Computerized History Games: Narrative Options

Kevin Kee[1]

Abstract

How may historians best express history through computer games? This article suggests that the answer lies in correctly correlating historians' goals for teaching with the capabilities of different kinds of computer games. During the development of a game prototype for high school students, the author followed best practices as expressed in the literature on games for learning. The analysis that followed led the author to question the applicability of these best practices, and this literature, to history games for learning. He began the second iteration by asking, "What is it that we as historians want to teach?" After deciding on goals for history education, the author asked a second question, "How can these goals be best expressed in a game environment?" Different game genres afford different possibilities, and the author connects three epistemologies for history to three computer game genres, resulting in three options for history games for learning.

Keywords

Historians developing computer games for the expression of history must focus their attention on how their specific goals for history learning may be communicated through different genres of computer games. I reached this conclusion during the course of developing a prototype history role-playing game. The limitations of the prototype forced me to look beyond the literature on games for learning, much of which is concerned with science education, and focus on what we, as historians, are trying to teach. I conclude that our epistemologies for the teaching of history may be mapped to different game genres, resulting in three history game models. William Urricchio (2005) has recently suggested that "future developments" in the production and use of history games for learning will require that we "think of the rule systems that characterize

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[1]Brock University, Canada

Corresponding Author:
Kevin Kee, Department of History, Brock University, St. Catharines, Ontario, L2S 3A1, Canada.
Email: kevin.kee@brocku.ca.

various brands of history as constituting the potential rule systems for game play" (p. 336). In linking epistemologies for the teaching of history to game rule systems, this article attempts to contribute to our initial attempts to define the ways that computer games can be effectively used to communicate history.

These attempts are necessarily in their infancy. The computer, historians like to point out, is a recent invention. Its status as a ubiquitous research and communications tool is less than 20 years old. As a result, we are only beginning to discover the most effective ways to use it for scholarship and teaching. Computers are in a cradle stage of development, similar to the first century of the printing press or the decades that followed the invention of film (Murray, 1997). Gutenberg invented moveable type in 1455, but it took a half-century of experimentation—with legible typefaces, title pages, prefaces, and chapter divisions—to establish the conventions that would make the published book a coherent means of communication (Eisenstein, 1983). Similarly, it took decades before filmmakers began to effectively exploit the physical properties of their technology—such as the ability to move the camera, change focus, and edit the film—and develop the conventions that we take for granted today (Cook, 1990). Computers occupy a similar space at the beginning of the 21st century: We are only beginning to define the means of coherent communication that are uniquely appropriate to them.

I encountered my first computer as a teenager in the mid-1980s. My great-grandfather, a former university chancellor and lifelong advocate of education, had given my parents a small sum of money to "support my education." I remember the Britannica Encyclopedia salesman's visit, his brochures of seemingly endless miles of brown books spilling across our kitchen table. Instead, my parents opted for a Commodore 64. It was an effective word processor, but it excelled as a game platform. For years, I felt guilty about frittering away my great-grandfather's largesse. It turns out, however, that I was using my computer for what it did best—I was discovering the means of communication that was most appropriate to the machine.

As Henry Jenkins (2005) observes, computer games have become the "killer app" of home computers, the mode of expression that has manifested the potential of the PC. The gaming industry has quickly emerged as a force in the marketplace, with revenues in the billions of dollars. Researchers have taken note and focused considerable energy on social, cultural, and economic analyses of computer games. However, less attention has been devoted, as Jenkins points out, to the aesthetics of this new form of expression.

Nowhere is this more evident than in the discipline of history. In a field that has revolved around the use of words on paper—whether researching original documents, reading findings at conferences, or publishing conclusions in journals or books—computer technologies have been used in a conservative manner to preserve historians' textual culture. A small number of historians have suggested the potential of computer games for history learning. However, for most scholars of history, the computer remains a sophisticated word processor, and related technologies such as CD-ROMs and the World Wide Web continue to be employed as electronic publishing journals and archives. Games remain beyond the pale.

This will not do. We need to move beyond using the new technology of the computer to duplicate what we have been doing with the old technology of paper and

instead examine the potential of emerging interactive technologies such as computer games and how these might be harnessed to express what we, as historians, consider to be important. With Bass (1997), we need to ask, "Where are the critical and productive affinities between our methods and epistemology on the one hand, and the inherent structure and capabilities of interactive technologies, on the other?"

This kind of exploration is made more challenging by the absence of signposts to guide the way. As a result, those few historians who are interested in using games for the teaching of history have resorted to trial and error, developing applications with limited time and resources and then testing their effectiveness with students.[1] This was my experience as I explored how an ongoing history research project might be communicated to young people via a PC-based computer game. This article charts my initial process of trial and error and my resulting articulation of a new way forward.

Games for Learning: The Perspectives of Educators and Psychologists

Although historians have, for the most part, disregarded the potential of computer games for learning, scholars of education and psychology have given the subject significant attention—research on computer simulations and games for learning has grown to the point that a new body of literature is emerging. Some have questioned the appropriateness of "virtual" experiences for young people (Brooks, 1998; Cuban, 1986). Several researchers have also suggested that we have no clear evidence that these environments add value to young people's learning and have emphasized that experience with other media does not demonstrate any significant effects on learning (Brody, 1993; Clark, 1994).

More recent research, however, suggests the opposite—that games may be effective tools for learning. The rationale for using games in education goes beyond their ubiquity among, and appeal to, 21st-century youth—"digital natives" who have grown up with, and speak the language of, computers (Prensky, 2001; Roberts, Foeher, & Rideout, 2005). These technologies, as Gee (2003) has shown, are especially effective in allowing students to experience new worlds, where they can develop resources for problem solving and, ultimately, view the environment (in the game, but in other domains as well) as a design space that can be engaged and changed. According to Gee, simulations for learning should be devised so that a student's thoughts, actions, and values are that of a professional. A game for physics learning, for example, should place the student in the role of a physicist.

The emerging theory on games for learning has been built on several pillars, but few are more foundational than Seymour Papert's notion of "constructionism" (Harel & Papert, 1991). Building on the "constructivist" theories of developmental psychologist Jean Piaget (1950), Papert's constructionism contends that knowledge is not deposited by the teacher into the student—what Paolo Freire termed "banking" (Freire & Bergman, 1970)—but rather constructed in the mind of the learner.

Among history teachers, the notion of constructionism, and the "active learning" movement it helped spawn, are beginning to challenge the culture of text. A budding

interest in the potential of "electronic history" (Lutz, 2001; Seixas, 1999) has blossomed, in one case, into research on the potential for computer visualization in general (Staley, 2003). Building on the insights of a previous generation of history educators who successfully used board games to teach history, another important aspect of the inquiry has addressed the use of commercial computer games for history education (Squire, 2004; Taylor, 2003). Although the collaborators involved in the "Education Arcade" of Massachusetts Institute of Technology have developed a prototype history game,[2] the published work of members of this group has not focused on development of original history games, but on the reception of existing commercial titles by students in the high school classroom (Squire, 2004). Also, the researchers' disciplinary perspective has been education, not history.

Nevertheless, the literature provides a useful starting point. It underscores, as well, that research of this nature must go beyond inquiring into games; it must also involve building them. As Rockwell and Mactavish (2004) observe, to understand how digital multimedia such as games can be used to express ideas, we must engage in both "thinking about," through definitions, histories, examples, and theoretical problems, and "thinking with," using computer technologies to explore and communicate ideas. As Rockwell and Mactavish (2003) note,

> In a field like multimedia, where what we think about is so new, it is important to think-with. Scholars of multimedia should take seriously the challenge of creating multimedia as a way of thinking about multimedia and attempt to create exemplary works of multimedia. (p. 117)

Making Publics Digital: Revisiting the Dawn of the Renaissance in a Computer Game

Drawing on this literature, I developed a computer game for history learning, based on a continuing research project on the early Modern Period in Western Europe. The "MaPs" project—"Making Publics: Media, Markets, and Association in Early Modern Europe, 1500-1700"[3]—has drawn together 29 researchers, 7 postdoctoral fellows, and a host of graduate student associates. Together, we are revisiting the dawn of "modernity" to better understand the way that men and women began to associate with others of similar interests, in groups that we are calling "publics," and create Western culture.

Until 1500, the MaPs team points out, Western European society was organized hierarchically, a structure that was bolstered by a singular church, its connected cloisters, professional guilds, and family and landed wealth. Changes at the dawn of the 16th century challenged this structure; increasingly, Western European society became organized according to the choices of individual men and women. The church was shattered by the Reformation, the cloister's monopoly on learning was challenged by a burgeoning book trade, the professional guilds began to crumble with the rise of the bourgeoisie, and this merchant culture and its ethic of open competition opposed the comfortable aristocracy.

Out of this emerging ethic of choice came the making of publics—new ways of voluntarily connecting with others around culture, ideas, and tastes. Also, out of

these publics came the intellectual and artistic works that mark the Renaissance. Shakespeare is worthy of study, we contend, for the text of *Hamlet*, but also for the way that people, through the individual choices, assembled around the play. We are studying practices: around the printing press that distributed the play, the design of theatres to stage it, the performances, and the attendance at those performances of theatre-going publics that included aristocrats and merchants as well as prostitutes and pickpockets. In addition, we are turning our gaze from the past to the present and asking how our insights into the ways that people connected in the past may be applied to the new, technologically enhanced connectedness of today.

Specifically, we are exploring how students might be connected to the research project through the medium of a game. Rather than sifting through the published findings of our completed research projects and then reformulating the conclusions in a manner that might appeal to young people, we decided to draw our players into the work of historical research. Building on educators' and psychologists' conclusions concerning games for learning, we made Pandemic Studio's 2004 title FULL SPECTRUM WARRIOR our model and Gee our guide. Following Gee's seminal insights into how this commercial title "teaches" its players, our history learning tool for high school students was designed to be a role-playing game with a predetermined goal. The character, a pickpocket, would play the role of, and fulfill the goals of, a member of the theatre-going public in Renaissance London. He would be supported in this task by characters who would provide him with knowledge and skills at the moment that these were needed—a process that Gee (2005) has called "augmented professionalism." In this way, the student could develop an understanding of the formation of communities of interest in the 16th century.

In collaboration with a team of undergraduate students at the University of Waterloo, I planned the development of the prototype.[4] An interface was sketched, storyboards drawn, dialogue written, models crafted, and engine chosen—the KANEVA GAME PLATFORM (2006), designed for massively multiplayer online role-playing and first-person shooter games. The prototype dropped the user into St. Paul's Cathedral in 1600, where the player acclimatized to his world through meeting representatives of London society before beginning to pick the pockets of fellow Londoners.

The development team made remarkable progress within a short period of time. Although we were unable to complete the prototype before the end of the academic term, we produced enough to enable us to draw several conclusions. As a tool for history learning, the game prototype was effective in at least two ways. First, it underscored the differences between the past and the present via the nonplayer characters, one of whom welcomed the student into the game environment by declaring that the turn of the 16th century was "truly the golden age for the mind. If you want to be rich, work with alchemy and try to make gold from lead" (Leung, Oldridge, & Steinfeld, 2006, p. 5). Second, the prototype underscored the differences between past and present via the environment. London's St. Paul's Cathedral, circa 1600, provided an alternate universe, inviting the player's exploration.

At the same time, it was clear that our game goal did not fit with our pedagogical objectives. In the game prototype, the player's goal was simple: to pick the pockets of
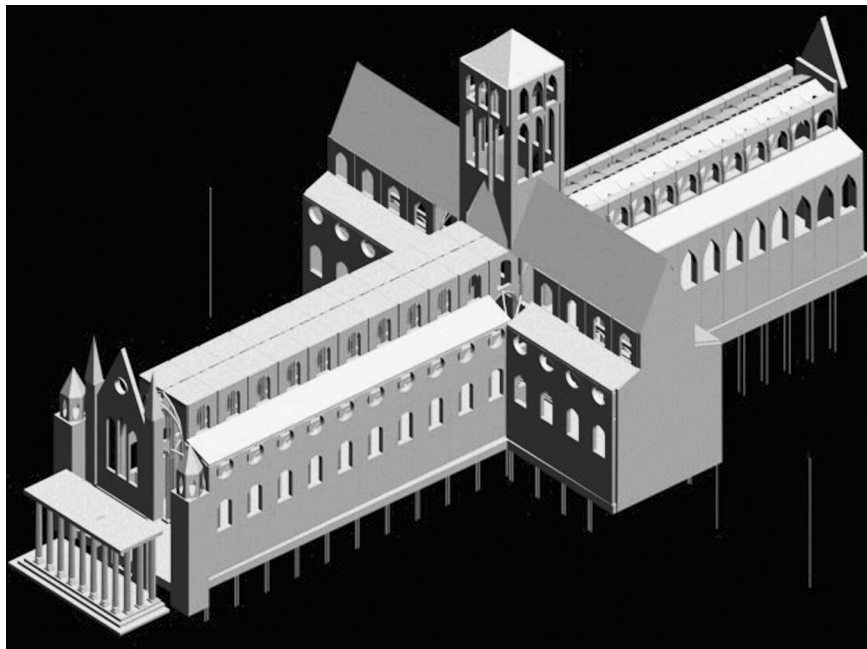
Figure 1. Screenshot of the Untextured Model of St. Paul's Cathedral, London

the Renaissance-era characters around him. In the pursuit of this objective, the player learned the practices of the various emerging "publics" of the period and in this way fulfilled part of our educational objective.

However, we had greater ambitions, especially in regard to drawing students into our research project. First, we wanted to communicate to students the hard work inherent to evaluating primary source documents in archives; instead, we had created an environment devoid of the cultural artifacts at the center of our study. A second iteration would need to give these artifacts prominence. Second, we wanted to underline the joy of assembling and articulating different explanations of the emergence of publics in the Renaissance; instead, we had created a singular narrative—succeed or fail at picking pockets. A second iteration would have to support player creation of content. Third, we wanted to highlight the importance of working in collaboration with our colleagues; instead, we had built a single-player environment. As a member of the development team noted later, "Learning about interaction is best done through interaction." We needed to find a way to support real collaboration among students. In sum, before we could begin our second iteration, we needed to articulate how our game goal could be united with our pedagogical objectives.
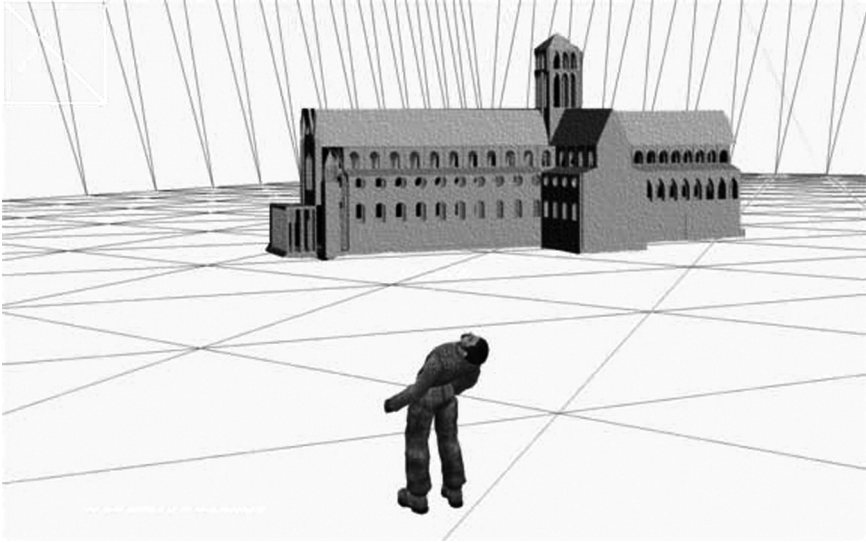
Figure 2. Screenshot of Player and the Untextured Model of St. Paul's Cathedral, London

Revisioning History Gaming

Step 1: Three Epistemologies for History

In contrast to my development of the first iteration of the game prototype, which began with a focus on the literature on games for learning, my development of the second iteration of the game prototype began with a focus on the literature on the objectives of history teaching. Before historians can effectively answer the question, "What are the affinities between our goals and the inherent structure and capabilities of games?" we need to answer the question, "What are our goals?"

As we might expect, considerable debate has revolved around the goals of history. In the late 1980s, Lynne V. Cheney, the former chairwoman of the National Endowment for the Humanities (and present wife of the vice president), touched off a firestorm with her 1988 report to the Congress of the United States and a later book titled *Telling the Truth: Why our Culture and Our Country Have Stopped Making Sense*. Cheney contended that American history education had been nearly destroyed by historians' obsession with issues of identity such as race and gender (Cheney, 1988, 1995). Much of her attack was focused on the "National History Standards," which had been drawn up for the teaching of history in American schools (Nash, Dunn, & Crabtree, 1997). Academics and commentators north of the border soon waded into the history education fray. Leading Canadian historian Jack Granatstein, for instance, proclaimed

that Canadian history was dead, "or perhaps on life support." The distinction mattered little to Granatstein and less, he argued, to most students. Young people, as far as he was concerned, had no interest in reading histories generated by scholars infatuated by historical minutiae. What was needed instead was a focus on unifying national narratives (Granatstein, 1998).

Much of the criticism of history education from commentators such as Cheney and Granatstein focused on content and transmitting to students the "correct" substance of the past. However, that is not the end of history education. Although few would argue with the importance of names, dates, and events, these give students only a partial understanding of the discipline of history. Recent scholarly research has focused on the necessity of supplementing "first-order knowledge of history" (content) with "second-order knowledge," which moves students beyond the names and dates of history to an understanding of the skills of historical practice—generating, corroborating, representing, and assessing interpretations of the past. This kind of history teaching gives attention to the concepts, methods, and vocabulary required to do history and underscores to students the challenge of knowing the past (Holt, 1990; Wineburg, 2001).

Building on this recent research, and summarizing the recent debates, Peter Seixas (2000) has identified three possible epistemological options for the teaching of history, which he calls (a) "The Best Possible Story," (b) "Disciplinary History," and (c) "Postmodern History." History taught as "The Best Possible Story," advocated by historians such as Granatstein, is a single chronological narrative of an evolution that aims to provide young people with a common understanding and cohesive social purpose (Granatstein, 1998). Critics of "The Best Possible Story" model, such as David Lowenthal, contend that the lack of consensus about the past renders such an approach intellectually impossible. According to these critics, the "Disciplinary History" model, which provides students with opportunities to evaluate competing accounts of the past, provides a more honest representation of the discipline of history as practiced by historians (Lowenthal, 1996; Schemilt, 1980). Advocates of "Postmodern History," such as Keith Jenkins, criticize what they view to be the naïve assumptions of the "disciplinary" approach; Jenkins has questioned the ability of historians to disinterestedly construct accounts of the past and of students to objectively assess these. Proponents of the "Postmodern History" model advocate a teaching of history in which students move beyond an assessment of the merits of an historical argument to the criteria underlying the historian's crafting of that argument, such as the decision to marshal or exclude evidence as it relates to the historian's thesis (Jenkins, 2003).

What Seixas called "Postmodern History," with its emphasis on a historian's place within the scholarly discourse and the use of artifacts to marshal an argument, seemed closest to what my colleagues and I were trying to achieve in our MaPs project and the concomitant MaPs computer game for students. At the same time, however, the "Disciplinary History" model and "The Best Possible Story" model have their place in history education. Students, like the rest of us, are drawn to a well-told narrative, and history told in this manner should not be excluded from their education. Similarly, students, like the rest of us, are drawn to engaging debates concerning our explanations

of the past, and a place for thoughtful argumentation of historical explanations subsists. History teaching has no single goal; our epistemology will change depending on the history, and the audience.

Step 2: Three Options for Game Narratives

In the second step of my development of the second iteration of our Renaissance history game, I focused on the literature on computer games. Having answered the question, "What do we as historians want to achieve?" I moved on to address the question, "What is the inherent structure, and what are the inherent capabilities, of games?" Here too we find little agreement. Discussion concerning the inherent structure of computer games has been dominated for the past several years by an argument, generating considerable heat, but little light, between "ludologists" and "narratologists."

The narratologists are researchers with a background in narrative forms such as the novel, theatre, and film who have heralded computer games as a new form of storytelling (Laurel, 1991; Manovich, 2001; Murray, 1997). In an attempt to work out the potential for emerging digital media, they have turned to modes of analysis concerned with these earlier, established narrative forms. The ludologists have countered that games are not stories, but rather a new form of entertainment that requires a new mode of analysis. Drawing on their backgrounds in computer science and design, they have argued for understanding the potential of computer games through a focus on the mechanics of game play (Frasca, 1999; Juul, 2005; Pearce, 2004).

The divisions between these two groups are clear in the abstract; when one analyzes games, however, the boundaries begin to soften. A computer game is a hybrid medium that blends together elements drawn from other narrative genres—text, images, sound—while providing the user the opportunity of playing through these environments as he or she wishes. By focusing on what she views to be the three main game genres—action, simulation, and adventure—Britta Neitzel (2006) has shown how principles drawn from both narratologists and ludologists can inform our understanding of the inherent capabilities of games.

Action games, the first genre we consider, employ a story structure marked by a defined ending. Theorist Tzvetan Todorov, who 40 years ago set out principles by which to define what he was heralding as the new discipline of "narratology," labeled stories that moved from a negative to a positive state "mythological narratives." The goal in this kind of narrative was the "changing of one term into an opposite or contradictory one" (Todorov, 1971). At the beginning of the story, a character has a plan; by the end, he or she has put it into effect. The mechanics of action games are similarly straightforward. Early theorists of game mechanics, including Roger Caillois and Hans Scheuerl, described defined activities that employed rule sets as "ludus" (Caillois, 1958; Scheuerl, 1975). As self-proclaimed ludologist Gonzaga Frasca (2003) points out, "ludus" environments provide the player with clear goals: "You must do X in order to reach Y and therefore become a winner. This implies that Y is a desired objective and therefore it is morally charged" (p. 230). Many of the most popular arcade and console games, from

Pac-Man to Doom, have followed this mythological ludus structure: It provides a straightforward recipe for computer game success.

Many of the most popular games for home PCs do not fit this format, however. The second genre we consider, simulation games, use what Todorov described as "ideological narratives," which employ "variations of a single situation, or parallel applications of the same rule." According to Todorov (1971), these narratives are ideological "insofar as it is an abstract rule, an idea, which produces the different adventures" (p. 42). The protagonist meets a character who offers help, but the protagonist refuses. The protagonist encounters a second character who offers help, but the protagonist again refuses. The protagonist encounters a third character, the exchange is repeated, and so on. The mechanics of simulation games exhibit elements of "ludus," but also its opposite: "paidia." Callois and Scheuerl contrasted the regulation and fixed endings of "ludus" to the free play and multiple possibilities of "paidia." If the former might be summed up in a game of basketball in a college gymnasium, the latter might be understood in a solitary child's bouncing of a ball in his or her driveway. Paidia structures, Frasca (1999) points out, "have no pre-designated goal. So no 'winning plot' is present, as in adventure videogames. The player has more freedom to determine her goals." In a simulation game such as SID MEIER'S CIVILIZATION IV (2005), for instance, the player's goal is to take over the world—ludus; how he or she does this, however, is up to him or her—paidia.

The third genre we consider, adventure games, eschew both a single narrative structure and a multitude of variations on a theme. Rather than following a series of steps or testing a variety of strategies, the player's goal in adventure games such as MYST (1993) is to gain knowledge about the game world around him or her. Todorov (1971) called these kinds of stories "gnoseological narratives." These involve a transition from ignorance toward knowledge—a realization of meaning. In these narratives, we know what has happened; instead, our interest derives from an entirely different question: What is the explanation of the event? Sometimes, the transition may be complete: A crime occurs, and the detective's investigation uncovers the identity of the criminal and his or her motives. Sometimes, the transition is incomplete: We seek the truth, but at the end are not sure if we have deciphered the *only* truth (pp. 40-41). The mechanics of this game genre are entirely paidia—to the point that some are loathe to even call these "games."

In sum, answering the question—"What is the inherent structure and capabilities of games?"—requires a focus on genre, narrative, *and* game mechanics. We can point to the potential for (a) action, mythological, ludus games; (b) simulation, ideological, ludus-paidia games; (c) adventure, gnoseological, paidia games. Although the boundaries among these genres are not impermeable, they provide a useful framework for categorization.

Step 3: Three Options for History Games for Learning

Bringing these three options for game narratives together with Seixas's articulation of three potential epistemologies for history, we can now consider the question with which we began: "What are the affinities between the epistemologies of history and the

	History Game Option 1	History Game Option 2	History Game Option 3
Historical epistemology	**Best Possible Story**	**Disciplinary History**	**Postmodern History**
Game genre	Action	Simulation	Adventure
Narrative form	Mythological	Ideological	Gnoseological
Game play	Ludus	Ludus-paidia	Paidia

Figure 3.

capabilities of serious games?" In the following pages, I show that our three episte-mologies match well with our three game genres: "The Best Possible Story" with mythological, ludus, action games; "Disciplinary History" with ideological, ludus-paidia simulation games; "Postmodern History" with gnoseological, paidia adventure games. Expressed in table form, the connection between historical epistemologies and game genres appears as follows.

Mythological, ludus action games correspond to Seixas's notion of history expressed as "The Best Possible Story." The goal of this kind of history game—Game Option 1—would be to bring the player from Todorov's "negative" to "positive" state. At the beginning of the game, the player would be unaware of an explanation of an historical event; by the end, he or she would have reached a degree of knowledge. The game mechanics would follow a ludus structure: A player would have to fulfill certain goals to reach the desired outcome. An action, mythological, ludus Renaissance history game would see the player take on the role of Johannes Gutenberg, in Mainz, Germany, in the mid-1400s, in a race against time to build a functioning printing press. For centuries, the student would be told, the Word of God had been written in a language that lay people could not understand. Gutenberg was going to change all that, but others were in the race as well. Could the student, in a limited period of time, find and correctly assemble the elements of a functioning printing press? A series of decisions would follow: Should the player use wood or metal for the moveable type? What proportion of what oils would yield the best ink? Historians are agreed on the central elements of the history of Gutenberg's invention of the printing press. By playing the role of the central character in this story, at a particular moment in time, the player would come to an understanding of the history of an invention that facilitated the emergence of new "publics" and altered the course of Western civilization.

This kind of history learning game would draw on the techniques of action games such as DEUS EX (2000), which, as Gee (2003) has shown, model good designs for learning. However, Gee's research has focused on the use of games for learning in math and science, not history. Are his conclusions as applicable to the humanities as they are to the hard sciences?

Science education emphasizes the acquisition of knowledge and the acquisition of the practices of the scientist. Similarly, humanities education also focuses on the acquisition of knowledge and the acquisition of the practices of the humanist. However, where science education addresses our explanations of phenomena in the present, drawing on the almost limitless resources of the present, history education addresses our explanations of phenomena in the past and requires that we use the limited evidence of the past, contained in archives. The history student's data set is necessarily flawed: Some documents have been preserved, while others have been lost. Moreover, due to our distance from the past, the remaining documents may be arranged, and interpreted, in different ways. A history taught as one possible story through a mythological, ludus action game would be useful in some situations. In the case of the MaPs project, however, students must be conversant with a multitude of potential interpretations of the past.

This multidimensional understanding of history—what Seixas calls "Disciplinary History"—acknowledges the lack of consensus about our understanding of the past, and provides students with opportunities to evaluate competing claims. "Disciplinary History" maps well to our notion of simulation, ideological, ludus-paidia games, with narratives featuring what Todorov (1971) described as "*variations* of a single situation, or parallel applications of the same rule" (p. 42). The "intermediary of an abstract formula" organizes these ludus environments around a goal, while incorporating paidia activities and providing the player with significant freedom to develop strategies to reach the objective.

An ideological ludus-paidia Renaissance history game—Game Option 2—might see the player test alternative histories of the invention of the printing press and the "publics" that resulted. Laurens Janszoon Coster in the Netherlands and Panfilo Castaldi in Italy have both been credited (though not convincingly) with inventing moveable type before Gutenberg. What would have been required for the printing press to have been invented somewhere else? In this "RenaiSims" game, the player would have access to a panoply of resources in a "tool set," adding or removing these from countries and cities, based on real maps of Europe, to determine the mix required to support the development of the press. The interaction of these resources—universities (supplying educated workers) or banks (supplying credit)—would provide the "abstract formula" organizing the environment; choosing the resources and arranging them in various ways would provide the player with a wide scope of action; responding to unforeseen events, such as the arrival of the Plague, would provide an element of unpredictability.

In many ways, this game would resemble SID MEIER'S CIVILIZATION IV. The most popular history game on the market (now in its 4th edition), it challenges players to nurture and extend their civilization until they dominate the planet. As Squire (2004) has shown, games such as these can be helpful catalysts to student learning of history. CIVILIZATION, and the educational strategy games it has inspired, such as Muzzy Lane's MAKING HISTORY: THE CALM & THE STORM (2006), focuses players' attention on choices and their potential outcomes, enabling students to play out various historical scenarios—could France have invaded Germany in 1938 and preempted World War II? Exploring multiple histories enables the student to develop conclusions

about the game, and history, as a system (Barab & Squire, 2004). Harvard historian Niall Ferguson (2006) has justifiably praised MAKING HISTORY: THE CALM & THE STORM for the way in which it challenges students to strategize as a leader of a European nation on the verge of conflagration. At the same time, he notes that "no one at Muzzy Lane pretends that their game precisely replicates the world in 1938 or 1939. Nevertheless, the parallel pasts the game conjures up have an undoubted intellectual value."

Indeed they do, but historians cannot be content to let it be the end of history gaming. History simulation games may give the player the impression that he or she has an accurate portrait of the past, in all of its complexity. "Postmodern History," in contrast, highlights our distance from the past and the difficulty of reconstructing an "accurate" picture of what has gone on before. To teach this kind of history effectively, we must do more than deliver to students the end product of our historical labor; we must induct them into the practice of historical research.

Students are apt to point out that their interpretations of the past are limited by their lack of time and experience. However, as the late Oxford philosopher Bernard Williams (2000) has observed, the work of humanists is always, and necessarily, contingent. He distinguished between the universality that scientists insist on when crafting their conclusions and the self-conscious position of humanists, in which, "when we reflect on our conceptualization of the world, we might be able to recognize from inside it that some of our concepts and ways of representing the world are more dependent than others on our perspective, our peculiar and local ways of apprehending things" (p. 482). This contingency should not be viewed as a problem, but rather as an advantage:

> Even if it were possible to give an account of the world that was minimally perspectival, it would not be particularly serviceable to us for many of our purposes, such as making sense of our intellectual or other activities, or indeed getting on with most of those activities. For those purposes—in particular, in seeking to understand ourselves—we need concepts and explanations which are rooted in our more local practices, our culture, and our history. (p. 483-484)

In keeping with Williams's observation, a game for students who are trying to make sense of the Renaissance should champion their perspectives. In the spirit of Seixas's "Postmodern History," it should enable students to choose, and potentially exclude, evidence, as they craft their own explanations of the past. This type of history maps well to adventure, gnoseological, paidia games. It draws on Todorov's notion of gnoseological narratives, which support the realization of meaning. We know that the printing press was invented; our interest is rather in the explanation of how this came to be. In this kind of game, the focus is on the development of that account; we are interested in the journey of explanation rather than the destination.

The mechanics of this kind of game—Game Option 3, above—would therefore emphasize the act of creation. Ludologist Jesper Juul (2006) has proffered the metaphor of language to explain a game player's experience. If we understand language as a process in which a speaker takes pleasure in combining words according to certain

rules of syntax, Juul suggests that we design games so that players can take pleasure in combining elements according to certain rules of combination. Avoiding strict goals in the ludus vein, such games would enable players to express themselves in a paidia fashion, according to their own choice. As Will Wright (2006) has observed and proven in his successful commercial titles, "Players love making content." Jenkins (2004) notes that Wright has frequently described "*The Sims* as a sandbox or dollhouse game, suggesting that it should be understood as a kind of authoring environment within which players can define their own goals and write their own stories" (p. 128).

A Renaissance history game in this vein would supply the player with a data set; it would also support the development of relationships with other players. A student would define his or her own interests within the context of a community of students, perhaps close at hand, perhaps a continent away, with whom he or she could create his or her own "public," which would collectively produce a work of art or an invention, such as the printing press. The tools at his or her disposal would be supported by the computer, but strangely limited, in the manner of the early modern period.

The game would support the student in his or her production of a cultural artifact—a digital printing press, for example. He or she would be supplied with access to digitized documents in an electronic archives, helping him or her to both draw closer to the actual art and inventions of the period while at the same time understanding these in the context of a time and place far removed from our own. He or she would witness firsthand the potential and the limitations of the archives. He or she would appreciate the manner in which he or she developed his or her cultural artifact and the different choices that he or she might have made. In this way, he or she would learn about the creation of the art and inventions of the Renaissance, but also about how researchers explain that creation. In short, the various acts of an historian would be ones that the student would make, and he or she would be making them in a community of other student-researchers, just as a scholar does today.

Step 4: Development and Testing

The development of a game such as this, presently underway, requires a significant investment in time and resources. A third iteration may require the parallel development of each of the three types of history game environments and a simultaneous testing, in these three prototypes, of the hypotheses suggested above. As Rockwell and Mactavish (2004) remind us, we will need to "think with" before we can be certain of the validity of our "thinking about."

This "thinking with" will require that historians developing games consider the other side of the coin: the manner in which these games are received by students. We will have to focus attention on the best potential for student appropriation of historical content, asking question such as the following:

(a) How is a student's understanding of history affected by the expression of history in visualized form, as opposed to text?
(b) What qualities of game characters are most effective in supporting student interpretation of content?

(c) Which prototype best supports meaningful social interaction, a key element of effective constructionist learning? and

(d) How might multiple formalisms in a simulation (virtual reality, video, audio, and text) compliment one another in these environments?

We will also need to examine how students respond to history computer games and the differences between boys and girls and learners of different abilities. For each of these subgroups of students (if indeed the manner in which they play the game is different), another set of questions will emerge:

(a) Which prototypes best support engagement for shorter periods of time, such as a 45-minute class period? and

(b) Which prototypes best support engagement for longer periods of time, such as home use?

And our scope must expand beyond the students to the classroom in which they are situated and the students with whom they learn. Which prototype best supports collaboration (both in class and online)? What are the benefits and the pitfalls of this collaboration? How do games complement or distract from other learning resources? What forms of assessment are appropriate for learning in games? Finally, and perhaps most importantly, we must turn our attention to the gatekeepers of the classroom and examine the viewpoint of teachers on the usefulness of games to support the learning of history. That is, however, another research project and another article.

Conclusion

The scope of the present research program, with its focus on the expression of history in action, simulation, and adventure game forms, is wide; fortunately, historians are a patient bunch. We know that it takes time to determine how best to exploit the unique properties of a new technology. Decades of experimentation followed Gutenberg's mid-15th-century invention of the printing press—only in the 16th century did the conventions of contemporary print culture emerge. As historians move beyond the textual culture that has dominated the discipline to explore how computer games may be used for communication and teaching, we will necessarily encounter more failures than successes.

In the future, we may find that the contemporary computer game genres of action, simulation, and adventure no longer hold; developments in PC-based gaming, augmented reality, virtual reality, and mobile gaming may create new game genres. By focusing on the core goals of history teaching, however, and determining how these goals map to the inherent narratives and game play of the digital environments, we will be able to thoughtfully respond to new technological developments. The history computer games of the future will be the result of collaborative exploration and development by communities of interest, including researchers and their students— a process of creation not unlike that which produced the most noteworthy artifacts of the Renaissance.

Notes

1. A JOURNEY TO THE PAST: A QUEBEC VILLAGE IN 1890/UN VOYAGE DANS LE PASSÉ: UN VILLAGE QUÉBÉCOIS À LA FIN DU 19IÈME SIÈCLE, developed by the author with Jamshid Beheshti and Andrew Large of McGill University, in partnership with Virtuel-Age International, serves as one example of the university-based development of a history computer game for education.
2. See, for instance, REVOLUTION at http://wwww.projectnml.org/revolution (accessed March 16, 2007).
3. The MaPs project is funded by a Major Collaborative Research Grant from the Social Sciences and Humanities Research Council in Canada, led by Paul Yachnin, Tomlinson Chair of Shakespearean Studies at McGill University. For more information, see http://making-publics.mcgill.ca.
4. Sam Leung was the project coordinator, Bradley Steinfeld the developer, and Cory Old-ridge the designer, supervised by Professor Kevin Harrigan.

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Bio

Kevin Kee, PhD, is associate professor and Canada Research Chair of Humanities Computing at Brock University, St. Catharines, Canada, and adjunct professor in the Department of Integrated Studies in Education, McGill University, Canada. He researches the design, development, and testing of simulations and serious games for history and history education.
Contact: kevin.kee@brocku.ca.