.

As mentioned earlier in Kee's research (2011), different genres had different narrative and gameplay which might yield different skills and knowledge to players. Researchers can conduct an experiment to test which genre of game that participants learned the most about history. Researchers can divide participants into groups and each group play video games from different genres but have the same historical content then let them complete the knowledge test in the end.

On the aspect of video game's narrative, if the narrative has effects on the content of the game, players might receive information that diverge from accepted historical facts. Some video games offer alternate endings. Some video games are narrated by characters that go through missions or events that never happened in the history. For example, one historically one country may have won a war, but in the imaginary world of a game depicting that war, if the game was narrated by characters from another country, there may be a way for that country, in the context of the game, to win the war rather than the historical winner. This issue might lead to players' misunderstanding about what actually happened in history. In this case, history instructors need to check the accuracy of historical content of the video game that they picked as tools to teach history before using it. They should also encourage learners to learn more about what actually happens in history through other types of media after letting them play the game so that they learn about the accurate content.

Future researchers can use the result of this study to conduct experiments testing how much and how deeply people can learn about history through playing video games that have historical content. Researchers can choose video games from the genres identified as having the most historical content in this study as tools for future research. Researchers can let participants play a game that has historical content for a period of time then ask them to complete both the pre-test and post-test questionnaire about the historical content in the game.

Also, future researchers can conduct an experiment to compare the effectiveness of studying history the traditional way by studying from history books or learning about history from playing games. Future researchers may divide participants into two groups. They, first,

ask participants from both groups to complete a pre-test. They may assign participants in the first group to play a video game that has historical content and participants in the second group read history books, which have the same historical content as in the game, which participants in the first group play. After that, researchers can ask participants from both groups to complete the post-test that require historical knowledge from the content in both the game and book.

On the learners' side, the use of video games in history class may be entertaining and education with regard to historical content at the same time. Learners may be more motivated to study history and learn more about what happen by the history content provided in the video games. Furthermore, reading both traditional materials like history books and playing the video games that contain the same historical content, individuals may improve their academic performance in history classes.

From the video game designers' perspective, video games may be created for educational purposes. Designers can develop video games that can teach history better than video games that are currently in the market. Video games designers can create video games with better narratives and gameplay that can deliver historical content to players and, at the same time, encourage them to keep playing and learning.

Overall, there are still a lot of aspects of using video games in history teaching that have yet to be explored. In the future, when we learn more about the use of video games in education, we might see teachers use video games more widely in classes and more students would be more engaged in learning about history.

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