

# Teaching history with the video game *Assassin's Creed*: effective teaching practices and reported learning

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## ABSTRACT

*This article presents the main results of an exploratory study on the educational impacts of the video game *Assassin's Creed* during a history class in a high school located in Quebec, Canada. The main objectives of the research were to describe how the game was used in school, the benefits of using it in an educational context and identify the challenges of such a use of the game.*

## KEYWORDS

*Video games, education, teaching, history, students, *Assassin's Creed**

## RÉSUMÉ

*Ce texte présente les principaux résultats d'une étude exploratoire portant sur les impacts éducatifs de l'usage du jeu vidéo *Assassin's Creed* dans des cours d'histoire au secondaire au Québec (Canada). Les objectifs de recherche étaient de décrire l'usage de ce jeu dans les cours d'histoire, ses avantages pédagogiques, de même que les défis découlant de son usage.*

## MOTS-CLÉS

*Jeux vidéo, éducation, enseignement, histoire, étudiants, *Assassin's Creed**

## INTRODUCTION

This article presents the results of an exploratory study of the educational impacts of the video games *Assassin's Creed II* (Ubisoft Montreal, 2009), *Assassin's Creed: Brotherhood*

(Ubisoft Montreal, 2010), and *Assassin's Creed: Revelations* (Ubisoft Montreal, 2011). The study was conducted in 2018 in the province of Québec (Canada). Data were gathered from classroom observations, interviews with hundreds of students and four teachers, and survey questionnaires. Firmly grounded in the education literature, this study offers a thought-provoking reflection on how gaming, when used imaginatively to extract its full potential, can support innovative teaching practices.

The original motivation for this study was a meeting with a history teacher who contextualized and vivified his lessons by borrowing historical scenarios, events, and characters from *Assassin's Creed*. Rather than have the students play the game in class, the teacher spotlighted various concepts and elements in the game that resonated with competencies that are targeted in the reference framework of the Québec Education Program (QEP). This gave the students a more immediate and meaningful way to view history. Similar to films and video clips, gaming has introduced a novel way to breathe life into historical events and personages. Given the promising learning potential of this approach, and in order to build a pertinent sample for an exploratory study, we reached out to other teachers who used the game for classroom teaching. The research objective was to gain a deeper understanding of the pedagogical use of *Assassin's Creed*.

## BACKGROUND

*“From now on, digital technologies must be at the core of all our development efforts in the fields of economy, culture, education, health care [...] and public services”* (Gouvernement du Québec, 2018)<sup>1</sup>. Accordingly, educators must keep up with the new technological tools, and in our view, the video game is an excellent example.

One argument for the use of gaming for classroom learning is that technologies (and games) are a constant, undeniable fact of life (Lignon, 2017). This everywhere-ness has also stirred up its share of detractors, and some video games have been especially vilified in the media. For example, the merits of the *Assassin's Creed* series have been publicly debated time and again. The quarrels concern certain questionable portrayals of historical events such as the French Revolution (Gerbet, 2014; Ramasseul, 2014) as well as other inconsistencies such as anachronisms (Audureau, 2014). However, if we may set aside these objections for the moment, *Assassin's Creed* offers an engaging and immersive way to “experience” concepts and notions that are presented in the Québec history curriculum (Boutonnet, Joly-Lavoie, & Yelle, 2014).

For too many years, Québec's students have earned appalling scores on their

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<sup>1</sup> The Digital Action Plan for Education and Higher Education (Gouvernement du Québec, 2018) aims to “propel Québec into the future!” through a “digital revolution”.

provincial history exams (Gervais, 2011; Mathieu, 2013). In attempts to mitigate this disaster, history teachers are dropping their lecture-style teaching and switching to more interactive methods that are meant to engage students. The upshot is that *Assassin's Creed*, *Civilization III* (Firaxis Games, 2001), and *Minecraft* (Mojang, 2011) have entered the classroom (Germain, 2019; Shaffer et al., 2005).

## GAMING FOR LEARNING

Long before video games were invented, it was recognized that play was essential for learning. This is a well-trod path in the education field (Dewey, 1963; Piaget, 1959; Winnicott, 1975), and today it is widely agreed that regular play develops students' cognitive and social skills.

In more recent times, video gaming has kept pace with the astonishing leaps and bounds of technological advances. Gaming is now an everyday reality: Canadians spend an average of 10 hours a week gaming, and over one-third of all Canadian teenagers believe that “*video games are an excellent way to interact with family and friends*” (Entertainment Software Association of Canada, 2018).<sup>2</sup> Gaming can also serve learning in a myriad of ways. Among its many advantages, gaming offers new perspectives on events that would be otherwise inaccessible (Squire, 2003). Importantly, gaming has the capacity to motivate and engage students (Annetta, 2008). Over a decade ago, Leonard Annetta (2008) foresaw that:

If one pairs instructional content with certain game features, one can harness the power of games to engage users and achieve desired instructional goals (p. 237).

Amidst all this enthusiasm, Berry (2011) raises a cautionary finger to warn us of conflicts that may arise when gaming and learning are patched together. The problem lies in the difficulty of matching the game's components and game play dynamics with the constraints of an academic curriculum. According to Berry (2011), educational adaptation distorts games so severely as to transform their very essence.

Turning to the semantic designation of *gaming for learning*, it appears to have suffered a certain conceptual blurriness over time. Several different terms have been attached to the idea, including *educational games*, *games for learning*, *edutainment*, and *serious games* (Berry, 2011). In a systematic literature review, (Boyle et al., 2016) note that the terms *serious games* and *games for learning* are used interchangeably. However, according to Alvarez (2007), games have always been “serious”, in the sense that they have been used for training, education, or enlightenment down through the ages. Therefore, even when used for learning, *Assassin's Creed* cannot be called a serious game. Instead, it

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2 Posted Oct. 29, 2018: <http://theesa.ca/2018/10/29/essentialfacts2018/>

falls into the category of a commercial game, parts of which can be used for classroom learning (Boutonnet et al., 2014). It is up to the teacher to mine the educational gems in the game. This is what Watson, Mong and Harris (2011) observed in their case study on the use of gaming to teach a high school history class about World War II. In this case, the teacher exploited the game's "teachable moments" to motivate the students and promote student-centered learning (Watson et al., 2011).

In the literature, the theoretical bases for *games-based learning* (GBL) are common to the concepts of both play and learning. In their systematic literature review, Hailey et al. (2016) summarize the impacts on students and conclude that GBL is potentially engaging—as a supplementary education source—for 6- to 12-year-olds who are at the declarative knowledge and content understanding stage. This finding is supported by two other systematic reviews of the impacts of gaming on students aged 14 and older (Boyle et al., 2016; Connolly et al., 2012). These reviews underscore the argument that the immersive context helps students acquire knowledge and understand content: "*In virtual worlds, learners experience the concrete realities that words and symbols describe*" (Shaffer et al., 2005). Nevertheless, while acknowledging the growing popularity of GBL, Hailey and colleagues (2016) note the lack of empirical evidence on its academic value.

As mentioned above, commercial games can lend themselves to learning. For example, the literature has repeatedly demonstrated the educational potential of the game Minecraft. Minecraft provides an open (sandbox) environment that lets players operate freely, without preset objectives or goals. A Québec study examined the use of Minecraft for teaching the QEP cross-curricular competencies (Parent, Karsenti, & Bugmann, 2019). The results showed marked improvements in motivation, collaboration, and math skills (e.g. Karsenti & Bugmann, 2017). However, we must keep in mind that in order to realize its full educational value, the game should be thoughtfully incorporated into meaningful learning situations (Andlauer, Thiault, & Bolka-Tabary, 2018).

In like manner, *Assassin's Creed* has educational potential, but again, only as long as the teacher extracts situations and content that foster reflection and the acquisition of declarative knowledge.

## HISTORY DIDACTICS: AN OVERVIEW

The content of school subjects draws from the sciences on which they are based. Although history courses are not meant to train future historians, the two domains should not be viewed as silo concepts: in the classroom, the historical approach is transmitted in the form of historiographical thinking<sup>3</sup> (Martineau, 2010, p. 35). Historiographical thinking is the ability to use reason to construct a historical narrative

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3 Sometimes referred to as *historical thinking* (see Éthier, Lefrançois, & Demers, 2014).

by comparing sources, avoiding biases, and proposing reasonable explanations based on documentary evidence (Fallace & Neem, 2005, p. 331).

In a high school history class, historiographical thinking is applied when students are asked to use various sources and reflect on them. In this sense, history may be taught through a variety of forms of *profane rhetoric*<sup>4</sup> (also called *lay rhetoric*).<sup>5</sup> Examples include television (Côté & Lanoix, 2018), novels (Bélanger & Moisan, 2018), and of course, video games (Dor, 2018; Émond, Trempe, & Lanoix, 2018). Under this approach, instead of preventing exposure to sources that could be qualified as partial or subjective, it would be more productive to have students consult diverse sources and compare them in terms of quality. This exercises their critical thinking. Video games, and more particularly the Assassin's Creed series, are capital examples of profane rhetoric.

The vibrant features of video games allow an immersive "experience" of historical periods (to borrow from Shaffer et al., 2005) through capsules, storylines, and information. This applies to all types of video games, whether strategic games in real time (e.g., *Age of Empires III* [Ensemble Studios, 2005]), management games (e.g., *SimCity* [Maxis, 2013]), role-play games (e.g., *Dragon Age II* [BioWare, 2011]), or historical adventure games such as *Assassin's Creed* (Boutonnet et al., 2014). We now look at the potential educational impact of *Assassin's Creed*.

## LEARNING HISTORY WITH ASSASSIN'S CREED

The history learning potential of *Assassin's Creed* is hardly a new notion: many studies have assessed its benefits for learning notions and concepts in high school history courses.

First, we should point out that games like *Assassin's Creed*, being a powerful form of cultural expression (Compagno, 2015), can assist learning just as well as novels and films do. This claim is supported by Boutonnet (2016), who adds that it would be a shame to neglect this resource [*Assassin's Creed*], if only because it brings into question our ways of teaching and understanding history (p.127). For example, Rodriguez (2014) draws a parallel between the use of theatre and gaming to address themes covered in high school history courses: "*Just as Shakespeare's audience can investigate race, identity, and imperialism through Titus Andronicus, now the 21st-century audience can investigate these same issues in Assassin's Creed III and many other video games*" (Rodriguez, 2014, p. 254). Here, an analogy can be made to film, which has earned respect alongside other secondary sources, and which has been examined to distinguish the real from the imaginary and to render the ideas more concrete (Marcus et al., 2018). Accordingly,

4 Profane history, as opposed to scholarly history, is conveyed by various media and may present either a simplified or altered narrative (Éthier, Lefrançois, & Joly-Lavoie, 2018).

5 E.g., Review: *Rhetorical Analysis of Scientific Texts: Three Major Contributions* (Lay, 1995).

Yelle and Joly-Lavoie (2017) suggest that because *Assassin's Creed* is full of historical information, cinematic clips could be extracted and used just like a film in class.

As a simulation game, and more particularly a realistic reconstruction game, *Assassin's Creed* presents past events and people with a high-quality visual fidelity that appeals to and engages players (Chapman, 2016). However, this type of simulation may not deal well with ambiguity or uncertainty (Chapman, 2016). It is therefore essential for the teacher to act as a guide (see *Teachable Moments*, Watson et al., 2011). In general, video games settle on a compromise between reality and the constraints of game play, including technical and playability issues (Balela & Mundy, 2011). In addition, *Assassin's Creed* contains some glaring inconsistencies. For instance, the game is polychronous, which refers to the presence of diverse elements that are chronologically misplaced in order to simplify the presentation (Westin & Hedlund, 2016). In other words, events that took place during distinct time periods may be merged into a single scenario. To illustrate, in *Assassin's Creed Brotherhood*, the action is situated in the ancient Roman Forum, but there are some discrepancies with the expert knowledge in the field. Nevertheless, even though this polychrony undermines the objectivity of the historical narrative,<sup>6</sup> it inspires the imagination, gets players engaged, builds empathy for the characters, and improves the overall understanding of archaic lifestyles (Dow, 2013). The polychrony and other incongruities in *Assassin's Creed* can also be used as opportunities to teach and elicit critical thinking (and historical thinking) in history class (Berger & Staley, 2014; Seif El-Nasr et al., 2008).

*Assassin's Creed* presents a certain historical perspective (Shaw, 2015). Here again, the teacher plays an essential role: students must be pointed in the right direction so they can assess the quality of secondary history sources. The teacher should also be mindful of the technological aspects, including the tremendous operational speed that enables rapid information sharing and instantaneous gratification (Berger & Staley, 2014). According to Menon (2015), when it comes to telling historical tales, a fundamentally interactive process, video games have no peer. Nevertheless, Boutonnet (2013) deplores the fact that games and simulations, which would be effective for high school history teaching, are rarely used.

In summary, the overall aim of this exploratory study was to gain a deeper understanding of how *Assassin's Creed* is used in certain Québec classrooms. Our objectives were to contribute to the literature and add to the body of empirical evidence on this topic. More specifically, we wanted to 1) better understand how *Assassin's Creed* is used at school; 2) better identify the benefits for teaching and learning; and 3) better understand the challenges of this learning approach.

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<sup>6</sup> See a discussion of scientific versus profane history (Éthier et al., 2018).

## METHOD

The study participants were 329 high school students and four teachers at two Québec schools. Historical characters, buildings, and events from *Assassin's Creed* were used to teach history. We must specify that the participants did not play the game as such. Instead, the teacher used content from the game to enrich the lessons. Berry (2011) urges the need to understand certain issues in the relationship between gaming and learning. Despite some evident differences with the present study, notably the absence of direct gaming, we propose that our study contributes to a partial understanding of these issues. Our research approach is relevant in that it contributes to an understudied area that contains a notable lack of empirical studies of *Assassin's Creed* (Boutonnet, 2016). This article presents a largely reflective assessment of the extent to which games-based learning theory applies to students who do not actually play the game. We propose that students do not necessarily have to play the game in order to benefit from some educational impacts. It is assumed that the key learning moments are drawn from the game content, but are situated outside the game, under the teacher's control, whether they are teachable moments or various game elements such as trailers or cinematics (Yelle & Joly-Lavoie, 2017). Moreover, we are talking about a "mature" game that is designed for players aged 17 years and up. Because most of the students were younger than 17 years, they were not allowed to play this particular video game on the school premises.

Data were collected from questionnaires, individual interviews, group interviews, and videotaped observations. The anonymous online questionnaires included both Likert and open responses. All interviews were transcribed and rendered anonymous. The videotaped observations allowed obtaining a portrait of classroom teaching practices and student participation.

Two analyses were performed. First, we conducted a quantitative analysis based on descriptive and inferential statistics using SPSS 22. The results were supplemented by a qualitative analysis of the interviews and open questionnaire responses using content analysis (L'Écuyer, 1990; Miles & Huberman, 2003). A semi-open coding system was developed for the different teaching aspects observed in the videotaped classroom sessions. The individual and group interviews were subjected to a thematic content analysis adapted from L'Écuyer (1990) and Van der Maren (1996).

Over 81% of the students ( $n=269$ ) in the four classes responded to the questionnaire. Almost 63% of the students were 13 years old and 60% were boys. In terms of gaming at home, 89% played video games at least once a week and almost 23% played daily.

## RESULTS

The research focus was the use of Assassin’s Creed to teach history. When asked about their extracurricular experience with Assassin’s Creed, 55% of the students reported that they played (or had played) at least one game in the series (Table 1).

**TABLE 1**

*Students’ previous experience with Assassin’s Creed*

<b>Response</b>	<b>n</b>	<b>%</b>
No, I have never played it	114	44,9%
I used to play it, but I don’t anymore	82	32,3%
Yes, but not very often (less than once a week)	29	11,4%
Yes, sometimes (once a week)	15	5,9%
Yes, very often (every week)	14	5,5%

Table 2 shows that 96% of the students who had played Assassin’s Creed enjoyed it, while 78% said they liked it “a lot” or “really loved to play.” These results show high appreciation among the students, leading one to suppose that they would be amenable to the use of Assassin’s Creed to learn history.

**TABLE 2**

*Appreciation of Assassin’s Creed by students who had played it*

<b>Response</b>	<b>n</b>	<b>%</b>
Yes, I like it a lot (or liked it a lot)	71	50,7%
Yes, I really love it (or really loved it)	38	27,1%
Yes, I like it a little (or liked it a little)	25	17,9%
No, I don’t like it very much (or I didn’t like it very much)	5	3,6%
No, I don’t like it at all (or I didn’t like it at all)	1	0,7%



### **Gaming by gender**

We wanted to determine whether there were significant gender differences in playing *Assassin's Creed* for fun. The results of ANOVAs revealed significant gender differences in terms of playing and liking the game. Students who identified as masculine (boys) played or were playing it more than those who identified as female (girls), with a significant difference [ $F(1, 152) = 65.69; p = .000$ ]. Moreover, compared to girls, boys who played or had played it enjoyed it more [ $F(1, 138) = 29.70; p = .000$ ]. These findings are in line with the Annual Report released by the Entertainment Software Association of Canada (2018), which tells us that only 28% of teenage girls regularly play action or adventure games.

In short, the students who had previously played *Assassin's Creed* appeared to enjoy it a lot, which means it would be particularly appealing to this group. These results therefore indicate that the game has substantial entertainment value, but what about its educational value? To respond to this question, we set up an innovative context (an exploratory case study) and questioned the students about how the game helped them learn in class.

### **Varied game use across teachers**

We began by posing our first research question, which was how *Assassin's Creed* was used in class. We found that only the teachers actually “used” the game. The students themselves didn't play the game: instead they were presented with certain information that was depicted in the game, whether explicitly (e.g., historical characters and their actions) or implicitly (e.g., buildings, scenes). The classroom observations showed that the teachers used the game for teaching in varied ways.

Teacher T1 used lecture-style teaching to present clips, cinematics, and screenshots taken from the game. They were used to enhance discussions of historical events, geographic sites, and characters. A screen was placed at the front of the class and divided into two parts so that the course content could be compared with the game extracts. The aim was to use the game as visual support for learning the course content. This teacher did not bother to compare the game with other historical sources.

Below is an extract from a lesson with T1:<sup>7</sup>

Our character is going to meet, like in all the *Assassin's Creed* games, people who really existed.

[Screenshot of Benjamin Franklin in *Assassin's Creed*]

Benjamin Franklin, who, as we know, was a major actor in the American Revolution, and who signed the Treaty of Paris [...]. In the game, Franklin is there mainly to

7 All extracts from the questionnaires, interviews, and classroom observations have been translated from French.

guide our character and help him or her achieve the different quests.

[Screenshot of Samuel Adams in Assassin’s Creed]

Samuel Adams was one of the Sons of Liberty, and a very prominent political activist in Boston, the same city as today. This person here [pointing to the screen], Connor, will be forced to join the Sons of Liberty, the group who were the first ones to oppose the Red Coats [the British troops]. Remember that, during the conflicts, whether the Boston Massacre or the Boston Tea Party, the Sons of Liberty were always right in the thick of things (T1).

Teachers T2, T3, and T4, all of whom worked at the same school, used a similar presentation, but they made use of it somewhat differently. Like T1, they also used taped game clips, cinematics, and screenshots. The difference was that they used them in connection with historical thinking. Throughout the lessons, which included both lectures and group work, the teachers employed a dialectic, or an investigative inquiry. The aim was to point out the internal dynamics of the game and critique them in terms of historical accuracy. This method is practically equivalent to historical thinking, which was central to their history teaching approach. For example, in one session the class was studying the storming of the Bastille. The teacher reminded the class to apply the five “W” and one “H” questions: *who, what, when, where, why, and how* (2QPOC in French; see Richard, 2005). The teacher then presented extracts from a short video documentary in comparison to clips from Assassin’s Creed and tasked the students to identify similarities and differences between the two sources (Table 3).

**TABLE 3**

*Extract from T3’s blackboard teaching notes*

<b>How was the Bastille stormed?</b>	
<b>Documentary</b>	<b>Assassin’s Creed Unit</b>
<ul style="list-style-type: none"> <li>- The governor does not fire on the crowd.</li> <li>- A mysterious first shot is fired (3 min 30 sec).</li> <li>- Two men cut the drawbridge cables.</li> </ul>	<ul style="list-style-type: none"> <li>- How the assassins help the revolutionaries.</li> <li>- Two men (assassins) lower the drawbridge.</li> <li>- The people attack the Bastille.</li> </ul>

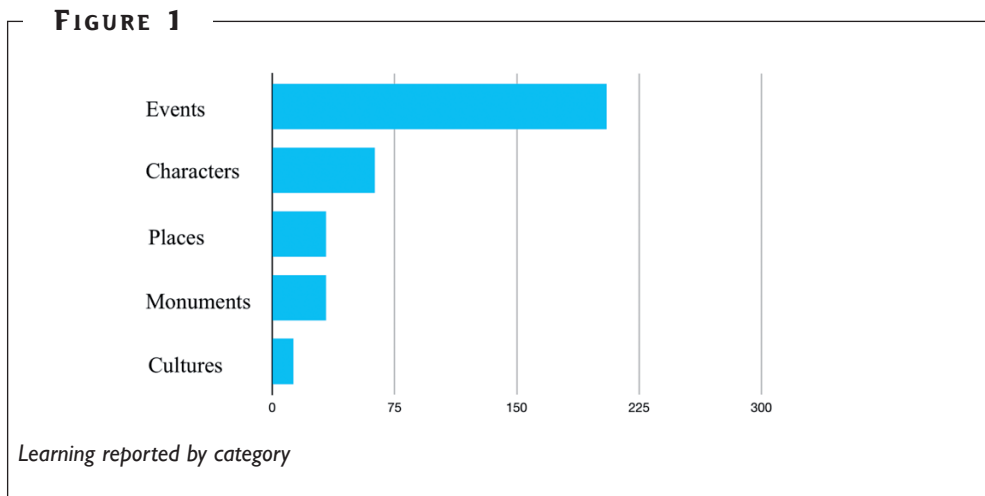
This comparison enabled the teachers to objectify the interpretation of the information and to introduce the concept of triangulation, or using a third source to corroborate (or refute) two sources that are partially or totally in disagreement. In addition, in the interviews, these three teachers said that they used elements taken from Assassin’s Creed in their assessment exams.

To reiterate, one thing that the four teachers had in common is that they never

had their students actually play Assassin's Creed. Instead, they selected specific game content, organized it, and presented it to the students in various forms. That said, many characteristics of the game would be expected to impact the students, particularly in terms of motivation and empathy (i.e., insights into how people lived in the past). We therefore gathered the students' perspectives on how the game influenced their learning.

### **Learning as reported by the students**

We asked the students to tell us what they learned in their course when the teacher used Assassin's Creed. A categorical analysis of the compiled responses resulted in five categories of learning associated with the use of Assassin's Creed: events, characters, places, monuments, and cultural aspects. Figure 1 shows the distribution of responses for the five categories.



Starting with the Events category (n=205), many students simply wrote “events” as a short response (n=56), but others were more precise. For example, more detailed responses were obtained for the Storming of the Bastille (n=43) and the French Revolution (n=31). For the Characters category (n=63), most students responded with the general term “people” (n=41), whereas others gave more specific answers, such as “Paul Revere” (n=11) and “the Borgias” (n=9). The Places category also received mainly general responses (n=33), but also the specific answers “Bunker Hill” (n=5) and “Boston” (n=4). The two last categories gathered mostly general responses, such as “monuments and buildings” (n=33) and “cultures” (n=13). We noted that almost all of the learning was in the form of declarative knowledge, except when it concerned cultures, which were less clearly defined and more open to interpretation.

### ***The multimedia aspect of video games: a vector for learning***

The teachers used the games mainly to portray historical eras, the people who lived then, and the events that took place. The results were what they had expected. As one teacher explained, “*It’s interesting to see how the developers made it so life-like*”, “*You can experiment. You can teach things differently*”. Although the students didn’t play the game directly, they still found the simulated scenarios appealing and engaging: “*I felt like I was right there*”. This indicates real immersion in the historical narratives, which the students enjoyed: “*It’s interesting to see how it was before. We realize that people dressed differently*”, “*You get a better idea of what happened. It’s more interesting*”. However, despite this immersive experience, the students were hardly naive about the truthfulness of the scenarios. On the contrary, with the teacher’s guidance, they applied historical thinking to distinguish established fact from imaginative rendering. When asked what they didn’t like about using Assassin’s Creed in class, most of the students said they were sometimes confused between actual history and the game’s virtual version. On the one hand, this confirms that historical thinking is a complex process, and on the other hand, it confirms the key role of the teacher, who must guide students to apply critical thinking and other related skills in order to develop historical thinking.

The game’s visuals also appealed to the students. This was quite a departure from the traditional textbook illustrations, as described by this student:

The images; it’s mostly the images. ... In the workbook, it’s (sic) paintings, but here [the video game] it’s as if I was right there. I’m less able to imagine myself in a painting than in an image from the game.

The students said there was a huge difference between a workbook and a video game. They reported that the game made the “*classes more interesting. It makes a change from our boring old workbooks*”. The game provided different forms of support: “*It’s different, it’s a game*”, “*It’s got all kinds of features, so it’s more interesting*”. Importantly, “*The images help us remember more*”. In other words, the images and video clips made the students want to learn because they felt that they were “*almost there, so we get more into it*”. For some students, compared to book learning, the game was “*another way to learn*”, because “*we see history from another standpoint than in the workbook*”. Furthermore, it was productive to associate the two learning approaches: “*If I read about it and if I see it as an image as well, then I have a screenshot in my head*”. Unlike with documentary films, which are often lengthy and therefore chopped up into shorter segments for teaching purposes (Marcus et al., 2018), the teacher can select game sequences in order to zero in on particular points while maintaining control of the narrative.

In the interviews, the students said that it was easier to learn when they worked with different kinds of materials such as music and images. This variety “*helped us*

*understand what happened in the past*". In addition, the game served as an effective complement to the traditional course materials: *"It's really great because you can review what you studied at school"*, *"The images help you memorize things. They help you remember what you saw in class"*. The students were able to recognize *"the game's images, the characters, the cities"* and this helped them *"study"* because *"you can review the ideas that we studied in class"*. The game also provided an opportunity to peek into the day-to-day lives of the characters: *"It's a beautiful way to live like the people did, for example, the people who went through a war"*.

Because almost 54% of the students had already played the game, and all the students knew about it, they felt a connection with their home life: *"You see, we're using things that we've seen outside of school ... because it's there in the manual"*, *"It's good to make connections between what we do at school and in our free time"*. Even their families recognized the benefits: *"It's cool when I tell them what I'm doing at school, and it's the same as at home"*.

With respect to motivation to learn and engagement in learning, the use of the game gave the students a thirst to know more about history. In other words, they were more curious: *"It makes me feel like learning more about the subject"*, *"It's more fun to learn history, because this way we make connections. They kind of occur to us"*. According to the students, the game had direct repercussions for their classroom behavior: *"I tend to listen more when it's more interesting"*. The students also reported that trying to distinguish between true and false facts helped them *"make connections with other things"*, for example, when they looked for information in order to triangulate. These *"connections"* made the course more vivid and enabled forming associations that helped them grasp how the world has evolved over time: *"I can separate the events in the game from what really happened. This helps me understand how places evolved. This helps me see that many things have changed over time"*.

### **Students' appreciation of the game**

In terms of appreciation, the results show that approximately 59% of the students found the use of the game very interesting or loved to use it in class. In contrast, almost 9% did not appreciate the fact that their teacher used Assassin's Creed in class (Table 4).

The responses indicate that the students generally appreciated the use of Assassin's Creed in class. It is worth noting that 21,5% said the use of the game was adequate as it is (no more and no less) and slightly over 52% wished they could use it more in class. On the other hand, only 9% wished that their teacher would stop using the game, which concurs with the percentage who said they didn't like using the game content in class (9%). Finally, 66% recommended that other teachers use Assassin's Creed in their lessons. However, this result must be qualified: of the students who recommended using the game (n=163), 60% suggested that it be used occasionally (*"It should be used*

sometimes”). The students therefore appreciated the game and recommended its use, but with the reservation that it shouldn’t take up too much class time.

**TABLE 4**

*Students’ appreciation of the use of Assassin’s Creed in class*

<b>Response</b>	<b>n</b>	<b>%</b>
Yes, I find it very interesting	91	36.1%
I don’t particularly care	81	32.1%
Yes, I love it	57	22.6%
No, I don’t like it very much	14	5.6%
No, I don’t like it at all	9	3.6%

### **Determinant teaching practices**

As mentioned above, the teacher’s role is non-negotiable: “*The game lets us learn in different ways, but we do research, we compare, we do other things, so it’s not as if we’re left on our own with the game*”. Given the teacher’s central role here, we sought to identify the students’ perceptions of how each teacher used Assassin’s Creed in class.

First of all, the results showed that teacher T1 employed lower-quality teaching practices compared to T2 and T3 [ $F(3,205) = 6.30; p=.000$ ], and slightly lower compared to T4. On the response to the question, “*Would you like to use Assassin’s Creed more often in class?*”. T1 earned a significantly lower average score than T2, T3, and T4 [ $F(3,148) = 9.23; p=.000$ ]. Moreover, to the question of whether they would recommend that other teachers use Assassin’s Creed in class, the responses were significantly more positive for the classes taught by T2 and T3 compared to T1 [ $F(3,183) = 4.26; p=.006$ ].

These differences across teachers appear to stem from their teaching practices, as observed in the videotaped classroom sessions. Recall that T1 used Assassin’s Creed for illustration purposes: T1 presented images and video clips that corresponded to course content. In contrast, T2, T3, and T4 got their students to exercise historical thinking and asked them to question and compare the information provided in this secondary source. The lesson to take away here is that it is *how* the teacher uses the game in class that determines the educational impact (positive or negative) on the students. It also influences whether or not the students will fully accept and appropriate this learning tool. This cross-teacher comparison allowed identifying the teaching practices that the students most appreciated and embraced.

## CONCLUSIONS

This exploratory study was conducted to examine how the video game Assassin's Creed was used in class to teach history to 329 high school students. The associated benefits and challenges were also investigated. This article presents some reflections on the relationships between the empirical study results and theories of games-based learning. These theories cannot be applied in the traditional sense, however, because the students who participated in this study never played the game directly in the classroom. Nevertheless, we believe that we have demonstrated the relevance of games-based theories insofar as they provide useful insights into the learning approaches and behaviors observed here. This study is innovative in that it contributes to fill a gap in the empirical literature on the use of the Assassin's Creed series in class. Like other games, this series sparked student interest and allowed them to escape from the boredom of their history textbooks to "experience" history as a dynamic process. Moreover, this new way of viewing history called on diverse academic and social competencies. Although the students did not actually play the game in class, we noted that they felt immersed, stimulated, and motivated, as corroborated in the literature on games-based learning. We also noted, and repeatedly, that the teacher's role was paramount for effective learning. For instance, teaching practices that called on historical thinking and metacognitive skills were associated with significantly more positive results compared to other practices. This is despite the fact that the students did not engage in direct game play in class. The reasons for this were the minimum required age for game play (17 years) and the social acceptability of a game with the stated goal of assassination. These non-negotiable obstacles should be considered in this reflection on the game's educational potential. In sum, the results contribute to the discussion on the use of gaming for learning, a controversial topic in some Québec schools. Although we are not in a position to formulate specific recommendations, we can confirm that Assassin's Creed has clear educational potential: students enjoy it and affirm that it is indeed a valuable source of historical knowledge.

## DECLARATION OF CONFLICT OF INTEREST

This study has not been influenced in any manner by the developer of the video game Assassin's Creed (Ubisoft, Montreal, Canada). In the interests of transparency, the authors have no conflicts of interest to disclose.

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